Universidad Rey Juan Carlos

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Departamento de Economía Aplicada I e Historia e Instituciones Económicas y Filosofía Moral.

The Cyprus Collapse;

The Island That Shook the Foundations of the Eurozone Economy.

Tesis para la obtención del grado de Doctor.

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Biografía

Daniel Fernández Méndez nació en Madrid el día 21 de agosto de 1985.

Daniel realizó la licenciatura en administración y dirección de empresas en la Universidad Rey Juan Carlos, en el campus de Vicálvaro. Los primeros años de carrera compaginó su afición a la historia y a la literatura española con sus estudios de licenciatura. A mitad de carrera se dio cuenta de que lo que realmente le gustaba era la economía y no la administración de empresas y empezó a leer por su cuenta varios autores relacionados con el mundo de la economía.

Cuando acabó la carrera de administración de empresas se dio cuenta de que no sabía nada de economía así que decidió inscribirse en un máster de dos años de economía aplicada impartido conjuntamente por la Universidad Complutense de Madrid y la Universidad de Alcalá de Henares. Después de un año en dicho máster se dio cuenta de que sabía muchas más matemáticas y dibujo técnico que antes pero apenas había adquirido conocimientos de economía.

En el segundo año de máster de economía aplicada decidió compaginarlo con el máster en economía de la escuela austriaca dirigido por el profesor Huerta de Soto en la Universidad Rey Juan Carlos. Después de años buscando aprender algo de economía finalmente consiguió su cometido, solamente no sabía dónde buscar.

En cuanto acabó el máster de economía austriaca surgió una oportunidad de dar clase en una pequeña universidad de una de las provincias más pobres de Ecuador y sin pensarlo dos veces hizo la maleta y se fue en busca de su sueño, ser profesor universitario.

Después de un año y medio dando clase en Ecuador se mudó a Ciudad de Guatemala, donde se encuentra actualmente trabajando para la Universidad Francisco Marroquín como profesor a tiempo completo de la Facultad de Ciencias Económicas y como director de UFM Market Trends, un instituto de análisis económico que busca emular el observatorio de economía que Hayek y Mises pusieron en funcionamiento en la Viena de los años 20s.

Resumen en español

1. Antecedentes

El presente trabajo pretende establecer los principios por los cuales la economía chipriota terminó sucumbiendo en 2013 y necesitó un rescate que fue proporcionado por los socios europeos y el Fondo Monetario Internacional.

Aunque observamos varios intentos de la academia por establecer los motivos que llevaron al colapso chipriota, también observamos varias carencias en los aportes de estos intentos.

En primer lugar, no hay ningún trabajo que pretenda explicar parte de los desequilibrios de la banca chipriota como herencia de las medidas de represión financiera que estuvieron presentes décadas antes de la supuesta liberalización que ocurre en 2001.

Tampoco encontramos en la literatura existente una explicación de la crisis chipriota como una sucesión de *carry trades* promocionados desde el Banco Central de Chipre y más tarde desde el Banco Central Europeo.

La mayor parte de análisis sobre la caída y posterior recuperación de la economía chipriota han sido realizados por autores chipriotas. Aunque evidentemente el contenido de un trabajo es lo que debe ser evaluado a la hora de juzgarlo y nunca su procedencia, vemos un claro sesgo anti-rescate en todos los trabajos citados e investigados. Esto puede ser debido a que el rescate chipriota es un asunto demasiado actual para ser objetivamente tratado por autores que han sufrido de primera mano el impacto de las medidas adoptadas en Chipre y esto podría estar nublando su juicio como investigadores.

La academia chipriota, la que más tiempo le ha dedicado a analizar las causas del colapso de la economía de Chipre, apenas ha subrayado el hecho de que gran parte de los desequilibrios son heredados de la época anterior en la que existía una represión financiera, con tipos de interés máximos y estrictos controles de capital.

Las medidas de represión financiera que duran desde momentos antes de la independencia de Chipre, 1959, hasta el periodo que se suele denominar de liberalización financiera (como vamos a ver más adelante, como mucho es una liberalización parcial y miope) en 2001, provocan una asignación de capital muy ineficiente, con muy poco capital destinado a maquinaria y una gran cantidad de capital asignado a construcción y bienes raíces.

Adicionalmente no se encuentra en la literatura una comparación entre los programas de rescate a países helenos. Los programas de rescate extendidos a Grecia y Chipre nos permiten introducir esta variable (programa de rescate) en unas poblaciones con una cultura e instituciones muy parecidas. Esto viene a desmentir la crítica de la necesidad de un euro a dos velocidades (romper el euro) o de que los griegos no pueden estar en las instituciones europeas por temas culturales. El programa de rescate funciona en Chipre y no funciona en Grecia simplemente por el hecho de que Chipre tuvo la pretensión y la capacidad de implementarlo y Grecia no.

2. Objetivos

El objetivo primordial de este trabajo es conocer las causas y consecuencias de la crisis chipriota acontecida en 2013. Para este objetivo nos planteamos una serie de sub-objetivos siempre con la finalidad última de responder al objetivo principal.

El primer sub-objetivo es conocer la historia de Chipre y sus vínculos con la historia griega. Temas como la separación de la isla en dos o la violencia inter-comunal que dio lugar a que Chipre se encuentre bajo dos Estados se convierten en el primer sub-objetivo de este trabajo.

El segundo sub-objetivo es conocer la historia financiera griega y su relación con Chipre. La historia moderna de las cuentas públicas del Estado griego y su cercanía institucional con la parte griega de la isla de Chipre podrían arrojar algo más de luz a los problemas chipriotas actuales.

El tercer sub-objetivo es hacer un análisis de las fortalezas y deficiencias del Euro. Se pretende establecer las principales deficiencias de diseño de la moneda común europea y establecer de qué forma se podrían haber evitado o se pueden evitar incluso a día de hoy.

El cuarto sub-objetivo es construir un esquema teórico capaz de dar respuesta a los problemas que ha afrontado Chipre desde el año 2001. Nos proponemos vincular teóricamente los incentivos proporcionados desde el banco central a las decisiones financieras de familias, empresas y sector financiero y como esto termina distorsionando la estructura de capital creando estructuras productivas no sostenibles en el largo plazo.

El quinto sub-objetivo será analizar, en términos de *carry trades* libres de riesgo promocionados desde los bancos centrales, las decisiones financieras que llevaron en un primer momento a crear una burbuja inmobiliaria en Chipre y más tarde a que el sector financiero chipriota se involucrase en lo que se ha venido a denominar el mayor *carry trade* de la historia, esto es, a tomar posiciones largas en bonos soberanos de países con problemas financieros en la eurozona y posiciones cortas en los bonos soberanos de países financieramente sólidos.

El sexto y último sub-objetivo será analizar los programas de rescate extendido a los países helénicos. La meta será comparar los programas de rescate a Grecia y a Chipre tanto en su redacción como en el cumplimiento de los puntos pactados.

3. Metodología

La metodología a seguir en el siguiente trabajo será la siguiente; primero se analizará la historia de Chipre y veremos cómo fue y es hoy todavía un territorio helénico más. A continuación, analizaremos la historia de las finanzas griegas y veremos cómo los problemas chipriotas en realidad pueden ser vistos como un capítulo más en la historia de los default y problemas financieros griegos. Acabada la parte histórica empezaremos la parte teórica en la que se analizan los principios básicos de finanzas y su conexión con la teoría de capital austriaca, analizamos los incentivos introducidos por el sector público que conducen a una mala gestión del sistema financiero y a su vez lleva a que se desate una crisis económica. Finalmente, y una vez establecidos los antecedentes históricos y la teoría a utilizar, pasamos a analizar en profundidad los eventos acontecidos en Chipre. Analizamos la mala herencia de la época de la represión financiera y su vinculación con los actuales desequilibrios. Adicionalmente veremos los problemas que provocó los malos incentivos colocados por el

Banco Central de Chipre que llevaron a la formación de una burbuja en el sector inmobiliario. Después de la unión de Chipre al euro, los malos incentivos ahora introducidos por el Banco Central Europeo, llevan a los intermediarios financieros chipriotas a invertir masivamente en bonos periféricos, principalmente griegos y a financiarse (tomar posiciones cortas) con bonos alemanes, estrategia que finalmente se tornó ruinosa. Finalmente pasamos a analizar las características de los rescates a la economía griega y a la economía chipriota, veremos que Grecia nunca cumplió con las medidas comprometidas mientras que Chipre si lo hizo, lo que llevo a que el crecimiento económico de Grecia nunca repuntara mientras que Chipre es de los países que actualmente (2017) más crece en la eurozona.

El presente trabajo se divide en tres grandes secciones:

- Historia
- Teoría económica
- Colapso de Chipre

La primera sección correspondiente a la historia de Chipre se subdivide en dos capítulos:

- Historia de Chipre.
- Historia de las finanzas griegas entre 1829 y 2016. Inestabilidad financiera chipriota como un capítulo más en la larga historia de impagos griegos.

La segunda sección correspondiente a la teoría económica se subdivide a su vez en tres capítulos:

- Liquidez endógena y liquidez exógena en intermediarios financieros y su relación con la estructura de producción.
- Defectos de diseño del euro; problemas inherentes al Banco Central Europeo.
- El mecanismo de propagación de la crisis y recesión; teoría de la liquidez en el ciclo económico de la Escuela Austriaca.

La tercera sección correspondiente al colapso de Chipre se subdivide en dos capítulos:

- El colapso financiero de Chipre: sobreinversión como un cúmulo de *carry trades* libres de riesgo promocionados por el Banco Central de Chipre.
- Chipre y Grecia después del colapso económico y financiero. Una comparación entre los programas de rescate a países helenos.

En el primer capítulo se analiza la historia de Chipre desde que llegaron los ingleses como administradores de la isla en 1878 hasta la actualidad. En este capítulo se analiza la historia reciente de Chipre con el objetivo de tener el contexto general en el que se desarrollan los eventos económicos que llevan al colapso de la economía chipriota. Una de las principales características de Chipre es la partición de la isla en dos. Uno de los territorios es culturalmente turco con vínculos muy cercanos a Turquía y el otro territorio es culturalmente griego con vínculos cercanos a Grecia. La pacificación de la isla y la internacionalización de la economía de la parte griega de Chipre desde 1974 es otra de las características clave de la isla helena. La fuerte conexión con Grecia, el sentimiento de pertenencia a Grecia y la presencia de instituciones típicamente griegas es otra de las características de la parte suroccidental de la isla. Estas características y otras son explicadas mediante el análisis de los eventos ocurridos en la isla durante los últimos 140 años.

En el segundo capítulo se hace una recopilación y síntesis de la historia de las finanzas públicas griegas. Veremos como la tónica habitual en Grecia es la suspensión de pagos durante periodos muy prolongados. Desde 1829 Grecia ha realizado cuatro defaults y ha estado más del 50% de tiempo en suspensión de pagos. El último de los impagos griegos afecta de forma notable a la economía chipriota, ya que, por sus lazos históricos con Grecia, el sistema financiero chipriota se encontraba fuertemente invertido en bonos soberanos griegos en el momento del *default*.

En el tercer capítulo se establecen los conceptos de liquidez autónoma y liquidez derivada (capacidad de hacer frente a los pagos sin ayuda/con ayuda de liquidez externa) en los intermediarios financieros y se establece un vínculo con la teoría austriaca "clásica" explicada por Mises, Hayek, Lachmann o Huerta de Soto. Una vez establecido el enlace entre estos conceptos y la teoría austriaca del ciclo se pasa a analizar los incentivos que proporcionan a

mantener liquidez autónoma en los intermediarios financieros cuatro diferentes sistemas de banca; banca libre con reservas descentralizadas, banca libre con reservas centralizadas (banco central privado), banco central público con convertibilidad de pasivos y banco central público sin convertibilidad de pasivos. Sólo los sistemas de banca libre (con reservas centralizadas o descentralizadas) son capaces de establecer los incentivos necesarios para que el sistema financiero guarde su liquidez autónoma y no se desate el ciclo económico tal y como explican los economistas austriacos.

En el cuarto capítulo se estudian los defectos de diseño del euro. El interrogante que intentamos responder es si hubiera sido posible diseñar un euro que hubiera permitido una mejor coordinación de las diferentes economías de la eurozona. La respuesta es que sí. El euro, tal y como está actualmente diseñado funciona como un mecanismo de transferencia de riesgo entre países a pesar de que los criterios de convergencia parcialmente preveían estos problemas. El euro también funciona como un mecanismo de transferencia de riesgo desde el sector financiero privado hacia el sector público mediante la ventanilla de descuento y las compras masivas de deuda pública por parte del Banco Central Europeo. Finalmente, el diseño del euro y del sistema financiero europeo impide poner freno a la inversión a largo plazo con cargo a los ahorros a corto plazo, es decir se promociona el descalce de plazos y en última instancia la crisis económica tal y como la explican los autores austriacos.

En el quinto capítulo se introduce un modelo de equilibrio general dinámico y una contrastación empírica de la teoría expuesta en los dos capítulos anteriores. Este capítulo es una "traducción" para economistas no austriacos de la teoría expuesta en los capítulos anteriores. El modelo de equilibrio general pretende explicar en términos matemáticos como las decisiones del sistema financiero terminan afectando la asignación de capital en una economía, provocando divergencias entre las expectativas de producción de bienes por parte de los productores y la expectativa de consumo de los ahorradores. La contrastación empírica arroja buenos resultados sobre el siguiente mecanismo de transmisión de la crisis; bajada tipo interés por parte de banco central; aumento de inversiones a largo plazo por parte del sector financiero; inversión curva de rendimientos; crisis económica.

En el sexto capítulo analizamos más en profundidad la crisis chipriota. Se establece que la represión financiera anterior a 2001 provoca una sobre-inversión en activos con colateral, en concreto vivienda y construcción. Desde 2001 el Banco Central de Chipre promociona un *carry*

trade libre de riesgo al establecer un tipo de interés más alto que el del Banco Central Europeo y establecer un tipo de cambio fijo con el euro. Desde 2008 un segundo tipo de *carry trade*, esta vez promocionado por el Banco Central Europeo, fue ampliamente aprovechado por la banca chipriota. En esta ocasión la banca chipriota incrementó la inversión en bonos periféricos de la eurozona, principalmente Grecia, financiándose con bonos de los países del centro de Europa, principalmente Alemania. Ambos *carry trades* fallaron estrepitosamente, provocando una burbuja inmobiliaria con el primer *carry trade* y una pérdida masiva de fondos de los intermediarios financieros con el segundo *carry trade*. Por ambos motivos el sistema financiero chipriota estaba quebrado en 2012 y el gobierno chipriota se vio obligado a pedir un programa de rescate a los socios europeos.

En el séptimo capítulo se comparan los programas de rescate provistos a Grecia con el programa de rescate provisto a Chipre. Las principales diferencias entre ambos fueron dos; en primer lugar, el nivel de cumplimiento de Grecia con las medidas comprometidas fue muy pobre, mientras que el nivel de cumplimiento de Chipre fue casi completo. La segunda diferencia es el rescate al sistema financiero; en el caso griego el rescate fue mediante un *bail-out*, mientras que en el caso chipriota fue mediante un *bail-in*. Es decir, los bancos griegos fueron recapitalizados de forma pública y los chipriotas de forma privada. La crisis de Chipre ha sido superada de forma mucho más rápida y sólida que la crisis de Grecia. Tanto en crecimiento económico como en creación de empleo Chipre aventaja de forma considerable a Grecia.

4. Conclusiones

La parte suroccidental de Chipre es un territorio helénico que cuenta con fuertes vínculos culturales y sociales con Grecia.

La historia económica de la Grecia moderna es una historia plagada de impagos. El caso chipriota puede verse como un capítulo más en la larga historia de impagos griegos.

La economía chipriota moderna hereda múltiples desequilibrios del periodo de represión financiera (1959-2001). La economía chipriota entra el nuevo milenio con un déficit

importante de inversión en maquinaria y con una enorme inversión en construcción y bienes raíces.

El colapso económico en Chipre puede ser entendido como la consecuencia de una serie de *carry trades* promovidos por el Banco Central de Chipre desde 2001 hasta 2008 y por el Banco Central Europeo desde 2008 hasta 2012.

El trilema Fleming-Mundell explica el primer tipo de *carry trade*. El Banco Central de Chipre fijo la libra chipriota al euro, no quiso renunciar a la política monetaria autónoma (fijó el tipo de interés a un nivel superior al tipo de interés de la eurozona) y eliminó los controles de capital. Chipre recibió una cantidad enorme de fondos externos en euros, los cuales fueron transformados en libras chipriotas a un tipo fijo por el Banco Central de Chipre. La enorme cantidad de fondos externos fueron dirigidos al mercado inmobiliario provocando una burbuja inmobiliaria.

El "mayor *carry trade* de la historia" que ocurrió en la eurozona entre 2008 y 2012 explica el segundo carry trade en el que el que la economía chipriota (y especialmente su sistema financiero) se vio involucrada. La teoría de las áreas monetarias óptimas predice que el rendimiento de los bonos soberanos debería igualarse para todos los miembros de dicha área. En 2008 se esperaba una crisis corta y que los países con finanzas públicas más débiles recibirían ayuda ilimitada de los países con finanzas públicas más sólidas. El sector financiero europeo empezó a invertir en bonos periféricos tan pronto como sus rendimientos empezaron a incrementarse por encima de los bonos de los países centrales de la eurozona. Este tipo de *carry trade* también significaba la financiación con posiciones cortas en bonos con tipo de interés bajo, esto es, en bonos de los países del centro de Europa. Los rendimientos, en vez de igualarse como se esperaba, empezaron a despegar una vez se hizo patente que la crisis iba a ser más larga de lo esperado y que la ayuda ilimitada que se esperaba en el corto plazo no era políticamente posible extenderla a largo plazo. Con el diferencial entre rendimiento de bonos periféricos y bonos de países centroeuropeos, el sector financiero europeo se encontraba apunto de la quiebra en 2012. El sector financiero chipriota fue uno de los que más se involucró en el "mayor *carry trade* de la historia".

El sistema financiero chipriota sufrió graves pérdidas hasta 2012. Las pérdidas casi esfumaron todo el capital del sistema financiero. El primer tipo de carry trade fallido dejó a

la isla helénica con una enorme burbuja inmobiliaria. Las hipotecas y los créditos extendidos al sector de bienes raíces empezaron a verse afectados por la burbuja y la morosidad se acentuó, además, una vez pinchada la burbuja, el valor del colateral pasó a ser una fracción del préstamo original. En 2012 el impago de la deuda soberana griega afectó de sobremanera al sector financiero de Chipre. Los bancos chipriotas, que como ya hemos mencionado tuvieron una gran exposición al "mayor *carry trade* de la historia" eligieron los bonos griegos como bono periférico en el cual invertir.

Las enormes pérdidas sufridas por el sector financiero chipriota hicieron que su gobierno se viera en la necesidad de pedir ayuda financiera a los socios europeos y al Fondo Monetario Internacional en 2012. La ayuda financiera fue recibida en 2013 con la condición de implementar un programa ambicioso de reformas estructurales, incluida la política de recapitalización privada del sector financiero (*bail-in*).

Chipre mostró un gran nivel de compromiso con las medidas acordadas en el programa de rescate. En contraste, Grecia destaca por el poco nivel de cumplimiento con las medidas incluidas en los programas de rescate que ha recibido. Consecuentemente, Chipre muestra una crisis en V, con una caída rápida de la actividad económica y una recuperación fuerte, rápida y estable. La crisis griega, por su parte, tiene forma de W, mostrando una incapacidad para generar crecimiento económico sostenido incluso después de un largo periodo de tiempo de sufrir varias crisis y recesiones.

Resumen por capítulos en español

Primera Sección: Historia

Capítulo 1 Historia de Chipre

En este capítulo se resumirán algunos aspectos de la historia reciente de Chipre, el capítulo nos dará las bases para interpretar los vínculos existentes del sudeste de la isla con Grecia. Así también se busca explicar el contexto del "problema chipriota", la separación de la isla en dos regiones, un evento que se dio antes de la independencia de la isla. Este fue un conflicto violento entre las comunidades griego chipriota y turco chipriota. La tensión a partir de este problema fue tal que llevo a la división del país. La parte occidental de Chipre (objeto de este estudio) es un país independiente poblado principalmente por la comunidad griego chipriota. Y la parte oriental de la isla que forma un estado oficialmente reconocido sólo por Turquía, y habitada principalmente por la comunidad turco chipriota.

Chipre permaneció bajo control del Imperio Otomano desde 1570 hasta 1878 cuando tras el apoyo brindado por el Reino Unido en la guerra ruso-otomana, el imperio otomano le cede su administración al Imperio Británico. Antes de la ocupación otomana, la isla estaba principalmente ocupada por una comunidad cristiana con tradiciones griegas, dándose una afluencia de otomanos musulmanes desde 1570. Sin embargo, los dos grupos nunca se mezclaron, y hubo poca interacción entre ellos. Esto no causo conflicto entre los grupos, pues a los cristianos se les dio suficiente autonomía, permitiéndoles crear sus leyes y recolectar sus propios impuestos, bajo la condición de prometer lealtad al imperio otomano.

Después de que fue cedida la administración de Chipre al Reino Unido, la isla sería anexada durante la primera guerra mundial al imperio británico. Inicialmente el imperio británico deseaba el control de la isla pues significaba un punto estratégico que podía asegurar una ruta comercial a la India. Sin embargo, en 1882, Reino Unido tomó control sobre Egipto, y dicha importancia estratégica se redujo.

Desde que se inició la administración británica de la isla, se creó una división más profunda entre los dos grupos étnicos principales. La comunidad griega chipriota conformaba casi cuatro cuartos de la población total, mientras que los turcos chipriotas conformaban un cuarto de dicha población.

Desde que se dio la anexión existía, dentro de la comunidad griego chipriota, un sentimiento de nacionalismo griego, que se tornó rápidamente en un reclamo político para anexionarse a Grecia. La anexión de Chipre a Grecia recibe el nombre de *Enosis* (de ahora en adelante usaremos este término). La iglesia ortodoxa, que perdió parte de su poder bajo la administración británica, lideró el movimiento político que buscaba la anexión con Grecia. La comunidad turco chipriota vio su estatus de clase dominante amenazado por la amenaza de *Enosis*. La comunidad turco chipriota rápidamente formó una alianza con la administración británica para evitar a toda costa la anexión de la isla a Grecia.

En 1915, el Reino Unido ofreció Chipre a Grecia, como compensación para que Grecia se uniera como aliado en la primera guerra mundial contra Alemania. Sin embargo, Grecia se rehusó la proposición y se mantuvo neutral. La oferta británica demostró que éstos estaban dispuestos a renunciar a la soberanía de Chipre. Este ofrecimiento fue la base para las demandas políticas de *Enosis* por parte de la comunidad griego chipriota.

También en la comunidad turco chipriota se empezó a desarrollar un sentimiento de nacionalismo, que surgiría durante las guerras turcas de independencia que tomarían lugar de 1919 a 1922. Esto causó que en 1923 cuando la ciudadanía turca fue ofrecida a la comunidad turco chipriota, muchos emigraran abandonando la isla.

Viendo el sentimiento de nacionalismo crecer en ambos grupos, el gobierno británico intentó promover, sin mucho éxito, un sentimiento de nacionalismo local de Chipre, con el propósito de moderar las demandas de *Enosis*, y mantener la alianza con la población turca.

A pesar de las diferencias entre las dos comunidades, existía una cuestión la cual ambos grupos coincidían, la oposición a los incrementos de impuestos perpetrados por la administración británica. Estos aumentos de impuestos estaban dañando gravemente la economía de la isla impidiendo su desarrollo económico. Esto en 1931 llevaría a una revolución liderada por la comunidad griega y tolerada por los turcos en Chipre. La revolución resultó tan inesperada para el gobierno británico que incluso se necesitó del refuerzo de

tropas ubicadas en Egipto para ser reprimida. Dicha revuelta llevaría a una severa respuesta de parte del Reino Unido. La administración británica revocó derechos civiles y políticos y desintegró partidos políticos. Las medidas restrictivas de carácter autoritario afectaron a ambos grupos.

La revolución de 1931 sería seguida de un período relativamente pacífico hasta la segunda guerra mundial. El orden público fue alcanzado mediante un régimen dictatorial que, tras eliminar el consejo legislativo de la isla, sería dirigido casi en exclusiva por el gobernador británico. Junto al gobernador británico ejercían labores de gobierno un consejo ejecutivo y un consejo asesor. Estos consejos estaban formados por ciudadanos chipriotas. Sin embargo, todos los miembros de estos consejos eran elegidos directamente por el gobernador. Esta sería la única opción de participación política de los ciudadanos de Chipre, pero aquellos que formaban parte de estos consejos eran vistos como traidores a la patria y socialmente excluidos por sus grupos sociales.

No fue hasta la segunda guerra mundial cuando, para poder garantizar el apoyo de la isla en dicho conflicto, se empezaron a ceder ciertas libertades políticas. Los partidos políticos fueron legalizados nuevamente y la libertad de prensa fue reintroducida. Tras esto, el comunismo como ideología política comenzó a tomar fuerza rápidamente, siendo las pobres condiciones económicas uno de los elementos clave que permitiría el surgimiento y florecimiento del partido comunista en Chipre. El partido comunista chipriota intentó simpatizar con ambas comunidades, pero fue rechazado frontalmente por la comunidad turca, pues vio sus demandas de rehabilitación nacional como otro llamado a *Enosis*.

La falta de una infraestructura militar desarrollada en Chipre aisló a la isla de los sufrimientos de la segunda guerra mundial, siendo inusuales bombardeos en Chipre o sus alrededores. Durante el desarrollo de la guerra, Chipre cambió radicalmente su estatus en la contienda. Desde la ambigüedad hacia la beligerancia. Tras el ataque de Italia a Grecia, grandes contingentes de chipriotas se unieron al ejército británico con la idea de combatir el fascismo.

Tras la guerra, la administración británica tomó nuevas medidas económicas que buscaban mejorar la condición económica de la isla. La idea era ganarse la simpatía de los chipriotas y evitar las demandas de *Enosis*, pues la isla resultaba un punto estratégico en las cercanías de la Guerra Fría. Estas medidas y una nueva constitución que brindaba a Chipre una mayor

independencia no fueron suficiente para los integrantes del movimiento nacionalista, ni para los integrantes del movimiento comunista. Sin embargo, el partido comunista tomó parte en el proceso constitucional, mientras que la derecha griego chipriota (la demandante de *Enosis*) rehusó participar en la redacción de la nueva constitución. La parte de la comunidad griega que participó presentó una propuesta consistente en auto gobierno respecto a asuntos internos, dejando los asuntos exteriores y la defensa y seguridad al Reino Unido.

Finalmente, la nueva constitución fue redactada y presentada para ser ratificada, dicha propuesta era un regreso al estado anterior a 1931. La nueva constitución dejaba el poder político en manos de los británicos, y generaba un nuevo poder legislativo similar al que fue abolido en 1931. La comunidad turca la aceptó y fue rechazada por la griega, el comité constitucional no pudo llegar a un entendimiento y fue disuelto. El Reino Unido gobernó por decreto hasta la independencia de la isla.

Al no llegarse a un acuerdo, varias protestas se dieron llegando incluso a presentarse una petición formal a las Naciones Unidas. En dicha petición se exigía un referéndum basándose en el derecho de autodeterminación recogido por las propias Naciones Unidas. La comunidad turca realizó protestas masivas oponiéndose al referéndum. En enero de 1950 la iglesia ortodoxa chipriota organizó el plebiscito, la comunidad turca no solo votaría en contra, sino que también enviaría un memorándum a las Naciones Unidas expresando su descontento con la moción. El plebiscito de anexión a Grecia fue votado a favor por una aplastante mayoría dentro de la comunidad griego chipriota.

En octubre de 1950 fue escogido como arzobispo Makarios III, quien se volvería la figura representativa de todo el movimiento de *Enosis*, y quien llegaría a ser el primer presidente de Chipre. Makarios fue capaz de expandir su causa por el mundo, especialmente a Estados Unidos. Sin embargo, para ganarse el apoyo de los Estados Unidos en el contexto de la guerra fría era necesario erradicar al partido comunista de la causa de *Enosis*. En 1954 la comunidad griego chipriota inició protestas anti británicas. El motivo era la negativa del Reino Unido a mostrar algún tipo de iniciativa hacia *Enosis*. Los británicos hasta ahora se habían mostrado tolerantes a estos movimientos, sin embargo, habían dejado claro que no cederían el gobierno de la isla. Grecia también empezó a empujar la anexión de Chipre llevando la cuestión a las Naciones Unidas. Sin embargo, la torpeza diplomática de Grecia hizo parecer el asunto más una disputa territorial, que una moción de autodeterminación. Debido a la

importancia estratégica de la isla y a su creciente partido comunista, se determinó que la isla permanecería bajo el gobierno británico.

El 1 de abril de 1955 varias bombas explotaron en instalaciones británicas de Chipre. Aquí nacería EOKA, la Organización Nacional de Combatientes Chipriotas. EOKA sería comandada por un coronel griego retirado, y apoyada por Makarios III, siendo su principal objetivo la anexión de Chipre a Grecia, excluyendo a todo aquel con ideología o pertenencia al partido comunista.

Ante la irrupción de violencia en Chipre, el gobernador británico respondió reuniendo en un congreso a el Reino Unido, Grecia y Turquía, con el propósito de que estos dos últimos se neutralizaran en las negociaciones, calmar los ánimos y finalmente conservar el statu quo. La reunión fue un éxito diplomático inglés, pero no consiguió acabar con la violencia. Como respuesta un nuevo gobernador fue designado, y se declaró ilegal la organización EOKA y la pertenencia a la misma. La policía fue reforzada con una nueva presencia militar. EOKA respondió a estas medidas incrementando los ataques, lo cual condujo a que en noviembre de 1955 se declarara un estado de emergencia.

A estos eventos le seguirían un lapso de violencia, hasta que se llegara a una nueva renegociación de autodeterminación, esta vez entre Makarios III y el nuevo gobernador, el mariscal Harding. Sin embargo, las negociaciones no llegaron a buen puerto y el gobernador tomaría la decisión de deportar al arzobispo para aislar el liderazgo de EOKA. Durante los siguientes años se darían varias propuestas de nuevas constituciones, de plebiscitos, plebiscitos dobles, repartir la isla, autodeterminación y *Enosis*, pero todas fueron rechazadas por al menos una de las partes negociantes.

En marzo de 1957 presionado por una fuerte campaña ofensiva contra EOKA, el coronel Grivas, dirigente principal de la guerrilla, ofreció una tregua, siendo la condición principal la liberación de Makarios III. Este fue liberado como un gesto de buena intención en las futuras negociaciones, sin embargo, se le prohibió su regreso a Chipre. La tregua duró desde marzo de 1957 hasta octubre del mismo año, durante este tiempo el clima político mejoró sustancialmente, siendo la tregua respetada por ambos lados. Pero el verdadero objetivo de la EOKA era restructurarse, tras estar al borde de la derrota. Esto les permitiría resurgir

iniciando los bombardeos nuevamente y tomando parte en un intento de asesinato al gobernador.

Debido a la imposibilidad de alcanzar un acuerdo, el gobernador Harding decidió renunciar en octubre de 1957 y fue sustituido por un gobernador civil, Sir Hugh Foot. Este nuevo gobernador llegó a la isla con un talante mucho más conciliador que los anteriores y con la idea de auto gobierno para Chipre. Al mismo tiempo surge la contraparte de EOKA en la comunidad turco chipriota conocida como TMT (Movimiento de Resistencia Turco) siendo su principal objetivo la partición de la isla y resistencia contra la EOKA y la oposición a *Enosis*.

Foot inició su gobierno dando pruebas de buena voluntad y proponiendo el plan Foot, en el cual se concedía un amplio autogobierno a los chipriotas durante 7 años. Después, se decidiría una solución definitiva al problema chipriota. El plan también contemplaba el retorno de Makarios y que los británicos mantengan sus bases militares en caso de que se acordara el fin del gobierno británico en la isla después de los 7 años. La propuesta se recibió bien entre los griegos chipriotas, sin embargo, entre las comunidades turcas se vio como un movimiento pro-Grecia. Los turcos chipriotas proponían la partición de la isla como única solución. La negativa de los turcos chipriotas significó el fin del plan Foot.

Inmediatamente tras el fracaso del plan Foot se introdujo una nueva propuesta, el plan MacMillan el cual consistía en una soberanía compartida por los griegos y los turcos, durante 7 años el estatus de la isla no sería cambiado. Se evitaba la partición de la isla (petición turco chipriota) o la anexión a Grecia (partición greco chipriota). Se introdujo el doble derecho de auto-determinación, lo que en la práctica podría llegar a significar la partición de la isla en dos (la mayor demanda turco chipriota). Así también se vio como necesario que el Reino Unido mantuviera control sobre asuntos externos y defensa de la isla, manteniendo bases militares en Chipre. Este plan fue un último intento para evitar que se diera una guerra entre Grecia y Turquía o una guerra civil en Chipre. Sin embargo, tras meses de debates en las Naciones Unidas, Grecia y la comunidad griega en la isla rechazaron el plan, pues les parecía demasiado orientado hacia los turcos chipriotas.

Tras el rechazo del plan Macmillan, una ola de violencia se generó de parte de los grupos armados de ambas comunidades, existiendo ataques de cada uno hacía las otras comunidades. Esto llevaría a una revisión del plan MacMillan, en el cual los turcos formarían

parte, pero con el verdadero objetivo de que la implementación del plan fallara y que la partición de la isla se diera como acto seguido. El consentimiento de los griegos o de la comunidad griega en Chipre no se vio como necesaria, lo cual causó una nueva ola de ataques terroristas de parte de EOKA con el propósito de evitar la implementación del plan. Grecia y Makarios decidieron entonces tomar una nueva posición buscando una forma de auto gobierno y eventualmente la independencia, viendo esto el Coronel Grivas como una traición. El nuevo plan MacMillan se vio implementado en el 7 de septiembre de 1958, con una violenta campaña de parte de EOKA de fondo. Mientras tanto Turquía cambió abruptamente su posición hacía Chipre, y se mostró más colaborativo con Grecia, posiblemente para mejorar sus relaciones con la OTAN y reducir posibles amenazas de guerra. Nuevas negociaciones surgieron entre Turquía y Grecia dejando a los británicos atrás, acordando la independencia para Chipre. Los británicos demandaron que de seguir adelante con el plan sería necesario un ministerio de asuntos exteriores británico en la isla, que la nueva moneda de la isla fuera la Libra Esterlina, y dos bases militares y varias instalaciones en la isla. En febrero de 1959 se encuentran en Zúrich las autoridades de Grecia y Turquía para llegar a un acuerdo. En el acuerdo establecía un régimen presidencial con un presidente griego chipriota y un vicepresidente turco chipriota, un cuerpo legislativo formado en un 70% por la comunidad griega y un 30% por la turca. Así también la nueva república de Chipre formaría una alianza con Grecia y Turquía excluyendo la posibilidad de la anexión a Grecia o de la partición de la isla.

Se inició pues, un período de transición de 17 meses, una nueva constitución fue escrita, los sitios para las bases británicas se establecieron y Chipre fue aceptado como un miembro de la *Commonwealth* y más adelante como miembro de las Naciones Unidas, siendo Makarios electo como primer presidente de Chipre.

En 1963 empezaron a surgir problemas cuando se crearon modificaciones a la constitución privando de poder a la comunidad turca. En 1967 se creó una junta militar que gobernó Grecia hasta 1974, bajo la justificación de que se buscaba prevenir un régimen comunista. En julio de 1974 se daría un golpe de estado de parte del régimen griego y un antiguo miembro de EOKA y miembro EOKA-B, nuevo grupo creado y comandado por el Coronel Grivas hasta su muerte, fue declarado como nuevo presidente de Chipre. Días después Turquía invadió Chipre, terminando el régimen militar griego de manera abrupta. La invasión turca significó

la partición de facto de Chipre y la creación de un régimen turco chipriota que ocupa un tercio del territorio de la isla. Hasta el día de hoy una división similar permanece, con el sur de la isla como estado independiente formado por la comunidad griega, y el norte un estado controlado por Turquía, con la comunidad turco chipriota habitándola, declarando su independencia en 1983. Se han dado intentos para reintegrar la isla, sin embargo, se ha votado en contra en dichos referendos, principalmente por la comunidad griega, pero no se han registrado más conflictos respecto a la división de la isla.

Capítulo 2 Historia de las finanzas del sector público griego entre 1829 y 2016. La inestabilidad financiera chipriota como un capítulo más en la larga historia de impagos griegos.

En este capítulo se analiza la historia de las finanzas públicas griegas, debido a su influencia económica e institucional presente en el lado occidental de Chipre, que también se utilizará como punto de inicio en el análisis de la crisis europea que precipitó el colapso económico de la isla.

En el momento de la crisis existía una fuerte vinculación entre Chipre y Grecia, debido a una unión histórica siendo causa de una fuerte inversión del sector financiero de Chipre en bonos del gobierno griego al momento del impago de deuda por parte de Grecia. Este episodio no resulta nuevo para el país pues es la cuarta vez que el este se declara en impago, siendo éste el número seis si se toma en cuenta los impagos a los rescates llevados a cabo por el sector público de terceros países. Grecia ha permanecido en impago el 50% de su historia como Estado independiente, iniciando el último ciclo de impago en 1981, y sin señales de terminar en el futuro cercano. Este caso resulta sumamente similar a sus episodios anteriores de impago, pues en los cuatro casos se ha visto una excesiva acumulación de crédito, así como rescates financieros de terceros países, evento que significo una pérdida de soberanía.

Para dicho análisis se lleva a cabo una división del impago en seis fases, iniciando por la apertura financiera del país caracterizada por el rápido crecimiento en los créditos proporcionados al sector público. Esto lleva a un sobre apalancamiento en el sector público creando una nueva burbuja. Luego del evento crediticio en el cuál la deuda del sector público alcanza niveles no sustentables en cuanto a sus préstamos, dicho evento puede tomar la forma de un impago o una restructuración de deuda que puede ser considerada un impago parcial. Tras ello se alcanza la autarcía financiera, pues usualmente a la declaración de impago le sigue de manera casi inmediata una inaccesibilidad a mercados internacionales de capital, un episodio particularmente largo en los casos de Grecia. La siguiente fase son los paquetes públicos de rescate financiados por gobiernos extranjeros, tomando medidas para aliviar el pago de la deuda, siendo en los episodios de Grecia realizados por Estados cuyo sector privado poseía deuda griega al momento del impago, entendiendo los planes de rescate financieros

como un intento de salvar parcialmente a sus propios sectores privados. La última fase se determina por la intervención de estos mismos gobiernos extranjeros, quienes en preocupación por el pago de la deuda buscan medidas de austeridad e incrementos en impuestos para reducir la brecha fiscal, significando una pérdida de la soberanía respecto a sus medidas fiscales e incluso a veces también se pierde soberanía en medidas monetarias. Muchas veces se deja en segundo plano la recuperación del país rescatado y se pone énfasis en la recuperación de la deuda.

De igual forma se lleva a cabo un análisis especifico de cada uno de los cuatro casos de impago ocurridos en Grecia. Iniciando por el impago de la guerra de independencia, episodio que carece de la primera fase pues al estar bajo el mandato del Imperio Otomano, no era posible acumular deuda. Sin embargo, se acumularon préstamos de guerra y en 1829 tras declarar su independencia el gobierno griego alcanza un nivel de deuda que ascendía al 100% de su PIB, esto principalmente con préstamos privados de Gran Bretaña. Siendo una de las primeras decisiones del gobierno griego repudiar la deuda, afirmando que la creación del estado no fue hasta 1829 y que la deuda adquirida con anterioridad no era su responsabilidad, resultando en un 88% de impago. Esto continuó hasta 1878, momento en el que se alcanzó un acuerdo con los prestamistas, pagándose por completo en 1930. Un impago que duró 53 años y que significó un aislamiento financiero del país heleno. Aquí también estuvieron presentes los paquetes de rescate, pues en 1830 Rusia, Francia y el Reino Unido actuaron como garantes de la deuda griega, lo cual condujo más adelante a una intervención para poder asegurar el repago. Esto se vio en forma de aumentos en impuestos y en recortes en los gastos gubernamentales. Los impuestos eran mayores a los presentes bajo el mandato del Imperio Otomano. Hay que recordar que los altos impuestos fueron una de las causas de la búsqueda de independencia griega.

A este episodio le sigue el impago parlamentario, cuando en 1879 el endeudamiento público se disparó, en parte con el propósito de pagar la antigua deuda, llevando en 1893 a la declaración de un nuevo impago por el parlamento griego. Sin embargo, el aislamiento financiero tuvo una menor duración, pues existía una mayor presión para alcanzar un acuerdo con los prestamistas, llegando a un acuerdo en 1897, dentro del cual se determinaba nuevamente un paquete de rescate financiero dado por el Reino Unido, Francia y Rusia, deuda que sería finalmente pagada hasta 1965. Así también se creó una comisión financiera

internacional, principalmente con el interés de Alemania, que contaba con inversiones en bonos griegos.

El siguiente caso se dio en 1932, siendo el único caso en el cual el sector público griego no accedió a nuevos préstamos externos, en parte debido a la comisión financiera internacional mencionada anteriormente, la cual limitó los créditos griegos de manera efectiva, sin embargo, aún se mantenían presentes los pagos de deudas antiguas. Durante la gran depresión las exportaciones griegas colapsaron, y en 1931 la crisis bancaria europea también afectó al país. En 1932 Grecia abandonó el patrón oro, siendo el Dracma depreciado en un 50%, reduciendo ingresos gubernamentales y aumentando el efecto de la deuda externa. Ese mismo año se declaró nuevamente un impago y se suspendieron los pagos de todas la deuda externas. No obstante, previo a la ocupación Nazi el gobierno griego cooperó con sus prestamistas, pero, en 1945 debido a una fuerte inestabilidad política, severos cambios en el gobierno y más adelante una guerra civil, se obstruyó el regreso de Grecia a los mercados internacionales de capital, no siendo iniciada la restructuración de la deuda hasta 1954. A pesar de que existen afirmaciones de que se dio un paquete de rescate en este período la más notable de Reinhart y Trebech, esto no cuadra con los datos, tampoco existía una necesidad de asistencia del sector público pues la deuda ya estaba en manos de los sectores públicos extranjeros. Aunque ya existía una comisión de finanzas internacional, se dio todavía una mayor pérdida de soberanía pues la Sociedad de Naciones ejerció presión respecto al déficit público y en asuntos monetarios, siendo estas actividades influenciadas fuertemente por el Banco de Inglaterra, y el tesoro británico.

El cuarto y último episodio consiste en la crisis europea del 2012, la cual tuvo su inicio en 1981 con el apalancamiento del sector público entre 1981 y 1992, esto seguido de un ajuste de este apalancamiento para converger al criterio de Maastricht entre 1992 y 2001, y más adelante se continuó con el apalancamiento público que se interrumpió durante el ajuste mencionado. Entre 1980 y 1993 la deuda griega incrementó de un 21% al 94 % del PIB, una evolución de la deuda insostenible con su realidad económica, evento que junto al cambio en la tasa de interés de bonos soberanos reflejaban un posible nuevo episodio de impago. Tras su aceptación como miembro de la Unión Europea, Grecia vio poca presión para reducir sus niveles de endeudamiento, y no se vio preocupación por parte de la Comisión Europea hasta el 2004. Los niveles de déficit público entre el 2000 y 2008, a excepción del 2006, no se

alineaban con el criterio de convergencia, a pesar de que se utilizaron medidas para encubrir parte del déficit y la deuda. Todo ello llevo a que Grecia perdiera su rating crediticio de inversión en el 2010, causando una pérdida al acceso de mercados de capital internacional hasta el 2014, año en que se dio un regreso de corta duración. Hasta la actualidad se han aprobado tres paquetes de rescate. El primero en el 2010 con 110 billones de Euros, el segundo durante el 2012 con un monto de 130 billones, y en el 2015 por 86 billones, siendo provistos por miembros de la Eurozona y el FMI, y siendo demandadas medidas de austeridad a cambio de los paquetes. Esta presión se vio presente desde el primer paquete de rescate financiero, pero no se lograron acatar algunas de estas medidas de austeridad hasta el segundo.

Esto deja en evidencia como las consecuencias de una declaración de impago pueden durar varias generaciones, las medidas de austeridad son necesarias una vez el endeudamiento público inicia, o un episodio de impago será inevitable. Si la declaración del impago está acompañada de un paquete de rescate, dichas medidas de austeridad se tomarán de manera paulatina, pero conduciendo a una pérdida de la soberanía fiscal y monetaria una vez los países terceros impongan condiciones a cambio de la ayuda financiera. Siendo las declaraciones de impago no beneficiosas, y el aislamiento financiero perjudicial para la acumulación de capital privado y el desarrollo económico.

Segunda Sección: Teoría Económica

Capítulo 3 Liquidez endógena y liquidez exógena de los intermediarios financieros y su relación con la estructura de producción.

Los bancos manejan de manera directa su propia liquidez. Los bancos manejan de forma indirecta la liquidez del sistema económico. En este capítulo se analiza la relación entre la liquidez exógena y endógena bancaria y su relación a la estructura de producción. Adicionalmente se estudian estas relaciones de liquidez tanto en el caso de un sistema descentralizado como centralizado de banca libre y compara ambos al actual régimen monopólico de banca central. De igual manera se analiza cómo no es necesario que la liquidez individual y del sistema coincidan siempre.

El cumplimiento de compromisos financieros de un agente económico es crucial para asegurar su supervivencia en el mercado. La capacidad cumplir compromisos financieros puede ser dividida en dos campos, solvencia y liquidez. La primera se refiere a la capacidad de dicho agente para generar suficientes ingresos para pagar su deuda con acreedores externos. Siendo liquidez la capacidad del agente económico para generar suficientes ingresos para pagar su deuda con acreedores externos en el tiempo estipulado en los compromisos. Como principio general ambos conceptos son necesarios para evitar la suspensión de la actividad económica del agente, y es posible utilizarlos para crear un esquema de la sostenibilidad económica de dicho agente.

En el análisis de la liquidez de un agente económico podemos establecer tres diferentes estructuras. La primera es la estructura de activos que al agente le pertenecen, especificando cómo, cuánto y cuándo esos activos le permiten generar ingresos. A esto le sigue la estructura de pasivos, la cual contiene las responsabilidades de pago con agentes externos, usualmente especificando las condiciones bajo las cuales los recursos son recibidos, y cómo se planea devolverlos. Finalmente se encuentra la estructura de cartera del agente conteniendo los derechos que se tienen hacia terceros agentes en intercambio por los recursos puestos a su

disposición. Así también contiene las condiciones bajo las cuales se dieron estos recursos y cómo y cuándo serán recibidos.

Para que el agente económico mantenga su liquidez debe alinear las tres estructuras. Las discrepancias entre expectativas respecto al momento en el cual los proveedores de capital retiran los recursos puestos a disposición del agente, y cuando el agente económico es capaz de devolver dichos recursos surgen a raíz de un desajuste en las estructuras de pasivos y activos. Estas estructuras deben estar adaptadas de manera que el flujo de efectivo producido por los activos sea capaz de cubrir aquellas salidas de efectivo que surgen de los pasivos. Esto significa que una creación de ingresos a un ritmo menor del esperado puede conducir a una suspensión de pagos, forzando incluso a la venta de activos para cubrir las obligaciones financieras. Se utilizará el término liquidez endógena para referirse a la capacidad de un agente económico de cubrir sus obligaciones en efectivo utilizando los flujos de efectivo que sus propios activos generan. Así también se utiliza el término liquidez exógena para referirse a la necesidad de un agente económico de utilizar la liquidez de terceros para cumplir sus compromisos financieros (ya sea mediante la venta de activos o la refinanciación de sus obligaciones).

El análisis de la solvencia de un agente económico es similar al análisis de la solvencia de un sistema económico. En el proceso de mercado los cambios en los deseos de los consumidores se ven reflejados en cambios en la estructura productiva para satisfacer unas necesidades y preferencias en constante cambio. La solvencia del agente económico se consigue mediante la capacidad de producir bienes y servicios de alto valor añadido para los consumidores. pLa solvencia de un sistema se da cuando existen suficientes activos con una estructura productiva capaz de producir los bienes y servicios en línea con las necesidades y preferencias del consumidor.

Sin embargo, surgen problemas cuando se examina la liquidez de un sistema, pues la estructura de pasivos y de cartera de los proveedores de capital no necesariamente coinciden, siendo muchas veces su ajuste responsabilidad del sector financiero. Los intermediarios financieros se colocan entre la estructura de cartera de los ahorradores (consumidores futuros) y la estructura de pasivos de los productores (creadores de riqueza futura). Los intermediarios financieros deben apegarse a las intenciones temporales de los ahorradores al ubicar sus recursos y prestar dichos recursos a los productores con el mismo esquema

temporal que el de los ahorradores originales. Es decir, los intermediarios financieros deben evitar el descalce de plazos promocionando su liquidez autónoma (es decir casando los plazos de sus activos y de sus pasivos) y evitando confiar en la liquidez derivada (otro agente se pondrá en el lugar del ahorrador a corto plazo).

Por el contrario, un sector financiero disfuncional puede causar que incluso un sector productivo con un balance apropiado de activos y pasivos, no sea capaz de producir los bienes y servicios demandados en un momento futuro. Cuando los intermediaros financieros llevan a cabo eenvíl descalce de plazos, envían señales equívocas a los productores respecto a los períodos de espera de los futuros consumidores. Los consumidores también reciben información distorsionada respecto al tiempo de disponibilidad de sus fondos, o lo que es lo mismo, sobre el tiempo realmente necesario para la creación de riqueza.

En este capítulo también se hace una distinción respecto dos tipos de sistemas bancarios, sus subdivisiones y un estudio del concepto de liquidez exógena y endógena en los dos sistemas (incentivos al descalce de plazos).

Iniciando por la banca libre, y su primera subdivisión un sistema descentralizado. Este sistema se caracteriza por la coexistencia de múltiples bancos, sin barreras institucionales de entrada. También podemos encontrar en circulación distintas promesas de pago, sin ser una en específico la única o principal fuente de pago o método de intercambio. Respecto a la liquidez, se da una propensión a que cada banco mantenga una liquidez endógena adecuada utilizando un mínimo de liquidez exógena provista por otros bancos en el sistema. Ante la inexistencia de prestamista de última instancia, el sistema bancario cuida su liquidez autónoma evitar un punto de iliquidez donde sus promesas de pago se verían rechazadas, llevando a la desaparición de dicho banco. Esto conduce a los bancos a buscar un balance entre sus pasivos y activos, dando un equilibrio a la estructura de pasivos del sector productivo con la estructura de cartera de los ahorradores. Las tres estructuras estarían conectadas permitiendo a los ahorradores convertirse en consumidores y acceder a los bienes y servicios deseados de acorde a su preferencia temporal. Este sistema a su vez puede alcanzar un punto de ineficiencia económica, pues se necesita una gran utilización de recursos para cubrir los costos logísticos y operacionales de mantener las reservas. Esto podría llevar al sistema bancario a depositar sus balances de efectivo en una reserva central, permitiendo el

surgimiento de un banco central privado que permite ahorrar costos en el uso de reservas monetarias.

La segunda subdivisión de un sistema de banca libre es uno con reservas centralizadas, un sistema donde también existen múltiples bancos sin barreras institucionales de entrada, sin embargo, se caracteriza por la aparición de un pequeño número de bancos centrales. Esto podría darse en el caso de que se den las condiciones necesarias para el surgimiento de economías de escala en el manejo de las reservas, es decir, bajo la premisa de la eficiencia económica podrían surgir bancos de bancos. Bajo este sistema los intermediarios financieros son bancos comerciales que depositan su exceso de reservas en el banco central privado, dependiendo de la liquidez exógena del mismo. A pesar de esto el sistema tiende a permanecer líquido, debido a que existen dos frenos naturales que limitan un desajuste de plazos. El primer freno es la noción de que existe potencial competencia respecto al banco central, volviendo muy arriesgada la pérdida de la liquidez endógena de dicho banco. El segundo freno al que se ven sometidos los bancos centrales privados se da por la posibilidad de perder reservas ya sea por una balanza comercial negativa o la depreciación de las promesas de pago contra las propias reservas del banco central. Por tanto, los bancos centrales privados evitan descontar activos que puedan ocasionar este tipo de eventos (usualmente activos no respaldados por bienes presentes). Los intermediarios financieros no tienen incentivos a desajustar el esquema temporal de sus activos y pasivos ya que el banco central solo proveerá liquidez exógena si no compromete su liquidez endógena (es decir el banco central privado no extenderá liquidez contra activos no respaldados por bienes presentes). El resultado es un sistema bancario que tiende a ser líquido autónomamente, y por ende una coordinación respecto al flujo de bienes y servicios respecto a la demanda presente y futura.

El siguiente sistema es el de un banco central público que cuenta con obligaciones convertibles. Aquí existe un único banco central responsable del manejo de la liquidez de una región. En este sistema los intermediarios financieros se ven obligados a tomar deuda gubernamental a largo plazo al acceder a facilidades de crédito provistas por el banco central. Es decir, este organismo está parcialmente involucrado en una asimetría de vencimientos. Esto llevaría a una sobreinversión donde las inversiones a largo plazo son mayores a los ahorros a largo plazo. El banco central es presionado para tomar garantías distintas a las

típicamente aceptadas en el mercado monetario. Se incrementa el uso de activos financieros no respaldados por bienes presentes. Se expone a intermediarios financieros a los mismos activos ilíquidos aceptados como garantías por el banco central público. Al ser preferidas estas inversiones ilíquidas el sistema financiero comienza a sufrir de una falta de liquidez endógena debido a la confianza puesta en la liquidez exógena que el banco central podía proveer. Sin embargo, el banco central eventualmente no podrá cumplir la función de proveer de liquidez al sistema financiero debido a su propia iliquidez endógena. Esto es especialmente cierto si el público comienza a hacer efectivo su derecho de convertir las obligaciones contraídas por el banco central. Entonces el banco central público se verá obligado a cortar la liquidez provista al sector financiero, causando una crisis bancaria con posible insolvencia debido a la falta de una estructura liquida. La equivoca selección de garantías llevará a una estructura productiva incapaz de producir bienes de acorde a la demanda presente y futura, debido a la iliquidez financiera en la estructura de activos.

El último sistema como el anterior cuenta con un monopolio respecto a la banca central, pero ahora los pasivos del banco central son inconvertibles. Esto aumenta considerablemente las posibilidades de intervención del banco central, permitiéndole extender su liquidez sin sufrir de una merma en sus reservas, a su vez aumentando la posibilidad de crear una estructura productiva ilíquida. Sin embargo, siguen existiendo algunos límites, pues si los pasivos inconvertibles monetarios empiezan a perder valor como consecuencia de la monetización de activos ilíquidos en el largo plazo, los agentes económicos buscaran evitar esos pasivos, pudiendo llegar a un rechazo completo de parte del mercado (esto es una hiperinflación). Siendo obviamente estos límites mucho menos efectivos y más arriesgados que aquellos encontrados en un sistema de banca libre centralizado. El efecto descoordinador sobre la estructura productiva es mucho más acusado en este último tipo de esquema ya que la capacidad de cubrir los errores productivos con inflación es mucho mayor.

Capítulo 4 Defectos de diseño del euro: problemas inherentes al Banco Central Europeo.

El propósito de este capítulo es entender si los problemas sobrevenidos en la zona euro podrían haber sido evitados con un esquema monetario más eficiente, o instituciones monetarias más eficaces. La omisión más importante de parte de los creadores del euro es no haber previsto las diferentes formas de transferencia de riqueza que permite el actual diseño del sistema monetario europeo. Otra gran omisión es la posibilidad de transferencia de riesgo inherente en el actual diseño del sistema monetario europeo. La transferencia de riesgo actualmente puede darse desde el sector privado al público y de gobierno a gobierno de la eurozona.

Los criterios de convergencia creados para ingresar en la unión monetaria europea (déficit tope de 3% respecto al PIB y una deuda pública respecto al 60% del PIB) son muestra de que las intenciones de los diseñadores del euro era evitar la transferencia monetaria de riesgo soberano entre Estados miembros.

Con autonomía monetaria los gobiernos pueden crear una demanda artificial para su deuda pública, la monetización de deuda pública significa un aumento de demanda de dicha deuda con propósito monetario. Existe siempre el límite de la aceptación de las promesas de pago del banco central (hiperinflación). Esto significa que un exceso de oferta monetaria por monetización indiscriminada de deuda pública respecto a la demanda monetaria, lleva a una pérdida en el poder adquisitivo de dicha promesa.

El mecanismo monetario del euro le permite a un gobierno de la zona euro crear una demanda mucho más alta para su deuda pública en forma de promesas de pago del Banco Central Europeo, pues éstas no se utilizan por un número limitado de personas dentro del, sino por ciudadanos de todos los países miembros de la unión monetaria europea. Esto permite a un gobierno de la zona euro utilizar la monetización de su deuda pública y externalizar su coste en forma de inflación al resto de países de la zona euro. Los gobiernos nacionales tienen la capacidad de financiarse a intereses mucho más bajos de lo que su situación les permitiría, pues al existir una moneda nacional un país que utiliza a su banco central para monetizar su deuda sufrirá una depreciación. No siendo este el caso de la UE,

donde cada país cuenta con el incentivo de expandir su crédito financiado por ahorros a corto plazo de otros miembros de la eurozona. Es por ello que los criterios de convergencia mantienen criterios estrictos respecto al déficit y la deuda pública, esto se puede ver como un límite de las externalidades que un país miembro le puede imponer a los poseedores de la moneda común de otros países miembros.

Históricamente los bancos centrales han soportado la carga de ser prestamistas de última instancia de su sector financiero. Para minimizar las transferencias de riesgo los activos que son sujetos a descuento por el banco central deben ser instrumentos que acarreen un mínimo riesgo debido a su naturaleza. Una opción que históricamente se ha probado como adecuada es que los activos monetizables en el banco central sean activos de corto plazo respaldados por bienes presentes de consumo en alta demanda. Si el riesgo de impago es limitado entonces la transferencia de riesgo del sector financiero al banco central sería minimizada.

Con el propósito de minimizar la transferencia de riesgo, el descuento de activos con vencimientos largos o activos especulativos cuyo pago es cuestionable deben ser evitados. Si los activos elegidos para el descuento son de alto riesgo o activos de largo plazo, el sistema financiero transferiría el riesgo de dichos activos al Banco Central Europeo. El Banco Central Europeo en su faceta de prestamista de última instancia estaría adquiriendo el riesgo de impago de los activos monetizables.

Aceptar activos de baja calidad por parte de la autoridad monetaria permite la transferencia de riesgo asumida por un agente, el intermediario financiero, quien maximiza sus utilidades al externalizar ese riesgo a otro agente, el poseedor de la moneda (que intentó evadir ese riesgo manteniéndose líquido). Una monetización indiscriminada de los activos del sector financiero impone externalidades negativas en la sociedad que son permitidas y administradas por el banco central. Los costes de la monetización indiscriminada son impuestos a los poseedores del euro, que ven su poder de compra disminuido.

El euro también supone una transferencia de unos países miembros de la unión monetaria a otros países miembros de la misma manera que supone una transferencia de riesgo del sector financiero a los poseedores de la moneda. Tras la introducción del euro la tensión que antes se encontraba en los tipos de cambio se ha transferido al mercado de deuda soberana. Las primas de riesgo tienden a reflejar la misma información que antes de la unión monetaria

reflejaban los tipos de cambio. Si los países miembros acatan los criterios de convergencia, y como resultado el acceso al mecanismo monetario para obtener fondos del banco central es restringido, las primas de riesgo entonces proveerían información sobre el estado de las finanzas públicas de los países miembros. La transferencia de riesgo soberano se mantendría bajo un estricto control, siempre y cuando el mecanismo monetario se mantuviera alejado del financiamiento del gasto público.

Todos los gobiernos favorecen la monetización de su propia deuda pública sobre otros activos mediante una serie de medidas. Dada la manera en que el Banco Central Europeo crea medios de pago que son utilizados para monetizar la deuda pública significa que países con finanzas públicas sanas sobrellevan los riesgos de los gobiernos de la eurozona que no cuentan con finanzas saludables. El mecanismo monetario permite transferencia de riesgo de impago desde países con mayores déficits a aquellos que tienen finanzas sostenibles.

En el diseño del euro, no se tuvo en cuenta la poca efectividad de la política de descuento en el sistema actual. Si las instituciones financieras invierten fondos con plazos de vencimiento cortos en activos de largo plazo, se dará una deterioración gradual de la liquidez que tiende a maximizar los ingresos del sector financiero. Como consecuencia de la iliquidez de los activos bancarios la política de descuento del BCE se ve seriamente afectada. Si los activos bancarios contienen principalmente activos a largo plazo, entonces las posibilidades de un banco central de influir la oferta de crédito y en la cantidad de medios de pago se ven limitados. Un sistema bancario líquido sería un sistema en el cual las instituciones financieras intermedian oferta y demanda de crédito teniendo el perfil temporal de ambos, es decir, el sistema financiero intermedia en los tipos de interés en línea con el perfil de madurez de las demandas y ofertas de capital. En dicho sistema la oferta y la demanda de capital con perfiles de madurez similares tendería a equilibrarse, lo cual llevaría a distintas tasas de interés por diferentes vencimientos. Es decir, prestarían sus fondos a aquellos que demandan crédito con los mismos plazos de vencimiento que los fondos que prestaron de otros agentes económicos.

En el esquema de un sistema bancario líquido, una disminución en la tasa de descuento por parte del Banco Central Europeo podría provocar casi de manera instantánea un incremento en el descuento comercial. Comerciantes que podrían haber tenido activos financieros hasta su pago final acudirían al sistema bancario para su descuento. La caída en las tasas haría el costo financiero del descuento menos gravoso y convertiría el retorno implícito de reinvertir

en una compañía más alto. Es decir, la inversión marginal aumenta dado el hecho de que el costo marginal del descuento es inferior.

Un sistema bancario ilíquido sería un sistema que no intermedia tasas de interés entre préstamos y valores con plazos de vencimiento similares, sino un sistema que intermedia en distintos plazos de vencimiento. Instituciones financieras toman capital a corto plazo y lo invierten en proyectos a largo plazo, teniendo como resultado que parte de la oferta a corto plazo de capital es utilizada para satisfacer la demanda a largo plazo de capital. En otras palabras, proyectos a largo plazo son financiados con fondos cuya disponibilidad es a corto plazo.

Con un sistema bancario ilíquido varios problemas surgen que limitan la efectividad de las políticas de descuento. El primer problema se encuentra en que las políticas de descuento solo ejercen una influencia indirecta en intereses de largo plazo. El segundo yace en los límites puestos a la efectividad de las políticas de descuento, dado a que los activos a largo plazo son utilizados o se mantienen en posesión del sistema bancario. La reducción de la tasa de interés en un sistema ilíquido podría ser considerado como un estímulo inflacionario, ya que incrementa la rentabilidad de tomar prestado capital a corto plazo e invertirlo a largo plazo, esto lleva a que se moneticen activos a largo plazo en mayor cuantía, esto es, que se creen nueva moneda (derecho de acceder a bienes presentes) contra bienes futuros (que todavía no han sido creados). Es decir, los nuevos medios de pago no son respaldados por nuevos bienes presentes. Sintetizando, un sistema bancario ilíquido mueve los factores de producción de un punto económicamente óptimo a posiciones sub-óptimas distorsionando la estructura de producción y generando inflación.

Algo que resulta sorprendente sobre el diseño del euro es la falta de un mecanismo que restrinja la expansión de créditos a largo plazo. Esta expansión no supone en sí mayores contratiempos, si sucede en un sistema financiero líquido. Sin embargo, si este no es el caso, en un sistema ilíquido el crédito se expande de mayor manera, debido a la oferta elástica de crédito a corto plazo utilizada para cubrir la demanda de crédito a largo plazo, permitiendo un incremento en inversión casi exponencial sin ningún tipo de límite a corto plazo.

De igual forma la estabilidad monetaria se ve atada al resultado de inversiones a largo plazo, el precio de pasivos monetarios presentes es determinado por el resultado incierto de futuras

inversiones. Al verse los bancos centrales inmovilizados en inversiones a largo plazo, vinculan la calidad y la solidez de estas inversiones a la calidad y solidez de sus propios pasivos, es decir de la moneda. Por lo que la estabilidad monetaria pasa a depender de la buena marcha de las inversiones a largo plazo.

Capítulo 5 El mecanismo de propagación de la crisis y recesión. Teoría de la liquidez en el ciclo económico de la Escuela Austriaca.

En este capítulo se propone una traducción para economistas no austriacos de las posiciones teóricas sostenidas en los capítulos 3 y 4 del presente trabajo. Hemos de aclarar que este capítulo no supone más que una exposición en términos matemáticos de la teoría expuesta. No pretende ser más científica ni más exacta que los dos capítulos que la preceden. La parte empírica del capítulo 5 tampoco demuestra que la teoría es verdadera, sólo la legitima para el economista poco ducho en filosofía de la ciencia y los problemas que la investigación empírica tiene para una ciencia social como la economía.

La primera parte de este capítulo es la traducción propiamente dicha de la teoría austriaca del ciclo modificada parcial y ligeramente por los preceptos de liquidez y el descalce de plazos. En este sentido planteamos, en la misma línea que Bagus y Howden, que los ahorradores (consumidores futuros) pueden dar una estructura temporal a su ahorro.

De la misma manera que la estructura de capital austriaca es capaz de diferenciar entre fases diferentes de producción conforme más o menos alejados estén los bienes en proceso de producción del consumo final, nosotros evaluamos como un avance dentro de la teoría austriaca la inclusión de un esquema de expectativas de consumo por parte de los ahorradores. Esto es, los ahorradores o consumidores futuros tienen una "estructura de consumo" de la misma manera que la producción tiene un esquema temporal plasmado en la "estructura de producción".

Para el correcto funcionamiento de una economía de mercado sería necesario que las expectativas de consumo expresada en la "estructura de consumo" esté alineada con las expectativas de creación de los bienes de consumo expresada en la "estructura de producción".

Cuando existe financiación directa, esto es, sin intermediarios financieros, existe una tendencia dentro de un mercado desregulado a que la estructura de consumo y la estructura de producción estén alineadas. En términos matemáticos la expresión sería la siguiente:

$$\sum_{1}^{T} q_{1j} \Big/ \sum_{1}^{T} q_{2j} = \sum_{1}^{T} l_{1j} \Big/ \sum_{1}^{T} l_{2j} = \sum_{1}^{Z} fa_{1k} \Big/ \sum_{1}^{Z} fa_{2k} = \sum_{1}^{Z} fl_{1k} \Big/ \sum_{1}^{Z} fl_{2k} = \sum_{1}^{N} s_{1i} \Big/ \sum_{1}^{N} s_{2i}$$

En este sentido, los consumidores expresan *ex ante* sus preferencias de consumo temporal imprimiendo a sus ahorros un esquema temporal. Por ejemplo, un ahorrador que espera consumir en dos años puede comprar un bono empresarial a dos años. Por su parte, los productores, al tener que devolver el capital en una fecha determinada, necesitan que el proceso productivo que inicien con el capital prestado madure antes de la fecha de maduración. En el caso de recibir ahorro a dos años por parte del ahorrador futuro, tendrían que iniciar un proceso productivo de como máximo, dos años.

Cuando existe financiación indirecta, esto es, con intermediarios financieros, existe exactamente la misma tendencia a la sostenibilidad de las relaciones entre las expectativas temporales de consumo y las expectativas temporales de producción. Los intermediarios financieros canalizan capital hacia el sector productivo con el esquema temporal que los ahorros recibidos.

Cuando introducimos al banco central como prestamista de última instancia, entonces la armonía entre la "estructura de consumo" y la "estructura productiva" se rompe. Los intermediarios financieros, ante la promesa de recibir liquidez en caso de necesitarla, descuidan su propia posición patrimonial invirtiendo a un plazo mayor al que se le concede el ahorro. La razón de una inversión con un esquema temporal más largo que el del ahorro recibido es el tipo de interés creciente por plazo.

El descalce de plazos que lleva a cabo el sector financiero conlleva el desequilibrio entre las expectativas de consumo de los ahorradores y las expectativas de generación de riqueza de los productores. En términos matemáticos la expresión sería la siguiente:

$$\sum_{1}^{T} q_{1j} \Big/ \sum_{1}^{T} q_{2j} = \sum_{1}^{T} l_{1j} \Big/ \sum_{1}^{T} l_{2j} = \sum_{1}^{Z} fa_{1k} \Big/ \sum_{1}^{Z} fa_{2k} < \sum_{1}^{Z} fl_{1k} \Big/ \sum_{1}^{Z} fl_{2k} = \sum_{1}^{N} s_{1i} \Big/ \sum_{1}^{N} s_{2i}$$

Por lo que es el banco central el que termina causando las crisis económicas y financieras. En su función de prestamista de última instancia consigue que el sector financiero otorgue muchos más préstamos a largo plazo que el ahorro disponible a largo plazo.

El aumento insostenible del crédito a largo plazo hace que la estructura de capital se haga más larga sin que exista ahorro a largo plazo para respaldarla. Por su parte, la infra inversión en capital a corto plazo hace que exista un cuello de botella en la cantidad de bienes de capital circulante disponibles.

Cuando los ahorradores a corto plazo ejerzan su capacidad de consumo pasarán dos cosas:

- Crisis de liquidez en el sistema financiero.
- Efectos Ricardo y destrucción del tejido productivo.

La crisis de liquidez se desata porque el sector financiero no puede hacer un *call-in* a los préstamos concedidos a largo plazo cuando sus acreedores pretenden hacer líquida su inversión (es decir, cuando los ahorradores pretenden convertirse en consumidores). La crisis de liquidez puede ser solventada por el banco central mediante la emisión de nuevo dinero base contra los activos ilíquidos que posee el sector financiero. Es decir, el sistema financiero ilíquido accede a las facilidades de liquidez del banco central y así aminora sus necesidades de liquidez.

Sin embargo, lo que es incapaz de hacer el banco central es transformar un sector productivo ilíquido en uno líquido. Es decir, si los consumidores pretenden hacer efectivo el uso de su capacidad de consumir a corto plazo, los productores que extendieron sus actividades a los sectores más alejados del consumo no pueden "mágicamente" transformar sus procesos productivos que maduran a largo plazo en procesos productivos que produzcan bienes de consumo a corto plazo. Aquí es donde entran los efectos Ricardo, las empresas más alejadas del consumo ven perder su demanda y quiebran.

El ahorro forzoso es introducido en el esquema. Una vez que existen menos bienes de consumo disponibles a corto plazo que reclamos sobre dichos bienes el ahorro forzoso será indispensable. Este se realizará por dos vías no necesariamente excluyentes:

- Inflación.
- Crisis económica.

La inflación se da cuando el banco central decide salvar a su sector financiero extendiendo nuevas dosis de liquidez a bajos tipos de interés. Aquí nuevas disponibilidades monetarias son extendidas y no existen nuevos bienes de consumo para contrarrestarlas, por lo que la inflación no tarda en aparecer. Una vez que existe inflación se diluyen los derechos de los poseedores de disponibilidades monetarias y pueden acceder a menos bienes de los inicialmente planeados.

Existirá una crisis financiera y posiblemente económica cuando el banco central no extienda nueva liquidez a su banca o cuando la extienda en una cuantía insuficiente para salvarla. En este sentido, parte de los ahorradores tendrán que renunciar a sus derechos a consumir en el presente. Esto a su vez puede ocurrir de dos formas.

- Reestructuración financiera.
- Quiebra sistema financiero.

En el primero de los casos los acreedores a corto plazo del sistema financiero son transformados en acreedores a largo plazo (esto es lo que pasó a una parte del sistema financiero chipriota, parte de los pasivos de una de las grandes instituciones fueron transformados en accionistas).

En el segundo de los casos los acreedores nunca recuperan su derecho a consumir por quiebra de la institución financiera (esto es lo que pasó también a una parte del sistema financiero chipriota, parte de los pasivos fueron completamente impagados).

La segunda parte del artículo es la contrastación empírica del modelo teórico propuesto. Se propone el *liquidity gap index* como medida inédita para tratar de estimar la cuantía del descalce de plazos dentro del sistema financiero.

Se propone la siguiente relación de eventos.

Recession mechanism stages
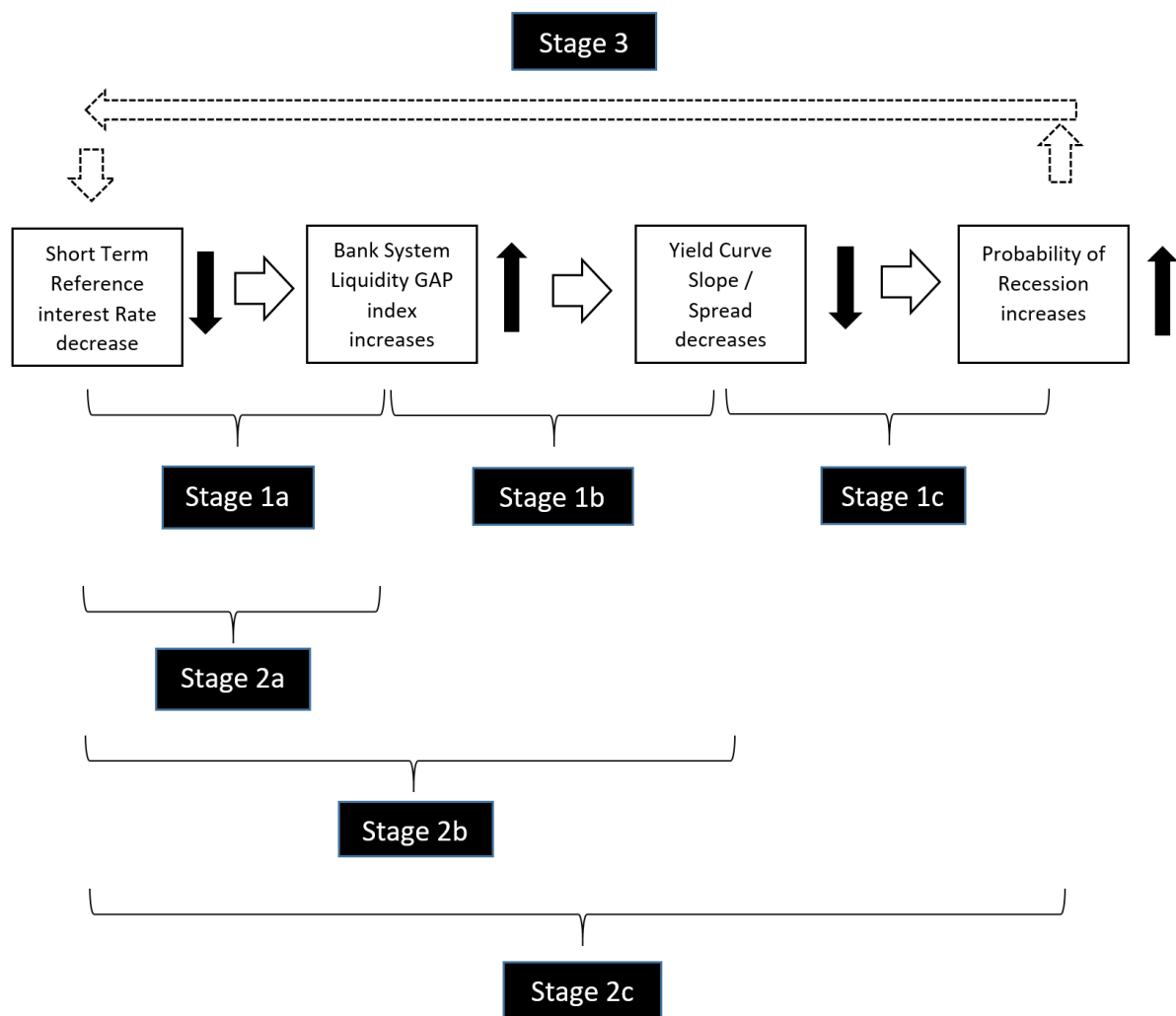
El banco central iniciaría todo el proceso bajando el tipo de interés a corto plazo y poniendo el incentivo al sector financiero para tomar más préstamos a corto plazo y extender crédito a largo plazo, es decir para realizar el descalce de plazos. Al hacerlo estaría desvinculando las expectativas de consumo de los ahorradores con las expectativas de generación de riqueza de los productores.

Al incrementar el incentivo del sector financiero a realizar descalce de plazos, esperamos que el *liquidity gap index* crezca.

Cuando el *liquidity gap index* crece está ejerciendo una presión a la baja en el tipo de interés a largo plazo y una presión al alza en los tipos de interés a corto plazo. Es decir está empujando a hacerse más pequeño el spread entre el tipo a corto y el tipo a largo.

De acuerdo a varios autores y en base a la evidencia empírica disponible, cuando la curva de tipos está plana (*spread* cero) o negativa (*spread* negativo) estamos en la antesala de una crisis económica. Nosotros lo comprobamos usando una regresión con una variable *dummy* que toma el valor 0 cuando no hay crisis económica y el valor 1 en momentos de recesión. Cuando disminuye el *spread* de la curva de tipos esperamos que la probabilidad de recesión crezca.

La evidencia empírica que encontramos para la eurozona y para la economía norteamericana apoya nuestra tesis (aunque como ya hemos comentado nunca demuestra la tesis). Con los datos disponibles parece que el proceso de crisis es exactamente como comentamos para las dos economías. El ciclo económico (desde la bajada de tipos hasta la recesión económica) dura unos 72 meses para la eurozona y unos 52 para Estados Unidos.

Tercera Sección: El colapso de Chipre y su desarrollo tras los paquetes de rescate.

Capítulo 6 El colapso financiero de Chipre: sobreinversión como un cúmulo de Carry Trades libres de riesgo promocionados por el Banco Central de Chipre.

La economía de Chipre es muy pequeña, su población no llega a un millón de habitantes y su PIB es de 17.5 billones de euros, menos del 0.1% del PIB de la Unión Europea. Sin embargo, Chipre fue capaz de sacudir los cimientos de la economía europea y golpeó con fuerza la estabilidad del euro durante el 2013. En este capítulo se sugiere que la crisis chipriota tiene sus raíces en un excesivo flujo de capital a la isla, causando un crecimiento desmedido del sector bancario y creando una burbuja en el sector inmobiliario. Adicionalmente el sector bancario de Chipre resultó ser demasiado grande para el mercado local de bonos. Esto, unido a sus tradicionales vínculos con Grecia ya explicados en otros capítulos, llevo a que el sector financiero chipriota invirtiera masivamente en el mercado de bonos griegos. El impago de Grecia tuvo consecuencias nefastas en el sistema financiero chipriota.

La primera parte del capítulo provee de una pequeña introducción teórica en la que se explica el rol tradicional de la banca, que es el *carry trade* y cómo se lleva a cabo dicho *carry trade* en la banca moderna.

La división entre mercados de capital y mercados de dinero puede ser resumida como la regla de oro en la banca. Los intermediarios financieros no deben invertir en activos con plazos de madurez mayores al de sus pasivos. Es decir, el flujo de efectivo de las inversiones debe ser suficiente para cumplir con los compromisos previamente establecidos, esto es, suficientes para cubrir el flujo de efectivo saliente de los pasivos. De no serlo, el banco se ve forzado a renovar sus pasivos, pero esto siempre significa un riesgo. Si el mercado de financiamiento a corto plazo se paralizara, entonces el banco sería incapaz de renovar su deuda, llevándolo a una suspensión de pagos y eventualmente la bancarrota, incluso si este se encontrara solvente.

Tradicionalmente el sector bancario se ha divido en banca comercial y banca de inversión, siendo los bancos comerciales los principales intermediarios en el mercado de dinero, y la banca de inversión en mercados de capital. El mercado de dinero se caracteriza principalmente por ser el mercado donde se compensan promesas de pago y donde se negocian el precio de posponer un pago. Por otro lado, el mercado de capitales está hecho para intercambios de capital a largo plazo, y el financiamiento a largo plazo de nuevos negocios.

El rol de la banca comercial es aumentar la velocidad del dinero mediante la monetización de letras de cambio o de documentos de crédito respaldados por bienes de consumo que se encuentran ya en proceso de distribución. Es decir, el rol de la banca comercial es remplazar instrumentos crediticios con características monetarias creados por el sector privado por sus propios instrumentos monetarios. Al monetizar crédito comercial el sistema bancario esta introduciendo elasticidad en el sistema de pagos sin incurrir en una asimetría de vencimientos. Los sustitutos monetarios son creados en base a bienes presentes que se encuentran ya en el proceso de ser distribuidos.

El rol de la banca de inversión es actuar como intermediario en mercados de capital y canalizar fondos de ahorros a proyectos de inversión. La banco de inversión es uno de los responsables de asignar capital en una economía de mercado.

La tasa de interés en los mercados de capital se encuentra entre dos limites; la preferencia temporal y el rendimiento esperado por las oportunidades de inversión. En el mercado monetario las restricciones de liquidez juegan un rol más importante que estos límites.

El *carry trade* es un término utilizado para referirse a estrategias de inversión con al menos "dos patas". El *carry trade* es un arbitraje entre dos activos subyacentes vinculados de alguna manera. Se toman posiciones largas en el activo supuestamente infravalorado por el mercado, y posiciones cortas en el activo sobrevalorado (las posiciones cortas usualmente financian las posiciones largas).

El concepto de *carry trade* usualmente implica un cierto riesgo pues podría ocurrir que el *spread* en vez de reducirse se amplíe. Las pérdidas entonces se duplicarían, mermando el valor de los activos, e incrementando el valor de los pasivos.

El *carry trade* más practicado, así como el más antiguo es el *carry trade* de divisas. Durante el período del patrón oro clásico, el arbitraje respecto al tipo de cambio servía para estabilizar precios de divisas sin la necesidad de recurrir a una intervención por parte del banco central. Esta acción se realizaba de manera mucho más segura bajo el patrón oro que bajo el régimen de flotación de la moneda. La razón es que desde el desaparecimiento del patrón oro, el valor fundamental de las divisas se ha visto mucho más abierto a interpretación. Esto a su vez puede hacer que la actividad especulativa más que acercar el valor de la moneda a su valor fundamental lo separe del mismo.

Existen múltiples maneras de llevar a cabo el *carry trade*, sin embargo, la pregunta más interesante es ¿quién corre con las pérdidas si el *carry trade* falla? Existen dos formas en que el sector público incentiva a la toma de riesgos mediante estrategias de *carry trade*. En la primera una agencia gubernamental directamente absorbe los riesgos presentes de una estrategia de inversión fallida, actuando como prestamista de última instancia, haciendo del contribuyente el portador del riesgo. La segunda forma en que las instituciones públicas promueven *carry trades* arriesgados es al proveer algún tipo de seguro, como por ejemplo un seguro de depósitos. El sector financiero se ve alentado a incrementar el riesgo en sus operaciones ya que los retornos potenciales no se ven balanceados por las pérdidas potenciales. Esto además tiene el efecto de hacer a las inversiones más seguras no rentables en términos de coste de oportunidad.

La primera parte de este capítulo estudia más en profundidad el caso chipriota teniendo en cuenta la desviación de su sector bancario del rol tradicional que acabamos de señalar y como se involucró en grandes operaciones de *carry trade* alentados por su propio banco central. Finalmente, estos *carry trades* promocionados por el Banco Central de Chipre y realizados por el sector financiero chipriota fallaron estrepitosamente y terminaron empobreciendo a toda la sociedad chipriota.

Analizamos el sector financiero chipriota iniciando antes de 2001, cuando supuestamente todavía no existían desajustes. En 2001 ocurre una supuesta liberalización de dicho sector. Seguiremos con las circunstancias de los intermediarios financieros antes de unirse al euro en 2008, y finalizamos con el período de 2008 a 2013 hasta que el paquete de rescate fue autorizado.

El periodo de 1944 al 2000 fue caracterizado por una fuerte represión monetaria y financiera. En 1944 se fijó un límite de un 9% a las tasas de interés para préstamos, el límite se mantuvo hasta 1994 donde cambió ligeramente hasta ser completamente abolido el precio máximo del interés en 2001. El límite no coarto la cantidad total de crédito, pero si afecto gravemente a su composición. En concreto el límite al interés previno el ajuste de las tasas respecto a plazos de vencimiento y perfiles de riesgo de distintos deudores. Los créditos se vieron pues, dirigidos a sectores de bajo riesgo y con fuertes garantías, específicamente el sector inmobiliario.

Adicionalmente desde 1951 se implementaron controles de capital restringiendo la habilidad de extranjeros de invertir en el país y a los chipriotas de invertir de exportar su propio capital.

Tras el 2001 se dio un llamado período de liberalización donde la libra de Chipre fue fijada al euro, pero los tipos de interés fueron fijados por el Banco Central de Chipre a un nivel distinto a los tipos de interés de la eurozona. Los controles de capital fueron abolidos.

La mal llamada liberalización parcial del sector financiero trajo graves problemas. Chipre fue objeto de un claro caso del "trilema imposible". Con las torpes medidas Chipre tuvo libertad de entrada y salida de capitales, una moneda fijada al euro, y unos tipos de interés fijados a un nivel diferente a los de la zona euro.

Mediante el "trilema imposible" el Banco Central de Chipre promocionó un *carry trade* sin riesgo. En concreto puso sobre la meso todos los incentivos para que los agentes económicos se endeudaran en la eurozona a tipo de interés bajo e invirtieran en Chipre a tipo de interés alto. El riesgo de tipo de cambio que usualmente tienen estas estrategias de inversión era externalizado al Banco Central de Chipre que era el encargado de mantener la moneda completamente fijada al euro.

Con la tasa de interés en Chipre fijada a un nivel superior a la de la eurozona, esto significaría la entrada de capital en Chipre. Esto a vez causaría una presión a la baja en el tipo de cambio (apreciación de la divisa) por entrada de capitales. Sin embargo, y debido a que la tasa de cambio entre monedas estaba fijada, el banco central compró enormes cantidades de fondos extranjeros (euros) para evitar la caída en el tipo de cambio. Al hacerlo el Banco Central de Chipre aumento de forma desorbitada la cantidad de reservas monetarias en Libras chipriotas disponibles en el país.

La presión económica sobre el banco de Chipre aumentó, siendo reflejo de esto la expansión de su balance. Regularmente los balances de los bancos centrales no incrementan durante períodos de expansión económica (no hay mucha presión para que aumente líneas de crédito al sistema financiero).

Las políticas de *carry trade* sin riesgo promovidas por el banco central de Chipre provocaron un boom crediticio, los activos bajo el manejo del sector financiero chipriota crecieron un 142% entre el año 2000 y el año 2007.

Un fuerte influjo de inversión usualmente viene acompañado de un influjo de bienes importados. En el caso de Chipre los bienes importados eran principalmente relacionados con la construcción. Esto se vería reflejado en un déficit comercial, que crearía una tendencia a depreciar la libra de Chipre, esto junto a la tendencia a apreciarse anteriormente mencionada crearía volatilidad en la moneda. No obstante, dicha volatilidad fue absorbida por el banco central mediante la fijación de la divisa.

Los fondos extranjeros del *carry trade* se vieron dirigidos a una burbuja inmobiliaria, pero para poder asegurarse de que realmente se dio una burbuja inflacionaria necesitamos comparar los precios inmobiliarios con los de su alquiler. El aumento de precios inmobiliarios del 2001-2007 fue del 115% mientras que el aumento de precio de los alquileres fue tan sólo un 20% respectivamente, muy parecido a la inflación general. Por lo que parece que efectivamente el *carry trade* promocionado por el Banco Central de Chipre provocó una burbuja inmobiliaria en Chipre.

Desde el 2008 una nueva oportunidad de llevar a cabo un nuevo tipo de *carry trade* surgió. Esta vez el *carry trade* sería efectuado con bonos soberanos de los países de la eurozona. Este tipo de carry trade fue promocionado por el Banco Central Europeo y las instituciones europeas. En este caso, gran parte de la banca europea se vio involucrada en el nuevo *carry trade*.

Las garantías de rescate implícito de los países más solventes hacia los países menos solventes suponían que las primas de riesgo deberían ser iguales para todos los países de la eurozona. Sin embargo, a partir del 2008 las primas de riesgo de los diferentes países empezaron a divergir.

La banca europea y la banca chipriota con especial fuerza empezaron a tomar posiciones largas en bonos periféricos con mayor tipo de interés y posiciones cortas en bonos de países del centro de Europa (principalmente Alemania). La crisis y desajustes fiscales de los países del sur de Europa sería mucho más grave de lo esperado y los *spreads* en vez de reducirse, incrementaron, es decir las inversiones perdían valor por el lado del activo y también por el lado del pasivo.

Debido a esta nuevo *carry trade* fallido, la banca chipriota estaba ya al borde del colapso en 2011. Cuando Grecia anuncia su impago en 2012 le hizo un "agujero" todavía más grande del que ya existía en el balance del sector financiero chipriota. Varios intentos de recapitalización privada y pública del Estado chipriota fallaron y se tuvo que acudir a pedir ayuda a los socios europeos.

Sin embargo, una pregunta permanece, ¿por qué se prefirieron los bonos gubernamentales griegos a los bonos locales? Existen dos razones:

- Después del problema interno con la burbuja inmobiliaria, en 2008 las inversiones internacionales se veían como una manera reducir la exposición al mercado inmobiliario doméstico. La inversión en activos tradicionales como deuda pública se vio también como una fuente de solidez y seguridad.

- El tamaño del mercado nacional de bonos era muy pequeño para el enorme tamaño que había adquirido el sistema financiero chipriota. Los vínculos tradicionales entre las sociedades griega y chipriota hicieron que la expansión internacional de los bancos chipriotas pasara por Grecia principalmente.

Al final todos los *carry trades* intentados por la banca chipriota fallaron estrepitosamente. El impago de la deuda griega pudo haber sido por sí mismo suficiente para desencadenar la crisis en Chipre. Sin embargo, la enorme cantidad de préstamos en mora relacionados con el mercado inmobiliario y la exposición al también complicado sector privado griego fue tal que

incluso en el caso de que un evento crediticio no se hubiera dado en Grecia, de igual forma se habría agotado el capital de los bancos chipriotas.

Capítulo 7 Chipre y Grecia después del colapso económico y financiero. Una comparación entre los programas de rescate a países Helénicos.

Como hemos visto en otros capítulos, la crisis de Chipre puede ser entendida como otro capítulo más en la historia de los impagos griegos. Al tener un contexto y patrimonio cultural similar, las instituciones formadas en Chipre son similares a las encontradas en Grecia. Sin embargo, la solución propuesta a la crisis por la Troika (Banco Central Europeo, Consejo Europeo, y Fondo Monetario Internacional) y sobre todo la implementación de los programas de rescate no ha sido el mismo en ambos casos. Esto brinda la oportunidad de analizar la efectividad de distintitos paquetes de rescate en culturas y circunstancias similares.

El primer paquete de rescate en Grecia fue autorizado el 3 de mayo del 2010, estableciendo una serie de consideraciones a cumplir para que este fuera otorgado. Entre estas se encuentra cerrar el déficit público a un nivel de 3% o menor en un plazo de 3 años, basar este déficit público en cortes al gasto más que en un aumento a los ingresos públicos, fuertes cortes en salarios y pensiones públicas junto a una reforma pensional, laboral, productiva y estructural.

En el segundo paquete otorgado el 1 de marzo del 2012 se dio bajo las condiciones de revisar objetivos fiscales, estructurar reformas de gasto, nuevamente reducir salarios en el sector público. También se encuentran reducir el gasto social, una reforma tributaria, una recapitalización del sistema bancario, privatización de distintas industrias, y reformas laborales y de producción.

Sin embargo, existen discrepancias entre las medidas acordadas y aquellas que en realidad fueron tomadas. Respecto al primer programa de rescate griego y sus consideraciones no se logró alcanzar la reducción en el déficit establecida y solo en el 2014 se estuvo cercano a dicha meta. Así también los cortes en el gasto público fueron muy lejanos a lo considerado como necesario, acompañado de incrementos en las distintas tasas de impuestos. Se buscó reducir los salarios públicos mediante recortes de personal, sin embargo, una falta de coordinación entre niveles de gobierno lo hizo imposible. La reducción en pensiones tampoco se dio y aumentaron sustancialmente hasta el 2013, tras el segundo programa de rescate, siendo sinónimo de la incapacidad de hacer una reforma en pensiones de acuerdo a lo pactado. La reforma laboral fue quizá el punto donde las autoridades griegas trabajaron más

diligentemente, reduciendo el poder de negociación de sindicatos y reduciendo el salario mínimo, permitiendo flexibilidad laboral. Esta sería la única condición cumplida totalmente en el primer paquete de rescate. Sin embargo, no se dio ninguna reforma sustancial respecto al mercado de bienes y servicios durante el tiempo de implementación del primer paquete de rescate, lo cual podría haber significado que la caída en costos laborales, debido a las reformas laborales, no se vería reflejado en aumentos de la productividad. Respecto a las reformas estructurales esta se componía de una reforma tributaria y la creación de un nuevo cuerpo administrativo que coordinara las políticas de compras públicas, sin embargo, ninguna de estas medidas fue implementada durante el período del primer programa de rescate.

Respecto al segundo programa de rescate en Grecia, tampoco se alcanzó el nivel de déficit estipulado estando cercano al objetivo fijado solo en el año 2014, siendo la primera vez que se alcanzó un superávit desde la crisis, permitiendo a Grecia volver a refinanciarse en mercados internacionales. En cuanto a las reformas de estructurales de gasto, el objetivo fue alcanzado únicamente en el 2014, tras un fuerte recorte de gasto público que no fue continuado en el 2015. En lo concerniente a la reducción de salarios públicos, se realizó un gran esfuerzo para reducir el número de funcionarios públicos. Entre 2010 y 2014 el número de funcionarios públicos disminuyó en un 20%. Sin embargo, el porcentaje de empleo en el sector público respecto al empleo total, se mantuvo casi completamente estable debido a la pérdida de empleo en el sector privado.

En el gasto social no se consiguió una mejora en cuanto a la creación de un sistema de pensiones más sostenible. Así mismo el gasto en pensiones aumentó en términos de PIB. El sector farmacéutico fue el único que consiguió una reducción considerable de gasto en el periodo del segundo programa de rescate, desde 3.9 billones de euros a 2.5 billones anuales.

Sobre la recapitalización de bancos griegos, a pesar de los fondos inyectados por el FEEF, o Fondo Europeo de Estabilidad financiera, estos han continuado sufriendo de falta de capital debido a problemas por la alta cantidad de préstamos en mora. Sin embargo, su necesidad de liquidez se ha reducido gradualmente desde el segundo rescate, recuperándose parcialmente la confianza en el sector financiero. Confianza que solo permaneció en niveles relativamente altos hasta el 2015 cuando se desató un nuevo pánico financiero debido al riesgo de salida griego de la eurozona.

Las privatizaciones planeadas para el segundo programa de rescate fueron postergadas debido a la poca falta de interés del sector privado en adquirir empresas públicas con estructura de rígidas relaciones laborales. Este punto no se ha cumplido, se han dado pasos aumentar las privatizaciones, pero a una escala mucho menor y más lenta de lo requerido.

En las reformas laborales se continuo con la flexibilidad laboral que se consiguió en el primer paquete de rescate manteniendo una creación de empleos, y una remuneración de acorde a la productividad del trabajador.

En las reformas de mercados de productos y servicios se ha dado una mejora en la competitividad, pero se mantiene una alta carga burocrática. Este punto ha sido alcanzado, en el mejor de los casos, de manera parcial. El sistema judicial se ha deteriorado respecto a costes y eficiencia, y se han mantenido muy altas las barreras respecto a servicios profesionales.

En el segundo programa de rescate griego se ha conseguido un nivel de cumplimiento muy superior, en concreto cinco puntos de nueve fueron alcanzados. Sin embargo, el todavía bajo nivel de cumplimiento hace que se termine con un desempeño económico mucho menor al esperado.

Sobre el tercer programa de rescate aún no es posible hacer un análisis completo, pues en el momento del estudio este lleva solo un año puesto en práctica lo cual no permite establecer de manera completa la manera en que este ha progresado.

En definitiva, el primer programa de rescate acaba con teniendo solo un 14% de cumplimiento. Esto es debido a la incapacidad o falta de diligencia del gobierno griego para llevar a cabo las reformas. El resultado, un desempeño económico muy pobre con una crisis y recesión muy graves.

En el segundo paquete de rescate terminó con un 44% de complimiento de las reformas estipuladas. Desde este plan se logró restaurar en parte la competitividad griega. Hasta cierto punto se redujeron los procesos necesarios para iniciar un negocio, así como la cantidad de capital necesaria. Así el crecimiento económico surgió nuevamente hasta que un nuevo gobierno anti-austeridad fue elegido, llegando nuevamente a una caída del PIB, y posteriormente una nueva recesión.

Respecto a las condiciones de Chipre, contaba desajustes económicos que eran por lo menos tan profundos como los de Grecia en el 2009.

Las autoridades chipriotas pidieron ayuda financiera a tan solo cuatro meses de la firma del segundo paquete de rescate griego. El impago griego forzó la caída del sistema financiero chipriota como hemos visto en el capítulo 6. El enorme tamaño del sistema financiero de la isla, 750% del PIB, hacía imposible cualquier intento de rescate por el gobierno mismo.

Es interesante constatar como varias medidas incluidas en el programa de rescate chipriota fueron puestas en marcha por las autoridades chipriotas incluso antes de la fecha oficial del rescate. Medidas como reducir el sector público en términos de empleados, una reforma en el sistema de pensiones, y algunas privatizaciones en régimen de concesión.

El programa de rescate de Chipre fue firmado el 2 de abril del 2013, un año después de que se firmara el programa de rescate griego. El programa chipriota duraría 3 años, del 2013 al 2016. A cambio de la extensión de un crédito por 10 billones de euros exigía las siguientes consideraciones:

- La reestructuración y disminución del balance de las instituciones financieras. Esto sería conseguido de dos formas: mediante la venta de las filiales griegas de bancos chipriotas al banco griego Pireaus y mediante la política de *bail-in* o recapitalización privada. El *bail-in* no aplicaba de igual manera a todos los bancos, de forma que los acreedores no asegurados (aquellos con depósitos de más de 100.000€) de los bancos peor gestionados sufrieron una quita mucho mayor que la de los acreedores de los bancos mejor gestionados. Se logró de manera exitosa, pues el sector financiero doméstico disminuyó sus activos del 658% del PIB a inicios de 2013 a un 473% del PIB en el tercer trimestre de 2016.

- Una reforma en la estructura regulatoria bancaria, en esta se modificó el marco legal respecto a la restructuración de deuda para así poder enfrentar uno de los peores problemas del sistema financiero de Chipre, la rápida resolución de préstamos morosos. Para ello el parlamento chipriota creó una serie de reglas para la ejecución crediticia y la insolvencia, reduciendo el tiempo y el costo de ejecutar las garantías

crediticias. También se permitió la venta de créditos a terceros, permitiendo la limpieza de los balances del sector financiero. Esta condición se logró de la manera deseada recapitalizando los bancos de Chipre y facilitando el manejo de la deuda morosa.

- Continuar el proceso de consolidación fiscal. El éxito del paquete de rescate chipriota vs los fracasos de los programas griegos se debe principalmente al rápido ajuste respecto al desequilibrio presupuestario hecho por el gobierno chipriota. El gobierno de Chipre logró alcanzar completamente e incluso superar los objetivos fiscales acordados en el programa de rescate, a excepción del año 2014 año en el que se dio una desviación negativa de tan sólo 0.4% sobre PIB. En el manejo de la cantidad de deuda pública se dio un desarrollo similar mejorando los niveles esperados en todos los años desde el 2013.

- Respecto al plan de la consolidación fiscal, existían varias sub-medidas dentro de éste. Entre estas sub-medidas están recortes en compensaciones a empleados del sector público. Los pagos a funcionarios se redujeron del 14.5% sobre el PIB en 2012, a un 12.6% sobre el PIB en el 2015. Se esperaban recortes en transferencias sociales. Mediante una mejor focalización y no recortando beneficios sociales se esperaba una reducción del 0.85% respecto al PIB, sin embargo, en realidad se dio un aumento del 0.7% del 2012 al 2015.

- Existe una reforma en el sistema de pensiones para funcionarios públicos en el 2012, antes de que el programa de rescate iniciara. En esta reforma se congelan los incrementos en pensiones públicas hasta el final del 2016. En el 2013 varias medidas fueron introducidas al sistema de pensiones para funcionarios públicos para hacerlo más sostenible y reducir las obligaciones futuras del gobierno. Entre estas reformas, la edad de retiro fue aumentada dos años, se penalizó el retiro temprano y se redujo el trato preferencial a ciertos grupos, en el 2014 se dio una posterior reducción del 3 % de ciertas pensiones. El sistema de pensiones para empleados no gubernamentales también se vio modificado durante el 2013. La edad de retiro también se vio aumentada a 65 años, se introdujeron penalidades para retiros tempranos, y los

incrementos en pensiones se suspendieron hasta el 2016. A pesar de las reformas se dio los gastos del sistema de pensiones se dispararon en los últimos años, siendo las reformas incapaces de detener esta tendencia.

- Los impuestos al valor agregado y los impuestos especiales incrementaron como fue previsto. El IVA aumentó del 17% al 19% en el 2013, el impuesto a empresas aumentó al 12.5% desde el 10% en 2013. Se dio un incremento impuestos directos que significó un incremento en ingresos del sector público a corto plazo, pero una disminución en el largo plazo. El gobierno chipriota logró aumentar los impuestos de acuerdo al plan de rescate, sin embargo, este análisis no lo ve como un desarrollo positivo, pues una contracción fiscal puede y suele tener un efecto expansivo en el crecimiento económico.

- El marco presupuestario fue renovado incluyendo un plan presupuestario a medio plazo. El objetivo es que en el diseño del presupuesto gubernamental anual se tome en cuenta el impacto de ciertas partidas en los presupuestos de los años siguientes. Ciertas reglas prudenciales en financiamiento público fueron incluidas en las reglas fiscales, la más notoria; la obligación de mantener una posición fiscal balanceada a medio plazo.

- Las privatizaciones en Chipre han experimentando retrasos significativos, siendo su única privatización exitosa la del puerto más grande de la isla, el puerto Limassol, que se encuentra bajo administración privada gracias a un régimen de concesión. Esta única privatización solo ha conseguido un 1% de los fondos de privatizaciones previstos en el programa de rescate.

- Se mostró un consenso efectivo respecto a la necesidad de ajustar salarios entre trabajadores y empleadores. El sistema de indexación de salarios fue revisado y suspendido hasta el 2016 dentro del sector privado. Esto, junto al consenso anteriormente mencionado significó una caída en el coste laboral, el cual había subido a niveles más altos que en la eurozona. Esta misma tendencia se vio en la

productividad laboral, la cual junto a la caída en el coste laboral significó un aumento en la competitividad, al mismo tiempo que prevenía un aumento en los niveles de desempleo.

- El último punto requerido fue la eliminación de obstáculos no competitivos en el sector de servicios. Sin embargo, dentro del plazo del programa de rescate no se hicieron modificaciones a la estructura regulatoria del turismo, ni a la regulación de servicios profesionales.

El plan de rescate de Chipre buscaba una recapitalización privada del sector financiero para poder recibir el rescate, característica única entre todos los programas de rescate.

Respecto a los resultados de la implementación del paquete de rescate, las autoridades chipriotas fueron capaces de conseguir un cumplimiento de un 71% de las condiciones acordadas en el programa, fallando únicamente en la privatización y la reforma del marco legal en el sector de servicios.

El gobierno chipriota incluso fue capaz de ponerle fin al programa de rescate antes de lo establecido y sin llegar a utilizar todos los fondos provistos por éste. Así también se vio un crecimiento económico que sobrepasó las proyecciones de la Comisión Europea, siendo de 2.9% en el 2016 contra el 1.9% esperado.

Respecto al desarrollo de Grecia tras el primer paquete, este resultó menor a las proyecciones debido al pobre cumplimiento de las condiciones del mismo y a una situación económica mundial peor a la esperada. El cumplimiento del segundo programa de rescate fue mayor, mostrando sus frutos durante el 2014, hasta que un cambio político significó la anulación de algunas de las reformas.

A pesar de que ambos países se encontraban severamente afectados por la crisis, su desarrollo tomó caminos muy distintos, mientras que el PIB de Grecia en el año 2016 se encuentra en el mismo nivel del año 2000, el PIB de Chipre se encuentra en los mismos niveles del año 2007, y se ha recuperado un 3.7% desde el 2014. Esto es posible relacionarlo al nivel de cumplimiento de las condiciones de los programas de rescate.

Las medidas de austeridad, cuando son implementadas, resultan en un desempeño económico positivo.

First section: History

Chapter 1

Cyprus Historical Background[1]

1. Introduction

In this chapter, we are going to summarize some aspects of the recent history of Cyprus. This chapter will give us some grounds to interpret the economic ties that currently links the southwestern part of the Hellenic island with mainland Greece.

We are also committed to explain the "Cyprus problem", that is, the intercommunal violence in Cyprus between Greek Cypriots and Turkish Cypriots that finally lead to have two separates States in the island of Cyprus. The Cyprus problem was a mayor political event that hit the island before its independence. Violence between Greek Cypriots and Turkish Cypriots comes since, at least, the last quarter of the nineteenth century, when UK administration took office. The British policy of divide and rule has much to blame for it.

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[1] This chapter is based primarily in the works of (Faustmann, 1999), (Crawshaw, 1978), and (Holland, 1998).

2. Colonial Cyprus, the roots of the Cyprus problem.

The Cyprus problem is referred to the stress between the two bigger cultural and ethnical groups in the island; Turkish Cypriots and Greek Cypriots. This tension became so great that the country is currently divided in two parts. The western part of Cyprus (the object of our inquiry) is an independent country populated mainly by Greek Cypriots, meanwhile the eastern part of the island is populated by Turkish Cypriots, forming a State that is only recognized internationally by Turkey, and is usually referred as a "puppet State" of Turkey.

We are going to see how this stress between the two communities was born in the colonial part of Cyprus history, under the rule of the British Empire.

a. What the British found in 1878

Cyprus remained under Ottoman Empire control from 1570/1571 to 1878. In 1869 the Suez Canal was opened and the strategic situation of the island called the attention of the United Kingdom. In the Russo-Turkish war of 1877-1878 the British supported the Ottomans and prevented Russia from taking Istanbul, in exchange the Ottoman Empire let the administration of Cyprus to the British Empire. At the beginning this arrangement was set to be temporary, however the terms of the agreement were that the Ottomans would regain their administrative power over Cyprus when they recover all the territories lost in the war. If we take in account the losses were Bulgaria, Romania and Serbia & Montenegro, and the fact that the Ottoman Empire were loosening territories for almost a century, the ruling of Cyprus by the British seems to have been set to endure since the very beginning.

Before the Ottoman occupation most of the population was Christian with Greek traditions. An influx Ottoman Muslims took place from 1570, however the two ethnic groups never mixed, conversions were very rare, even taken in account the tax privileges of the Muslim population, the Christian population didn´t converted massively. Mixed marriages were

extremely unusual. Despite the clearly separation between those groups, there is no evidence of conflict during the entire Ottoman rule. The two groups lived together with little struggle[2].

The head of the Orthodox Church in Cyprus under the Ottoman rule was not only the religious leader, but enjoyed large political power. Under the Millet system, the Ottomans allowed the Christians to "govern themselves" with considerably autonomy under the leadership of the Archbishop of the Orthodox Church. The Millet system allowed to enact laws and gather their own taxes, the demand was to pledge loyalty to the Ottoman Empire[3].

This feature was one of the reasons that explained the relative peaceful relationship between the different communities. The Sultan and the ruling Turkish Cypriots had little interference with Greek Cypriots affairs[4].

b. 1878-1914 British Empire as the administrator of the island

In 1878 the United Kingdom became the administrator of the island. During the First World War Cyprus was finally annexed to the British Empire[5]. The British wanted control of the island because of their important strategic position that can secure sea route to India. Unfortunately for the inhabitants of Cyprus in 1882 UK gained control over Egypt and the strategic importance of the island diminished. Thenceforth Cyprus was treated as an unimportant part of the Empire.

Since the very beginning the UK administration found two large ethnic groups with different culture, traditions and religion. One of the communities was oriented toward mainland Greece while the other oriented towards the Ottoman Empire. By this time the Greeks Cypriots were majority in the island while the Cypriot Turkish were approximately one quarter of the total population. At the time, as already has been pointed out, the two communities lived in peace, although segregated with an almost absence of conflicts. This entailed an

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[2] See (Faustmann, 1999).

[3] When a dispute between members of communities emerged, the Islamic law prevailed.

[4] Of course, there were sporadic events that escalated toward violence, but usually the catalyst were an outside event. An example was the Greek war of independence, when at least 2000 Greek Cypriots were executed for supporting the Greek cause.

[5] The island was left under British administration as a "payment" from the Ottoman Empire to UK for the support in peace negotiations between Ottomans and Russians. See (Faustmann, 1999).

"easiness" in ruling the island, only 60 British officials were needed in the first years of UK administration[6].

Greek-Cypriot elites had a Greek national sentiment since the independence of the State of Greece was proclaimed in 1828, even the first Greek president called for the union of Cyprus to Greece[7]. This sentiment became a political claim of annexation with mainland Greece since the beginning of the UK administration. The chauvinistic concept of *Megali Idea* became part of the social life within the Greek part of the population[8]. The formerly powerful Orthodox Church in Cyprus lost their privileges under the secular British colonial government, so the Church turned into one of the biggest political actors in favor of nationalist claim of annexation with mainland Greece. This showed to be an important catalyst in spreading the Greek nationalism sentiment since the Greek-Cypriot community were highly religious.

There were no Turkish-Cypriot community before the UK administration, they were simply Ottoman citizens within Ottoman boundaries. The Turkish-Cypriots identity was born with the Ottoman relinquish of the island. This community were facing the loosening of their ruling class status and saw the seed of Greek nationalism with distrust. The fear of Greek annexation leads the elites of this group to support the continuance of the British in power and to become their government allies. Loyalty to the new rulers was seen as the only way to preserve the political and economic advantages enjoyed by them until 1878. They remain loyal to the British government even in the First World War years, when the Ottoman Empire was in war with UK.

With the outbreak of the Greek-Turkish war in 1897 the Greek nationalism in the island spurred, the support to *Enosis* (annexation to Greece) spiked within Greek-Cypriots.

In short, the British ruled easily from 1878 to 1914, the two communities lived segregated with little or no conflict and the Greek nationalism started to spread over Greek-Cypriots.

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[6] See (Faustmann, 1999)
[7] Ioannis Kapodistrias, the first president of Greece had Greece-Cypriot ancestors.
[8] *Megali Idea* is a Greek nationalistic concept that seeks to stablish a State that bring together all the Greeks ethnics groups.

In 1915 the British offer Cyprus to Greece in exchange to join the war against Germany, but the Greek government refused and remained neutral. This event showed the willingness of Britain to renouncing sovereignty of Cyprus in favor of Greece and became the basis of the Greek community demands of *Enosis* (annexation of the island to Greece). This offering also increased the concerns of the Turkish community toward the Greek community.

After the First World War the Ottoman Empire was invaded and almost disappeared as an entity. In its place the Turkish State was founded in 1923 from the ashes of the old Empire after a war of independence. The old Ottoman Empire recognized in 1920 the British annexation of Cyprus and Turkey in 1923 ratified the status quo. Since that date Cyprus were under fully English dominance, Turkey ceased to have any legal claim on the island.

The British offer to give Cyprus to Greek plus the disappearance of Turkey of the scene, leads to greater demands for Enosis (Greek annexation) from the Greek Cypriots in the 1920s. At first the British gave no importance to this fact, for them this movement was an elite movement without ample support in the population, although this was true at late 19th century this interpretation applied no more in the 20th century. The Greek nationalism were popular also in the lower social classes (albeit with less intensity).

The Cyprus Turkish community also started to develop a nationalist sentiment as the Turkish war of independence took place between 1919 and 1922. The Ottoman Empire was a multi-ethnical empire that were tied by religious bonds. There wasn´t in the advantage of the Sultan to favored nationalism since it would have given rise to separatist movements. The Turkish national movement that fought in the Turkish independence war was the first real Turkish nationalist movement[9]. This event influenced the Cypriot Turkish community, especially if we take in account that the mainland Turkish nationalism of 1919 was a reaction against the Greek invasion. Since 1923 Turkey offered Turkish Cypriots the citizenship and many abandoned the island, emigrating to Turkey[10]. Despite this series of events sparked the

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[9] The first early "Turkism" appeared in the Ottoman Empire in the early 20th century, however it lacked mass support.
[10] There are no definite numbers about the actual migration, the estimates goes from 4% to 8% of the Cypriot Turkish.

nationalism within Turkish Cypriot community, the sentiment was not a full-scale one, as the Greek one was at that time.

Turkish nationalism in the island remained under control until the Second World War mainly because the weak international relationships between Turkey and Britain does not allow the first one to show any interest in Cyprus, so the Turkish community had no State to direct their demands, exactly the opposite that their Greek Cypriot neighbors enjoyed. In the late 1920s, the British rulers made some reforms that tend to increase laicism and erase any sign of theocracy of the political scene, the Islamic courts were restricted and only covered family matters hereinafter, also the religious content of the education system was diminished and partially changed by the teaching of some Turks traditions. This last changes spurred Turkish nationalist sentiment.

Seeing the growth of nationalism in both groups the British colonial government tried to promote Cypriot local patriotism since the second half of the 1920s. This was an attempt to diminish the claims towards Enosis and to keep the loyalty of the Turkish sector. The attempt had little effect.

In 1929 a Greek Cyprus delegation went to London to have diplomatic meetings with members of British government. The members of this delegation were moderate and their demands were mainly constitutional reforms towards more decentralization. The Colonial Secretary refuses to make any reform to the constitution. This gesture tended to radicalize demands for Enosis.

The known British "divide and rule" formula worked well until 1931. The Turkish Cypriot were supportive of English actions because the new rulers were the insurance against an *Enosis.* Besides Turkish community were permitted to maintain some of the old privileges that they enjoyed as a ruling class.

There was an issue that maintained both groups together against the British. The taxes were risen sharply since the very beginning of the British administration, impeding the economic development of the island and producing strong political opposition. In fact, in 1904 Cyprus was, in relative terms, the most heavily taxed country in the world[11]. The Greek- Cypriots were

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[11] See (Hill, 1995) quoted in (Faustmann, 1999).

the economic dominant group, even in the years of the Ottoman ruling. Although all the population suffers from the economic downturn, the ones who were paying more taxes were the Greek community and the increased taxes acted as another reason to feed the Greek nationalism. In 1931 a rebellion rose in Cyprus because of the enactment of new taxes. This new taxes were imposed despite the opposition of the elected representatives of the two ethnic groups, acting also as a remainder of the authoritarian nature of the British Colonial Government.

The rebellion was mainly led by the Greek community and tolerated by the Turkish one. This revolt was completely unexpected by the British colonial government. The protest became violent; it took two weeks and needed the support of British troops posted in Egypt to be suppressed. The response of British rulers was extremely severe. 1% of population went on trial, civil and political rights were eliminated and political parties eliminated. Legislative Council, one of the institutions that were used to peacefully resolve conflicts between communities, was abolished. The British started to run the island in a harshly authoritarian way. Those restrictions were imposed in both communities without regarding their participation in the uprising.

d. Dictatorial Ruling (1931-1941)

The uprising of 1931 were followed by a period of relative calm until the outbreak of the Second World War. The public order was achieved by a dictatorial rule guided by British governor. The governor ruled by decree, the political opposition was negligible since the legislative council of the island was abolished. The general insight behind most of the governors that go through power in those years was Cyprus needed firm hand in order to avoid another insurrection.

Restrictions also curtailed other rights. Right of assembly was forbidden, and communism parties (and another parties) were pursued as criminal offence since 1933.

Once eliminated the legislative council there were two institutions that exercise power alongside with the governor; the executive council and the advisory council. However its

members were appointed directly by the governor[12]. This was the only way that Cypriots can participate in political decisions. There were little incentive to participate in those councils, the Greek Cypriots that joined the councils were regarded as traitors within their community.

The Colonial power tried to diminish the power of the Orthodox Church through the enactment of some anti-clerical laws.

Despite the social order, this way of govern undermine the relationship between the colonial power and the communities in the island. The impossibility of exercise any political activity inside the island gave rise to lobbing activities in UK and Greece. The "London Cypriot Committee" was founded in 1932 and gained significant political importance within the House of the Commons. The rise of fascism in Europe and the work of the London Cypriot Committee achieve in 1937 that English press and some private organizations criticize British government because the autocratic ruling of Cyprus. Some modifications were introduced in Cyprus as a result, but the autocratic role of the governor remained almost the same as before.

The colonial power saw Cyprus nationalism as an elite movement, so they wanted to diminish it and limit their spread through economic development. The problem was that neither the actions taken nor the world economic situation helped to achieve this goal (post-1929 depression hits severely those years all over Europe). Since 1932 trade unions were promoted and labor cooperatives fostered, but those institutions were already taken by the communist movement that was politically banned the previous year. Cooperative Central Bank was founded in 1937 funded partially by British Barclays Bank. In 1940 the "Debt Settlement Board" was created to alleviate the debt burden carried by the peasants, but the effect was to curtail credit by driving money-lenders out of the market. None of the measures seemed to work effectively, in 1934 the situation was so deteriorated that large part of the population was close to famine. The state of the economy remained in bad shape until the outbreak of the Second World War, in this date the price of agricultural products increased so much, Cyprus economy (being mostly agrarian at that time) saw the prices of their exporting products skyrocketed. In short, the British plan consisting of improving the standard of living

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[12] The executive council was formed by four British officials and two Cypriots all of the appointed by the governor. The advisory council, introduced in 1933, was formed by the members of the executive council plus five Cypriots appointed by the governor.

in Cyprus to diminish national sentiment failed because of wrong economic policies and world economic depression.

The decentralization and self-government that enjoyed the Turkish Cypriot community until the 30´s was curtailed by the new decade of dictatorial ruling. They remained pragmatically loyal to the British because their fear to Greek nationalism, but given the new situation they started to develop and strong nationalism and anti-British sentiment.

e. Cyprus in the Second World War

To assure the support of the islanders in the fighting, the colonial power gave back some political freedoms in Cyprus. Also, the declaration of the Atlantic Charter in 1941 made clear that the British cannot continue to govern some of their territories in a way that it´s opposed to the ideas that they were defending and fighting in the war.

Political parties were again permitted, the expression of nationalism was no longer pursued and press freedom reintroduced.

The communist movement started to spread quickly, they get so many followers during the 30´s in the labor cooperatives promoted by the British government. When political parties were again permitted, they formed their own party AKEL[13]. The preceding bad economic situation was one of the key elements that explains the rise of communism in Cyprus. The party tried to sympathize with members of both communities, but their demands of "national rehabilitation" was taken by the Turkish Cypriots as an approach to *Enosis* so the party remains mainly formed by Greek Cypriots. Their popularity was increasing so rapidly that in 1946 AKEL was the strongest communist party outside a socialist country. Although their strong mass of adherents, their political power remains "under control" because the elections were confined to municipalities.

The Turkish Cypriots political parties suffered so many internal rivalries, splitting and reunifying several times during this period. In consequence, this community, in contrast with

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[13] AKEL was not originally communist, but just 6 months later its foundation, the party was officially a Leninist party.

the Greek Cypriot community, failed to make themselves heard by this new channel opened by the colonial power (political parties).

The lack of military infrastructure in Cyprus (the ports were adapted to commercial activity) isolate so much the island from the cruelties of war. Bombing was rare in Cyprus or in its surroundings. The only truly target nearby the island was naval, so when bombs fell usually the cities were safe. Since mid-1941 the threat of air bombing by the Luftwaffe disappear when the British army spelled Axis forces from Syria.

The war changed so much the political status quo in the island. At first the population attitude toward the war was ambiguous and they offer hesitant support to their colonial rulers, but when mainland Greece was attacked by Italy, many Cypriots joined the British army to fight against fascism[14]. The British flag wave next to the Greek one in the island for the first time and the attitude of the Church toward the British government was so much relaxed. When Greece falls under axis dominance the Greek government and the Greek King looked to Cyprus to place their exile government, the idea was even backed by Churchill, if this would have happened, it would have changed the fate of the island, but the mere rumor gave renewed strength to Greek nationalism[15].

Since 1942 the Greek government in exile expected to adhere some territories in an eventual peace conference, so the Greek Cypriots expected also that *Enosis* would finally happen. Meanwhile the mistrust of the Turkish Cypriots started to rise again.

f. After the Second World War. 1945-1951. The Constitutional Process, the Referendum on *Enosis* and the Concessions to the Turkish Community

The expectations of *Enosis* after the war were supported by the Foreign Office in Britain, but not so much by the Colonial Office and the British Military, they didn´t want to relinquish the only British possession in the Middle East, especially in the outbreak of the Cold War[16]. This

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[14] About 30.000 people joined the British army, this was one tenth of the population, 22.500 of them were Greeks Cypriots, 7.000 Turkish Cypriots and 500 from other minorities.
[15] Finally, the Greek government exiled in London because military reasons, as has been already pointed out, Cyprus lacked military infrastructure.
[16] British presence in Suez and Iraq started to diminish and Palestine were collapsing at the time.

second vision tended to prevail, in fact Cyprus became the Air Headquarters of Middle East in 1948, taking advantage of the fact that Russia was within air bombing range. In 1953 Cyprus became the Middle East British Military Headquarters.

A new constitution was set as a counterpart for the negative of the British to *Enosis*, also an attempt to reconcile with the Church was made through repealing some anti-clerical Laws enacted in 1937 under the dictatorial decade span. Despite the failure of the old economic plan to improve the conditions of the Cypriots, a new 10 year´s economic plan was approved also as a way to diminish the *Enosis* claims.

This new constitution granted much more participation of the Cypriots in administration of the island, but this wasn´t enough for the nationalist movement, nor to the communist one guided by AKEL political party and its trade unions. The London Cypriot Committee (the lobby group in London) also claimed, arguing that constitution is not demanded, but reunification with Greece. This claim was answered by the Secretary of the Colonies backed by the Prime Minister Atlee, the Secretary stated that self-government is the maximum offer and that any other settlement is out of the table.

The Second World War brought a new international order, the gradual disappearance of UK and the irruption of the US in the scene changed the political status in the zone. Since 1945 Greece and Turkey ceased to be economically and politically dependent of the British and became more dependent on the US. The Greek government always supported *Enosis* movement within Cyprus, but now increased to do it with renewed strength and with official statements[17]. However, the US did not support any change in the status of the island, so the constitutional and other reforms planned for Cyprus followed their course. In 1947 strikes and protests were organized in Cyprus against the reforms.

The leadership in the constitutional process was mainly exercised by Greek Cypriots, the Turkish Cypriots were complaining in several manifestations against the constitutional process because they saw it as a way to achieve Enosis or more autonomy[18]. In any case the Turkish political leaders were still supporters of the British rule (or the annexation to Turkey

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[17] The *Enosis* support of the Greek authorities were always unofficial until 1947 when the Greek parliament advocacy for the self-determination of the island.

[18] More autonomy toward Cyprus in the now centralized government style could be a problem for the Turkish community since they were less than 18% of the population (1946 figure).

if Britain would have leave the island). The Greek Cypriots political leaders never considered their Turkish counterparts as a political force of any importance.

The Greek Cypriot´s right wing refused to participate in the Consultative Assembly[19], meanwhile the left wing, headed by AKEL, agreed to form part of the constitutional process. This was the first big disagreement of the many forthcoming between the Greeks Cypriots political parties. The reason why AKEL joined the constitutional process and postpone *Enosis* was the Greek Civil War in motion since 1946 to 1949. If AKEL would have supported *Enosis* at that time would have indirectly supported the enemy of the Greek Communist Party (KKE), their natural (political) allied. The Greek Cypriots that formed part of the Consultative Assembly sent an ambitious proposal consisting of an almost complete self-government in internal affairs and let the British the defense and external affairs. The proposal was rejected by the Prime Minister Atlee because of the danger that Cyprus could have been effectively governed by AKEL and the island could have become an ally of the communist countries.

Finally, the new constitution was redacted by the Colonial Office and presented to the Consultative Assembly to ratify it. The text was mainly a return to the pre-1931 position, with the entire Executive power under British hands and the Legislative power handled very similar attributions of that enjoyed by the old abolished Legislative Council. The Turkish Cypriots in the voted for the new Constitution, but the Greek Cypriots voted against it. The Consultative Assembly cannot reach an agreement and it was dissolved. The British failed to establish a new constitution and the British governed by decree until the island independence, as we are going to see, this is the outbreak of the violence in Cyprus.

After the failed attempt to implement a new Constitution, strikes and demands for self-government spread all over the island, especially strong were the demands for *Enosis*. Even AKEL, politically compromised, join the protesters in 1949 in their demands for union with Greece[20]. The participation of AKEL in the failed constitutional process gave the right wing an enormous rush under the leading of the National Party (KEK) and the Church. AKEL was seen as a British ally and they lost the moral authority to claim for *Enosis* as fast the National Party

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[19] A consultative body was created in 1947 in order to guide de writing of the new constitution
[20] Clearly in a populist movement from AKEL. In 1949 communist members were being prosecuted and executed in mainland Greece, so the last thing that the members of the communist party AKEL wanted at that time was to join an anti-communist country.

won it. The rivalries between the two major political parties within the Cypriot community escalated sharply in those years.

The protest resulted in a formal claim to the United Nations. The Greek Cypriots leaders of both parties, the Church and the London Cypriot Committee ask the United Nations for referendum based on the right of self-determination. The Turkish community organized a mass manifestation in Nicosia opposing the referendum. The British didn´t stand against the referendum, but made clear that was a not binding one since the Cyprus issue was already close, the status of the island wouldn't change in any way, the British would still be the rulers, no matter the result of the plebiscite.

In January 1950, the Church organized the referendum. Most the Greek Cypriots voted in favour of *Enosis*, almost the 96% of the electoral population. The results in the Turkish Cypriot community, as expected, were the opposite, only 800 Turkish Cypriots voted in favour of *Enosis*. The Turkish community also started to organize itself, in April 1950 they sent a memorandum to the United Nations expressing their opposition to the unification of the island with mainland Greece.

So far Turkey remain confident in that the British would rule the island without trouble, so their involvement in the Cyprus question was limited. However, this series of events changed their position, in early 1951 the Turkish government started to intervene, the Foreign Minister of Turkey stated that his government wouldn´t allow any change in the sovereignty of Cyprus that is not aligned with Turkish interests, and those are achieved better under the British rule in the island.

The Greek position in the referendum issue was neutral. Neither the British nor the Americans favoured any change in the political status of the island, and after 4 years of civil war, Greece was so much dependent of both[21]. In fact, the Greek government has a difficult role in this matter since most Greek population supported the idea of *Enosis*, so they should support Cyprus movement, but they did not want to spoil their relations with both, United Kingdom and United States.

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[21] A clear view of the Greek position on this matter can be summed up in the following statement of the mayor of Nicosia; *"Greece today breathes with two lungs, one British, the other American; it cannot for the sake of Cyprus let itself suffocate".*

Despite that the fact that the effort to bring the referendum into reality was a joint-venture of the right and the left, the way of presenting it internationally was very different. The right wing sent delegations mainly to the western countries while the left sent delegations to the communist bloc countries[22]. The rivalry between the two factions started to spike again. The result of the delegations travel of both parties was modest, the international support was, at least in the first moment, limited, not even Greece explicitly supported *Enosis*.

The British were seeing the enormous increase in national sentiment within the Greek community of the island, so they tried to counterbalance with their known formula of *divide and rule.* In the Cyprus case, basically was to promote the national sentiment of the Turkish community in order to gain their support against the independence of Greek annexation voices from the Greek community. In 1948 was created the *"Committee for Turkish Affairs"*, with the objective of pursue Turkish interests within the British rule and to establish a relationship with mainland Turkey, in fact the Turkey government started to intervene in education and religious issues within Cyprus. This in turn started to strengthen the Turkish national sentiment of the community. The British governor was actively encouraging an opposed nationalism to counteract the Greek nationalism. This will be important for the UK, when the internationalization of the conflict started the UK used the Turkish minority excuse to oppose the UN resolution in favour of self-determination.

g. The internationalization of the Cyprus Question 1951-1954

During this period the Makarios III was elected (October 1950) as the Archbishop. The new political figure, who would be later the first president of independent Cyprus in 1960, played during those years a significant role bringing the Cyprus question into the international political scene. Makarios III was an intransigent Greek nationalist with an enormous charisma. He managed to take advantage of the national sentiment born out of the referendum and become himself the symbol of the struggle for *Enosis*. He visited several times Athens and he

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[22] AKEL also sent delegations to London or New York, however their main effort was focus in Russia and their allies. KEK and the Church did not show the data of the referendum to communist countries.

established a fluid relationship with several civil society groups in Greece, so he started to exert a great influence in the Greek public opinion[23].

In early 1951, in the British House of Commons, the Minister of the State said that Greece never claimed officially Cyprus. In response to that and taking in account the increasing public pressure within Greece concerning this issue, the Greek president Venizelos demanded to Britain for the first time formally the adhesion of Cyprus to Greece. Makarios III made further pressure to the Greek government in order to raise the issue to the United Nations.

The answer of the Colonial government to this series of events was none. The British tried to focus on internal matters in Cyprus and there were no propaganda trying to limit or counteract the nationalist movement. As long as there were no disturbances of public order the British governor would not intervene. In those years, there were an enormous influx of economic aid that tried to prevent political reforms and to gain political support for the British rule, however the nationalist movement were so advanced at this point, as a matter of fact those measures caused no effect.

In 1952, after a visit paid by Makarios III, there were a two-hour strike in Greece in support for *Enosis*. The Greek government didn´t pay much attention to it. Back in Cyprus Makarios made his first appeal to violence in a speech. No one at the moment took it seriously, however only 3 years later this violence became real.

In 1952 the Greco-Turkish relationships started to cool down again because of the Cyprus question. The new Greek government commanded by Papagos, an old Greek civil war hero, withdraw public support to the Cyprus cause because of that. In those years, the campaign of Makarios III were started to spread all over the world, not just in Greece, especially in United States. He stressed the idea of the evil root in colonialism in a country (United States) that was especially sensitive to this issue because their own historic motives. Anti-British colonialism is the seed of American nationalism, so it was inevitable that the US were sympathetic to the Cyprus struggle. Geo-strategically, the US were almost indifferent between the British rule or the Greek rule over the island as long as both of them remained allies. The main American concern was to avoid the fall of the island into Communism hands. Greek nationalism in Cyprus was sometimes seen also as a communism movement because

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[23] When Makarios III visited Greece used to attract so much attention by the media.

the importance of AKEL. Makarios would never have the US support unless he can manage to erase the phantom of communism from the *Enosis* cause.

The next logical step to Makarios III was to monopolize the *Enosis* question, so since 1953 several youth organizations were founded under his command. Those organizations were two years later the main providers of fighters in the violent uprising against the British. Several manifestations within Cyprus were called at that time, the rallies were so massive that gave Makarios the sole undisputed international leadership on the *Enosis* question. However, the involvement of thousands of AKEL members in the rallies complicated the situation with the United States.

Since late 1953 the Greek government pressed so much by Makarios, its own public opinion, the media and the Greek Orthodox Church sent a memorandum to the British ambassador in Athens. In it the Greek government demanded the abolition of the repressive legislature enacted in Cyprus since 1931, the granting of a liberal constitution and a referendum under international supervision within the following two years. If the conditions were not granted the Greek Government would seek another solution. The "another solution" was intended to mean that they would raise the question in a United Nations meeting[24]. This would have mean the final internationalization of the problem, however the fears of communism inside Cyprus lead the American Embassy to step in and prevent the Greek government call to the UN.

In 1954 several anti-British riots happened in Greece because of the British negative to start any bilateral talk about *Enosis*. Greek government tried to start bilateral negotiations with Britain about Cyprus, however only received negative feedback from the British government. The Greek government then submitted the Cyprus question to the Council of Europe in June 1954. In August, after the reintroduction of sedition laws in Cyprus, Greece rose the Cyprus question to the United Nations. The reintroduction of sedition laws for advocacy of Enosis gave rise to strikes and unrest within the island and to international disapproval of the British colonial government. This events posed extra pressure to the Greek government, so finally the Cyprus question was raised to a UN meeting. Also, there were a controversy in the British House of Commons because of a statement of the Minister of State for the Colonies,

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[24] Makarios tried several times to make this movement by himself, but only member states can raise this type of questions to a United Nations meeting.

according to him *"there are certain territories in the Commonwealth which, owing to their particular circumstances, can never expect to be fully independent."* This statement also created a national and international disapproval of the British colonial government.

In 1954 the American position changed because of those blunders of the English government. From an unconditional ally of Britain to a neutral position. The US still considered that the island had an enormous strategical value in the context of the Cold War, however Greece was also a NATO member, so there was no real argument of strategical importance to avoid a change in the sovereignty of Cyprus. Indeed, the American government stated several times in 1954 that there was of no real importance about who was ruler of the island, as long as the ruler was an ally.

The Greek Appeal to the UN about the Cyprus question was debated in late 1954. The Greek position was to defend the right of self-determination of peoples, however they stated several times how Greek was in fact Cyprus and the word *Enosis* was stated several times, so the claim seemed more a Greek territorial claim than an appeal for self-determination. The British position was that this issue was an internal affair of the British Empire, so the UN has no jurisdiction in it. Also, the British stated that there wasn´t any real self-determination inspiration, the motion was in fact a Greek movement towards the annexation of the island. But the most convincing argument was the importance of the island for NATO interests, in the middle of the Cold War and with an enormous communist party within Cyprus, the English manage to persuade NATO members of the importance of the British rule in the island.

The results of the UN General Assembly voting weren´t so much encouraging for the Cyprus´ nationalists. An overwhelming majority of countries voted against the Greek motion since it could have destabilized the entire region in a complicated time. However, an amendment of the resolution was signed stating that the General Assembly of the United Nations could deal with the Cyprus question in the future. In any case, those events were seen as a diplomatic failure in Greece and spurred violence, as we are going to see, in Cyprus.

Since that United Nations meeting, the British reacted against the internationalization of the Cyprus question with the involvement of Turkey in the matter. As we have seen, Turkey remained neutral because of its military dependence of Britain. However, and alongside the Divide and Rule Policy carried on by the British in its colonies, they involved politically to

Turkey, hoping that the threat of a new Greek-Turkish conflict would encourage the then current status quo. Since then, Turkey proclaimed itself as the guarantor of the Cypriot-Turkish rights in the island, leading this position to some stress in the inter-communal relationships, however, despite the political differences, in early 1955 violence was still unthinkable.

In short, the internationalization campaign doesn´t work so well for Greece or the Greek-Cypriots. Britain remained the solely and undisputed ruler of the island and nothing seemed capable of modify this situation. However, there were, at least one important advance for *Enosis* advocates, the UN and the United States have heard their voice. Once that was clear that the Greek political failure within the United Nations, riots and strikes started in Cyprus and Greece, the prelude of the violence of the next years in Cyprus.

h. The Cyprus emergency. Violence as a way to achieve *Enosis* 1955-1959.

i. The first EOKA terrorist attacks

Makarios III looked at the Greek diplomatic defeat as a clear sign that Greece was not strong enough politically to fight for the Greek-Cypriots interests internationally. For the Cypriot leader, the peaceful way was exhausted.

The 1st April 1955 several bombs exploded in selected British facilities in Cyprus. The explosions took by surprise the British administration, even taking in account that a vessel carrying arms and explosives was caught several months before this initial attack.

The EOKA struggle was starting. The EOKA (National Organization of Cypriot Fighters by its initials in English), was an underground army formed by Greek Cypriot people and led by a retired Greek colonel, Georghios Grivas, born in Cyprus who had fought in the Greek-Turkish war (1920-22), in the Second World War, and the Greek Civil War (1946-49) against communists. The organization was aiming the annexation to Greece, their ideology was the political right and excluded the communists to be part of it. The idea of armed violence came at least from 1951 and was thought as a way to help in the Makarios´ internationalization

campaign. Makarios himself was one of EOKA´s intellectual leaders. There is evidence of Greek high officials supporting EOKA and contradictory evidence about EOKA support by Greek Prime Ministers ruling at the moment of EOKA´s inception. The EOKA fighters came from youth organizations such as the Orthodox Church and youth nationalist organizations. The EOKA organization count with 50 people at its beginning and never exceeded 200 people.

Following the first bombing, the reaction in Cyprus and Greece was to condemn the attacks, the media and civil organizations showed its disconformity against the violent way to achieve *Enosis*. However, an attempt of murder was perpetrated by EOKA against the British Governor on the Empire Day (23th May).

The violence sparked again the 19th June 1955 with another series of attacks perpetrated against Cypriot police targets. EOKA was already helped by some Cypriot Police officers. One of the attacks was launched in the Turkish part of Nicosia, in it 13 Cypriot Turkish were injured. This attack was perceived as an attack against the Turkish community and bittered again the intercommunal relationships between Greek and Turkish Cypriots.

ii. The first London Conference

At first the English governor responded mildly to the attacks, he wanted to avoid a massive revolt as the then ongoing Suez revolt. In response to this attacks the British organized a tripartite conference in London to be attended by Turkey, Greece and Britain from 29th August to 7th September 1955. The goal was to get involved again the two powers in order to neutralize themselves and the result being a preservation of the current status quo with Britain as the solely ruler of Cyprus in order to avoid civil war in the island or even another Greek-Turkish war.

The conference in fact created some tension between Greece and Turkey, the Greek government recognized the Ankara´s interest in the Muslim minority of the island, but the Greek government did not accept that Turkey has an equivalent interest on the island. The Greek public opinion and the government also claimed against the conference because Greek Cypriots were not invited to be part of the conference. While the negotiations took place,

great disturbances against Greeks were happening in Ankara[25], the old Greek-Turkish hostilities reappeared, now linked with the Cyprus question.

The British rulers offered a constitution for Cyprus with ample self-government. The Greeks asked to introduce a self-determination clause at some point in the future and the Turks wanted the same rights for Greeks and for Turks in the island and rejected the idea of a constitution that can lead to *Enosis*. The Greeks finally declined the constitutional offer, being the objection that self-government is not sufficient to highly developed and civilized people.

After the failure of the Conference, a halt in the armed struggle in Cyprus was not expected. The outcome of the Conference can be interpreted retrospectively as a failed attempt to end the violence in Cyprus that lead to an era of Greek-Turkish hostilities. However, from a British perspective, the aim was achieved since Greece and Turkey were so much at enmity at the end of the conference that the British ruling of the island was undisputed. *Enosis* seems internationally farthest than ever.

iii.   Violence still in motion

After the new political failure of the London Conference, the prospect to halt violence in Cyprus disappeared. Also, the British authorities started to respond strongly to the attacks. Since mid-September 1955 EOKA was declared illegal. Strong penalties were enacted for supporting EOKA to the different communities, such a collective fines or curfews. In addition, the *habeas corpus* was suspended to EOKA suspects, some detained were held and questioned at detention camps without trial. Additionally, a new Governor was appointed by the British authorities, being considered the older one as a weak ruler not being ready to face the scaling disturbances in the island. The new Governor sent by British authorities was a military one, Field Marshal Harding.

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[25] The Turkish government were behind the riots. The goal was to "prove" to the international community how important was to the Turkish population the Cyprus question. The disturbances left 16 Greeks died, 32 severely injured, from 50 to 200 Greek women raped, 90% of the Greeks shops and 10% of Greeks homes destroyed.

Cyprus was again on the United Nations agenda on 23th September 1955. A new violence campaign was launched by EOKA with the aim to influence the United Nations meeting. On 17th September, a great riot in Cyprus burned the British Institute and the historic library, in which more than 16.000 books were burned. Also on 22th September an assault on a police station was made and some guns and ammunition was robbed. Despite that, the Greek politicians failed again to raise the Cyprus question to a General United Nations Assembly. The British claimed that violence in Cyprus had no common ground with colonialism, being the Greek government behind it in order to achieve *Enosis*.

Governor Harding strengthen military presence with new troops. The police were reinforced with military presence and new police officers were sent directly from Britain. The coast guard was bolstered with the aid of the Royal Air Force and the Royal Navy to avoid smuggling operations that provide weapons to EOKA.

British troops found themselves often dealing with young Greek Cypriots activists and being forced to remove Greek flags and EOKA slogans. The youth usually insulted and provoked British troops when they were performing those tasks. This was part of the plan of colonel Grivas to undermine the British presence within Greek Cypriot community. Any false move from British officials could develop a controversy. In fact, population were upset about the arrival of new military manpower to the Island[26].

Colonel Grivas responded to the increase in military presence with an order to escalate the attacks. By the end of October 1955, barely one month after the appointment of the new Governor, three British soldiers lost their lives in several EOKA attacks. The decision of Hardin to ban the Greek commemorative festive day also escalated in violence. Riots destroyed military vehicles, curfew was violated and schools were closed. The disturbances lasted for three days.

The British intelligence operations in Cyprus was very limited. Almost none of the British officials could speak Greek or Turkish. Also, the clever EOKA cell structure designed by colonel Grivas in which no one of the cells knows the existence of the others limited the exposure of the entire organization in case of apprehension. However, by November the British

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[26] In fact, several mobs stoned buses that carried the families of the British soldiers. The British population can only leave their residence areas when streets were patrolled by soldiers.

intelligence, the MI5, discover the identity of the man behind EOKA. Colonel Grivas was unmasked, the leak came from Greek communists. In addition, the counter-insurgence traditional activities such as cordons to isolate cities or neighbourhoods were highly ineffective because large convoys of vehicles heading to a particular area warned EOKA that an operation was about to be launched.

iv.   Declaration of Emergency

The second half of November 1955 saw another great spike in EOKA activities, leading to another 7 British military casualties and several wounded. The security situation was deteriorating so fast that by the end of November 1955, Governor Harding declared a national state of emergency. In addition to the already in motion restrictive civil liberties, others restrictions were added such as forbidden to assembly without explicit permission of the British authorities and the extension of the death penalty to anyone who open fire, or throw an incendiary artefact. Even to be in possession of a weapon could fall under the capital punishment. Rioters aged under 18 were whipped with a bamboo cane. When some youngsters were sentenced to the whipping, there was an international displeasure and an increase in sympathy toward the Greek Cypriot cause from the international community and a sentiment against the way the British were dealing with the Cypriot problem.

The armed assaults, far from stopping, followed with renovated strength, at that time it was clear that the Cypriot conflict was going to be a long one. The Cyprus´ emergency would eventually last until the British withdrawal from Cyprus.

The governor Harding let clear that he distrusted Makarios and the Cyprus Orthodox Church by ordering a searching of twenty-four monasteries. Makarios felt outraged and called barbarians to the British, even taking in account that in a further searching of Makarios´ house the British forces found correspondence with colonel Grivas, the leader of EOKA.

By mid-December 1955 Harding started a campaign against EOKA fighters. Many guerrilla fighters were captured and even colonel Grivas himself were about to fall prisoner.

Governor Harding also charge against the communist represented by AKEL. The AKEL´s position about the Cyprus question was to avoid violence and exhaust the diplomatic way. In any case, governor Harding ordered the detention of 128 AKEL members and seize several printing presses. The persecution of AKEL lead to strikes and protest all over Cyprus. This series of actions taken by governor Harding were a clear failure since the internal security situation deteriorated even more.

The last three months of 1955 left 24 people killed by violent acts related with the clash between EOKA and British rulers. 12 people were part of the Armed Forces, 5 police men and 7 Greek-Cypriots. Unfortunately, the violence did not stop there.

At the beginning of the next year, 1956, EOKA was restructured after the British chasing. The shortage of arms was partially resolved by thefts from police stations and British military depots. The cell structure designed by colonel Grivas contained the damage that interrogations to prisoners could inflict on the terrorist organization and the EOKA´s courier system remained intact since it depends on the loyalty of civil population[27].

With the arrival of new year, the British forces received two kinds of reinforcements. The first one was new military forces, there were near 20.000 men and fourteen battalion in the island at the beginning of 1956. The second type of reinforcement was MI6 agents dedicated to counter the EOKA propaganda. The aim was to blackening the name of EOKA trying to establish a link between them and AKEL, and by throwing false accusations and misleading information of guerrillas raping schoolgirls involved in protests and strikes. The plot was largely unsatisfactory because of the actual weak link between AKEL and EOKA.

v.   Makarios Deportation and the British Counterattack.

After a new failing on negotiations about Cypriot self-determination, this time between Makarios and governor Harding, the governor decided to expel the Leader of the Greek-Cypriots. Makarios´ official position was to oppose any form of violence in order to achieve *Enosis*. However, the governor knew, at least from the searching on monasteries commented

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[27] This civil society loyalty was partially authentic and partially based on fear.

above, that there were a clear link and vivid letter exchange between colonel Grivas and Makarios. Governor Harding was aware that the deportation would cause even further deterioration of the internal situation since Makarios was a loved and supported leader of the Greek-Cypriot community. However, the decision was made to isolate the EOKA leadership.

By mid-March 1956, coinciding with a Makarios trip to Greece to meet Greek political leaders, Makarios was intercepted in his way to the airport by British agents and sent to Seychelles islands, which it was supposed to be far enough to avoid any further Makarios´ influence on Cyprus politics. Several other clerics with strong political influence were also deported to the Seychelles islands.

Few days later, EOKA retaliated by placing a bombing device in Harding´s bedroom. The bomb was a sophisticated device designed to explode when the temperature of the room reached a predefined temperature. The attempt of assassination failed just because the night the device was placed was colder than usual. The next day several Greek-Cypriots workers failed to turn up for work in governors´ house and others workers refused to enter the bedrooms raising suspicion about the security situation of the Government House. British soldiers found the device and exploded it in a controlled way.

The deportation of Makarios annoyed colonel Grivas, who saw their intelligence sources, closely linked to the Cypriot Church activities, severely diminished. Nevertheless, from this point, he had the unrestricted control of EOKA operations and became the sole leader of the *Enosis* movement.

The colonel Grivas´ terror campaign increased and the attacks was extended. Colonel Grivas was merciless with anyone who criticised EOKA, it did not matter the nationality, any possible British collaborator was treated as a traitor and was set as a target. This would have two effects on the historical communities of Cyprus:

- The Greek Cypriot community doubted about colonel Grivas methods and leadership. Middle class were seeing how terrorism was affecting their business and personal interests. With Makarios out of the scene this situation even aggravated.

- The inter-communal relationships between Greek Cypriots and Turkish Cypriots were already under a lot of stress. The increased attacks sometimes killed or wounded Turkish Cypriots. Sectarian riots confronted several times because of that, the Turkish community were starting to retaliate the attacks suffered.

A series of assassinations perpetrated by EOKA took place through April 1956 with the first British civilian casualty. In May 1956 EOKA executed two British soldiers in retaliation for two EOKA sentenced to death. The brutality of the murder of the two British soldiers were rejected as ethically unacceptable by a great part of the Greek Cypriot community.

British intelligence had been informed in May 1956 of the whereabouts of colonel Grivas. An operation was set in motion to capture the colonel in early June 1956. The slippery Grivas managed to escape, however he had to left behind most of the equipment of his division including his diaries which contained critical EOKA information. Based on the intelligence gathered from colonel Grivas diaries British military managed to destroy several EOKA groups.

The EOKA´s cell structure was designed to prevent the fall of the entire organization if some group were captured, however it had one great vulnerability; the fall of the leader or the seizure of the top command information could jeopardize the entire system. From this point, colonel Grivas controlled EOKA from hideouts.

From a British perspective, the operation was, strategically, a complete success. Seventeen EOKA fighters were captured and several cells destroyed. EOKA never fully recovered after this serious setback. However, again from a British perspective, the operation was not free of any cost, since twenty-five British soldiers died and millions of British Pounds worth of equipment were lost. Most of the British costs came from operational failures, not because of EOKA fighting back. There were recorded several incidents in the forest where brigades fought between them thinking that in front of them there were an ambush of EOKA fighters. In addition, there were several incidents with some casualties regarding a fire surprising British brigades.

vi. The Suez Crisis

Colonel Nasser took power as President of Egypt on 23th June 1956. He nationalized and blocked the Suez Canal on 26th July 1956, cutting off the most important trade route between Europe and Asia. Because of that, British hostilities against Egypt seemed imminent. The British high command was expecting to use Cyprus and Malta as support bases for an invasion of Egypt. Cyprus was expected to be a bypass for 80.000 English troops. For the first-time Cyprus was used as a base for a British military operation during its colonial period.

Between August and September 1956 (date scheduled by British forces to land in Egypt), colonel Grivas launched a series of attacks to push further the Cyprus question on the international spotlight.

The arrival of such an enormous army to Cyprus requested to divert troops from internal security to guarding the camps.

The final attack on Egypt was launched on October – November 1956. The British military was so distracted in the Egypt war operations that EOKA was able to commit several of its the most successful attacks in this period of time. In October 1956 26 people were assassinated, the death toll reached 33 people just in the first three weeks of November 1956, the highest figure in EOKA´s victims in such a short period of time.

vii. Diplomacy Efforts and the Radcliffe Constitutional Proposal

By mid-June 1956, when EOKA was at the verge of defeat, the British government proposed a plan to Greece and Turkey in which there were a clause for *Enosis,* the so-called June plan. The plan included that the United Kingdom would retain several military bases in Cyprus and that Turkey would be allowed to place Turkish troops in those military bases. Turkey refused the proposal and suggested that the island should be partitioned (a guideline for what happened in 1974). From now on the partition of the island was going to be treated as a potential scenario to be taken in account in any negotiation. In addition, the Turkish government threatened that if Cyprus were going to be transferred to Greece, then Turkey

would invade the island (another premonition for what have happened in 1974). The United States did not back the June plan either.

By mid-July 1956, another effort was made by British diplomacy. The distinguished jurist, Lord Radcliffe arrived Cyprus with the task of writing a new constitution to be introduced when EOKA was finally defeated. Radcliffe proposals were expected to be liberal oriented (in the European sense) and in the long run would have led to self-determination and maybe *Enosis*.

In September 1956, the American diplomacy proposed to grant self-determination to Cyprus after a 10-year period of British control of the island. The proposal had to be discussed and approved under NATO terms in order to avoid any conflict between Greece and Turkey if *Enosis* was finally achieved once the self-determination period arrived. However, the American proposal was closer to the Greek wishes and was rejected by Britain even before the proposal was presented to the Turkish government.

At least since October 1956 Turkey was pushing the partition of Cyprus as a solution for the sovereignty problems. The Turkish government was worried about the Radcliffe proposals that could have led to *Enosis* and wanted to offer another solution. Turkey understood that they would not can possibly claimed the entire island, so the pressure was changed to demand at least a part of it. Between October and December 1956 Britain and Turkey introduced "double self-determination" as an official option for the solution of the Cyprus problem. The idea of a double plebiscite, one among Greek Cypriot community and another among Turkish Cypriot community, was gaining momentum.

The official introduction of the double plebiscite and double right of self-determination took place as part of the constitutional proposals presented by Radcliffe[28]. However, the Radcliffe proposals did not deal with the question of the final status of the island. Radcliffe stated that a federal system cannot be introduced in Cyprus because there was no physical separation between Greeks and Turks in the island.

As a result, the Turkish Cypriots started to include in their claims the idea of *Taksim* (partition in Turkish) as an opposition to *Enosis*. The problem for the Turkish population is that it was spread all over the Cyprus territory, and if they were able to accomplish *Taksim*, it would have

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[28] This idea of double self-determination is in line with the latests developments of the Austrian theory of dynamic efficiency. See (Huerta de Soto, 2009).

entailed massive resettlements. This series of diplomatic efforts ended up with another round of intercommunal distrust between the Greek and Turkish Cypriot communities.

At the end, the Radcliffe constitutional proposal was seen as Turkey oriented and was rejected by the Greek government. The Turkish and United States government accepted the constitutional proposal. The proposal finally failed, but the idea of double self-determination and partition of Cyprus remained.

viii.   The Release of Makarios and the EOKA Truce of 1957.

Since December 1956, once the Suez crisis was over, the British military turned again in its task to bring down EOKA. In December 1956 governor Harding started another offensive against EOKA. The terrorist organization suffered serious setbacks again. At the beginning of 1956 there were 16 different EOKA groups, at the end of 1956 only 5 were still operational.

On March 1957, pressured by the situation and by the Greek government, colonel Grivas offered a truce. The condition asked by colonel Grivas to make effective the truce was the release of Archbishop Makarios.

The British colonial policy changed after the defeat in Egypt. The Suez crisis developments demonstrated the incapability of Britain to remain first class world power. In mid-1957 the British government started to understand its new role as a secondary power and partner of the United States. To keep a vast and expensive colonial scheme was now of secondary importance for Britain.

When EOKA offered a truce, there was also a NATO initiative for mediation in the conflict. Governor Harding also considered that March 1957 was a good moment to start peace negotiations since the weak situation of EOKA allowed the British government to have a relatively strong bargaining position.

Governor Harding suggested to the British government that the release of Makarios would help in the peace negotiations. By the end of March Makarios was finally released. Since Makarios exile, the British government had no one to deal with the demands of the Greek Cypriot community, so the Makarios´ release could have been seen as a good starting point

to negotiate the end of violence in Cyprus. The release of Makarios was seen as a good-will gesture from the British government, however Makarios was released but at the same time that the British government forbidden his return to Cyprus. Makarios decided to continue his political activism from Athens.

The political demands of EOKA since the release of Makarios were:

1. The return of Makarios to Cyprus.

2. The end of emergency laws.

3. Closure of detention camps.

None of them was fully granted by the British colonial government. On the other hand, governor Harding was convinced that only if colonel Grivas was apprehended a final agreement in the political arena could be reached. The British security forces continued the search for EOKA fighters during the entire truce.

EOKA started a campaign followed by Makarios of denouncing the British atrocities in the detention camps and the violations of civil liberties committed by the British colonial government in Cyprus. Witnesses often lied or exaggerated to cover up or their confessions, however, some of the accusations were truth. The British refused to allow an independent research on the matter, adding more credibility to the accusations.

In any case, and despite the continuous searches to civil population conducted by the British forces, the climate in Cyprus steadily improved during the truce. The security measures conducted by the security forces were gradually eased and some death sentences were commuted by life imprisonment.

The truce lasted from March 1957 to October 1957. Colonel Grivas saw how during the truce the relationship of the ordinary people with the British ruling was improving and at the same time none of their political claims were satisfied. The truce was respected by both sides; few incidents were recorder. However, the truce served EOKA, which was on the verge of defeat,

to reorganize itself. A new organization to enlist and train new EOKA fighters was founded. Potential EOKA fighters were selected by priests and schoolteachers. The new members had to be between 14 and 25 years old, no married men could be included as a potential EOKA fighter. By October, EOKA was stronger than ever. The truce was broken by a bombing placed by EOKA and by an attempt of assassination of governor Harding.

ix.   The Arrival of Governor Foot and the Creation of TMT, the "Turkish EOKA".

Due to the impossibility to reach an agreement regarding peace talks in Cyprus, Governor Harding resigned on October 1957 and was replaced by Sir Hugh Foot.

Governor foot arrived at Cyprus in December 1957. The change of governor, from a military to a liberal civilian governor was a good-will gesture from London in order to start again peace negotiations. Governor Foot counted with a reputation of good arbitrator due to its serving in Palestine.

The governor Foot approach was based on self-government and give time to the communities on the island to settle their difference through negotiation without external interference. The approach was obviously opposed to governor Harding approach. Governor Foot bet was to avoid international settlement, to forget about Greece and Turkey and to focus on negotiations among the communities in the island.

The EOKA counterpart in the Turkish Cypriot community, TMT (Turkish Defence Organization), was founded in November 1957. TMT united the already existing but poorly administered Turkish Cypriot underground organizations. TMT was considered at least as chauvinistic as EOKA was. The TMT goals were:

1. *Taskism*, the partition of the island. This one was its main demand.

2. Resistance against EOKA. TMT promised revenge against any attack on a Turkish Cypriot.

3. Unification of Turkish resistance organizations.

4. Being the link with Turkey.

5. Promotion unity between Turkish Cypriots.

So basically, TMT was founded to prevent Enosis, demand the partition of the island and fight against EOKA. A bad beginning to governor Foot. In fact, one of the first objectives of TMT was to create tension between the Cypriot and Turkish communities in Cyprus in order to prove that peaceful coexistence was impossible and a partition of the island was needed.

In 1958 TMT started to murder EOKA members suspect of being involved in attacks against Turks. In an EOKA fashion, TMT also retaliate members of its own community that were collaboration in any way with the Greeks.

When governor Foot arrived at Cyprus the security situation was rapidly deteriorating. The EOKA renewed strength led to more bombings and deaths and it forced the end of the ease in security measures. The clash between EOKA and TMT meant that the intercommunal violence started to escalate.

x. The governor Foot Plan

Governor Foot made goodwill gestures to the Greek Cypriot community since his arrival. 100 EOKA related prisoners were released, the restriction of movement imposed on more than 600 Greeks Cypriots was lifted and the Larnaca gymnasium was reopened (the gymnasium was closed for being the centre of Greek Cypriot nationalist disorders).

The goodwill gestures built a bridge between the Greek Cypriot public and the new British colonial government. However, the Turkish community was seeing the movements with distrust. The Turkish Cypriot officials claim with renewed strength for a partition of the island. In addition, the British security forces in Cyprus were criticizing the measure of release potential EOKA fighters.

Governor Foot presented the "Foot plan" to London at the beginning of 1958. The plan consisted in exclude self-determination for a specified period of time and to focus on internal agreement centred on self-government. Instead of *Enosis* or *Taksim*, the British would favour the creation of a liberal constitution agreed by Greek and Turkish communities in Cyprus.

The Foot plan, after the modifications suggested by the British Colonial Office and Foreign Office, included 5 proposals.

1. A 7-year period until the final decision about the future of the island.

2. Return of Makarios (always that he condemns violence) and cessation of the state of emergency.

3. Development of self-government based on majority rule.

4. The consent of both communities was necessary in order to take a final decision about the future of the island. A double self-determination clause was introduced.

5. The British would retain military bases if the British ruling come to an end.

Having both parties a veto power was expected that after the 7-year period Enosis or *Taksim* were impossible to achieve. The Foot plan was very much alike the constitutional proposal of 1948 that was rejected by Greek Cypriots.

The Foot proposal was well received in Greece and among Greek Cypriots. However, Turkey and Turkish Cypriots were suspicious of the latest British movements perceived as pro-Greek. For Turkey and Turkish Cypriots, the only solution was a partition of the island. When the Turkish Foreign Minister was asked about the Ankara´s position on Foot plan he stated:

...in the face of the existing and growing animosity between the two communities the Turkish Government had on several occasions pointed out that there is no longer any

question of self-government on the island and because of this increasingly grave situation the only possible decision to be taken immediately is a decision for partition[29].

Turkey declined governor Foot proposal and even rejected the governor wish to visit Ankara. The Foot plan was dead.

xi. The MacMillan Plan Proposal in 1958.

After the failure of the Foot plan, the Turkish government started to gather troops in the south of Anatolia. Those troops could have been used to invade Cyprus. A new Greek-Turkish war was now a possibility.

Immediately after the failure of the Foot plan, the governor Foot put in the table another constitutional proposal, the Macmillan Plan. The main idea behind this new plan was the so-called modified tridominium. The Cyprus sovereignty was shared by Greece and Turkey being the British colonial administration in control for 15 years. The members of each community would be willing to acquire their respective motherland nationalities. During those 15 years, a self-government would be implemented in the form of communal autonomy. Each community would take care and rule its own communal affairs. The non-communal matters were going to be deal by elected ministers. The British would retain the foreign affairs, the defence and internal security. The possibility of a Turkish military base was also included. The idea was to make concessions to the Turkish Cypriot side to avoid the partition of the island demanded by them.

After convincing first Minister MacMillan about the necessity of the new plan in order to avoid total chaos in Cyprus, the initial plan was revised by including some elements of the Radcliffe proposal, the Foot plan and suggestions made by the Colonial Office. The MacMillan plan was based on three pillars.

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[29] See (Crawshaw, 1978), pp. 276

1. Partition or Enosis were not acceptable by any means.

2. Any final settlement on the island must include British military bases.

3. Britain would be able to give up completely its sovereignty over the island except for some military bases.

The final independence of Cyprus in 1960 was achieved along the lines of these three pillars.

The final MacMillan plan consisted on the next proposals:

1. Cyprus would be associated with Britain, Greece and Turkey.

2. Government officials from Greece and Turkey would cooperate with the British colonial government.

3. The status of the island would be unchanged for 7 years.

4. After seven years, a final status would have to be declared for the island. It was expected that a tridominium with the characteristics explained above would have established.

5. Each community would have its own House of Representatives to deal with their communal affairs.

6. A Council would be set to deal with inter-communal affairs. The Council would be formed by 4 Greek Cypriot ministers, 2 Turkish Cypriot Ministers, 1 Greek government official and 1 Turkish government official.

7. Gradual end of the emergency state and the exiles would be willing to go back to Cyprus.

The final proposal did not include the double self-determination clause that would have signified a possible partition after the seven years of self-government. However, the British presented a verbal agreement to the Turks that they would support this double self-determination principle if no other arrangement could be made after seven years.

At the end, the MacMillan proposal was a desperate attempt to avoid a war between Greece and Turkey or a civil war in Cyprus.

The proposal was perceived by the Greeks Cypriots as a Turkish victory at the expense of their own claims. After all, Turkey was offered to enjoy an equal status with Greece over Cyprus. In addition, the British ruling would remain in Cyprus under the Macmillan plan, at least for the first 7 years. Glafkos Clerides, president of Cyprus between 1993 and 2003 and then EOKA activist claimed that all the British proposals entailed the remain of the British ruling.

> *The plan, when presented to the House of Commons, was described as an imaginative one, yet it failed to understand, or imagine, that the post-War mentality no longer tolerated the pre-War colonial practice of people being governed by Governors appointed by the colonial power. Nor could people any longer accept the denial of the exercise of the right of self-determination on account of alleged strategic interests of the colonial power or of its allies[30].*

In short, the MacMillan proposal left the Greek Cypriots with the choice between an equal status with the Turkish Cypriots, the Turkish government presence in Cyprus and the British ruling or the partition of the island.

After months of debates in the United Nations and NATO assemblies, Greece and the Greek Cypriots rejected the proposal. Greece unsuccessfully proposed again self-government for the transition period. Even Turkey rejected the plan because it was ambiguous about the possibility of a partition.

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[30] See (Clerides G. , 1989), pp. 66.

xii. The Escalating of Intercommunal Violence of 1958.

Disagreements in education policy led toward a confrontation between two factions within the Greek Cypriot community, EOKA and the leftist AKEL. EOKA even killed two trade unionists from AKEL. Many left Greek Cypriots demanded retaliation against EOKA members. A civil war inside the Greek Cypriot community seemed nearest than ever.

In early June the Turkish Cypriots started a campaign leaded by TMT in order to achieve *Taskism*. The campaign was promoted from Ankara. The campaign was especially violent and TMT attacked harshly Greek Cypriots. Turkey and Turkish Cypriots were determined to start a civil war if it was necessary to achieve partition of the island. TMT was not willing to accept any form of self-government. Partition or death become the new slogan used by TMT. A TMT leaflet stated the following on May 1958:

> *The island would be drowned in blood and fire the very day self-government is announced[31].*

The Turkish Cypriot side did not hesitate to use bombs against its own population, blame EOKA and start an uprising and massive riots in which the Greek Cypriots were terrorised. 16 Greek Cypriots died in June 1958 killed by TMT.

Colonel Grivas stated that the attacks were a plot organized by an Anglo-Turkish conspiracy in order to force EOKA fighters to leave the shadows and openly fight against the Turkish attacks led by TMT. This would have weakened the cell structure of EOKA.

In July 1958, the Turkish Cypriots, backed and encouraged by the Turkish government started a campaign of enlarging the Turkish territories in Cyprus since they were convinced that the partition of the island was going to happen soon.

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[31] See (Crawshaw, 1978) pp. 287.

In July EOKA counterattacked the TMT offensive. Several terrorist attacks from EOKA against Turkish Cypriots were again followed by terrorist attacks by TMT on Greek Cypriots. The situation was out of control. Most of the victims were not combatants, but workers, farmers or shepherds. The civil society in both communities were suffering the spike in violence.

The complicated situation in the middle East in the summer of 1958, with the overthrow of the Iraqi royal family sympathetic to the British and the British military intervention in Lebanon signified that the British needed more than ever Turkey as an ally in the zone. Consequently, the Cyprus situation and events in the island was needed develop in a way that did not offend the Turks.

The intercommunal violence was tackled by the British with a massive security forces operation (Operation Matchbox) in which 1992 Greek Cypriots were arrested and only 58 Turkish Cypriots. In addition, the Turkish Cypriots were released after a short stay in a detention camp, meanwhile the Greek Cypriots detained were condemn to spent one year in several high security camps. Many of the Greek Cypriots detained were released by governor food at the end of 1958.

From June to August 1958, more than 100 people were killed, approximately 50% on each side. For the first time, the Cypriots were killed merely for their identity.

xiii.   Going Back to the Macmillan Plan.

After the new set of events, the British word of a double self-determination was more credible and Turkey decided to accept the MacMillan plan. It was clear that the Turkish government accepted the MacMillan plan with the aim of provoke its failure and therefore exert the partition. In fact, in several instances the Turkish demanded the inclusion of a written clause in regard with double self-determination. The mentioned clause was finally added to the Macmillan plan on September 1958. Even the same MacMillan knew that the plan was bound to fail.

they [the Turks] did not expect the plan to work, nor did they want it to work[32].

Further violence provoked by TMT seemed counterproductive, so the Turk government ordered the end of hostilities.

In that circumstances, Prime Minister MacMillan travelled to Athens, however, no positive response was expected from the Greek government.

> *the appearance of even-handed cultivation between the interested powers, and exploring just what scraps could be offered to the Greeks without undoing all the good work towards the winning back of Turkish co-operation. […] [F]or Macmillan, what mattered in Athens was not so much the substance of the talks with Karamanlis and Averoff, as to be seen to talk[33].*

In the political arena, the Greeks seemed totally defeated. The Macmillan plan was going to be implemented without the consent of Greece or Greek Cypriots. In this situation, EOKA started another terror campaign to avoid the implementation of the Macmillan plan.

Greece tried to pressure against the implementation of the plan by threaten to leave the NATO, although the Greek government never intended to do so. Greece and Makarios changed their position and now demanded a form of self-government and eventually and independence for Cyprus. The third pressure way was EOKA and its terror campaign. None of the three succeed.

When colonel Grivas knew about the change in Makarios´ policy, he accused Makarios of treason and stated that he was going to continue with the fight for *Enosis*.

On 7th September 1958, the implementation of the Macmillan plan started. Only two days later colonel Grivas started its campaign against the colonial government. The new campaign was mainly anti-British, no Turkish Cypriot would be a target and any British citizen could

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[32] See (Faustmann, 1999), pp. 268
[33] See (Holland, 1998) pp. 270-271.

become a potential victim. On October 1958, the Turkish representative arrived Cyprus, he was received with a general strike followed by Greek Cypriots. The attacks grew in intensity, this month ended with 45 killed and more than 300 injured.

The brutal EOKA campaign, which included British women far from reaching its goals, discredited the EOKA fighters internationally and weakened the Greek bargaining position even further.

The last recourse of the Greek government was to appeal to the United Nations assembly. The United Nations assembly decided on December 1958 that an international conference would be held between Greece, Turkey and Britain. There was no way to knew at the moment, but the series of international conferences meant the death of Macmillan plan in January 1959.

xiv.   Turkish-Greek negotiations. The Zurich Agreements and the London Conference.

Turkey changed abruptly its own policy towards Cyprus and started to become more cooperative with Greece. The turn on external policy could have been due because of the increasing threat that the new United Arab Republic signified for Turkey in the region. The new government in Iraq was not sympathetic to Turkey. So, Turkey found itself surrounded by potential enemies, among them can be counted also Greece. The new policy towards Cyprus could be understood as a way to reduce potential threats and also to strengthen relations with NATO.

The firsts meetings happened between Turkey and Greece, being Britain in the dark. By themselves, Turkey and Greece agreed on independence for Cyprus and explicitly excluded *Enosis* and *Taksim*.

The British initially demanded the following if a new republic would be created:

1. British Foreign Office would be in charge of matters such as nationality, defence and Cypriot membership of international organizations. The idea was to lead the new republic towards the western world and not towards Asia.

2. Two military bases and various facilities in the island.

3. The currency of the new republic should have to be the British Pound.

The main disagreement between the Turkish and Greek delegations was the establishment of military bases. The Greeks rejected the Turkish claim for a military base. The Turkish wanted that military base to prevent that *Enosis* would be tried by the new Cyprus State.

The second biggest disagreement came from the Turkish demand for a federal State. The Greeks proposed instead a division of the State power by taking in account the communities of the island.

The first official conference between Turkey and Greece happened in Zurich in February 1959 and the structure of the eventual new republic of Cyprus would have the following points:

1. Presidential regime. The president would be played by a Greek Cypriot elected among Greek Cypriots, meanwhile the vice-president would be a Turkish Cypriot elected among Turkish Cypriots. The vice-president would have veto power on defence, foreign affairs and security matters. Elections would be held each 5 year. The vice-president would not be allowed to become president by any means.

2. There would be 10 ministers. Out of the 10 ministers, 7 would be Greek Cypriots and 3 Turkish Cypriots elected by president and vice-president.

3. The communal matters such as religious, education and cultural affairs would be deal by the enactment of two Communal Chambers, one by each community.

4. The legislative body would be formed by 70% Greeks Cypriots and 30% Turkish Cypriots.

5. Separate Greek and Turkish municipalities in the biggest 5 towns.

6. The 70% of government officials would be chosen among Greek Cypriots and 30% among Turkish Cypriots.

7. The Cypriot military force would have 2.000 men, 60% of them should be Greek Cypriots and 40% Turkish Cypriots.

8. *Enosis* or *Taksim* were out of the table in any form.

9. The new country of Cyprus would form an alliance with Greece and Turkey. Greece and Turkey committed themselves to press for Cyprus accession to United Nations and NATO organizations.

The Turkish Cypriots accepted those points. Makarios, after some hesitation, also accepted the Zurich agreements. Colonel Grivas remained silent despite the Makarios and Greek diplomacy efforts to force him an endorsement of the Zurich agreements. The Greeks even cut off the weapons supply to EOKA to make further pressure on Grivas.

In the meantime, the British side was more preoccupied by maintaining military bases on the island. When the Greek delegates travelled to London to explain the conclusions of the Zurich agreements to British officials, the Prime Minister MacMillan stated:

This is getting interesting. […] But we only need our Gibraltars[34].

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[34] See (Faustmann, 1999), pp. 295.

Indeed, the main complaint of the British officials was that no mention to the British military bases was made in the Zurich agreements. In any case, the British also endorsed the Zurich agreements with the provision that the military bases would be included in the final draft.

The London conference was held barely 2 days after the Zurich conference. The London conference was going to be the formal agreement stated in the Zurich agreements with the provision for military bases demanded by the British. After some hesitation in the part of Makarios to fully agree with the Zurich agreements, finally he backed the proposal.

The same day of the agreement Britain released all EOKA members and declared an amnesty to all anti-British crimes committed in the island.

The final Zurich agreement signed in London fell short on all the demands made by the Greek Cypriots during the first half of the twentieth century. However, the developments since 1955, in which the Turkish presence on the island and the Turkish Cypriots demands were raising forced the Greek Cypriots to withdraw most of their claims, the most prominent claim withdrawn was *Enosis*. The Turkish side also made some concessions, the main one was to forget about *Taksim*, the partition of the island. However, *Taksim* was not on the table until 1958, a year earlier of the Zurich agreements, an even this arrangement would have signified an enormous resettlement of many Turkish Cypriots. On the British side, they lost a colony but gained military bases on the island, additionally, Cyprus had become a huge problem for the British government and now it was released from taking care of the island.

xv.   The proclamation of the Republic of Cyprus

After the London conference, Makarios was allowed to go back to Cyprus. The emergency regulations issued by the British were relaxed or lifted.

Makarios arrived in March 1959 and gave a speech in which he praised the EOKA efforts but also stated that freedom also entails responsibility and that cooperation and friendship with the Turkish Cypriot community would be vital to the survival of the new republic of Cyprus.

Let us hold out the hand of friendship and cooperation. Especially let us cooperate wholeheartedly and sincerely with our friends, the Turkish community." He ended with an appeal "to transform our island into a golden bridge that will unite and not divide the opposing powers… to transform our island into a golden bridge that will unite and not divide the opposing powers[35].

Colonel Grivas was granted with a safe conduct to Greece, but not to stay in Cyprus. Grivas did not dispute his departure, but would not tolerate an humiliation, he stated that he would leave with his pistol in his hands. Colonel Grivas finally accepted the international agreement and ended the EOKA struggle on 9 March 1959. However, Grivas did not hide his disapproval for giving up *Enosis*.

A transitional period of 17 months took place. In this period, a new constitution was written, the site of the British bases was designated and Cyprus was accepted as a member of the Commonwealth. After that, on July 1959 elections were held and on 16th August 1960 the new republic of Cyprus was proclaimed.

The last British governor, Hugh Foot stated in the ceremony of independence:

What of the future? It is for you to answer that question. A few dismal commentators say that the people of Cyprus will destroy each other. They say that you will tear yourself to bits - Greek against Turk and Left against Right. There are a few who say that the Island will go down in a sea of blood and hate.

It could be - but I don't believe it. People who have been to the brink of hell don't want to go over the edge. I know the difficulties and dangers as well as anyone, but I myself have faith in your ability, and in your good sense too. I believe that the forces of

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[35] See (Faustmann, 1999), pp. 314.

moderation and tolerance and compassion, and the desire to serve all the people of Cyprus well, and an overwhelming wish for peace, will prevail[36].

Unfortunately, governor Foot was going to be wrong about the peaceful and cooperative wishes of the communities of Cyprus.

4. Cyprus as an independent State from 1960 to 1974.

Since August 1960 Cyprus was a sovereign country. In that year independence from United Kingdom was proclaimed. Makarios was elected the first president of new republic of Cyprus. In 1961, Cyprus was accepted as a new United Nations member, the 99th member of the intergovernmental organization.

Despite the good intention showed by the leaders of the two communities, the relationship between them was far from being optimal, mistrust and lack of cooperation were usual between Greek Cypriots and Turkish Cypriots also in this period. The intercommunal violence never ended up. Greek and Turkish Cypriot nationalists never trusted their counterparties and stored weapons during the entire period in preparation for another conflict.

The Greek Cypriots saw the special provisions included in the Zurich agreement to protect the Turkish Cypriots excessive. We must remember that Greece signed the treaty and its provisions and that Makarios, the new president of Cyprus, never fully agreed with those provisions.

In 1963, the country almost paralyzed because the Turkish Cypriots used its veto right in a tax law to gain influence in the municipalities. The Greek Cypriots did not agree and a political deadlock happened. On November 1963, Marakarios tried to amend the Cypriot constitution by eliminating some of the provisions agreed in the Zurich conference and signed in the London conference. The Turkish Cypriots resigned from their government positions (or were

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[36] See (Faustmann, 1999), pp. 449.

pushed away, historians are not in an agreement about what happened) and a new spark in intercommunal violence occurred.

In 1963-64, hundreds of Cypriots died in the riots[37]. The Greek Cypriots pushed again for *Enosis* and the Turkish Cypriots for *Tuksim*. Intercommunal relationships were broken again.

Since 1964 the constitutional order was broken. The Greek Cypriots ruled the island by themselves. Many Turkish Cypriots were moved to enclaves. Only within those enclaves the Turkish Cypriots exerted some political power until 1974.

In 1964 the Turkish parliament voted in favor of an invasion of Cyprus to defend the Turkish Cypriots. However, the lack of international support for such an invasion prevented the Turkey from this kind of military response. Additionally, United Nations peacekeepers troops entered Cyprus.

Since 1967 there was a gradual improvement in the intercommunal relationships. The Greek Cypriots understood that ruling the island by themselves was preferred to *Enosis* since the international community and Turkey would not have allowed it.

Since 1967 a military junta took power in Greece. The regime of Colonels was going to rule Greece from 1967 to 1974. The military junta justification for taking power was to prevent a communist plot to take power in Greece. The regime of Colonels was anti-communist and right wing oriented.

Since 1971 the Greek regime was trying to reach *Enosis*, however Makarios was not cooperative. In 1971 colonel Grivas returned to Cyprus and founded EOKA-B backed by the Greek government. EOKA-B was founded in response to the "deviation" of the president Makarios from the *Enosis* principle. EOKA-B even tried to assassinate Makarios unsuccessfully.

Colonel Grivas died from natural causes in early 1974. Since then, EOKA-B was directly controlled by the Greek military regime. On 15th July 1974, the Greek regime used the Greek National Guard in Cyprus and EOKA-B to take the power in Cyprus. The coup d´état was successful and a pro-*Enosis* dictator, a former member of the old EOKA, and member of the

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[37] 364 Turkish Cypriots and 174 Greek Cypriots died in this new episode of intercommunal violence. See (Oberling, 1982).

new EOKA-B was proclaimed as president of Cyprus. Makarios escaped alive and managed to contact the British in order to abandon the country road to London.

On 20th July 1974 Turkey launched a military operation in Cyprus and invade the country. The regime of Colonels in Greece ended up abruptly because of the Turkish invasion of the northern part of Cyprus. The Turkish invaded about a third of the Cyprus territory. A new State, considered the Ankara´s puppet State, was formed in the northern part of Cyprus.

Still today remains two States in Cyprus, the south of island is an independent State populated by the Greek Cypriot community. The north of the island is a State controlled by Turkey and populated by the Turkish Cypriot community.

Massive resettlement of people happened because of the partition of the island. Many Greek Cypriots living in the north of Cyprus were forced to move to the south losing their properties. In the same fashion, many Turkish Cypriots living in the south of Cyprus were forced to move to the north also losing their properties.

This is how the Cyprus problem ended up, with a broken country, one third of it invaded by Turkey and Nicosia´s wall is the last wall that divide a western city after the fall of the Berlin wall in 1989.

5. The status of the Cyprus problem since 1974.

Since 1974 there is a buffer zone maintained by the United Nations between the Republic of Cyprus and the Turkish Republic of Northern Cyprus. There have not been violent conflicts recorded since 1974 to this day.

There is an ongoing embargo to Northern Cyprus. Just Turkey recognized Northern Cyprus as a country, so no international flights or vessels can arrive or depart from or to Northern Cyprus ports and airports.

In 1983 the Turkish controlled area of Cyprus declared its independence (it was considered a Turkish territory until then).

In 2002 the Annan Plan proposed to merge the two States and forming one single entity, the United Republic of Cyprus. The new republic would have a federal constitution very much alike the Swiss constitution. A referendum was held in 2004. The Turkish Cypriots voted in favor of the creation of the new republic, 64.9% voted in favor. The turn-out was very high, 87% of the Turkish Cypriots voted in the referendum. The Greek Cypriots voted against the creation of the United Republic of Cyprus, 75.4% voted against. The turn-out between the Greek Cypriot population was even higher than in the Turkish population, 89% of Greek Cypriots voted in the referendum.

In 2014 a new round of negotiations was opened to settle the long-lasting Cyprus problem. A joint-declaration of goodwill was signed. However, the negotiations stopped due to a dispute about the exploitation of gas and petroleum sited in Northern Cyprus and the involvement of Turkey in the dispute by sending a war vessel to Northern Cyprus.

Chapter 2

Financial History of the Greek Public Sector 1829-2016; Cyprus and its Financial Instability as a chapter in the history of Greek defaults.

1- Introduction

As we already have analysed in the first chapter, the western part of Cyprus is an Hellenic territory that inherit Greek culture and some Greek institutions. In this chapter, we will analyse the Greek public finance history in order to shed light to Cyprus´ current economic and financial situation. The analysis will also provide a good starting point to analyse the 2012 European debt crisis that precipitated the Cyprus economic collapse.

Greece most recent default episode is not new in the financial history of the Hellenic country. Since its inception in 1829, the Greek government has defaulted four times and remained nearly 50% of its history in default.

Due to historical bonds, the Cypriot economy is strongly linked to the Greek economy. When the Greek government declared the fourth default of its modern history, balance sheets effects rapidly spread throughout all Europe. Cyprus banks were under stress at least since 2008 because Cypriot housing bubble busting. In 2012, the Cyprus financial sector was heavily invested in Greek government bonds. At the moment, Greek government bond investment by Cypriot banks was seen as a way to hedge against the troublesome domestic market. The Greek default hit hardly the Cyprus banking system. Greek government bonds impairment was the final nail in the Cyprus financial sector coffin.

2- The Greek financial history as a history of public sector defaults

Since its inception as a sovereign State in 1829, Greece has defaulted four times and remain in default the 50% of its history as an independent State. Greece has defaulted four times if we take in account only the impairment of debt held by private debtors. After the default declaration, foreign powers usually step in with rescue packages. If we take in account also the failure to pay foreign governments (rescue packages default), then the default episodes would have risen to, at least, six times[38].

The latest Greek default cycle has started in 1981 and it´s far from ending in 2016. The features of the current default episode show an incredible similarity to other Greek defaults episodes. The astonishing similarities that can be accounted for range from the enormous credit growth (mainly led by government borrowing) to financial autarky when the credit event (default or similar) happens. Rescue packages from foreign governments are present in the four default episodes to be studied. Foreign intervention in Greek fiscal and monetary matters meant loss of sovereignty in these matters and is also a common feature in the Greek default cycle.

So, as we are going to argue, Greek government financial history repeat itself. Each default episode implied enormous economic imbalances that in the long run prevented fully development of the Greek economy.

We can divide the Greek default cycle in six different phases. The proposed classification of these phases does not pretend to be comprehensive. Some phases are not present in all the default cycles. The scheme proposed pretends to expose the similarities and dissimilarities between the four Greek defaults.

a. Financial openness

As we have already pointed it out, the Greek government has been half of its history in default. From a financial perspective it means financial autarky, with limited access or complete inability to access international capital markets.

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[38] In 1838 and 1843 Greece failed to repay debt to foreign powers. See (Reinhart & Trebesch, 2015).

Greek government sometimes has even refused to meet its creditors provoking prolonged periods of financial autarky. At some point, an agreement with the creditors was reached because a change in policy or in the Greek government. After the creditors agreement takes place the financial openness phase starts on short notice.

The financial openness phase is characterized by rapid growth in public sector borrowing. After long periods of time suffering from financial autarky, economic and financial ratios seemed sound and new credit can be granted.

An exception to this case is the first borrowing cycle that starts in 1824 when the war against the Ottoman empire wasn´t going well to the Greek army. The Greek army asked for financial aid to foreign western powers. No financial openness phase happened in the first default cycle.

b. Public sector leveraging

After an agreement with the defaulted creditors is reached, a new credit bubble, mainly lead by public sector, starts. The time span between the financial creditors agreement and public sector leveraging varies in each default cycle. The time span ranges from few months in 1878 creditors agreement (leveraging of the public sector started again in 1879) to 17 years in 1964 creditors agreement (leveraging of the public sector didn´t start until 1981, with the Greek accession to the EU).

c. Credit event

When the public sector leveraging reaches non-sustainable levels, excessive public sector borrowing finally leads to a credit event. Sometimes this credit event takes the form of a complete default. That is the case of the first default declaration in which the Greek public sector even refused to meet with the creditors countries (United Kingdom, France and Russia). In other cases, the credit event takes the form of a restructuring of debt payments, which can be accounted as a partial default. Partial default commonly has no haircuts in

nominal value, but as long as the interest rate is lowered or the repayment date is extended, it implies haircuts in debt net present value.

d. Financial Autarky

After the credit event takes place, the financial autarky period starts. The default declaration is almost always followed by a complete inability to access international capital markets for the defaulting country. Only foreign countries governments can extend new credit in this phase. The reason behind it is that foreign government credit is granted for political motives.

The financial autarky phase is generally lengthy in the Greek defaults episodes. Financial autarky is notably harmful for a developing economy, which usually shows internal savings shortages, such as the Greek economy. The availability of foreign savings privately directed towards investment activities is often crucial in the development of poor countries[39].

e. Foreign public sector rescue packages

Rescue package phase is usually overlayed with the financial autarky phase. When financial autarky phase starts, foreign governments´ financial aid is provided to the Greek government in different ways. The most common way in which the financial aid is provided by foreign powers is by granting soft loans to the Greek government. Foreign public sector takes the place of private creditors giving some debt relief measures such as extend payment deadlines and retrospective reduced interest rates.

The financial aid is usually provided by States in which its private sector is holding Greek debt when the Greek government declare the default. This financial aid can also be interpreted as a rescue plan of foreign governments directed to its own private sector. However, this interpretation is a narrow one since foreign private sector frequently has to suffer from

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[39] See (Hayek F. A., Prices and Production, 1931) and (Huerta de Soto, 1998).

haircuts derived from the Greek default declaration. Rescue packages provided by foreign powers can be understood, at best, as a partial rescue plan to its own private sector.

f. Foreign powers intervention in internal affairs

Foreign public sector rescue packages are not gifts at all. This kind of financial aid typically requires in exchange some sort of economic policy measures directed towards reducing the fiscal gap. Foreign powers lenders are concerned about the ability of the Greek government to pay back the funds lent by them. It means that recovery and subsequent development of the Greek economy becomes, at best, a secondary goal. Consequently, foreign intervention typically involves positive shocking policy decisions such as government spending cuts, but also negative shocks such as increases in taxes. Both policies can be understood as austerity policy. However, for future economic performance is so much better to implement austerity measures that curtail government expending rather than an increase in taxes[40].

We are going to see how the current political complaint of the most recent default cycle about the sovereignty loss suffered by Greece is not new at all. Loss of sovereignty it´s just the price to pay for foreign government aid. In each one of the default cases that we are going to research, Greek people has lost control of their own fiscal affairs and sometimes also lost control of their own monetary affairs.

3- Greek default episodes

In this section we are going to analyse the four official default episodes that Greek has suffered during its modern history. The four episodes have many common features as we have already pointed out in above. The economic events that Greeks are experiencing right now in 2016 have remarkable historical similarities. From the leveraging cycle and credit boom to the latest stage in which foreign powers take control over Greek fiscal and monetary

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[40] See (Alesina & Ardagna, 1998) and (Alesina, 2010).

affairs, the current default episode, with its own particularities, is markedly similar to other defaults declarations in Greek modern history.

We are going to apply the stylized facts scheme derived from the previous section to analyse the four Greek default cases. That is, the typical Greek default cycle has the following phases:

- Financial openness
- Public sector leveraging
- Credit event
- Financial Autarky
- Foreign public sector rescue packages
- Foreign powers intervention in internal affairs

a. Independence War Default (1829)

i. Financial Openness

This episode lacks the financial openness phase. The Greek territory was under the Ottoman Empire ruling and therefore no Greek debt could be piled up before independence war began in 1821. However, we can consider, as a proxy, the financial openness date 1824. This year marked the beginning of formal relationship between the western powers (Britain, France and Russia) and the Greek army. When the Greek independence war begun, the Western powers initially opposed the Greek revolution and refused to intervene in the conflict[41]. This state of affairs changed since 1823 when the British public opinion changed against the Ottoman Empire[42].

After the Greek army won the independence war against the Ottoman Empire, the Greek government started its modern history with an enormous amount of debt. In 1829 the debt

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[41] In 1822 the Holy Alliance (Austria, Prussia and Russia) even denounced the Greek revolution. Western powers opposed revolutions by principle in the aftermath of Napoleon. See (Sowards, 1996).
[42] See (Brown, 1984)

amounted 100% of the Greek GDP, a heavy burden for a newborn country[43]. The debt deadweight was especially harmful if we take in account that Greece was in war since 1821[44].

ii. Public sector leveraging

Since Britain, France and Russia enter the war in 1824, the Greek army were increasing their borrowing with those western powers. The Greek war debt was financed by the private sector, mainly from British financial sector[45]. Private investors hoped that Greeks would return the loans if the war was won.

iii. Credit event

One of the first ruling decisions of the new Greek government was to repudiate the debt piled up during the war. The reason given by Greek authorities was that the State was formally created in 1829 and therefore the debt accrued before that date is not its responsibility. The defaulted amount was 88% of the debt originally taken by the Greek government[46].

The official date of the default, however, can also be consider to be 1826 instead 1829. The initial terms of the loans provided by the British financial sector indicated that the first payments had to be made in 1826. The Greek rebels were not able to make these payments since they were still at war against the Ottomans. We prefer to consider the default date 1829, the date when the modern Greek government was established.

The first Greek debt impairment was a unilateral declaration of default. The Greek government refused to even meet its creditors before or after the default declaration. Another fact that can explain this decision is that the last part of the Greek war of independence wasn´t a war against the Ottomans, but a civil war between several Greek

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[43] See (Reinhart & Trebesch, 2015)
[44] See (Sowards, 1996)
[45] See (Brown, 1984)
[46] See (Reinhart & Trebesch, 2015)

factions. So the Greek government could have refused to pay a loan that can be partially enjoyed by a rival faction[47].

iv.   Financial autarky

The Greek refusal to repay war debts lasted until 1878 when an agreement with the creditors was reached. This is the longest financial autarky period in modern Greek history, it lasted 53 years. During the entire period (1829-1878) Greece was not able to access to private capital markets. Those 53 years of public debt impairment were in fact 53 years of international financial isolation.

The only way in which Greece gained access to external financing was the financial aid received from foreign governments. These foreign powers governments were the only economic agents with the willingness to extend fresh loans to the Greek government. So basically for 53 years the only capital entering the country was administered by public authorities.

The debt payments of this first default started in 1890 and wasn´t paid completely until 1930, more than one century later than the default declaration took place[48]. Default declarations can have long lasting effects.

v.   Foreign public sector rescue package

In 1830, just one year after the independence war default declaration, the UK, France, and Russia governments acted as guarantors of the debt for about 124% of the Greek GDP. We could say that in 1830 Greece received its first rescue package.

This first rescue package received by Greek government was impaired before any capital was amortized. In 1838 Greece failed to repay debt interest. The first capital to be amortized

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[47] See (Reinhart & Trebesch, 2015)
[48] See (Reinhart & Trebesch, 2015)

started in 1843, date in which the Greek government failed again to pay back to its institutional creditors[49]. These events can be seen as two more credits events, that are not usually included in the literature as defaults.

vi.   Foreign powers intervention in internal affairs

Since the second impairment of the rescue package in 1843 there were external pressures from guarantor countries (UK, France and Russia) for securing debt repayment. Foreign powers demanded an increase in taxes and government spending cuts, having both[50].

After taxes were raised, the tax level was higher than in the Ottoman rule. That is much to say if we take in account that one of the reasons for the civil uprising that led to the Greek civil war was the high level of taxes imposed by the Ottoman rule[51].

The government spending cuts together with the high tax burden caused civil unrest. Public disturbances happened and revolts against the Bavarian King were recorded.

b.   Parliamentary Default (1893)

i.   Financial Openness

After an agreement was reached in 1878 to repay private creditors that were defaulted in the first default in 1829, the financial autarky period was over and international capital markets were open again for Greece.

In 1870 the Greek per capita GDP was only 45% of the western European countries per capita GDP. Greek economic performance was closer to the eastern European countries. Greek per capita GDP was 94% of the eastern European countries per capita GDP[52]. Unfortunately, the

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[49] See (Reinhart & Trebesch, 2015)
[50] See (Reinhart & Trebesch, 2015)
[51] (Brown, 1984)
[52] (The Maddison Project, 2013)

opportunity to catch up economically with western countries was hampered by the crowding out caused by the Greek public sector.

For the economic convergence of Greece with the rest of the western countries, an influx of external savings directed toward profitable businesses was needed urgently. The 1878 creditors´ agreement was essential for Greek economic convergence with Western Europe. Unfortunately, the Greek public sector consumed a great fraction of the new external savings available causing a crowding out effect and preventing the development of the Greek economy.
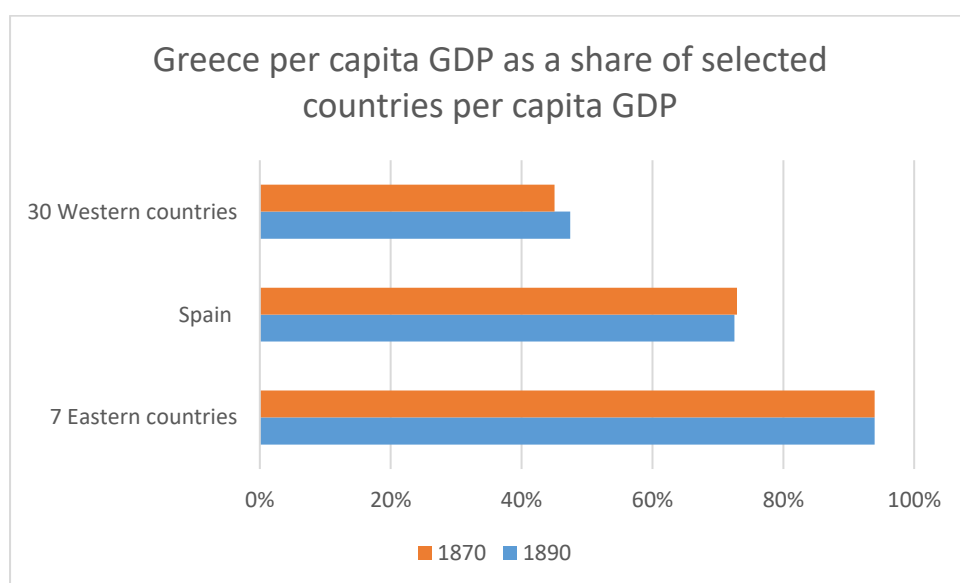
Source: (The Maddison Project, 2013)

In 1890, three years before the next credit default declaration, the Greek economy was unable to reach the economic convergence against the rest of the European countries.

ii. Public sector leveraging

The new external financing development was rapidly taken advantage of by the Greek government. Since 1879 public sector indebtedness skyrocketed. Part of this new debt was used to repay old debt. In 1879 the debt was greatly increased compared with the 1830s situation because interest had been accumulated for 53 years.

Since 1890, at the same time that the old debt commitments were starting to get paid, the Greek public deficit was greatly widened. The situation worsened because of ample current account deficits. An exchange rate crisis developed in 1893 leading to a new default declaration.

iii. Credit event

By the end of 1893 the expansionary phase of the cycle came to an end. Unsustainable public debt accumulation finally led to a new default declaration enacted by the Greek parliament. The last default was still so fresh in the memory of the Greek people that when the Greek Prime Minister, Charilaos Trikoupis, rose in Hellenic Parliament in order to declare the default, regretfully stated: "Regretfully, we are bankrupt… again"[53].

This time the amount of the default was between 40% to 50% of the total Greek public debt.

iv. Financial autarky

The financial isolation didn´t last long in this default episode since the Greco Turkish war and subsequent peace talks forced the Greek authorities to reach an agreement with its creditors. Western powers included a default clause in the peace treaty. The war and peace talks were held in 1897. The financial autarky lasted only 5 years in this default episode.

v. Foreign public sector rescue package

The peace treaty of the 1897 Greco Turkish war included a clause that incorporated a rescue package for the Greek economy. The rescue package was provided by UK, France and Russia. This time the amount of the official financial aid was 27% of Greek GDP. The bailout debt was

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[53] See (Stadtler, Schmitt, Klarner, & Straub, 2010)

paid promptly until the next default declaration was stated in 1932. In the 1932 default, UK and France took the losses. However, in 1965 Greece paid back part of this bail out to France. The default consequences lasted at least 78 years, from 1893 when the default was declared until 1965 when the amount owed was finally paid out.

vi.   Foreign powers intervention in internal affairs

An international financial commission was established in Greece after the 1897 peace treaty was signed. The financial commission was granted with great powers to monitor and intervene Greek public accounts in order to bring the Greek public deficit into line[54].

Interestingly one of the countries that exercise more pressure to establish the international financial commission in Greece was Germany. The public opinion in Germany were demanding the establishment of an institution that could control Greek public deficits. The main reason behind German claims was that many German investors were holding Greek bonds. The similarities with the current default cycle are astonishing.

The international finance commission worked relatively well. Greece registered several public surpluses until 1942, when the Nazi invasion took place. However, the international finance commission was not able to prevent the Greek default of 1932, but it managed to limit the harmful consequences of the other defaults.

c. Great Recession Default (1932)

i.   Financial Openness

International markets were open again for the Greek economy rapidly thanks to the rapid creditors´ agreement linked to the peace treaty in 1897.

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[54] See (Reinhart & Trebesch, 2015)

ii.   Public sector leveraging

The third default episode it´s the only one in which the Greek public sector did not use its ability to access fresh external loans to do so. This is partly due to the works of the international finance commission that effectively limited the Greek government borrowing. This commission prevented the public sector leveraging phase in the 1932´ default episode. This development helped to diminish the harmful consequences of a default declaration and allowed the Greek public sector to face the post Second World War scenario with a little amount of outstanding debt and allowed an enormous increase in Greek economic performance until the last default episode started in 1981.

As a matter of fact, during this period[55], and for the time span in which there is available data, only 4 years ended up with primary public spending deficit. For 22 years the primary balance was in surplus[56].

Unfortunately, the period started with an enormous Greek public sector borrowing in order to pay war reparations to the Ottoman Empire and to repay the old debts contracted with western powers in earlier default episodes as a result of the rescue packages (we have to remember that the debt accumulated from the first default was paid in 1930 and the debt accumulated in the second default episode was paid in 1965).

iii.   Credit event

This default episode is, again, a little bit different from others defaults. The internal situation does not explain Greek inability to repay its own debt (or at least not completely).

The Great Depression hit hardly the Greek economy. Since 1929 Greek exports collapsed and there were large current account deficits[57]. The foreign exchange reserves were under stress

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[55] Since 1897 to 1932.
[56] See (Reinhart & Trebesch, 2015)
[57] See (Reinhart & Trebesch, 2015)

and showed a huge contraction. To make the thinks worse, the European banking crisis of 1931 also struck the Greek economy.

In 1932 Greece suffered what can be called a "Grexit" event. Greece left the gold standard in April 1932. The depreciation of the Drachma was 50%, so the burdensome of the external debt doubled at the same time that government revenues, denominated in Drachmas were falling. The always over-indebted Greek government found itself unable to repay the external debt under this conditions. In the same year, 1932, the Greek government declared, again, a default and suspended all payments on external debt[58].
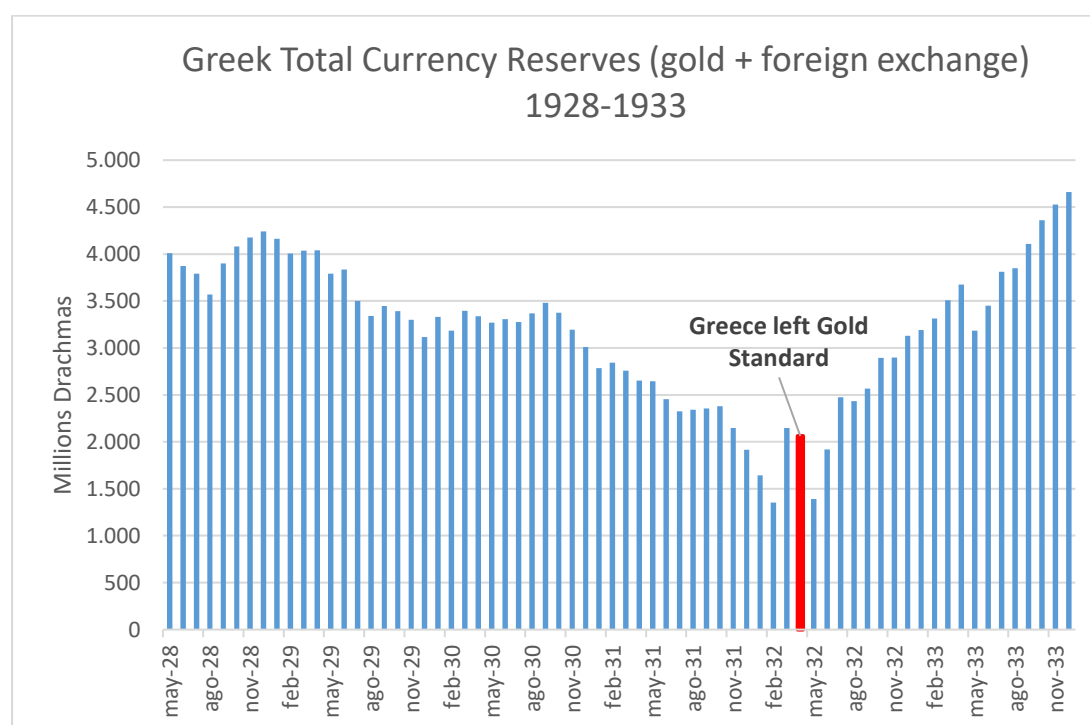
Greek Total Currency Reserves (gold + foreign exchange) 1928-1933

Source: South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II, published by: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, 2014, Athens, Sofia, Bucharest, Vienna.

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[58] See (Reinhart & Trebesch, 2015)

When Greece left the gold standard, the currency reserves had been diminishing for years. The recovery of the currency reserves after the abandonment of the gold standard was due partly because of Drachma devaluation.
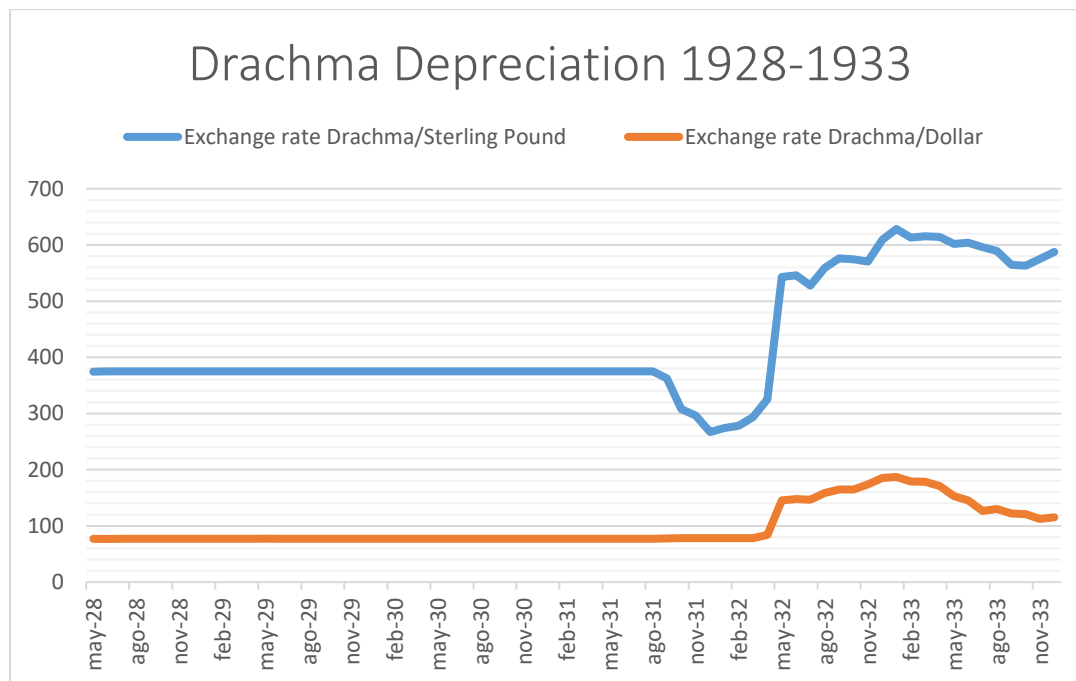
Drachma Depreciation 1928-1933

Source: South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II, published by: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, 2014, Athens, Sofia, Bucharest, Vienna.

When the restructuration of the debt finished, in 1964, there were no capital haircuts. However, if we measure the haircut in present value, it was 86%.

iv.   Financial autarky

This period of this default cycle episode is divided in two sub-periods.

- Before 1942; before the Nazi occupation of Greece the Greek government was in cooperation with its creditors. The debt service was partially continued and short term

agreements were signed with the creditors countries. As expected, as soon as the government declared the default, the price of the Greek government bonds plummeted and the yield skyrocketed, however, the price pressure diminished a little bit once that it became clear that the Greek government was in cooperation with its creditors.
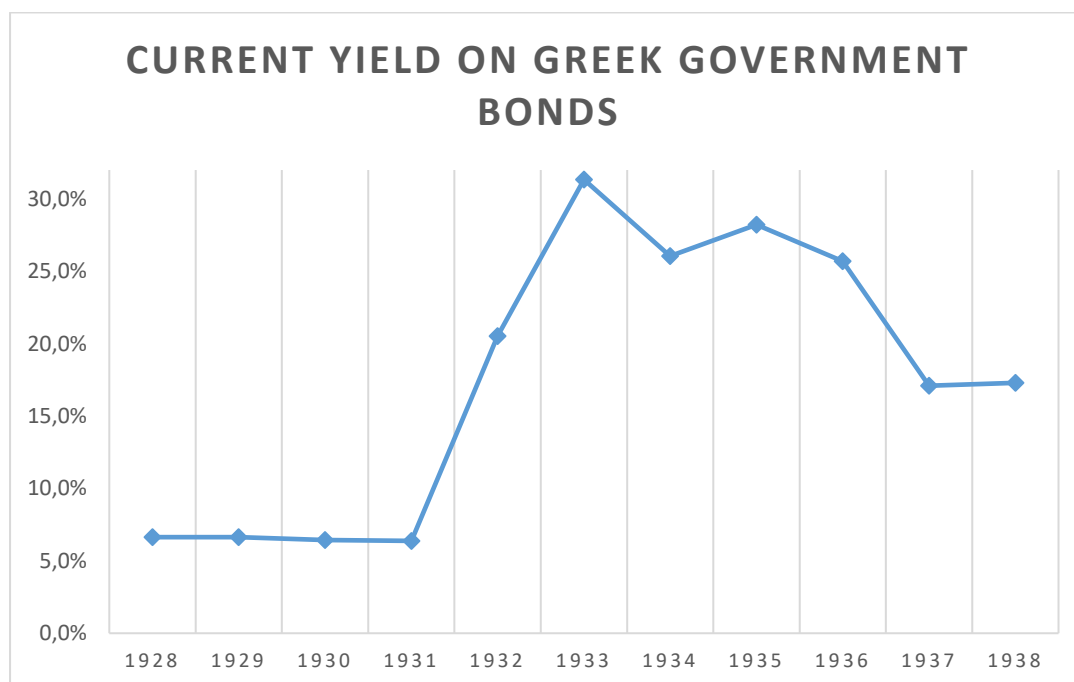
CURRENT YIELD ON GREEK GOVERNMENT BONDS

Source: South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II, published by: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, 2014, Athens, Sofia, Bucharest, Vienna.

- After 1945; when the Second World War ended, Greece was suffering enormous political turmoil with several changes in the government and a civil war (1946-49). Those events blocked the rapid closure of this phase and prevented the return of Greece to international capital markets. The debt restructuration meetings did not start until 1954 and ended in 1964.

International capital market access was granted again in 1964 when debt restructuration ended successfully. We have to remember that the bail-out granted in the second default episode was paid out in 1965. So financial autarky in this default episode lasted 33 years.

v.   Foreign public sector rescue package

Reinhart and Trebesch claims that in this default episode there was another rescue package from western European countries to Greece. However, this episode didn´t show huge deficits or public account imbalances. There was no need for public sector assistance since the debt owed was already held by the foreign public sector. In addition, Reinhart and Trebesch included as bail out loans, public sector loans granted before, not after, the default declaration. The loans that Reinhart and Trebesch are taking in account are war loans related with the First World War and some sort of refugee loans granted by western powers with the purpose of dealing with refugees arriving Greece between 1924 and 1928.

According to Reinhart and Trebesch the amount of the bail out was 75% of the GDP. We, however, are claiming that there was no rescue package in this default episode.

vi.   Foreign powers intervention in internal affairs

An international finance commission was already established in the Parliamentary default cycle. As we already stated, the international finance commission was settled down in 1897 as part of the Greco-Turkish war peace treaty in 1897. The international finance commission was fully functional during this period.

However, the loss of Greek sovereignty was amplified by the League of Nations intervention. This organization added pressure to the Greek government to put in shape the public deficit. In addition, the League of Nations also exert influence in monetary matters[59].

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[59] See (Reinhart & Trebesch, 2015)

The activity of the commission and the League of Nations in Greece were heavily influenced by the Bank of England and the British Treasury.

d. The use of the funds borrowed by Greece

Due to the impossibility of economic calculation in absence of price mechanism, government control or directing resources tend to end up in sub-optimal allocations of those resources[60]. So, we know that the use of the debt issued by the Greek government in the default episodes was a waste of resources.

However, we can trace back the use of bond proceeds in order to shed some light about the ability of Greek government officials to direct these resources into some valued uses. After all, it´s not the same to build an uneconomical road or railroad between two cities (i.e. suboptimal allocation of resources) than to declare a war against another country or start an ethnic cleansing campaign (i.e. consume resources to destroy wealth).

We find that bond proceeds used in regular expenditures and investments from 1924 to 1940 ranged between 20% and 40%. The great part of bond proceeds were used for debt servicing. Previous Greek default episodes left enormous amounts of debt unpaid. Defaulted creditors had been chasing the modern Greek government almost its entire existence. Even in the presence of important haircuts on debt, the unpaid interests on defaulted debt had been piling up during years until an agreement with creditors was again reached. The cost of the Greek debt had amounted between 40% and 60% of the total bond proceeds. When the Greek government was able to keep in the low range the cost of the debt, the bond proceeds were used mainly for military purposes, the amount of funds coming from debt issuing used for military purposes ranged from 10% to 40%.

The situation is more severe if we look at it from the fiscal golden rule perspective. If the government should only borrow to make an investment and not to fund current expenditures,

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[60] See (Huerta de Soto, 1992), (Mises L. V., 1920) and (Hayek F. , 1935)

then some portion of bond proceeds used to finance regular expenditures and investments are also another step towards insolvency[61].

In short, the Greek government faced the same problem that has to face other governments, it cannot know where to allocate resources in an efficient way since it cannot use the information provided by the price system. However, the Greek government has been especially careless in the use of the bond proceeds. The funds have been used mainly for paying interest, for military purposes and for current expenditures, a fiscal recipe for failure.

Figure 9. What is the debt used for? External bond proceeds 1824-1940
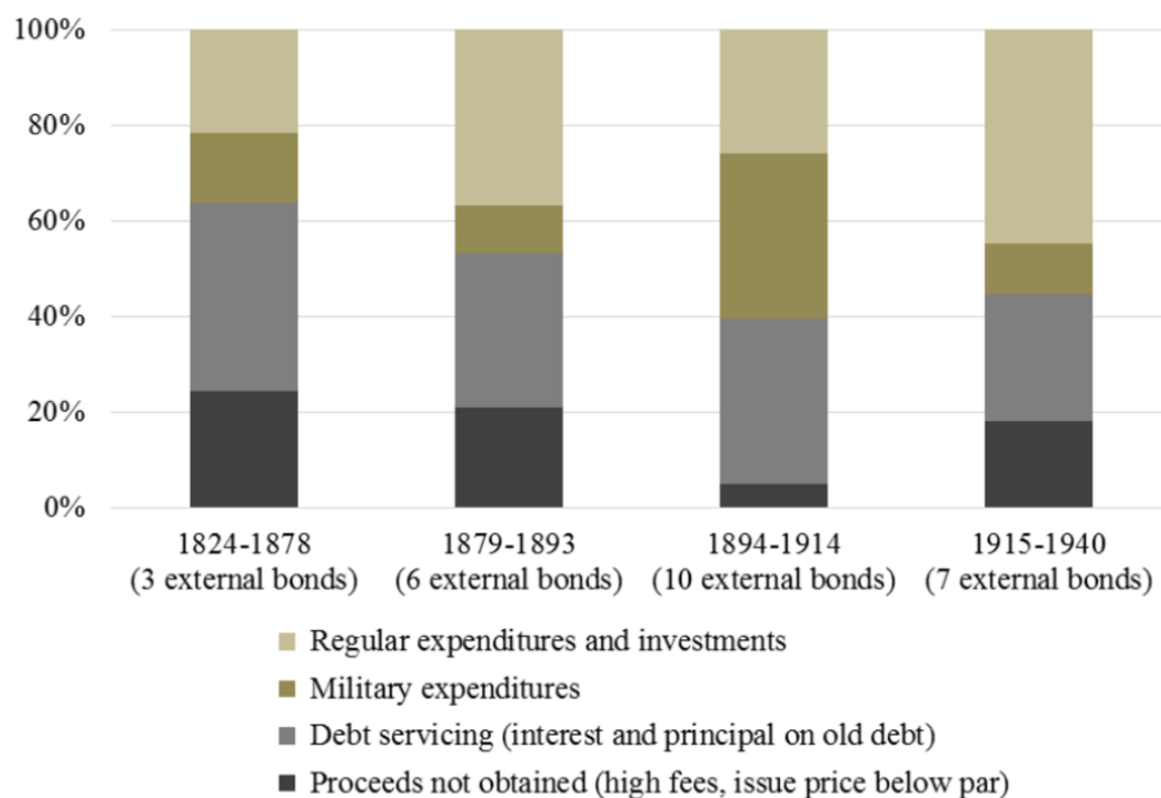
Source: Reinhart and Trebesch.

e. European Debt crisis 2012

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[61] See (Emmerson, Frayne, & Love, 2001)

The last default episode in Greek modern history started in 1964, when Greece finally reached an agreement with its creditors (mainly western governments) and a restructuration of Greek debt took place. Although the public sector did not start immediately the leveraging process. Despite having access to international capital markets, the Greek public sector decided not to borrow massively on them. It is interesting to see in this period (until 1981) how the country was able to increase exponentially its economic growth without public sector leveraging.

Until mid-70s, when the military junta falls, Greece followed the "golden rule of fiscal policy". The public deficits were only allowed for investments projects, never for current spending[62].
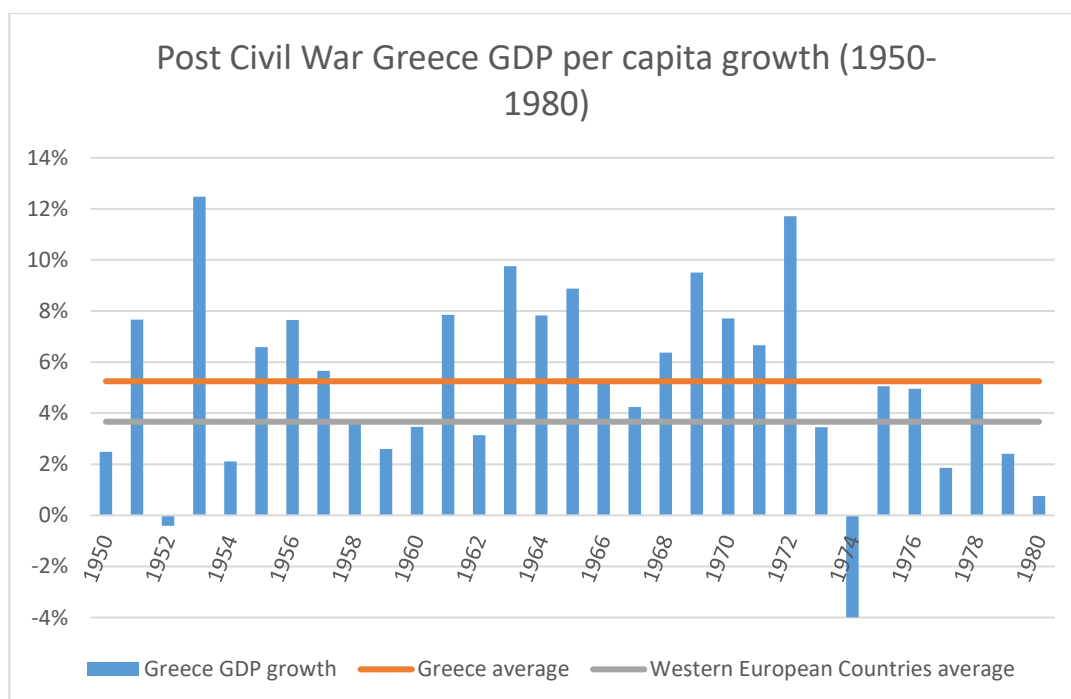
Source: (The Maddison Project, 2013)

Greek public sector debt developments helped the Greek economy to start the economic convergence process. The Greek economy started the period with a per capita income that

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[62] See (Alogoskoufis, 2012).

barely reached 1900$ per year. This amount was scarcely 42% of Western European countries per capita GDP. In 1980, Greece per capita GDP reached 9000$ per year, an amount which represented 68% of Western European countries per capita GDP[63].

Greece GDP per capita as % Western European countries per capita GDP
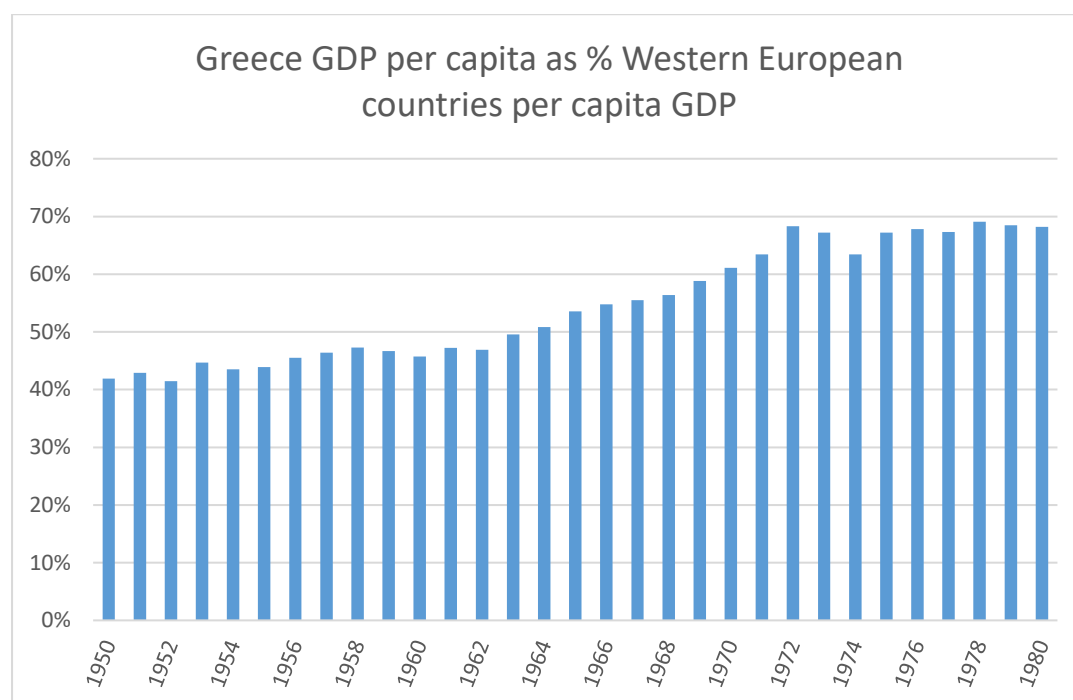
Source: (The Maddison Project, 2013).

ii.   Public sector leveraging

This phase can be divided into three sub-phases. The first one is the public sector leverage that happened between 1981 and 1992. The second one is the public sector adjustment to Maastricht convergence criteria between 1992 and 2001 in order to adopt the Euro. This second sub-period can be seen as an interruption in the public sector leveraging process. The third sub-phase is the continuation of the first in which, once within the Eurozone, Greek authorities saw no checks to follow the public sector leveraging course. The third sub-period happened between 2001 and 2010.

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[63] The data used is based on (The Maddison Project, 2013).

a. Public sector leverage between 1981 and 1992

Greece was integrated as a European Union member in 1981. Since that date, a new public sector leveraging process started. Between 1980 and 1993 the Greek public debt increased from 21% of GDP to 94%, an astonishing 341% increase in just 13 years. The Greek public debt figure from 1973 to 1993 showed an increase in the neighbourhood of 530%, from 15% GDP in 1973 to 94% in 1993.

Greek public debt, as a share of GDP
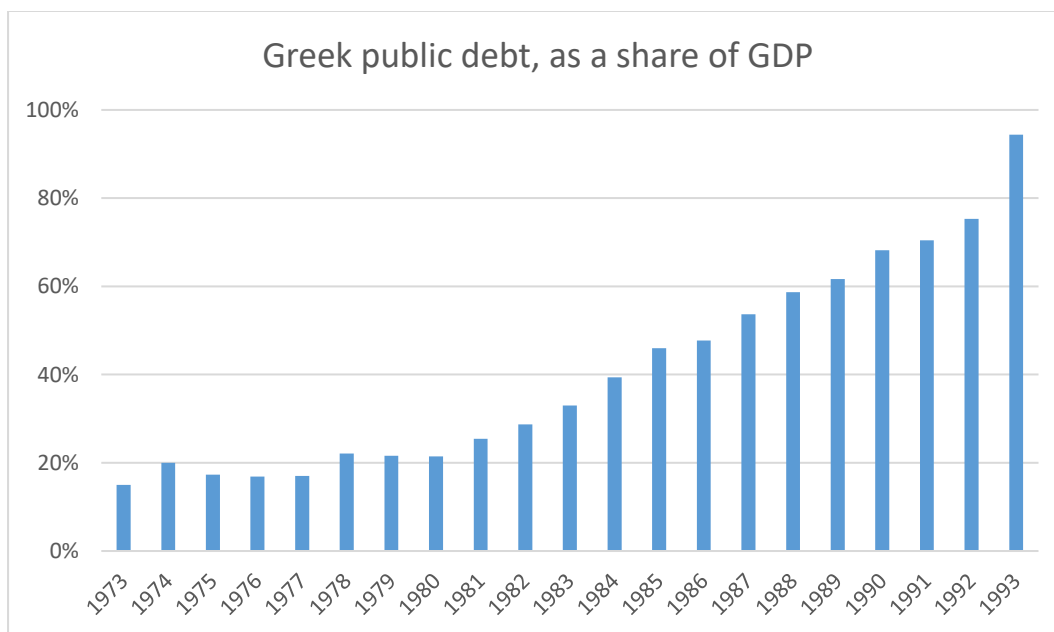
Source: European Commission.

It seems clear that the evolution of public debt and fiscal unsustainability was in a collision path with economic realities. A new credit event seemed inevitable in the early 90´s. The increased probability of Greek default was reflected in sovereign bonds interest rates.

Interest rates on long-term government bonds in 1992
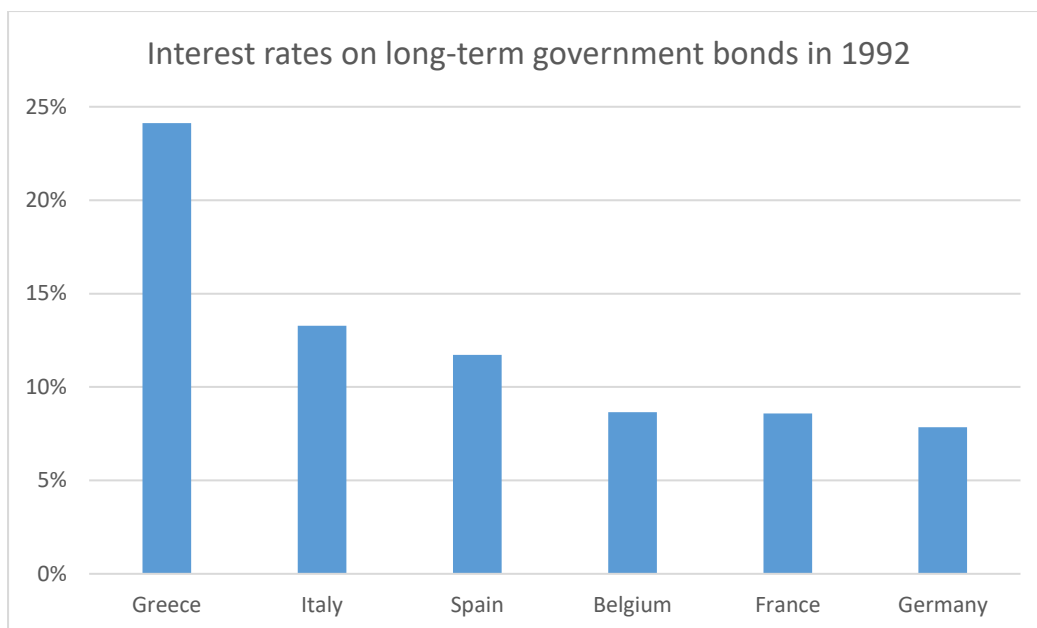
Source: European Commission.

b. *Public sector adjustment to Maastricht convergence criteria between 1992 and 2001*

Despite the risks incurred by Greek government, the default declaration was delayed for another 20 years. The key event that explained the sustainability of Greek public account figures for another 20 years was that Greece signed and ratified the Maastricht Treaty. The Euro convergence criteria included in the Maastricht Treaty put in shape, temporarily, the Greek public sector accounts. Debt convergence criterion (60% of GDP as a debt ceiling) and deficit convergence criterion (3% of GDP as annual deficit ceiling) in fact acted as a real check against large public deficits and massive public debt accumulation in Greece.

Greek government deficit, as a share of GDP
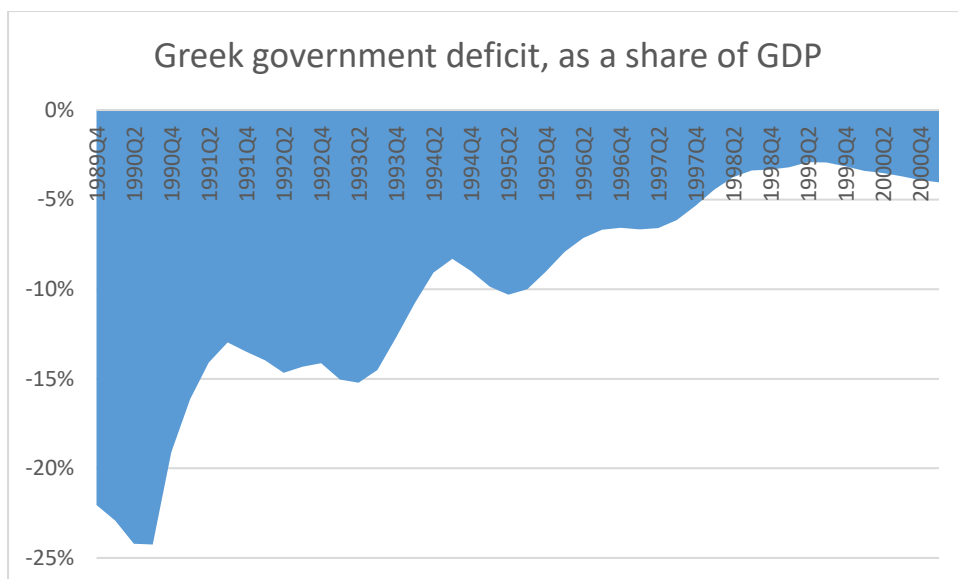
Source: Oxford economics.

c. Public sector re-leveraging between 2001 and 2010

Once that the Greek economy was accepted as an Eurozone member, the Greek authorities saw no checks in motion to carry on with the public sector leveraging process. It does not mean that the convergence criteria didn´t apply after entering the monetary union. However, there was not a formal expulsion mechanism for Eurozone countries that does not accomplish with convergence criteria (this mechanism still does not exist), so the pressure felt by Greek government was diminished.

During this period statistical issues in Greek public accounts arose. In fact, the European Commission stated this problem in 2004[64]. In a report published as late as 8th January 2010 Eurostat admit the continuing issues with Greek statistics. The statement reveals also the necessity of correcting several flaws and the concern about their quality:

> *Revisions of this magnitude in the estimated past government deficit ratios have been*
> *extremely rare in other EU Member States, but have taken place for Greece on several*

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[64] See (Espinosa, El sorprendente caso de la medición de la deuda griega, crímenes, mentiras y estadísticas, 2014).

occasions. These most recent revisions are an illustration of the lack of quality of the Greek fiscal statistics (and of macroeconomic statistics in general) and show that the progress in the compilation of fiscal statistics in Greece, and the intense scrutiny of the Greek fiscal data by Eurostat since 2004 (including 10 EDP visits and 5 reservations on the notified data), have not sufficed to bring the quality of Greek fiscal data to the level reached by other EU Member States[65].

Greek public accounts seemed at first sight to comply with convergence criteria, however, figures were revised so often and almost in all the cases the revision widened the deficit figures firstly stated[66].

DEFICIT (% GDP)	2000	2001	2002	2003
Reported on March 2004	-2.0%	-1.4%	-1.4%	-1.7%
Reported on September 2004	-4.1%	-3.7%	-3.7%	-4.6%

Source: Espinosa. European Commision.

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[65] See (European Central Bank, s.f.). EDP refers to Excessive Deficit Procedure, that it´s a sort of multilateral fiscal surveillance conducted by the European Union in regard with the Maastricht convergence criteria.
[66] See (Espinosa, El sorprendente caso de la medición de la deuda griega, crímenes, mentiras y estadísticas, 2014).

Reporting date/Year déficit	2001	2002	2003	2004	2005	2006	2007	2008
Mar-05	-3.6%	-4.1%	-5.2%	-6.1%				
Sep-05	-6.1%	-4.9%	-5.7%	-6.6%				
Apr-06			-5.8%	-6.9%	-4.5%			
Oct-06		-5.2%	-6.1%	-7.8%	-5.2%			
Apr-07			-6.2%	-7.9%	-5.5%	-2.6%		
Oct-07			-5.6%	-7.3%	-5.1%	-2.5%		
Apr-08				-7.4%		-2.6%	-2.8%	
Oct-08				-7.5%		-2.8%	-3.5%	
Apr-09							-3.6%	-5.0%
Oct-09					-5.2%	-2.9%	-3.7%	-7.7%

Source: Espinosa. European Commission.

Between 2000 and 2008 Greek public deficits, except for 2006, were not aligned with the convergence criteria. Moreover, between 2000 and 2003 the deficits seemed to be within Maastricht deficit criterion. In 2004, when the figures were revised because of European Commission complaint, the deficits more than doubled or even tripled the first stated figures and convergence criteria were not met by far.

At the end, government deficits, once that figures were finally revised, were again out of control during the entire period. The Greek government did not achieve one single year within the Maastricht deficit criterion.

Greek government deficits (final figures)
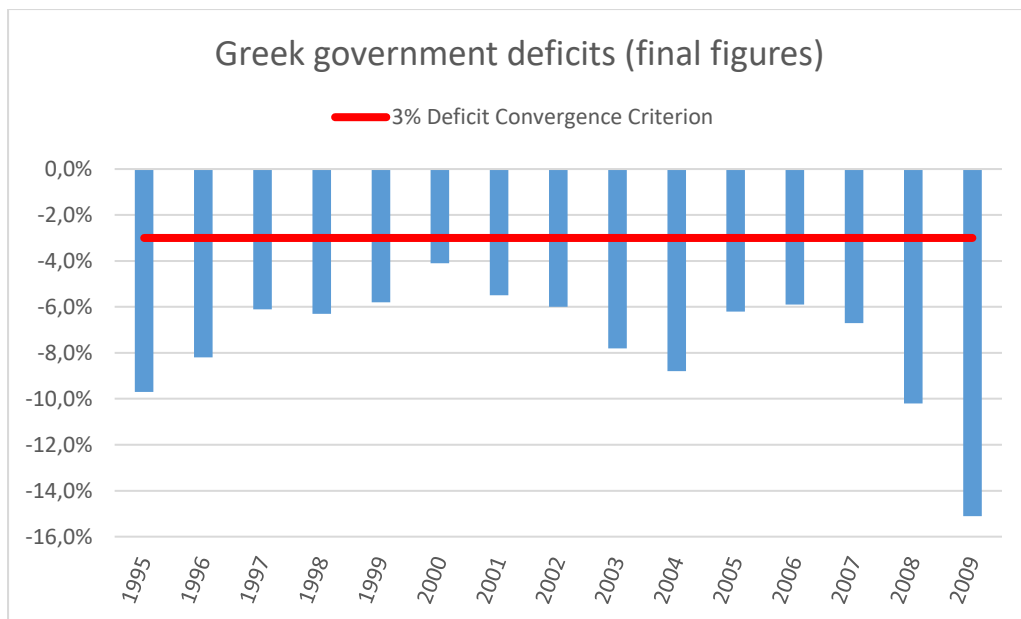
Source: Eurostat.

By the end of 2009 a financial and economic storm in Greece was unleashed when it was made public that the Greek government were masking part of its debt and deficits with the aid of financial derivatives. Balance sheet "cosmetics" were provided by the American investment banking Goldman Sachs[67]. The final deficit figure for 2009 was more than 15% of GDP. Before the debt scandal started, the planned deficit for 2009 was 6%. By April 2010 Greece was losing its investment grade credit rating[68]. This event marked the starting of the financial autarky phase even before that the credit event was materialized.

iii.   Credit event

As we already mention, this phase is preceded by the financial autarky phase that started in early 2010 when the Greek government was in the verge of insolvency. The credit event phase is also preceded by the foreign sector rescue phase that started in 2010 and is still going on in 2016.

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[67] See (Buchanan, 2017).
[68] See (Buchanan, 2017).

After the first bailout granted by European countries (further details will be provided in the next section below) and despite that austerity measures were required for the disbursement of the financial aid, the deficit was not closed and surpassed 10% of the Greek GDP for 2010 and 2011. The public debt as percentage of GDP reached 172% in 2011 when it was a little bit above of 100% in 2008.
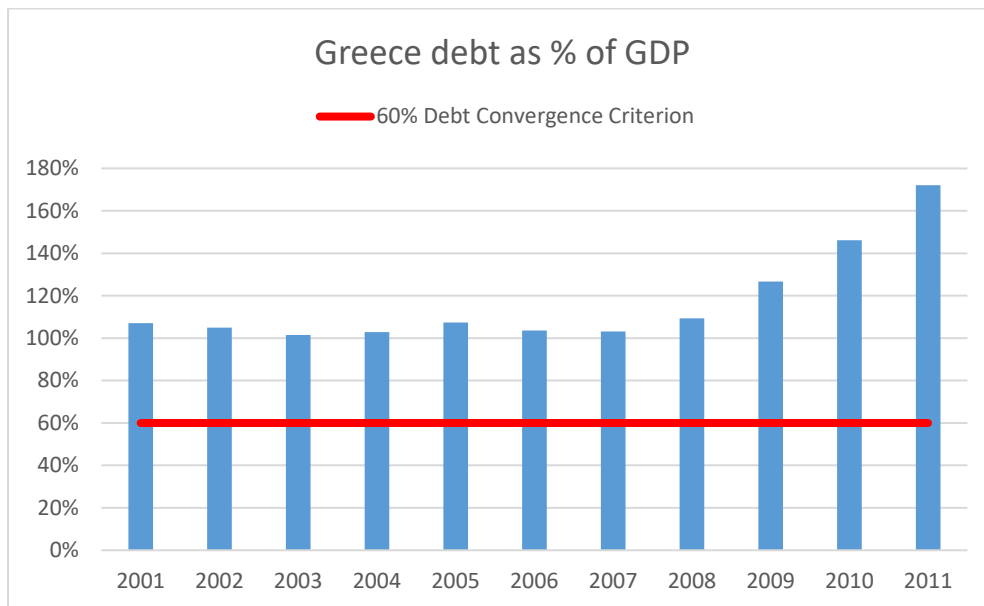
Source: Eurostat.

The expansionary phase of the boom concealed the real magnitude of Greek deficit and debt. Greece counted with an overheated economy with an absence of productivity gains, unable to growth without enormous increases of debt.

By the end of 2011 it was evident that another rescue package and a debt restructuration was needed. Greece did not fulfil the austerity measures required by the first bailout program and the economy was in a freefall[69]. The second bailout (further details will be provided in the next section below) included the Private Sector Involvement (PSI). The PSI was finalized in

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[69] See (International Monetary Fund, 2011).

February 2012 and the write off amounted 53.5% of the face value of Greek debt and 75% of the net present value[70].

It is interesting to observe that an official default declaration was never presented by the Greek government even taking in account that a de facto default took place. The default was presented as a voluntarily agreement with the private sector that were holding Greek debt. The reason given to avoid an official default declaration was to prevent another "Lehman Brothers"[71]. AIG were issuing Credit Default Swaps (an insurance against bankruptcy), when Lehman Brothers went bankrupt, the gigantic American investment bank dragged AIG into bankruptcy as well. In the Greek case an official default declaration was avoided in order to protect European insurance companies.

iv.   Financial autarky´

Financial markets were tumbling by the end of 2009. When Greece lost its investment grade credit rating in early 2010, international capital markets were close for new Greek debt issuances.

In 2016 the financial autarky is still under way in Greece. However, there was a halt in the financial autarky phase in 2014, when Greece was able to successfully return to international capital markets by issuing bonds by €2.5billions. There was ample demand for the Greek bonds. Despite the high demand in 2014, the return to international capital markets for the Hellenic Republic was short-lived[72]. The return to normalcy in Greek public finance was shattered by the outbreak of a new crisis when an anti-austerity government was formed in Greece in 2015 and a new fear of default was felt in capital markets. The financial flows leaving Greece in 2015 were even higher than those of the 2012 when the country defaulted on its debt.

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[70] See (Riskdata, 2012) and (Creditex, 2012).
[71] See (Bloomberg, 2012).
[72] See (The Economist, 2015).

Foreign liabilities Greek banking sector

Source: Bank of Greece. The data is expressed in millions of Euro.

v.   Foreign public sector rescue package

So far three rescue packages have been approved. The first one in 2010 amounted €110billions, the second one in 2012 €130billions and the third one in 2015 €86billons. Financial aid was always provided by Eurozone members and IMF in a conditional way. Adoption of austerity measures was demanded in exchange for the rescue packages.

a.   First rescue package in 2010

After the political scandal were unmasked in 2009 the economy of Greek was in a very bad shape. The current account deficit was almost 15% of GDP in 2007 and 2008, in 2009 the figure was almost 11%. As we already have pointed out, the public debt over GDP was more than 125% and the deficit more than 15%. International trade fell almost 20% in 2009[73].

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[73] See World Trade Organization statistics database.

Current Account Balance Greece (1995-2015)
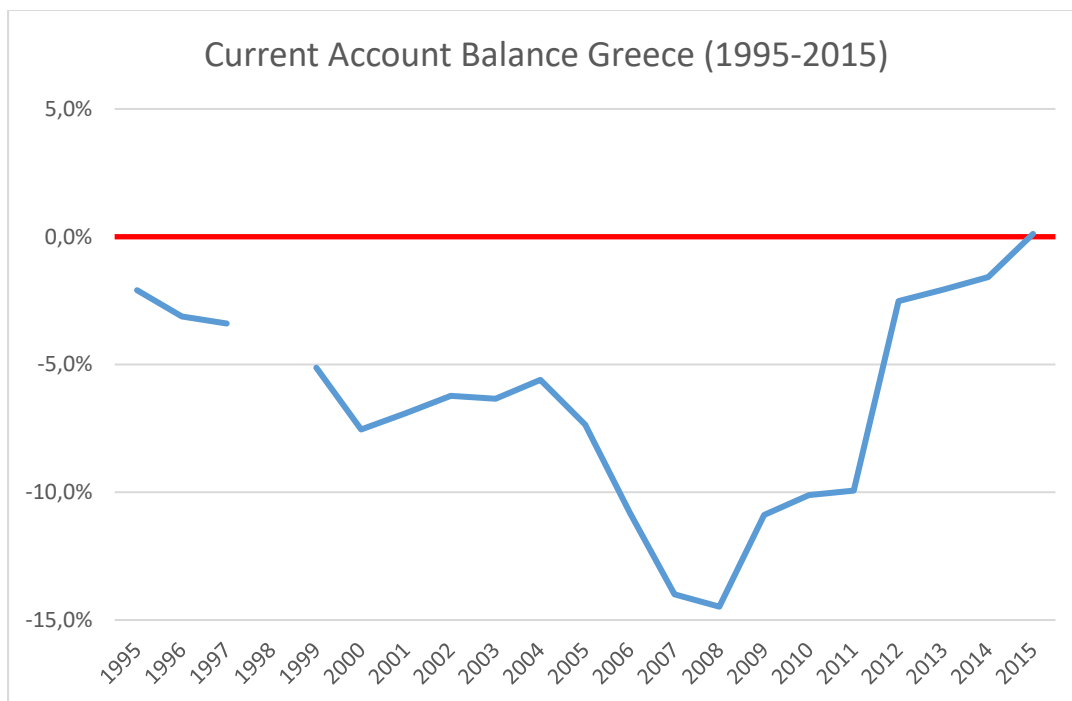
Source: World Bank.

In April 2010 the Greek bond was downgraded to junk bond status[74]. Since that date, international capital markets were closed to the Hellenic country. On 27th April Greece ask for financial assistance. The first bailout was approved on 2nd May 2010 with an initial amount of 110 billion Euros. The bailout was implemented with bilateral loans between members of the Eurozone (and the International Monetary Fund) and Greece. The bail out included a plan for privatization of public enterprises and several structural reforms[75].

The privatization and structural reforms that Greek had committed to implement as exchange for the first bailout program were remarkably behind schedule with enormous problems in policy implementation. From 2010 to 2011 Greece was able to improve just one position in doing business rankings[76].

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[74] See (Ross-Thomas & Davis, Greece Cut to Junk at S&P as Contagion Spreads, 2010).
[75] 80 billion Euros was provided by Eurogroup members throug bilateral loans and 30 billion provided by IMF. The share of every country aid was equal to the proportion of capital of the ECB owned. See (Directorate-General for Economic and Financial Affairs, 2010).
[76] See (International Monetary Fund, 2011) and (Directorate-General for Economic and Financial Affairs, 2010).

Economic indicators in 2011 in the Hellenic country were far from recovery, the Greek government was not able to implement significant structural reforms, incapable to proceed with agreed privatizations and unable to cut government expenditures. In addition, international economic and finance conditions were deteriorating rapidly. The European debt crisis reached its peak in 2012 and it was germinating since at least 2009[77]. As we are going to see in chapter 7, the European debt crisis was an event with an scope much more ample than Greek bailouts and that affected and left undercapitalized great part of the European financial system.

The second bailout program was agreed in October 2011 and finally signed on February 2012. The amount of it was 130 billion Euro to be paid through the European Financial Stability Facility[78]. The interest was retroactive lowered to 3.5% in first bailout loans. As part of the agreement there was a plan to reduce the total amount of government debt that included the private sector involvement. A haircut of 53,5% was applied to private sector bondholders, and a retroactive lowering of the interest rate of the remaining bonds to 3.65%. Also the maturity of the new debt was substantially increased, raising the maturity profile from 11 years to 30 years. The final overall loss of private bondholders (in Net Present Value terms) was about 75%[79]. The debt restructuration involved €206 billion of Greek government bonds. Greek public debt decreased from 350 billion to 250 billion[80]. As we will see below, this PSI (private sector involvement) agreement is one of the main causes behind the Cyprus financial turmoil.

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[77] We can consider the European debt crisis a sub-phase of the Great Recession. In this case, the roots of the European debt crisis started to grow well before 2009.

[78] The European Financial Stability Facility (EFSF) was created in June 2010 as a device to stop the risk associated with sovereign debt. EFSF was replaced in October 2012 by the European Stability Mechanism (ESM) as a permanent solution for Eurozone countries that loss access to international capital markets. See https://www.esm.europa.eu/about-us/history

[79] Several studies and auctions set the price of the new issued debt between 211€ and 217€ regarding a face value of 1.000€. See (Riskdata, 2012) and (Creditex, 2012).

[80] See (Eurogroup, 2012) and (Directorate-General for Economic and Financial Affairs, 2012).

The Greek GDP fell more than 26% between 2008 and 2013 against 1.3% of decline in Eurozone GDP. Despite being the structural reforms behind schedule, deficit reduction was a fact for 2014. The Greek economy started again the path of the economic growth in 2014. After several years of harsh economic adjustment, it seemed that finally, the Greek economy grew again.

GDP Growth Greece vs Eurozone
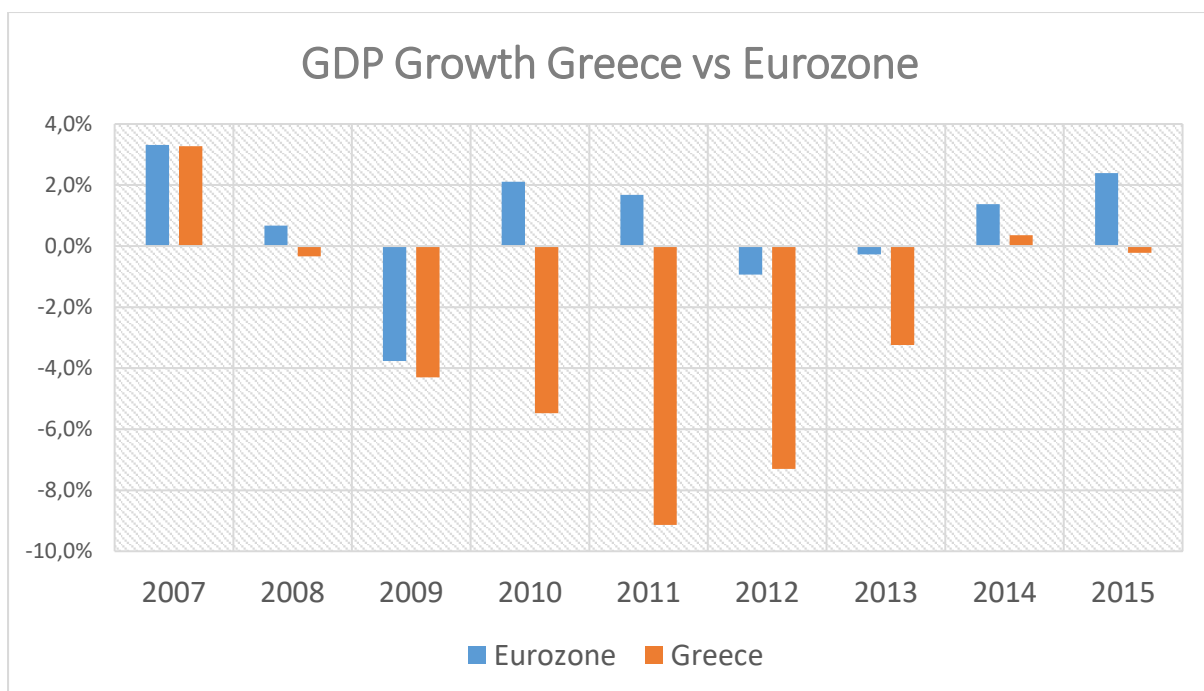
Source: Eurostat.

It is interesting to observe how the economic growth was taking-off at the same time that the first substantial reduction in Greece public expenditures took place. In 2008 Greek public sector expenditures amounted 50.8% of GDP, in 2013, after two bailouts, Greek government expenditure over GDP was 62.3%. In 2014 a significant reduction in government expenditure took place, from 62.3% of GDP to 50.6%. The year 2014 was not the first year that the Greek public sector diminished its size in GDP terms, 2010 was. However, in 2010 the reduction in public expenditures over GDP was scarce, roughly 1.6% GDP, and total government

expenditures were 1.8% GDP higher than those of 2008. The real shock in Greek public sector size was not seen until 2014, when a reduction in public expenditures of 11.7% over GDP took place.

Greek government expenditures/GDP
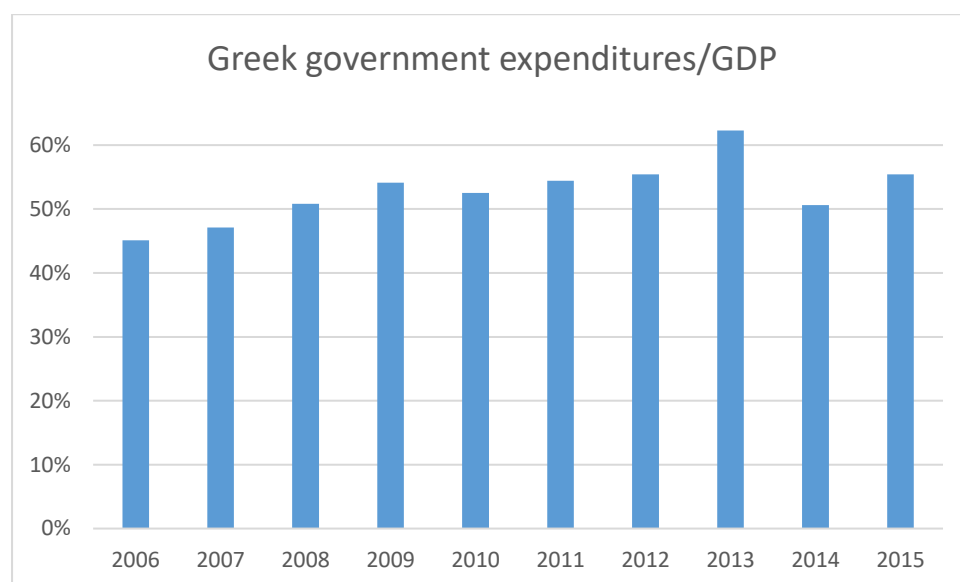
Source: Eurostat.

A third bailout program for Greece was expected at least since 2013[81], however, thanks to the economic developments that were happening in Greece in 2014, the Hellenic country was able to access international capital markets successfully by issuing €2.5billions. Hence, in 2014 the idea of a third rescue package seemed not very plausible.

However, and despite being 2014 the first year of economic growth since 2007, the austerity measures consisting in reduction of public expenditures were not well taken by the Greek public opinion. Greek electorate saw the austerity measures as an imposition of foreign powers[82] and decided to vote for an anti-austerity party. The new government tried to renegotiate the debt and deficit commitments with their creditors and failed[83].

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[81] See http://www.spiegel.de/international/germany/euro-crisis-threatens-to-upset-merkel-s-re-election-campaign-a-918678.html

[82] In fact they were an imposition of foreign creditors powers over Greece as we are arguing in this chapter, the Greek people suffered from loss of sovereignty due to the over indebtedness caused by their politicians.

[83] See (European Commission, 2015).

The lack of an agreement between the Greek government and their creditors meant that the aid provided was suspended. Specifically, the agreed disbursements of the second rescue package and ECB emergency loans to the Greek financial sector were temporarily halted. Those events provoked a new shock to the Greek economy, a profoundly negative shock. A bank run on Greek banks forced the new Greek government to declare a bank holiday, freezing the deposit accounts of the Greek people. The Greek government also imposed capital controls in mid-June 2015 that provoked an almost complete financial isolation of the Greek economy. Fears on "Grexit" led Greek people to withdraw or transfer outside the country their deposits.
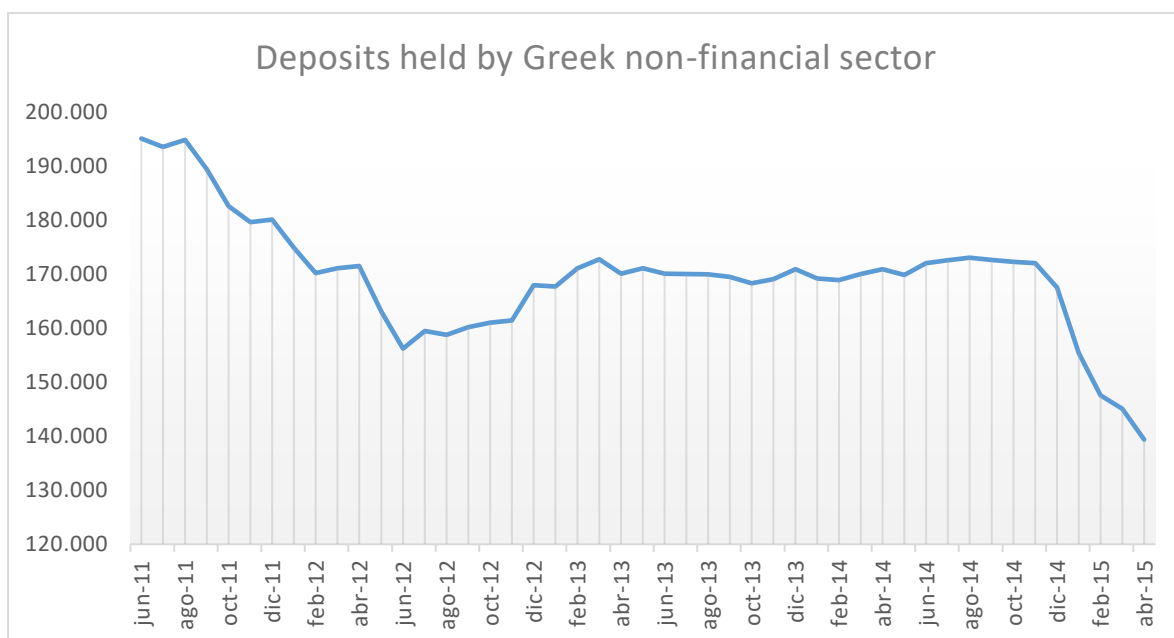
Source: ECB. The data is expressed in millions of Euro.

Greece lost access to the international capital markets due to the political developments already mentioned that happened in 2015. In addition, the economy fell again in a depression and the public spending was raised substantially again (4.8% of GDP). As a result, a new rescue package was needed.

In this situation, the support of the ECB became essential for the survival of the Greek financial sector. And indeed the support was provided as we can see in the following graph. However,

the refusal of Greek government to comply with the agreed austerity measures led the ECB to freeze (never to withdraw) the financial aid provided.
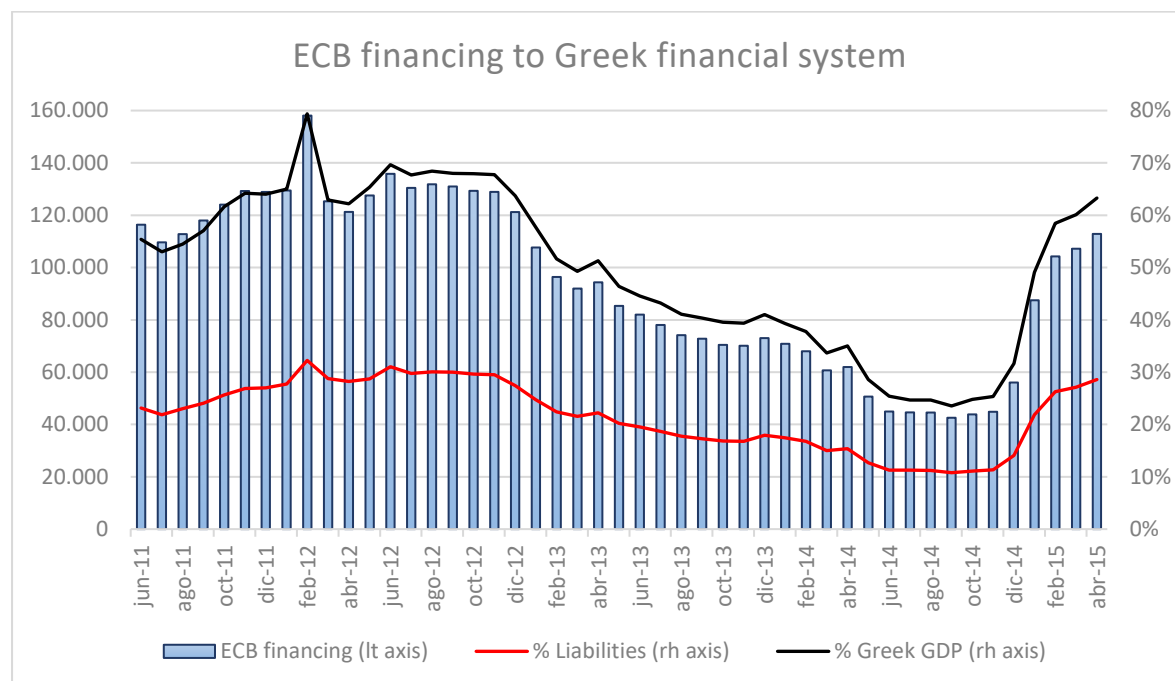
Source: ECB. Eurostat.

The third rescue package was signed in July 2015. The financial aid amount was €86billions, almost 50% of the Greek GDP at the moment. The disbursements of the financial aid are scheduled to be released from mid-2015 to mid-2018[84].

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[84] See (European Stability Mechanism, 2015).

Rescue Packages as % GDP
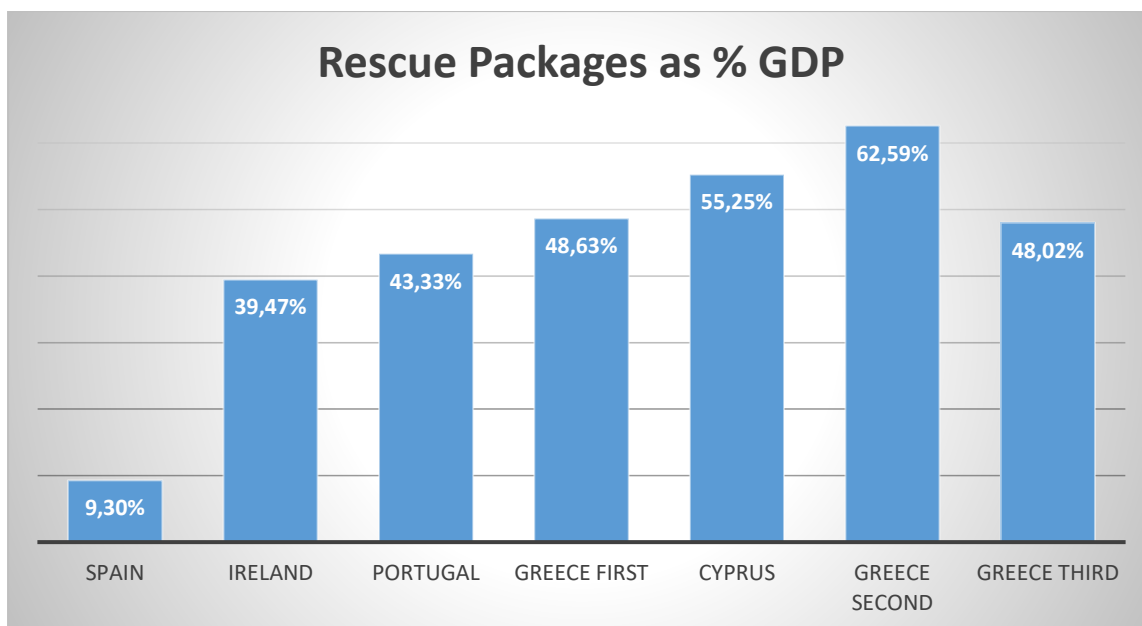
Source: ESM; Eurostat; European Commission Occasional Papers.
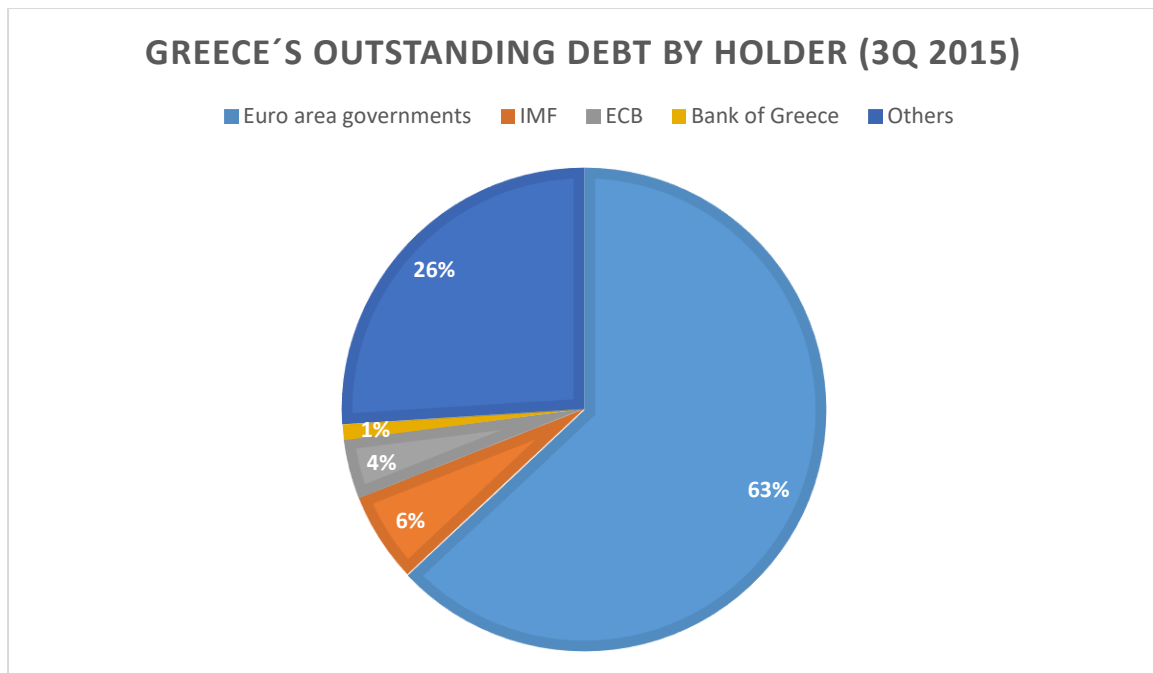
By the end of 2015 the bulk of Greek debt was held by Euro area governments and other public institutions like the European Central Bank, the International Monetary Fund or the Bank of Greece. Few private investors are holders of Greek public debt compared with the situation previous to the default declaration in February 2012.

GREECE´S OUTSTANDING DEBT BY HOLDER (1Q 2012)

GREECE´S OUTSTANDING DEBT BY HOLDER (3Q 2015)

Legend: ■ Euro area governments ■ IMF ■ ECB ■ Bank of Greece ■ Others

- 26%
- 1%
- 4%
- 6%
- 63%

A remarkable development happened between the second and the third rescue programme. In 2012 the ECB and Eurozone countries had few options available. The monetary mechanism could had broken the single currency since the ECB exposure to Greek debt was enormous. If "Grexit" would had happen in 2012, the ECB would have gone bankrupt and a massive recapitalization would have been needed. The ECB learnt the lesson and since 2012 limited its exposure to Greek debt.

ECB´s Greek debt exposure/ECB´s capital
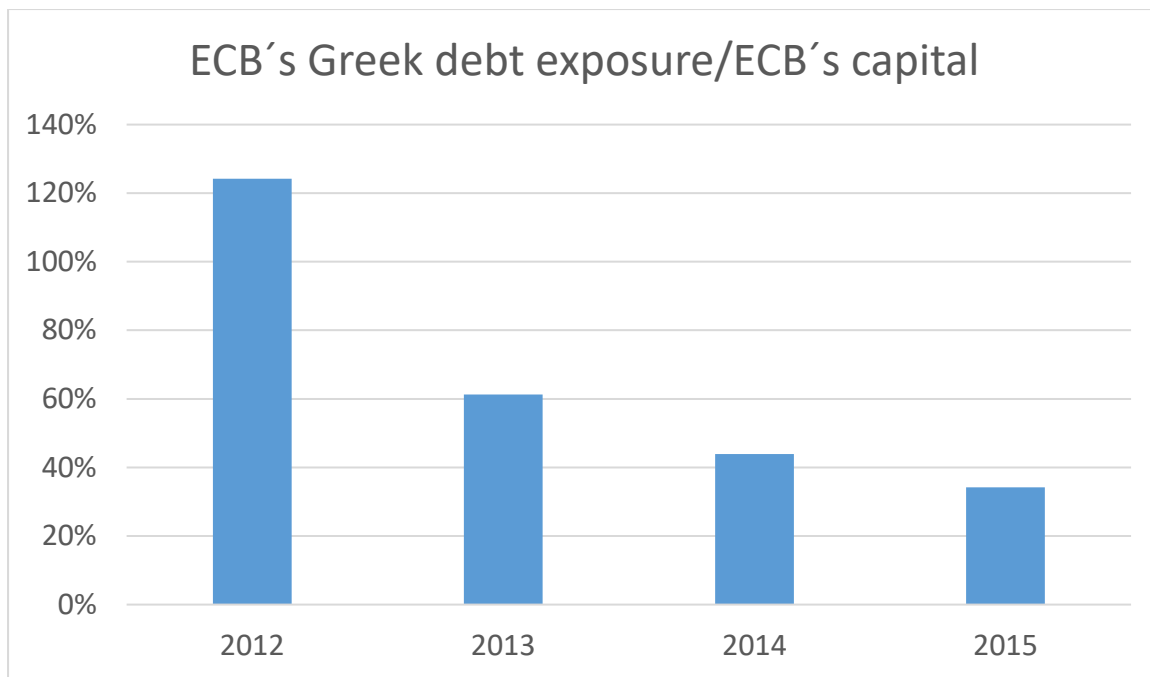
Source: ECB (SMP program and refinancing operations).

This development limited the bargaining power of the Greek government in the crisis of 2015. The fear of a collapse of the Euro in a "Grexit" event disappeared, so the creditors were in a better position to demand the implementation of the austerity measures.

vi.   Foreign powers intervention in internal affairs

This is one of the most controversial features in the last Greek default cycle. It seemed that the Greek democracy has been undermined in favour of foreign powers that want to impose its agenda on Greece.

However, we have already seen that foreign intervention is far from being a new feature of this default cycle. In other default cycles the Greek people also suffered from sovereignty loss in financial and monetary affairs.

If we look for the roots of Greek sovereignty loss, they are to be found in the leveraging phase. Greek public sector inability to finance its current expenditures with current income from taxes provoke a debt dependency. The private sector usually withdraws the financing to the

Greek public sector once that a certain limit had been reached or when a default declaration is officially declared. However, the need for financing does not disappear with the default declaration, it even goes up since a depression tend to decrease tax revenues meanwhile citizens demand for public sector expenditures rise. The need for financing is meet with the rescue packages provided by foreign powers. However, this foreign powers always demand in exchange austerity measures determined in order to ensure the long term sustainability of public debt.

In short, once that the private sector withdraws the financing, the Greek government faces two choices, to implement austerity measures at short notice (default without rescue package) or in the long term (default with rescue package). The foreign powers financial aid only buys some time.

Once that public accounts are out of line, austerity measures are needed in any case. To be in a complete use of its sovereignty does not prevent the implementation of these austerity measures. Once that the default declaration is stated, the market mechanism forced to curtail expenditures or to increases taxes immediately. Rescue packages just provide some time to do the same.

In this last default episode, foreign intervention in internal affairs was present since the very beginning. Since 2010 there has been pressures to reduce public expending, increase taxes and to privatize public enterprises[85].

In the first and second bailout, the agreed measures to be implemented were well behind schedule. After the third bailout, the Greek government finally made a great effort and was able to accomplish with some of the austerity measures agreed with the creditors countries. It is interesting to note that the anti-austerity government was the one that finally implement more rapidly and efficiently the austerity measures demanded from Brussels[86].

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[85] See (Directorate-General for Economic and Financial Affairs, 2010).
[86] Reforms are still insufficient to secure the long term debt sustainability of the Greek government. However, the structural reforms are advancing at faster pace than before. See (International Monetary Fund, 2016).

4- Last Greek default cycle; Impact on Cyprus economy

Although we are going to explore the impact of Greek default in Cyprus in chapter 7, we can advance some of the chain reactions provoked by the Greek debt impairment and its effects on the Cypriot economy.

The Cypriot financial system was heavily invested in Greek government bonds at the time of the Greek default declaration. After the Cypriot busting of the housing and real estate in 2008, the financial system was facing a challenging economic environment in the domestic market with a peak in non-performing loans.

The Cypriot financial sector exposure to Greek government bonds increased from almost nothing in 2007 to €12 billion in July of 2011. The exposure was, at its peak, almost 100% of the capital and reserves of the entire financial sector[87]. The capital base in the financial sector had been shrinking due to the increasing debt impairment internal to the Cyprus market. When the final agreement on the Greek debt restructuration was released in October 2011, knowing that approximately 75% of the nominal value would default, the estimated exposure was €5.2 billion with an estimated loss of €3.9 billon, 27.5% of the capital and reserves on balance[88]. Remember that the exposure was trimmed down from early 2011 to around half the amount finally faced on October 2011. Since the bulk of the bonds were acquired in 2009 and during the first half of 2010 and then sold when the situation had deteriorated significantly, the final impact in the capital was much higher than the proposed 27.5%.

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[87] According to our own calculations based on ECB data of the Cyprus Monetary and Financial Intermediaries Aggregated Balance Sheet.
[88] Our estimations are below Clerides´ estimations. See (Clerides S. , Clerides, The Collapse of the Cypriot Banking System: A Bird´s Eye View, 2014).
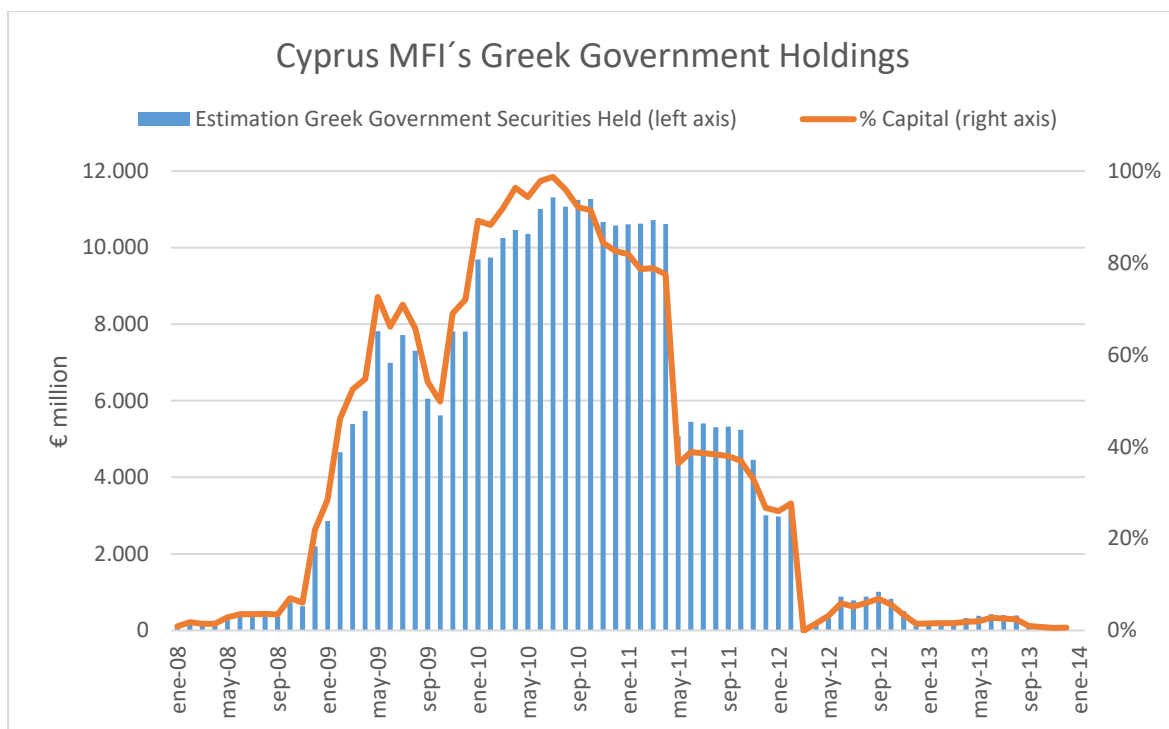
Cyprus MFI´s Greek Government Holdings

Source: ECB Statistical Data Warehouse. The estimation is based on the amount of total holdings of government securities by Monetary and Financial Institutions. The share of Cyprus government securities held by financial sector before 2008 and after 2013 is consistently around 65% of total government securities. The share of Cyprus government securities held in this period (2008-2013) is presupposed to be this 65%. The excess of holdings are supposed to be Greek Government Bonds.

The total exposure of the Cyprus financial sector to Greek (public sector + private sector) was €28.5 billion in September 2011. The impairment to the credit of the Greek private sector was spiking too at the time, so the impact in capital is even higher than reported here.[89].

5- Conclusion

The main lesson to be learnt from Greek experience is that the consequences of a default declaration could last several generations. Once that the leveraging cycle of the public sector

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[89] See (Directorate-General for Economic and Financial Affairs, 2012).

has started, austerity measures are needed. If the leveraging cycle continue, a default is inevitable. If the default declaration is accompanied with a rescue package, then austerity measures will be taken slowly, in this sense, defaults lead to loss of sovereignty in fiscal and monetary affairs once that foreign powers ask for these measures in exchange for the financial aid provided by them. The Greek government has lost several times its powers in fiscal and monetary affairs. Foreign sector rescue packages are not free at all. If the default declaration if not accompanied with a rescue package, then the austerity measures would have to be taken rapidly since there is no possibility to issue new debt[90].

Table 1: Greek defaults declarations.

	Independence War (1826/1829)	Parliamentary Default (1893)	Great Recession Default (1932)	European Debt Crisis (2012)
Financial Openness	No	1878	1897	1964
Public Sector Leveraging	1824	1879	Negligible	1981
Financial Autarky	53 years	5 years	33 years	6 years (still no access to international capital markets)
Amount defaulted (% of NPV)	88%	From 40% to 50%	86%	75%
Foreign public sector rescue package	1830 (124% GDP)	1897 (27% GDP)	No (Reinhart and Trebesch claims to be 75% GDP)	2010, 2012, 2015 (190% GDP)

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[90] This was never the case any of the Greek defaults.

Foreign powers intervention in internal affairs	UK, France and Russia pressures for tax increase and spending cuts	International Finance Commission established in Greece	International Finance Commission; League of Nations	European Commission; European Central Bank; International Monetary Fund
Final payment	1930	1965	1965	No (expected 2059)

Source: Reinhart and Trebesch. Greece´s financial assistance programme (January 2016).

A default declaration is far from being helpful for the development of an economy. Financial autarky for a developing country involve capital shortage since less developed economies has limited ability to accumulate domestic savings. The economic performance certainty would suffer in the absence of capital available that can provide funding for new projects[91].

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[91] See (Hayek F. A., Prices and Production, 1931) and (Huerta de Soto, 1998).

Second section: Economic Theory

Chapter 3
Endogenous and Exogenous Liquidity of Financial Intermediaries and Their Relation to the Structure of Production

1. Introduction

Banks directly manage their own liquidity. Banks also indirectly manage the liquidity of the entire economic system. This article discusses the relation between endogenous and exogenous bank liquidity, and its corresponding relation to the structure of production. Additionally, we explore these liquidity relations in the context of both a decentralized and centralized system of free banking, and compare both to the current monopoly regime of central banks with convertible and inconvertible liabilities. An analysis of the incentives which encourage a liquid system in the first context will be presented in addition to an analysis of the perversion of those same incentives in the second context, which lead to systemic breakdowns in maintaining liquidity. Additionally, we will touch upon the fact that the criteria for individual liquidity and systemic liquidity do not necessarily need to coincide. They differ, and their difference is explained in a more expansive treatment of the concept of exogenous liquidity. In which as of late, central banks have been employing increasingly lax criteria for what constitutes eligible collateral that might be monetized.

2. Liquidity and Solvency of an Individual Economic Agent

If an economic agent wants to endure the market process, then he will be concerned about his ability to fulfill his financial obligations committed in the natural course of business.

The ability to fulfill financial commitments can be divided in two different fields[92]. The first one is solvency, which refers to the ability of an economic agent to generate enough income to service external debt. The second is liquidity, which refers to the ability of an economic agent to generate enough income to service and pay off external debt in time. In this regard, liquidity means that the debt can be paid off within the period that was originally agreed upon by both parties. Solvency means that the debt can be paid off, however not necessarily in the lapse of time originally agreed upon.

Solvency is achieved by having a successful business model that can create economic value for consumers. Liquidity is achieved by delivering goods and services at the moment previously agreed upon. The principle of liquidity can be achieved in a variety of ways, but not all of them can be satisfactory.

These two concepts are intimately related. And while it may be possible to separate them theoretically, in practice it becomes much more complicated and difficult to do so. As a general principle, any economic agent must be both solvent and liquid to avoid default. The concept of solvency is related to the economic value added of the goods and services produced by the agent. The concept of liquidity is related to the timespan in which the goods and services produced are provided to third parties. From the concepts of solvency and liquidity, we can deduce a three-dimensional scheme of the economic agent's economic reality[93]:

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[92] See Scherman (1938). Regarding this point, it is also interesting to consult the "survival constraint" in Mehrling (1999)

[93] See Lachmann (1956)

1. The asset structure: comprised of all the assets that the economic agent owns. The asset structure is part of a business plan that specifies how, how much, and when those assets are able to generate a stream of income.

2. The liability structure: comprised of the commitments to repay the external resources that third parties provide to the economic agent. The liability structure is also part of a business plan that specifies the conditions under which the external resources are granted, such as when, at what price, and how the external resources are going to be returned.

2. The portfolio structure: comprised of claims that the economic agent has against third parties in exchange for the resources made available to them. It also specifies the conditions under which the resources are granted to third parties, such as when, at what price, and how the resources are going to be returned.

In order for an individual agent to be fully functional, as we have argued, he or she must not only be solvent but also liquid. This means that the economic agent should own not only enough assets that can generate economic value, but also needs those assets to be organized in such a way that they are able to deliver consumer goods at the moment when the consumers demand them. Therefore, the concept of liquidity is closely tied to all three structures outlined above.

Thus, in order to preserve its own liquidity, it is necessary that the economic agent's asset structure is aligned with its liability structure and the portfolio structure of the ultimate capital providers. In other words, it is necessary that the expectations to recover the resources of the capital providers expressed in the portfolio structure are aligned with the ability of the asset structure to produce income. In the case of an individual agent, the last two structures must match out of logical necessity.

From the economic agent´s perspective, his own liability structure and the portfolio structure of its capital founders will match. In case of direct financing, every liability of the economic

agent finds its counterpart in an asset owned by a counterparty. However, when financial intermediaries and indirect financing enter the equation, the liability and portfolio structure do not necessarily match. Therefore, in the case of the individual agent, the liability and portfolio structure are nothing more than manifestations of the same economic activity realized by different agents.

Discrepancies between expectations as to when ultimate capital providers withdraw resources and when the economic agent in question is able to return those resources can arise if there is a maturity mismatch between the asset and liability structure of the economic agent. The asset and liability structure are matched when the economic agent's own assets are producing enough cash inflows, by selling the produced goods and services, to cover all its cash outflows that arise from its liabilities, that is, the commitments to generate income for capital providers.

Problems can arise if the economic agent's creation of value in the form of consumer goods happens at a slower pace than what was promised to and expected by the ultimate capital providers of the economic agent. In this case, the incoming cash flows generated by the assets do not suffice to meet all current cash commitments expressed in its liabilities.

If not appropriately addressed, such a misalignment between the asset and liability structure of an economic agent can lead to a suspension of payments. The agent can even find itself forced to sell some of its assets to pay off part of its outstanding obligations.

We will use the term endogenous liquidity to refer to the ability of an economic agent to cover its cash commitments with the cash flows that his own assets generate. We will use the term exogenous liquidity to refer to the need of an economic agent for a third party´s liquidity to cover its cash commitments. Agents that are unable to cover their cash commitments with the cash flows coming from its own assets, are forced to find new sources of funding, renew previous funding, or sell part of its assets. For each of the three solutions, the economic agent needs exogenous liquidity to survive, that is, it depends on a third party's cash flows.

The appropriate arrangement of an agent's assets and liabilities structure is a principle which might appear to be wholly unconnected from the concept of solvency. This is, however, not the case. An agent in possession of assets that are able to generate plenty of income could find himself in a situation in which, because of an ill-chosen liability structure, the income is

not enough to cover short-term liabilities. In other words, it is possible that a company has a solid business model, with assets capable of generating plenty of wealth, and yet at the same time finds itself unable to make payments on short-term liabilities when they come due. In this case, if the assets of the agent are illiquid, and most assets that generate wealth over long periods of time certainly are, then the agent will not be able to sell these capital goods in the market without a significant discount. Or, in the absence of structures of production similar to the one the agent currently holds, the assets on sale could be suffering even a bigger price cuts since they are not easily convertible into production goods that serve other economic purposes. As a result, the market will demand dramatic price cuts on the assets put up for sale, because they will need to rearrange those assets into a different structure of production. If the price cut is great enough, the economic agent in question can go bankrupt. In this case, the need for exogenous liquidity through the fire sale of assets implies an insolvency which had nothing to do with the assets' ability to produce income and generate wealth. We could say, in other words, that illiquidity can easily lead to insolvency.

2. Liquidity and Solvency in the Entire Economic System

The case of the individual economic agent resembles the case of an entire economic system when it comes to the issue of solvency. The economic system performs a harmonious and coordinative function if all the needs of consumers are satisfied by producers. The market process, which is a continuous and dynamic process of trial and error, is responsible for providing the environment in which changes in consumer desires result in corresponding changes in the production structure and lead to a benefit for those production structures that best attend to the changing needs and preferences of consumers. Such benefits, usually expressed in terms of profit, provide the natural incentive to continue to engage in economic activity which serves a coordinating function between all economic agents. Put simply, systemic solvency occurs when there is a healthy structure of production with plenty of assets capable of producing goods and services in line with consumer needs and preferences.

Problems may arise when we begin to examine the liquidity of the system as a whole. At this point, we must relax what we said earlier in the case of the individual economic agent about

the liability structure matching the portfolio structure of capital providers. When analyzing the entire system as a whole, these structures do not necessarily match.

Without financial intermediaries, the system would not differ at all from the previously studied example of the individual agent. In the absence of financial intermediaries, producers sell their liabilities directly to savers and therefore the liabilities of the former are per definition the assets of the latter[94]. In contrast, financial intermediaries could have different types of claims in both their asset and liability structure.

The financial sector is in charge of coordinating producers and capital providers. They must assure that the liabilities of businesses are appropriately matched with the portfolio structure of society. A healthy and functional financial sector will provide financing to the productive sector with the same maturity and risk profile that savers provide to the financial intermediary.

The financial sector's task is to align the commitments of producers to generate income and the commitments of the banking sector to distribute this income to its customers. By balancing its structure of assets and liabilities, the banking sector assures that the liability structure of the producers, which are largely the banks' assets, are consistent with the portfolio structure of society, which are largely the banks' liabilities.

Put differently, financial intermediaries serve as a bridge between savers (or consumers of future wealth) and producers (or creators of future wealth). Therefore, it is of utmost importance that the intermediary adheres to the intentions of savers when investing and allocating their funds.

If savers are future consumers[95], then intermediaries should channel funds into future wealth creation when savers expect to become consumers and will want to use their ability to withdraw goods and services from the market. This is the essential coordinating function to

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[94] The majority of transactions take place through an intermediary. However, there are a marginal number of cases in today's economy where no intermediary is involved. See Stigum & Crescenzi (2007).

[95] We assume that practically no one saves just to save and never consume. If this were true, it would not be economical to produce wealth for others if no one was going to eventually consume some of other people's wealth. That is, to request a counterparty. The saver that never consumes could be seen as a true altruist, since he or she produces wealth for society without asking for anything in return and without any further consideration. We can safely assume that this kind of behavior is marginal within the current economic system and for that reason we will treat savers in our text simply as future consumers.

which we alluded earlier when referring to the financial system and how it seeks to provide funding to intermediaries that match the maturity and risk profile of savers, who seek to accumulate wealth for future consumption at a precise later date. Thus, the liability structure of the productive sector and the portfolio structure of savers (future consumers) will be perfectly coordinated if and when financial intermediaries are able to match their own structure of assets (comprised of the liabilities of producers which it has a claim to) and their own structure of liabilities (comprised of the assets in the portfolios of future consumers).

By contrast, a dysfunctional financial sector could cause even a healthy productive sector, with an appropriately balanced asset structure and liability structure, to fail to produce the wealth that consumers or capital providers demand on a given future moment. That is, even with a productive sector that appears to be solvent and liquid, if there is a general mismanagement of liquidity in the financial system and consequently a failure to produce wealth on the moment economic agents demand it, the system is illiquid.

In other words, when financial intermediaries engage in maturity mismatching[96], they are sending a false signal to producers that they might use the resources over a longer period than savers are actually willing to wait. Savers (future consumers) expect to exercise their right to consume the resources that were advanced to producers in a shorter timeframe than the timeframe for which they were invested[97]. Savers also receive distorted information: their funds will be available on a shorter notice than the creation of future wealth truly requires. As soon as savers decide to exercise their claim on consumer goods, problems in the economic system arise[98].

As we discussed in the previous section, the concept of exogenous liquidity makes sense for an individual company as a last resort to remain solvent, but when analyzing the system as a whole this concept becomes much narrower. The concept of exogenous liquidity requires an external economic agent with endogenous liquidity in order to function. If this is not the case

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[96] See Rallo (2012).

[97] It is possible that maturity mismatching does no harm if savers choose to constantly renew their liabilities until the productive processes come to fruition. This is probably true at the individual level. But it would be wrong to assume that all savers would act in this manner, given the fact that without constantly renewing their liabilities they would be able to obtain a higher yield and therefore gain access to a greater number of future goods than in the case of continuous refinancing.

[98] These problems differ depending on what kind of monetary system we are examining. It could be inflation if the banking system received indiscriminate financing from the central bank in the form of unconvertible liabilities or it could be deflation in the form of bank failures under the free banking monetary regime.

and endogenous liquidity in the entire system has disappeared due to a dysfunctional financial system, then there is no other way out than the default and restructuring of both capital providers and the productive sector, as well as the financial sector that functioned as an intermediary between both. This process is commonly called an economic crisis.

The cause of the miscoordination between the asset structure of society and the liability structure of producers is to be found in the miscoordination between the asset and liability structure of financial intermediaries. The inevitable question is, given the fact that the survival of a financial intermediary or the entire financial sector is based on both solvency and liquidity: what causes financial intermediaries to fall systematically prey to this type of miscoordination, losing their own liquidity and consequently the entire sector's liquidity? In order to answer this question, we will proceed by applying the earlier mentioned concepts of endogenous and exogenous liquidity to the specific case of different banking systems.

3. Endogenous Liquidity and Exogenous Liquidity of Financial Intermediaries

By endogenous liquidity we mean the bank's ability to meet its obligations with its own resources and without the help of other banks or the central bank. This entails either having a sufficiently ample monetary base, or the ability to access that monetary base when necessary by calling in loans.

Financial intermediaries, just like any other economic agent, achieve endogenous liquidity when the cash flows from their producing assets are sufficient to cover all ongoing financial commitments they have made to others (liabilities). When this is not the case, the financial intermediary must be considered illiquid.

Obtaining and maintaining sufficient liquidity is especially difficult in the banking sector. Indeed, it is the subject of much controversy. This is because much of the resources at the bank's disposal are determined by its creditors who prefer demand deposits over other types of credit. Therefore, the bank must match that credit with an equally short-term investment if it wants to achieve endogenous liquidity.

Proper liquidity management enables both an individual's liquidity and the total liquidity in the system to be in perfect harmony. This implies that all payments and collections, or payables and receivables, end up coinciding[99].

By exogenous, or derived, liquidity we mean the bank's ability to meet its financial obligations through the aid of external entities, be they temporary or permanent[100]. Through such external aid, the bank is able to meet its obligations by selling part of its assets on the market, thereby transferring its illiquid position to a third party that assumes the illiquid position.

By refinancing in the interbank repo market, the bank can essentially meet its obligations by "renting" the liquidity of a third party on a short-term basis. The interbank market enables structurally liquid banks to resolve occasional illiquidity. That is, the interbank market enables the bank to meet its current obligations whenever the bank has greater outflows than inflows, if the bank in the very near future will receive greater inflows than outflows and is therefore able to meet its obligations in the interbank market with those excess inflows. In other words, the interbank market is, and can be, a powerful tool of refinancing for banks that requires, however, a structurally liquid underlying financial system, in which individual intermediaries could be temporarily illiquid because of a mismatch between inflows and outflows. The excess inflows from certain intermediaries are temporarily put at the disposal of those intermediaries that find themselves short of the necessary base money[101]. Thus, the interbank market is a vehicle based on the concept of exogenous liquidity that enables the banking sector to obtain endogenous liquidity of other intermediaries as efficiently as possible. The liquidity of the entire system is not compromised; intermediaries are able to satisfy the need for endogenous liquidity temporarily with the endogenous liquidity of other intermediaries.

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[99] This doesn't mean that credit is always paid back. Rather it means that if the credit is of good quality (extended to a solvent borrower) then there won't be any suspension of payments or defaults due to illiquidity. Respecting the principles of autonomous liquidity at the systemic level do not tell us anything about the perceived risk of any one credit transaction.

[100] In other words, this is the ability to temporarily meet all outstanding financial obligations thanks to the additional liquidity spared by a third party.

[101] This mechanism is analogous to what emerged under the gold standard, which enabled banks to balance their accounts without the costly movements and transports of physical gold (base money) from place to place and avoiding costly surpluses or shortages in international trade and the balance of payments. For further information see Sprague (1917) As we will see a little later, the current monetary system excludes any such evolutionary mechanisms.

Exogenous liquidity can also be obtained by refinancing at the central bank. That is, financial intermediaries can either resort to other intermediaries to shore up their specific monetary deficiencies or they may decide to go to the central bank. The central bank, like any other bank, gradually loses endogenous liquidity when it provides exogenous liquidity to other banks in the financial sector. Here the collateral requirements of monetizable assets come into play, that is, the assets that might be used as a guarantee against the credit (the exogenous liquidity) extended to the financial sector. As it stands, the eligibility of collateral varies significantly depending on which monetary system is studied. Because central banks are at the center of the financial system[102], the requirements for monetizable collateral will somehow determine the asset structure of the financial system and, consequently, a large part of the liability structure of society[103].

4. Endogenous Liquidity and Exogeneous Liquidity in Different Systems

We will distinguish two types of banking systems: the free banking system and the central bank monopoly system. Within these two systems there are two further subdivisions. Within the free banking system, we will analyze a system of decentralized and centralized reserves. Within the central bank monopoly system, we will discuss a system of convertible and inconvertible central bank liabilities. We will apply the concepts of exogenous liquidity and endogenous liquidity to all four systems illustrated below:

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[102] Although central banks are at the center of this system, this does not necessarily mean that they are quantitatively the most important actors. In fact, this is not often the case.

[103] For that reason, the choice of what collateral will be accepted is of vital importance for the correct functioning of the entire economic system. Sound collateral requirements will assure that the three previously mentioned structures of society (the asset, liability and portfolio structure) will be in harmony with one another. The opposite is true as well. Poor collateral requirements will necessarily equate to discord and distortion in those same three structures.

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┌─────────────┐   ┌─────────────┐
│             │   │ Central Bank│
│ Free Banking│   │  Monopoly   │
│             │   │             │
└──────┬──────┘   └──────┬──────┘
       │                 │
   ┌───┴──────┐      ┌───┴──────────┐
   │Centralized│     │ Convertible  │
   │ System   │      │ Liabilities of│
   │          │      │ Central Bank │
   └──────────┘      └──────────────┘
   ┌──────────┐      ┌──────────────┐
   │Decentralized│   │ Inconvertible│
   │ System   │      │ Liabilities of│
   │          │      │ Central Bank │
   └──────────┘      └──────────────┘
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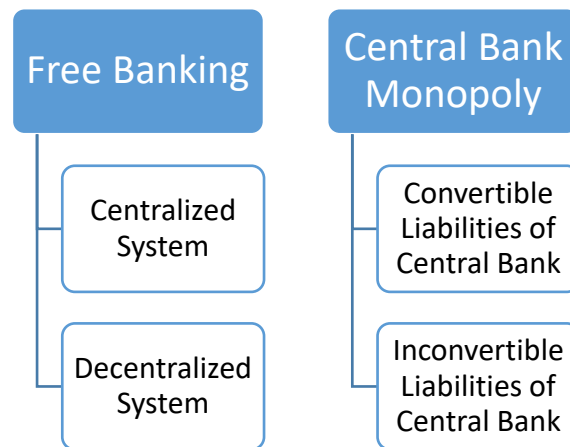
4.1 Decentralized Reserves in a Free Banking System

The decentralized system of free banking is a system in which multiple banks coexist with no institutional barriers to entry[104]. No bank for banks has emerged or is at least very limited in its scope. There might exist various clearinghouses, but none of them would serve the function of a centralized reserve manager for all participating banks in the system, which would be the case in the central bank model. In this type of system, it is highly unlikely that legal tender laws would arise from a central authority, since no centralized authority exists in this system that sets the rules for how payments are processed[105].

In this system, the monetary base tends to be money[106]. The role and definition of money in a modern economy is to be the last and final extinguisher of debt, as well as the most commonly accepted medium of exchange. The different clearinghouses act as liquidators of the monetary liabilities issued by the different banks, yet none of those liabilities is crowned as the principle monetary liability. In this system, any attempt by the legislature to pass legal tender laws that force the acceptance of a new monetary liability will tend to fail, since many of the economic agents will be unfamiliar with the monetary liabilities of other banks and will

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[104] This would include any type of limitation or restriction on competition which is not strictly speaking economic in nature, such as obtaining the appropriate licenses.

[105] Here we refer to the difficulty of enacting legal tender laws on monetary liabilities in a free banking system with decentralized reserves.

[106] The appropriate taxonomy is: currency or money? The good that exercises the function of the commonly accepted medium of exchange. Money can be a present good or a future good. When it is a present good, we typically speak of currency-money, or more commonly money. When it refers to a future good, we more commonly speak of it as credit money. For more information, please see Bondone (2012)

therefore continue to do business in either already familiar monetary liabilities or base money. The circulation of monetary liabilities would be significantly restricted, as is the case with other credit instruments, such as checks[107]. This is both a great advantage and disadvantage at the same time. On the one hand, it tends to enable financial intermediaries to issue monetary liabilities backed by investments in the money market (that is, real bills of exchange that are very liquid forms of savings, in turn backed by very liquid investments). On the other hand, it tends to limit the amount of monetary circulation of each instrument, thereby incurring additional transaction costs to the point of exchanging those monetary liabilities for other ones that are more trusted. In other words, currency, as monetary liability, circulates only narrowly, which is an advantage from the point of view of the liquidity of the bank, but a disadvantage from the point of view of economic agents as they have to bear additional transaction costs at the point of exchange[108]. In this system, money and capital markets are completely separate and isolated compartments. There is little to no connection between them. Commercial banks would tend to avoid using short-term funds put at their disposal for long-term investments in assets with longer maturities.

In the decentralized system of free banking, there is a propensity for each bank to maintain adequate endogenous liquidity and to rely very little on the exogenous liquidity from other banks in the system. Within this system, private banks are tempted to erode their liquidity just like any other economic agent. However, if they do so, they run the risk of becoming illiquid and having to suspend payments. Banks that engage in such practices tend to disappear either by going bankrupt or by the markets' rejection of their liabilities by either the various clearinghouses, other banks, or depositors[109]. It is evident that banks in such a system cannot rely on the exogenous liquidity of others and will at all times seek to maintain sufficient endogenous liquidity, especially in moments of financial stress. This incentive encourages banks to seek a balanced structure between their assets and liabilities, thereby

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[107] Normally, checks circulate very little. They promptly return to the clearinghouse, given that it is a form of credit transfer which is only verified by a signature. That is, the bank does put their acceptance on the check. For more information, please see Dunbar (1891)

[108] Which is one of the essential characteristics of why circulating credit emerged to complement money as a substitute for payment and to lower the transaction costs associated with hard money payments. In other words, it helps money circulate without the money ever having to change physical locations. For more, please see Cantillon (1755) and (Hicks J. , 1989).

[109] As we have already explained, they can temporarily rely on the interbank market to acquire the liquidity they need, but never permanently as exogenous liquidity is only of a transitory nature.

leading to the balancing of the liability structure of the productive sector with the portfolio structure of society (assuming the productive sector adheres to the principles of liquidity in the balancing of its own assets and liabilities[110]). The strict observance of the principles of liquidity leads to the coordination of all three structures in the financial system. Consequently, savers can convert into consumers and access the goods and services according to their temporal preference[111].

It is evident that in a system of decentralized reserves, in which every bank holds a large amount of base money reserves, could reach a point of economic inefficiency, since a system of decentralized reserves requires a greater outlay of resources, due to economies of scale, to cover the logistical and operational costs of maintaining the reserves. In the same way that bank clients deposit their cash balances (either through a demand deposit or callable loan) at the bank, banks can deposit their cash balances at a central reserve. Thus, central banks arise, as banks of banks allow for a cost saving on the use of monetary reserves.

4.2 Centralized Reserves in a Free Banking System

A centralized system of free banking is one in which, again, multiple banks coexist without institutional barriers to entry or any type of restriction of competition. However, in this system the function of a bank for banks plays an important role. Even though there are no barriers to entry for any bank, be it central or otherwise, there tends to emerge only a very small number, possibly even one, centralized banker's bank. One of the drivers behind this tendency towards the centralization of reserves, particularly in the case of commodity money, is the fact that the necessary conditions exist for a natural monopoly to emerge. This is the case when the economic theoretical premises of a high initial investment and low marginal costs are met. In other words, the centralization of reserves finds its roots in the premise of economic efficiency.

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[110] And there is no reason or motive to assume they would otherwise do so endogenously. The generalized losses of liquidity can only come from external institutions, such as central banks, that are the providers of this liquidity.

[111] A saver saves during a defined time frame and when the period comes to an end he or she converts into a consumer. This will necessarily be the case as long as his or her plan is not modified beforehand.

All natural monopolies have two limits. First, a natural monopoly has a maximum upper limit above which, under current conditions, its marginal costs begin to skyrocket. That is why in very large developed countries like the United States we could very well imagine that two or more central banks emerge, leading to some sort of natural oligopoly. The second limitation has to do with the development of new technologies which reduce or maintain the marginal cost without large initial investments. This could disrupt the industry and very well lead to reserves becoming managed in a more decentralized manner as the above analysis showed. In any case, it is very likely that in a deregulated marketplace, competitive private central banks could emerge as a natural part of the market process.

Under this regime, financial intermediaries and especially commercial banks, which operate in the money market, will deposit their excess reserves at the central bank. In so doing, these financial intermediaries rely on the exogenous liquidity of the central bank by placing their endogenous liquidity in the hands of that very same central bank.

Despite the fact that financial intermediaries would systematically require access to exogenous liquidity, the system has a tendency to remain structurally liquid, because the central bank (or central banks), by conceding exogenous liquidity lines, loses its endogenous liquidity and sees its reserves diminish. Since there is competition, (potentially new) central banks can perfectly drain the reserves of other central banks that are exceedingly losing their own endogenous liquidity[112]. In other words, whenever central banks find themselves in a tight spot, they will only accept real bills of exchange as monetizable collateral, which are backed by highly demanded consumer goods[113]. They have the incentive to put the funds that they receive into the short-term money market to avoid losing endogenous liquidity. In addition, the central banks would only accept real bills as collateral when it lends to the banking sector, that is, when it provides the necessary exogenous liquidity to the commercial banks. Real bills assure that, in case of default on the principal, the proceeds of the sales of the liquid consumer goods allow the central bank to preserve its liquidity.

Thus, there are natural brakes built into the centralized free banking system which limit maturity mismatching if it were to occur. Financial intermediaries would tend not to engage

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[112] In fact, this is how it occurred historically. For more, please see White (1995)
[113] In fact, historically, central banks tended to demand these types of assets as collateral for loans to the banking system. For more, see Dunbar (1891).

in maturity mismatching, because the lender of last resort would only provide liquidity against certain highly liquid assets in order to preserve its own liquidity and avoid being replaced by a more capable competitor. The two brakes that exist come from the possibility of losing reserves and having to suspend payments: the first brake is the very competition between (potential) central banks, while the second brake is the possibility of losing reserves either by a negative trade balance[114/115] or by the depreciation of monetary liabilities against the central bank's own reserves which induces users to convert liabilities into reserves.

Financial intermediaries have no incentive to mismatch cash flows from assets and liabilities, because the central bank only provides exogenous liquidity if it does not compromise its own endogenous liquidity. The central bank is able to achieve this by requiring liquid assets as collateral in its discount policy. With a structurally liquid asset structure and exogenous liquidity only provided by a central bank that is properly incentivized to not engage in maturity mismatching itself, the system as a whole tends to be liquid. When banking system is liquid, the liability structure of the productive sector matches the maturity profile of the portfolio structure of society. In other words, the flow of goods and services is perfectly matched with present and future consumer demand.

4.3 Central Bank Monopoly System with Convertible Liabilities

Due to its pivotal position in the financial system, political leaders will often look to influence the decisions of the central bank for their own interests. The most common example of this dangerous marriage between central banks and governments is the restriction of competition in the field of central banking. On the other side of the equation, this monopoly goes hand in hand with the inclusion of public debt as part of the central bank's assets. As a result, a government benefits from this monetary system by creating an artificial demand for its public

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[114] Or a central bank of a certain economic zone against the central bank of another zone within the same nation.
[115] Immobilizing funds in long term assets financed by monetary liabilities create a greater flow of monetary units towards consumer goods which in turn provoke inflation throughout the zone under the central banks' influence. This inflation translates into foreign goods and services becoming marginally more attractive and therefore the monetary units flow to foreign exchanges and are accepted by international agents. Nevertheless, negative trade balances sooner or later will be paid in monetary base units and therefore the central bank will end up losing reserves to foreign entities to correct this imbalance.

debt, which causes an increase in the price of that debt and, consequently, a decline in interest rates.

In this system, despite the varying conditions and circumstances relative to each country or economic region, there is only one central bank, which is responsible for managing the liquidity of the entire financial system for the country, region or zone. From the very outset several complications may arise. Financial intermediaries mostly pledge long-term government debt as collateral when accessing the credit facilities provided by the central bank, that is, the central bank assets are generally backed indirectly by long-term investments. In other words, the organism that lies at the very heart of the money market is, at least partially, engaged in maturity mismatching. This causes the central bank to lose endogenous liquidity right from the start, by moving savings from short-term money markets to long-term capital markets.

Moreover, we know, from as far back as David Hume[116], that an increase in the supply of monetary liabilities (or money) has an expansionary impact on the economy, at least in the short term. Because the newly created money enters the economy through the credit market, the new claims at the disposal of the productive sector tend to create an illusion of wealth. This is all the more true when maturity mismatching occurs, since long-term investment increases dramatically when it can be backed by highly elastic short-term savings[117]. In other words, there is overinvestment, because long-term investment exceeds long-term savings and, in addition, because advantage is taken of the elasticity of short-term savings to increase long-term investment.

As the central bank is pressured into accepting collateral different from assets that are typically accepted in money markets, the use of such assets increases. Politicians pretend to use the central bank to stimulate economic growth. The range of eligible collateral is increasingly widened. Consequently, assets typically used in long-term capital markets instead of short-term money markets are beginning to be accepted. Because of this, financial intermediaries tend to increase their exposure to the same illiquid assets that the central bank

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[116] See Hume (1752)
[117] Conversely, the less elastic savings in longer term maturities will cause the interest rate to rise in response to an increase in the demand for credit.

accepts as collateral. After all, these illiquid assets are more profitable and now become highly liquid since the central bank is willing to discount them.

Because such illiquid investments are increasingly preferred, the financial system begins to suffer from a lack of endogenous liquidity precisely because of their overconfidence in the exogenous liquidity provided by the central bank. However, the central bank is not able to provide the required liquidity. This is, on the one side, partly due to the loss of its own marginal endogenous liquidity when it monetized long-term public debt and, on the other side, partly due to its limited scope for action. Even if the central bank possessed a completely liquid asset structure, it cannot guarantee the liquidity of a structurally illiquid financial system. The central bank would be overwhelmed by the total demand for liquidity. The root of the problem lies in the relaxed restrictions on which types of assets are accepted by the central bank as collateral. In other words, bad criteria for eligible collateral lead to a financial asset and liability structure that is so illiquid that it cannot be supported by the endogenous liquidity of the central bank. Sooner or later the central bank is forced to cut liquidity to the financial sector, which causes a banking crisis with possible insolvency due to a structural lack of liquidity.

The poor choice of collateral, with the political pressure of governments to obtain cheap financing and increase credit growth being its root cause, leads to a highly illiquid financial asset structure. This illiquidity means that the productive assets of society are unable to produce consumer goods and services when present and future consumers demand them. The claims on productive assets that create wealth come due before the wealth is created. The system becomes highly unstable because of the illiquid assets at the heart of the money market.

One of the factors that prevent the central bank from losing liquidity, that is, competition between central banks, has been eliminated. However, there is another factor that remains almost entirely intact: the external drain of reserves due to an unfavorable balance of trade and the internal drain of reserves when inflation appears. Attempts have been made to eliminate these two factors as well, with the use of various rules and regulations. Some of these attempts include enacting legal tender laws for central bank liabilities and making it increasingly difficult to convert monetary liabilities into base money (i.e., paper currency), to the point of ending up with a system of complete inconvertibility.

4.4 Central Bank Monopoly System with Inconvertible Liabilities

Continuing the logical line of our analysis of the previous system, there are several dynamics set in motion which cause the central bank, and the system at large, to rely on a series of regulations to avoid a general loss of liquidity.

As the first mechanism of market discipline to prevent a liquidity crisis is eliminated, that is, competition between central banks, attention turns to the earlier mentioned second mechanism, that is, a drain on reserves. Within this framework, measures are taken that are designed to prevent domestic economic agents from recovering liquidity and opting out from financing the central bank in particular and the financial sector in general. Initially, these measures are aimed at restricting, but not completely abolishing convertibility[118]. However, rather sooner than later convertibility is completely abolished and it might even become prohibited to do transactions in cash or hoard base money[119/120].

Under these conditions, the central bank's scope for action is considerably enlarged. In principle, the central bank would be able extend liquidity without suffering from an internal drain on reserves. The discretion of the central bank increases dramatically, and with it the possibility to create an increasingly illiquid productive structure, that is, a growing temporal distortion between the creation of wealth and its consumption.

Even though the central bank's discretion increases greatly under these circumstances, it is not without limits. If the inconvertible monetary liabilities begin to lose value as a consequence of the indiscriminate monetization illiquid long-term assets, then economic agents will marginally begin to flee from those liabilities to such a point that they are rejected altogether by the market[121]. What remains is a minor limit to the indiscriminate monetization of assets by the central bank: namely, that these assets have no solvency issues to avoid that

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[118] For example, by limiting their ability to be exchanged in certain cities or in certain quantities. For more, see Dunbar (1891)

[119] A good historic example would be the enactment of Executive Order 6102 in the United States.

[120] To avoid the drain on reserves from external parties, other methods are introduced such as limiting the amount of foreign currency one can buy or introducing capital controls. Although its importance is paramount to the economic system as a whole, such additional methods are beyond the scope of analysis of this article.

[121] This describes the process of hyperinflation – a general flight from the inconvertible money.

possible defaults could spill over from the central bank's or financial system's assets to their monetary liabilities, which could lead to a loss of purchasing power of these monetary liabilities and a massive flight from them. However, these limits are much less effective than the strict limits in a centralized free banking system, that is, competition between central banks with the risk of losing reserves. The ability of this system (a central bank monopoly with inconvertible liabilities) to distort the coordination between economic agents is many times greater than other systems. In addition, we could add that the very system of central bank monopoly leads endogenously to a suspension of convertibility once the monetary mechanism is used for ends other than solely providing derived liquidity to an inherently liquid system.

5. Conclusions

- Structurally liquid systems cause the flow of goods and services to match the consumption needs and preferences of consumers and savers alike.

- The financial system in its role as an intermediary manages most of the liabilities of the production system and the assets of the portfolio structure of savers (future consumers).

- The interbank market is a means to obtain exogenous liquidity temporarily, never permanently. The interbank market cannot be of much help for too long if the system is already suffering from general illiquidity.

- The free banking systems have two major principles which curb maturity mismatching; competition between central banks and the potential drain on reserves.

- The central bank monopoly system engenders a large increase in individual exogenous liquidity (through the wide range of eligible collateral for refinancing or for sale) well above what would originally constitute the overall liquidity of the system.

- The central bank monopoly system leads endogenously to the inconvertibility of its monetary liabilities.

Chapter 4
The Design Flaws of the Euro: Fundamental Problems with the European Central Bank

1. Introduction

During the Great Recession, the set-up of the European common currency was constantly questioned. The aim of this chapter is to establish whether the problems that ensued could have been avoided with a more efficient currency scheme or more efficient monetary institutions. The most important omission of the initial creators of the euro is the wealth transfer mechanism that is inherent to the design of the European monetary system. Equally critical is the possible use of this mechanism to transfer risk both from the private to the public sector as well as from government to government. Furthermore, reference is made to subsequent monetary problems, ignored by many legislators, which cause arbitrage between various interest rates for different durations and an excess of long-term credit without preventive mechanism that limits its expansion.

Ever since Mundell (1961) wrote his famous article on currency areas, much has been written and debated about the stability of systems with a common currency within a supranational union and about possible issues with monetary stability that could arise in such unions.

This chapter is an attempt to discern the design flaws of the most important supranational currency that currently exists and to see whether Mundell´s criteria, however necessary, are not sufficient to achieve sustainable monetary stability.

2. The Euro as a Form of Credit That Permits the Financing of Member States[122]

This point was in fact partially foreseen by the creators of the euro with the introduction of the euro convergence criteria as a condition for countries to enter the Economic and Monetary Union (EMU)[123]. More specifically, the criteria that reveal the legislator's concerns about the common currency as a source of financing of member states include the establishment of a public deficit ceiling of 3% of gross domestic product (GDP) and a public debt ceiling of 60% of GDP.

Governments with monetary autonomy have, as a rule, two non-excluding options to their disposal when it comes to issuing public debt. The first option would be to issue government liabilities (bonds) and access capital markets to finance excess public spending. The second option would be to employ the central bank to monetize public debt[124], that is, the central bank finances the state by buying public debt while simultaneously expanding the monetary base[125].

In case of debt monetization, the holders of the means of payment issued by the central bank would shoulder the public debt burden as the ultimate financial backer of the public debt[126]. Any investor that decides to remain liquid would in fact be financing the government, despite the fact that his or her intention is different and, as a matter of fact, contrary to the very result[127]. When the central bank is the *de facto* vehicle of intermediation, government financing remains hidden "behind the monetary veil." [128]

By introducing public debt into the monetary mechanism, governments could profit from the monetary demand to generate an additional and artificial demand for public debt, which

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[122] The original idea can be found in Bagus (2010), although a different perspective is presented in this paper.
[123] See the Maastricht Treaty (European Community, 1992)
[124] Notwithstanding other taxonomies that exist, such as issuing debt denominated in domestic and foreign currency for instance.
[125] As a rule, the second method is more likely since in a majority of countries the direct monetization of public debt is forbidden.
[126] Money demand according to the definition of Cannan (1921), that is, the accumulation of media of exchange.
[127] To remain financially liquid implies that an investor hopes to maintain its purchasing power in anticipation of a better future investment opportunity, that is, none of the currently existing or known opportunities offer a sufficient expected return to the investor that has decided to maintain his liquidity.
[128] Or as David Hume (1752) would say: economic essays.

allows them to lower the interest rate paid for such debt. In this scheme, the ultimate financial backer of the public debt is not aware of its position as creditor.

As long as the public debt of member states is financed in a domestic currency, the ones that bear the cost of the monetization are the domestic citizens[129]. The moment the public debt is domestic but the currency becomes transnational, there exists a possibility for any government to abuse the monetary mechanism. Governments would be in a position to issue public debt and find "investors" across the entire monetary union that are completely unaware of their investment.

With monetary autonomy, governments can create artificial demand for their public debt, but are limited in doing so: they are limited by the public acceptation of central bank liabilities. In other words, there could arise an excess in the supply of central bank liabilities that is not met by demand. As a result, as these liabilities are being used as means of payment[130], they seep into the markets as new claims on present goods and, consequently, inflation appears. In sum, if the central bank's monetary liabilities increase beyond the demand for them and beyond the ability of the economy to create new wealth, its currency will experience a loss in purchasing power. This loss in purchasing power could cause a marginal decline in demand that, in turn, leads to a negative feedback loop in which the declining demand provokes successive losses in the purchasing power of the central bank's monetary liabilities[131]. This vicious circle can reach a point at which the currency is completely rejected – that is, a hyperinflation might ensue – if its use as a means of monetizing public debt is not restrained.

The euro's monetary mechanism allows governments to create a much higher demand for monetized public debt as the liabilities of the European Central Bank (ECB) are not only being used by a limited number of domestic citizens, but by the citizens of all the member countries of the European Monetary Union[132]. That is, the monetization of public debt could be a mechanism that allows governments to externalize their costs from their domestic citizens to

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[129] It is to be expected that a greater demand for a currency stems from domestic citizens that could use the currency to exchange goods and services inside the domestic borders. Legislation such as legal tender laws and the obligation to pay taxes in the local currency strengthen the domestic, but not foreign, demand for the currency.

[130] Besides as bank reserves for the financial system.

[131] The effect in the short run with the presence of inflation is to increase the demand for money if we asume that the demand for real cash balances is constant. In the long run the effect is contrary: there would exist a flight from assets that lose value.

[132] It is necessary to include the demand for euros as foreign exchange reserves as well.

the citizens that use the common currency. National governments could go into debt at much lower interest rates than their situation would warrant due to the European monetary mechanism that gives them access to a source of financing that is many times greater than the domestic monetary mechanism.

With national currencies, the country that fulfills its long-term borrowing needs with the use of the central bank's monetary liabilities and not with long-term private financing will suffer from a depreciation of its currency. When national currencies no longer exist, this mechanism also ceases to exist, and thus leads to a powerful yet unintentional incentive on the part of all Eurozone members to expand credit financed by short-term savings of the other member countries before the other members do it themselves[133].

This is the main reason why the euro convergence criteria contained strict limits to both public deficits and the amount of public debt that can be serviced by a government. The convergence criteria could be seen as a limit to the externalities that a member country of the European Monetary Union could impose on the holders of the common currency in other member countries.

3. The Euro As a Financial Mechanism to Transfer Risk

Historically, central banks have shouldered the burden of being the lender of last resort for the financial sector[134]. To the degree that the criteria that determine the eligibility of collateral or serve to decide which financial sector assets should be purchased are sufficiently stringent, the transfer of risk to the Central Bank will be minimal[135].

To minimize transfers of risk, the assets subject to discounting by the central bank should be instruments that carry a minimal default risk because of their very nature, that is, short-term

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[133] This is a clear example of the tragedy of the commons. See Hardin (1968).

[134] See Bagehot (1873)

[135] The transfer of risk will never be reduced to zero, given that the central bank loses liquidity when it purchases or extends credit against interest-earning assets. Any economic agent that modifies its position to improve his returns while deteriorating his liquidity assumes some amount of risk, however small the risk may be. Therefore, this transfer of risk from the financial system to the central bank could never disappear, although it might be reduced to a very minimum.

commercial paper backed by collateral such as highly demanded consumer goods[136]. If the default risk is limited, then the transfer of risk from the financial sector to the ECB would be minimized.

Therefore, and with the purpose of minimizing the transfer of risk, assets with long maturities and speculative assets of which repayment is questionable must be avoided when it comes to asset purchases or determining eligible collateral for liquidity swaps. If assets eligible for discounting are high-risk assets or assets with longer maturities, the financial system would transfer risk to the ECB as lender of last resort, which it is supposed to protect for the sake of the holders of its liabilities, that is, any holder of euros. In other words, accepting low quality collateral allows the transfer of risk assumed by one agent, the financial intermediary, who maximized his returns by assuming that particular risk, to another agent, the holder of currency, who tried to avoid that risk and its higher corresponding return. By using the monetary mechanism, economic agents are assuming risks that they were trying to avoid.

An indiscriminate monetization of financial sector assets imposes negative externalities on society. Such externalities are allowed and arbitraged by the central bank, because the central bank is the entity that channels assets from the financial sector to the holders of its currency. The result is a typical negative externality. On the one hand, and in the face of the expectation of not being able to shoulder the possible costs associated with credit defaults, riskier credit is extended, while on the other hand the costs are shouldered by the holders of euros who see their purchasing power diminish[137].

4. The Euro As a Mechanism of Sovereign Risk Transfers

The euro can presuppose a risk externality from the financial sector to holders of euros in the same way that it presupposes a risk externality from member countries to the European Monetary Union.

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[136] See the real bills doctrine (Smith, 1776).
[137] Adding assets of lower quality to the ECB balance sheet implies lower quality liabilities (euros)

The vicissitudes of the varying public finances and the link with their individual central banks meant that, before the euro, any financial stress would be primarily reflected in the exchange rate. The countries with their finances in order enjoy monetary stability, while the countries with unbalanced budgets suffer from serious inflationary periods.

With the introduction of the euro, the stress in foreign exchange rates was transferred to the sovereign debt market. The risk premiums tend to reflect the same information that prior to the monetary union would be reflected by exchange rates. If member countries comply with the convergence criteria, and as a result the access to the monetary mechanism to obtain state funding is restricted, the risk premiums would provide information about the state of public finances of the member countries. The transfer of sovereign risk would remain under strict control as long as the monetary mechanism is kept as far as possible from the financing of public spending.

To the degree that the convergence criteria would be relaxed, governments that comply the least with the criteria externalize their costs on the other citizens of the Eurozone.

Governments favor the monetization of their own public debt over other assets through a series of measures[138]. By resorting to these measures, they create an artificial demand for public debt from the banking sector, which tends to opt for an asset pool that is much more inclined to sovereign debt than any other privately issued asset.

Given the nature of how the ECB creates means of payment[139] that are used to monetize public debt[140], Eurozone governments with sound public finances support the risk of Eurozone governments with unsound public finances.

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[138] A haircut or Basel's solvency criteria. See (European Central Bank, s.f.) o (Bank of International Settlements, 2010)

[139] That is, the monetary base

[140] In fact, the financial system monetizes assets. The financial system receives refinancing from the ECB with the assets as eligible collateral. Here is where an ultimate preference for public debt that any central bank holds is produced; the haircut or the nominal value that is not refinanced by the central bank is much greater for private sector assets than for public sector assets. As a result, the financial sector tends, other things equal, to prefer extending credit to the public instead of private sector. To see the haircut that the ECB applies, (European Central Bank, s.f.)

5. Why Does the Discount Policy of the ECB Not Function?

Central bank discount policies were developed in 19th century Victorian England. Although the English banks were not extremely prudent in their liquidity management at the time, the financial system held a degree of liquidity[141] superior to our present-day system. The discount mechanism requires a liquid banking system for it to work[142].

If financial institutions invest the funds they receive on demand or with short maturities in long-term non-convertible assets, a gradual deterioration of liquidity that tends to maximize returns would be the result. In this manner, a liquidity or refinancing risk arises, besides the market risk that is already inherent to banking (that is, credit risk).

As a consequence of the illiquidity of banking assets, the discount policy of the ECB is seriously affected. If banking assets consist mainly of long-term assets, then the possibilities that central banks have at their disposal to influence the supply of credit and means of payments in an economy are rather limited.

A liquid banking system would be a system in which financial institutions intermediate each interest rate in line with its duration or maturity. In such a system, the supply and demand of capital with similar maturity profiles would tend to equilibrate, which would lead to different interest rates for different maturities[143]. In other words, financial institutions would lend their funds to those that demand credit with the same maturity as the funds they borrow from other economic agents.

In a liquid banking system, the supply of issued means of payment is inextricably related to short-term investments, or more specifically, self-liquidating bills of exchange[144]. When the central bank tries to restrict the supply of money, the discount rate might increase and almost automatically the supply of means of payment in the economy contracts. A higher discount rate implies less discounting of bills, which in turn implies a lower supply of means of payment

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[141] A coordination between the cash flows of various assets.

[142] See Palyi (1936)

[143] Higher interest rates for longer durations consistent with the slope of the yield curve. This is due to a preference for liquidity and to the higher risk associated to investment with a longer maturity profile because it makes it more difficult to forecast future conditions accurately that would allow to review a loan.

[144] Bills with highly demanded present goods as collateral, that is, new claims (deposit money) that are backed by tangible present goods. For more on the real bills doctrine (RBD), see Smith (1776).

using such bills. The means of payment disappear to the degree that the bills reach maturity and are repaid. Subsequently, this circulating credit disappears on the margin since it is not renewed due to the higher discount rate. As such, any inflationary tendency can be quickly reversed by a central bank. The way the available supply of means of payment reacts on a change in the discount rate set by the central bank is quick and effective. An effective discount policy presumes and needs a liquid banking structure.

In the same way, a lowering of the discount rate by the ECB could provoke almost instantaneously an increasing number of discounted bills. Merchants that would have held the bills to maturity, find their way to the banking system to discount them. The decline in rates makes the financial cost of discounting less burdensome and makes the implicit return on reinvestment in one´s own company higher than the financial cost of advancing the repayment of the commercial bill before maturity. That is, marginal reinvestment increases, given the fact that the marginal cost of discounting is reduced to below the expected return of issuing a new bill.

An illiquid banking system would be a system that does not intermediate interest rates between loans and securities with similar maturities, but rather a system that intermediates across different maturities. Financial institutions engage in investing short-term capital into long-term projects. As a result, the supply of short-term capital is used to satisfy the demand for long-term capital. In other words, long-term projects are funded on a massive scale with funds that must be made available in the short term.

In the case of an illiquid banking system, various problems arise that substantially limit the effectiveness of a discount policy. The first problem is that the discount rate only exercises an indirect influence on long-term interest rates. The second problem that limits the effectiveness of a discount policy is the nature of the long-term assets that are mainly held by the banking system. A rise in the discount rate of the central bank would initially cause an increase, with a certain lag, in long-term interest rates. This increase slows the demand for new long-term credit and consequently the creation of new means of payment in the economy[145]. Means of payment also begin to disappear to the degree that credit is being

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[145] This increase comes to a halt precisely because the banking system, on the margin, no longer issues new means of payment which are backed by long-term assets as collateral that the banking system, on the margin, no longer purchases.

repaid, but in contrast to what happens in a liquid banking system, assets mature in a much more distant future, so that means of payment tend to remain in an economy for a much longer period, or to be more specific: until the credit is repaid[146].

Therefore, in a liquid banking system, the supply of means of payment reacts quickly to changes in the central bank´s discount policy, whereas an illiquid banking system is much slower to limit the number of means of payment because of the problems with the fact that the discount rate affects long-term interest rates only with a lag and the problems of linking the supply of means of payment to the payback period of long-term assets.

A lowering of interest rates in a liquid banking system could be categorized as a means of non-inflationary stimulus with a negligible time lag. Such a lowering has a positive effect on commerce by increasing the velocity of money in circulation without a simultaneous increase in prices. Because the new means of payment are collateralized by previously produced, highly demanded goods, a lower discount rate has no inflationary impact. In a banking system that respects the principle of liquidity cannot expand the supply of means of payment above the supply of working capital[147], that is, there cannot exist inflation because the recently created means of payment have a counterweight and are limited to the supply of liquid current assets. That is, a large reduction of the ECB´s discount rate would not have a great impact if there exists no acceptable collateral to be monetized. That is, if there does not exist sufficient demand for credit for the required duration, a greater supply would not be accommodated in the market and therefore would never have an inflationary impact. In other words, an ECB´s stimulus would be limited and safeguarded by the credit conditions in the market.

The lowering of interest rates in an illiquid system could be categorized as a means of inflationary stimulus with a large time lag, as we will see in the next section.

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[146] Note that there is no reason why these assets must be held until maturity. A default of the issuing party of the asset involves automatically a destruction of the means of payment associated to the issuing party. In that sense, an increase in savings which tends to amortize debt with anticipation also induces a reduction of the supply of monetary liabilities.
[147] See Smith (1776)

6. Discount Policy and the Destruction of the Production Structure

The lowering of the discount rate in an illiquid banking system could be categorized as a means of inflationary stimulus, because when long-term assets are monetized[148], new present claims on present goods are created against future goods. That is, the new means of payment are not backed by new present goods. The increase in the supply of currency is not backed by an increase in consumer goods. The goods that serve as collateral are not working capital, but fixed capital[149]. A monetary discoordination ensues, which initially results in an inflationary tendency and later, when the fixed capital matures, in a deflationary tendency[150].

A lowering of the reference rate in an illiquid banking system involves a gradual decline of long-term interest rates to the extent that the banking sector begins arbitraging the yield curve and shifts lending to long-term investment projects. Such declines cause a sense of economic euphoria, increase investment in the long term, and consequently the expectation of future growth. However, these long-term investments exceed the savings available in the long term and is partly sustained by short-term savings. The larger share of long-term investments is therefore mirrored by a deficiency in short-term investments due to the fact that a part of these savings is now irrevocably invested in long-term productive projects. There is an overinvestment in fixed capital and an underinvestment in working capital, which is nearer to consumption. In the medium term, a shortage of working capital emerges, which is the result of its deficient supply that leads to a tug-of-war for resources between the owners of fixed capital and triggers a rise in commodity prices that undermines the margins on fixed capital and translates into higher consumer prices. At this point, discount policy tries to restrict the monetary supply with the aim to fight inflation. This increase in rates, to the degree that the increase influences long-term rates, strangles the returns on fixed capital even further, even to such a degree that it might lead to the partial destruction of the productive structure.

As we have seen, an increase in the discount rate can slow a monetary expansion in a liquid banking system quickly and effectively. More importantly, a liquid banking system assures

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[148] That is, future goods that are not currently available and will not be available in the near future.
[149] Therefore, they cannot convert into consumer goods before an extensive period has passed.
[150] Either through repayment of the principal when the investment matures or through default if the investment fails. In any case, the suppression of the means of payment is accompanied by a deflationary trend.

that such rate increases are not necessary, because the system in itself would not be inflationary. Moreover, the fact that savings are inter-temporally coordinated allows long-term rates to be largely insensitive to changes in short-term rates[151].

An increase in the discount rate in an illiquid system is slow and often completely inefficient to withdraw claims from the market because they are linked to long-term investments and impossible to liquidate in short term. As the system is intrinsically inflationary, a need arises for the discount rate to be transferred along the entire yield curve through arbitrage by the banking system. By increasing long-term interest rates, the returns on long-term capital are strangled, which causes a destruction of the productive structure. An increase in the discount rate only leads to lower economic activity when the banking system is illiquid.

In other words, an illiquid banking system moves factors of production from economically optimal positions to suboptimal positions[152], distorting the structure of production and generating inflation that, when the authorities try to fight it, causes a destruction of the societal structure of production by suppressing the returns on long-term capital.

7. The Absence of a Mechanism to Limit Long-term Investment

What is astonishing about the design of the euro, is the complete absence of a mechanism to restrict the expansion of long-term credit. Almost since the founding of the first banks in history, theoreticians could establish a relationship between the quantity of credit and economic growth[153]. It is because of this that the ECB, in principle, has no mechanism at its disposal that allows an unlimited expansion of private credit when the economy is at the peak of an economic cycle[154].

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[151] Interest rates for different durations will never be completely separated and isolated compartments, since higher discount rate could move savers marginally toward shorter maturities. However, when maturities of savings and investment are matched *ex ante*, the liquidity or refinancing risk of long-term investors disappears because their financing needs have been completely covered.
[152] From short-term investments in working capital to long-term investments in fixed capital. This is akin to using short-term savings to finance long-term investments.
[153] See Dunbar (1891)
[154] Simply because it is implicitly assumed that there are no problems involved with the accumulation of credit.

The equivalence of investment and savings is one of logical necessity[155]. It is impossible that economic agents invest something that has not been saved beforehand. For an agent to make an investment, it is a – temporal and logical – necessity that another agent[156] has saved the resources that are being invested. The saver frees up resources and the investor uses them. The investor cannot invest anything that has not been saved before; the relation between savings and investment is, unmistakably, a relation of equivalence[157].

The expansion of long-term credit has, in principle, no bigger drawbacks if we assume, once again, a liquid financial system. In this scheme, the banking system only plays a role in capital markets as intermediary between suppliers and demanders of savings with similar durations or maturities. In such a scheme, savings of similar durations only satisfy the demand for capital with the corresponding durations, that is, an interest rates for every specific duration arises[158]. The expansion in the volume of credit is faced, in this case, by two important limitations. On the one hand, a large increase in the demand for credit, which is a characteristic of the initial expansionary phases of the economic cycle, involves an increase in interest rates whenever the increase in demand for credit is not accompanied by an equivalent increase in savings with a similar maturity profile. Here we find the first obstacle: the supply of credit has different elasticities for different maturity profiles, with lower elasticity for larger durations. In other words, a greater demand for long-term credit can only be partially offset by an increase in savings, which are scarce by definition. It is at this point that the greater demand is translated into a higher price, that is, a higher interest rate, which leads to a restriction of that same demand and the rationalization of the use of credit solely for projects that show a higher expected return. The supply of long-term credit is faced with

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[155] Therefore the majority of Austrian economists are wrong when they claim that the economic cycle is caused by an overinvestment not backed by real savings, which is the thesis of, for instance, Rothbard (1962). However, recent developments exist concerning the Austrian business cycle theory which are not based on the assumption that investment exceeds savings, but that the cycle is caused by an increase in investment that exceeds the available savings for that specific duration, that is, the root cause of the cycle would be channeling the flow of short-term savings toward long-term investment. For a more detailed analysis, see Rallo (2011)

[156] Or the same agent.

[157] Although it might seem obvious that investment cannot exceed savings, the opposite could seem more plausible: savings exceeding investment. The case of hoarding could appear to be a form of saving that does not cause a demand for production factors and as a result remains idle. However, hoarding might be seen as a type of savings that imply a demand for consumer goods or investment projects that currently do not exist, that is, a type of demand in a production structure with different characteristics from the current production structure, see Rallo (2011)

[158] Interest rates are established for different durations (maturities) and risk profiles, despite the fact that this article exclusively refers to the temporal aspect.

a significant obstacle: an inelastic supply that is incapable of satisfying an increasing demand. The supply of credit runs into a quantitative limit that prevents the creation of bubbles and excessive speculation imposing a limit on its use and diverting the previously mentioned credit to its best uses. The widespread erroneous allocation of resources is reduced to its minimum[159] when the initial phase of a credit expansion is stopped in its tracks before any damage is done.

On the contrary, an illiquid financial system allows a far greater supply of credit to be sustained. Because the supply of short-term credit is very elastic[160] and as this supply is being used to cover the demand for long-term credit, investment could increase almost exponentially without any effective short-term limits. In this case, the inelastic supply of long-term credit does not curtail investment since it is financed with short-term credit. In an illiquid financial system, the supply of long-term credit is merely limited by a possible dishoarding of currency and increasingly high inflation, that is, by lower demand for short-term credit.

In short, at a certain point the supply of credit must be restricted. More credit translates into more short-term growth and therefore it is rather complicated to try to reverse the trend. In an unhampered system, demand for long-term credit is limited by an inelastic supply of credit that would lead to higher interest rates which almost automatically restricts the demand for long-term credit. The ECB allows the much more elastic supply of short-term or callable credit to satisfy the demand for long-term credit and ultimately satisfies the demand for long-term credit with ECB-liabilities.

8. Monetary Stability Is Linked to the Outcome of Long-term Investments

Historically, central banks succeeded in stabilizing the purchasing power of its liabilities in two ways[161]:

a. Allowing conversion of currency into gold.

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[159] It is impossible to eliminate it completely, also see Lachmann (1956)
[160] Especially the monetary supply
[161] See Dunbar (1891)

b. Monetizing bills of exchange with short durations and present goods as collateral.

The former meant that whenever a central bank would overissue its currency, the currency would depreciate against gold or other currencies tied to gold while the central bank would simultaneously lose reserves. The latter guaranteed that currency would not remain in circulation for too long a period before getting back to the central bank for repayment, besides the fact that the means of payment could only expand if trade would also expand.

To the extent that a central bank´s liabilities mature in the short term according to the above explained criteria, the stability of its liabilities is linked to the sound flow of a minority of trade of consumer goods that are in high demand. The conditions in these markets are generally very stable and little speculative, besides offering a real, material guarantee in the form of a present good. The stability of the central bank´s liabilities is guaranteed when a non-speculative asset matures in the short run.

Nevertheless, and as we have been emphasizing throughout this article, the balance sheets of our modern central banks consist mainly of very long-term assets[162]. These assets because of their inherent long-term composition are subject to a far greater default risk. And even in the case of assets that are considered safe (or risk-free), the fact that a large temporal gap exists makes the ability to forecast the future conditions that allow a full repayment of the loan uncertain and therefore the risk associated with it is much higher[163]. In addition, in case of default, the loan is backed by future goods instead of present goods[164], which suffer from the risk that they will never be produced at all.

Moreover, whenever central banks accumulate long-term credit on their balance sheets, they are linking monetary stability to the soundness of the investments that are financed by this credit. When faced with an eventual bankruptcy of the debtor, the insolvency spills over to the creditor, which is ultimately the central bank and consequently every user of the central

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[162] Even if those assets are short term, such as credit facilities to private banks, the collateral used to back the credit is long term, so in the end, the maturity transformation are taking place.
[163] See Scherman (1938)
[164] Specifically, the goods that the debtor promises to deliver in the future and that not yet have been produced.

bank´s liabilities, contaminating the entire economy which could potentially lead to a full-scale rejection of the currency and a subsequent hyperinflation.

9. Conclusions

- The monetary mechanism, as it is exists today, is a source of government financing. In supranational zones, this creates tensions when countries try to gain access to this mechanism as a source of financing, especially in tumultuous times.

- The ECB acts as a transmitter of financial risk from the banking sector to the holders of the currency as assuming the role of lender of last resort without a set of strict criteria for the eligibility of collateral.

- The euro allows to transfer sovereign risk from countries with sound public finances to countries with large budget deficits. Because of the monetary risk that the latter imply, the former see themselves forced to provide fiscal bailouts.

- The discount policy as a means to control the supply of money and indirectly inflation, becomes ineffective under the assumption that the financial system is illiquid.

- The use of discounting by the central bank can spawn an economic cycle if the banking system arbitrages the yield curve and uses short-term savings to finance long-term investments.

- A mechanism to limit the expansion of credit in the economy is absent. The demand for long-term credit is not satisfied with the inelastic supply of long-term credit, but with the much more elastic supply of short-term credit, which allows to increase the volume of credit many times beyond what is sustainable in the long run. The interest rate as a price in credit markets loses its coordinating character.

- The price of present-day monetary liabilities is determined by the very uncertain outcome of future investments, in which both the banking sector and the ECB itself have been tied up.

Chapter 5
The Mechanism of a Recession: Liquidity Theory in the Austrian Business Cycle

1. Introduction

This paper analyses, in terms of general dynamic equilibrium, the monetary veil of finance. We are modelling the financial interactions that connect different economic agents though time. The model proposes how the maturity mismatch within the financial sector causes a maturity mismatch between the structure of production and the consumer's expectation regarding when to consume. We are introducing the Liquidity Gap index as a new indicator that measures the financial maturity mismatch and provide empirical evidence for the European Union and the United States of how a recession begins with a lowering of the interest reference rate which leads to an increase in the Liquidity Gap index followed by a decrease in the yield curve slope or term spread and finally culminates in a recession. We find evidence that the whole process takes around 6 years, but of course is somewhat volatile.

This chapter should be read as a translation to mainstream economist of the Austrian theory of the trade cycle presented in chapter 3 and chapter 4 of the present work. In this regard, this chapter is not a development of the theory presented in the last two chapters. It is, at best, a useful way to expand the scope of this work to other economists that are not trained in the Austrian tradition.

We are presenting an intertemporal equilibrium model that will address the coordination problem between investment, savings, expected consumer goods flows from enterprises and expected consumption pattern by consumers. We will propose several models that will include interest rates, financial intermediaries and central banking. Central bank is viewed by the financial sector as an unlimited source of new liquidity.

Central bank introduces an incentive in the financial sector to overlook liquidity problems. Maturity mismatch is the result of the central bank promise to provide unlimited liquidity. The financial sector can maximize its own profits by investing long term and financing short

term since the long-term interest rate is usually higher than short term interest rate. The cost of being illiquid is externalized from the financial system to the central bank, so the liquidity premium tend to diminish or even disappear when maturity mismatch is ongoing. This explains the flattening of the yield curve in the expansionary phase of the business cycle.

An illiquid financial system sends contradictory information to their counterparties. Ultimate borrowers or entrepreneurs think that they are entitled to use the funds placed at their disposal for a long-time lapse. Meanwhile, ultimate lenders or savers think that they can use the funds placed in the financial system at short notice. If we see entrepreneurs as the providers of future consumer goods and savers as future consumers, then the illiquid financial system leads to an illiquid structure of production. Investments projects will mature at longer term than savers expected to become consumers.

When short term savers want to become consumers and there are not enough consumer goods available at short notice because maturity transformation, then forced savings will be unavoidable. If the central bank grants new liquidity, then inflation appears. Consumer diluted purchasing power entitles savers to access less consumer goods than originally expected. If the central bank is worried about inflationary pressures or shows hesitation to extend new liquidity or fall short when extending new liquidity, then a liquidity crisis will develop in the financial system. Some portion of short term savers will be unable to access consumer goods at all since some banks are failing, demand collapses and an economic crisis will develop.

Thus, we are proposing a recession mechanism as shown in Figure 1 and provide evidence of how the lowering of the reference interest rate in the European Union and the USA starts a chain of events that culminates in a recession. We are introducing the Liquidity Gap index as a new indicator that measures the financial maturity mismatch and provide empirical evidence for the European Union and the United States of how a recession begins with a lowering of the interest reference rate which leads to an increase in the Liquidity Gap index followed by a decrease in the yield curve slope or term spread and finally culminates in a recession. We find evidence that the whole process takes around 6 years, but of course is somewhat volatile.

This article is organized as follows. Section 2 describes the General Equilibrium Model as well as the disequilibrium conditions. Section 3 provides the empirical methodology used to test the model. Section 4 provides the results for the European Union and Section 5 does the same for the United States. Section 6 deals with robustness issues.

2. The Theoretical Model

2.1. First Model: From Portfolio Structure to Asset Structure

We are starting considering a discrete time finite horizon. We will denote $t = 0$ when the we are referring to the present, $t = 1$ for short term or near future and $t = 2$ for long term or distant future.

2.1.1. Households decisions forming the portfolio structure

Households will have three options to allocate in time its consumption preferences. Households can use their income to consume today (t=0), at some point in the near future (t=1) or at some point in the distant future (t=2). In our scheme, we are allowing households to have an option to introduce an intertemporal scheme into their savings. Households have then, three possibilities regarding the allocation of its income; consume today (c0), consume in the near future (c1) or consume in the distant future (c2).

$$(1) \quad c_i = c_{0i} + c_{1i} + c_{2i}$$

$$(2) \quad c_{1i} + c_{2i} = s_i$$

The consumption preferences allocated in the future (c1 and c2) will give rise to savings flows (s1 and s2) that match the initial maturity expressed in consumer's preferences.

$$(3) \qquad c_{1i} = s_{1i}$$

$$(4) \qquad c_{2i} = s_{2i}$$

$$(5) \qquad s_{1i} + s_{2i} = s_i$$

The aggregate savings coming from households forms the structure of savings. We will denominate this structure of savings (S1/S2) the portfolio structure of the society[165].

$$(6) \qquad S_1 = \sum_{1}^{N} s_{1i}$$

$$(7) \qquad S_2 = \sum_{1}^{N} s_{2i}$$

$$(8) \qquad PS = S_1/S_2$$

Since we are presenting an equilibrium model, no money is needed[166]. However, our fourth model will include disequilibrium analysis in which some sort of money will be needed. We will include here a commodity money as base money that make the function of numeraire. Consumption, savings, investing and other economic terms will be measured in this base money. Their quantity will be fixed or at least is growing at the same pace that the rest of the economy and its velocity will be constant[167].

2.1.2. Enterprises decisions forming the asset structure

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[165] See (Lachmann L. M., 1956).
[166] See (Hayek F. A., 1941).
[167] See (Fisher, 1911) or (Friedman, 1986).

Producers also have an opportunity to introduce a temporal scheme in their production process. Enterprises will have two options to allocate temporally their planned production: they can produce at some point in the near future (t=1) or they can produce at some point in the distant future (t=2). Since all production requires some time, we are not introducing the possibility for an enterprise to produce at (t=0)[168].

$$(9) \qquad q_j = q_{1j} + q_{2j}$$

The production preferences (q1 and q2) will give rise to expected consumption goods flows that matches the original maturity expressed by producers. Note that we are using c^* to distinguish the producers´ expectation of consumer goods flow from the expected consumption pattern expressed by consumers c.

$$(10) \qquad q_{1j} = c^*_{1j}$$

$$(11) \qquad q_{2j} = c^*_{2j}$$

The aggregate production coming from enterprises forms some sort of production scheme. We will denominate this productive structure (Q1/Q2) the asset structure of society[169].

$$(12) \qquad Q_1 = \sum_1^T q_{1j}$$

$$(13) \qquad Q_2 = \sum_1^T q_{2j}$$

$$(14) \qquad AS = {Q_1}/{Q_2}$$

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[168] See (Huerta de Soto, 1998).
[169] See (Lachmann L. M., 1956).

The asset structure of society is an expression of the expected consumers´ goods flow available in the future. Once that enterprises took their production decisions (q1 and q2), they fixed their production processes and therefore the expected consumers´ goods flow is also fixed[170].

$$(15) \qquad AS = \left. Q_1 \middle/ Q_2 \right. \equiv \left. \overline{C_1^*} \middle/ \overline{C_2^*} \right.$$

For each enterprise (micro level), it means that:

$$(16) \qquad q_{1j} \equiv \overline{c_{1j}^*}$$

$$(17) \qquad q_{2j} \equiv \overline{c_{2j}^*}$$

2.1.3. Enterprises commitments forming the liability structure

In this first model, we will suppose that there are not financial intermediaries, no interest rate and that there is no possibility of hoarding money. So, all savings coming from households are channelled through direct finance to enterprises. Interest rate plays no role in consumption or production decisions[171], only consumer time preferences.

There should be some kind of legal arrangement between households (or savers) and enterprises (or producers). Those arrangements are the commitments that enterprises undertake in order to receive the savings in the first place. These commitments are

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[170] The heterogeineity of capital prevent perfect mobility of it once that it is has taken certain shape. See (Hayek F. A., 1931), (Hayek F. A., 1941) and (Lachmann L. M., 1956). However, there is always certain degree of imperfect mobility that could be relied upon, so, at best, expected consumers´ goods flow from enterprises are partially fixed. See (Lachmann L. M., 1956).

[171] These strong restrictions are taken with clarity purposes. These restrictions will be relaxed in further models.

enterprises´ liabilities (i.e. promises to deliver consumer goods in the future). We allow also for the distinction between near and distant future in enterprise liabilities. Note that we are using c^p to distinguish the enterprises´ commitments to deliver consumer goods from the expected consumption pattern c expressed by consumers in the portfolio structure. We have also to distinguish from the fixed consumption goods flow $\overline{c^*}$ expressed in the asset structure.

$$(18) \qquad l_j = l_{1j} + l_{2j}$$

$$(19) \qquad l_{1j} \equiv c^p_{1j}$$

$$(20) \qquad l_{2j} \equiv c^p_{2j}$$

We have the liability structure as the aggregate of the individual enterprises liabilities.

$$(21) \qquad L_1 = \sum_1^T l_{1j}$$

$$(22) \qquad L_2 = \sum_1^T l_{2j}$$

$$(23) \qquad LS = {L_1}/{L_2}$$

2.1.4. Equilibrium in the first model

Liabilities from enterprises are also household assets. From households´ standpoint, enterprises´ liabilities are, in this framework, the right to receive consumer goods in the future. In this model the liability structure necessarily matches the portfolio structure of society[172]. Since we have distinguished between near future and distant future in the portfolio

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[172] This will no longer be necessarily true when we introduce the financial system in the model.

structure, and since liability structure matches the portfolio structure, the liability structure will also allow for near and distant future.

In our first model, the equilibrium condition will be defined as:

$$(24) \quad AS = LS = PS$$

If we introduce equations (8), (15) and (23) in equation (24), then we have the equation in short term to long term proportions of each component.

$$(25) \quad Q_1/Q_2 = L_1/L_2 = S_1/S_2$$

If we introduce equations (6), (7), (12), (13), (21) and (22) in equation (25), then we have the equilibrium condition in microeconomic terms.

$$(26) \quad \sum_1^T q_{1i} \Big/ \sum_1^T q_{2i} = \sum_1^Z l_{1i} \Big/ \sum_1^Z l_{2i} = \sum_1^N s_{1i} \Big/ \sum_1^N s_{2i}$$

We can rewrite equation (26) in terms of consumption goods by substituting each term of the equation for its equivalent in consumption goods. We are doing so by introducing equations (3), (4), (16), (17), (19) and (20) in equation (26), then we have the equilibrium condition in consumer goods terms.

$$(27) \quad \sum_1^T \overline{c_{1j}^*} \Big/ \sum_1^T \overline{c_{2j}^*} = \sum_1^T c_{1j}^p \Big/ \sum_1^T c_{2j}^p = \sum_1^N c_{1i} \Big/ \sum_1^N c_{2i}$$

In equation (27) the proportion of short term to long term consumers´ goods that the asset structure is capable of produce is in line with the commitments to deliver these goods expressed in the liability structure. Ex-ante consumers´ choices regarding when to consume are also in line with the capability of the asset structure to produce them and with consumers´ claims expressed in the liability structure.

Equilibrium in the model means that the flow of consumer goods that enterprises can produce matches the consumers´ expected flow of consumer goods. There is an ex-ante intertemporal equilibrium[173].

2.2. Introduction of Interest Rates

2.2.1. Short term and long term interest rate

The introduction of interest rates will modify the consumers´ decision regarding when to consume. The interest rate also will modify the consumers´ deployment of resources between near future (t=1) and distant future (t=2) and the enterprises uses of those resources between near future (t=1) and distant future (t=2).

We will assume, in our second model, an upward slope in the structure of interest rates in accordance with interest rate literature[174]. The equilibrium short term rate r_1 will be lower than the equilibrium long term rate r_2. Here we are introducing a structure of interest rates

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[173] Note that households could still change their preferences regarding c1 and c2. However, household´s assets (enterprises liabilities) prevents households to exert the right to demand consumer goods until the enterprises liabilities become due.

[174] See (Hicks J. R., 1939) and (Culbertson J. M., 1957). There is also a controversy between Austrian economists about how the structure of interest rates would be in an unhampered market. There are one side which claims that the arbitrage between short term interest rate and long term interest rate would provoke a flat yield curve, see (Rothbard, 1962). Mises also argued that in an evenly rotating economy a uniform rate of originary interest would prevail. See (Mises L. v., 1949). The Mises statement is not denying the possibility of an upward slope outside the evenly rotating economy. In the evenly rotating economy there is no need for money and therefore there is no liquidity issues. Also, in the evenly rotating economy there is not room for uncertainty and therefore no risk premium could arise in the interest rate the longer the time period considered because the future is perfectly known. Within the Austrian tradition there is another side which claims that the yield curve in an unhampered market would still show an upward slope because liquidity and risk premiums. See (Bagus & Howden, 2010).

instead of the traditional approach of models in which only one interest rate is considered[175]. We are also assuming a lack of mobility of savings between maturities, so the short-term interest rate and the long-term interest rates will be set in separate markets[176].

$$(28) \quad R = (r_1; r_2)$$

$$(29) \quad r_1 < r_2$$

We are assuming also that interest rates will have three components; an intertemporal discount rate[177]; a liquidity premium[178]; and a risk premium[179].

$$(30) \quad R = id + lp + rp$$

The liquidity premium and the risk premium will be higher the longer the maturity considered, while intertemporal discount rate is independent of maturity. Liquidity and risk premiums are significant factors for assuming lack of mobility between maturities[180].

$$(31) \quad \partial id / \partial m = 0$$

$$(32) \quad \partial lp / \partial m > 0$$

$$(33) \quad \partial rp / \partial m > 0$$

---

[175] The real business cycle models (RBC models) and the more modern dynamic stochastic general equilibrium models (DSGE models) at best only consider one interest rate. The only distinction that those models are capable to see are between real and nominal interest rate. See (Stadler, 1994) and (Fernández-Villaverde, 2010).
[176] See (Culbertson J. M., 1957) and (Modigliani & Sutch, 1966).
[177] See (Böhm Bawerk, 1890).
[178] See (Hicks J. , 1989).
[179] See (Böhm Bawerk, 1890).
[180] See (Culbertson J. M., 1957) and (Modigliani & Sutch, 1966).

Being id the intertemporal discount, lp the liquidity premium, rp the risk premium and m maturity.

2.2.2. Consumption and interest rate

Consumption pattern over time will depend on some autonomous consumption pattern and on interest rates level. The autonomous consumption pattern depends on external factors outside the scope of this chapter[181].

$$(33) \quad c_i = c^a + R$$

As we explained, the structure of interest rates (R) will have two rates: the equilibrium short-term interest rate r_1 and the equilibrium long-term interest rate r_2. Now we allow the interest rates to modify the consumption pattern.

$$(34) \quad c_{ti} = c_{ti}^a + \alpha r_1 + \beta r_2$$

Ceteris paribus, the higher the interest rate equilibrium rates, the less present consumption.

$$(35) \quad c_{0i} = c_{0i}^a - \gamma r_1 - \delta r_2$$

---

[181] The main factor behind the autonomous consumption pattern is the time preference, that is, the relationship between current needs and future expected needs. See (Mises L. v., 1949), (Hayek F. A., 1931), (Huerta de Soto, 1998) and (Garrison, 2001).
Another factor that can exert an influence in the autonomous consumption pattern is the current ability to satisfy those needs and the future expected ability to satisfy future expected needs. See (Fisher, 1930). Households deploy their resources between current consumption and future consumption by taking in account their own temporal preference. See (Böhm Bawerk, 1890) and (Fisher, 1930).
We can also include in the autonomous consumption pattern the life cycle model of interest rate formation. See (Feldstein, 1976).

$$(36) \qquad c_{1i} = c_{1i}^a + \varepsilon r_1 - \theta r_2$$

$$(37) \qquad c_{2i} = c_{2i}^a - \mu r_1 + \pi r_2$$

2.2.3. Production and interest rate

The asset structure of a society over time will depend on the expected return of investment, that is, on the internal rate of return (IRR) and on the structure of interest rates (R)[182].

$$(38) \qquad Q_1 / Q_2 = f(IRR, R)$$

We are assuming a rising expected return due to higher roundaboutness of the more capital intensive production processes[183]. The internal rate of return of long-term capital investment in higher than the internal rate of return of short-term capital investment.

$$(39) \qquad IRR = (irr_1, irr_2)$$

$$(40) \qquad irr_1 < irr_2$$

The higher the internal rate of return the higher the demand for investment, both short-term and long-term investments[184].

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[182] More precisely, the asset structure will depend on the internal rate of return (IRR) and on the weighted average cost of capital (WACC). However, we are assuming that new investment will be carried only with external funds, channelled through the loanable funds market. The weighted average cost of capital (WACC) has also the inconvenience of analysing short term and long term capital funds as substitutes, meanwhile our focus is to analyse the incidence of using short or long term financing on the economic system.

[183] See (Böhm Bawerk, 1890), (Hayek F. A., 1931) and (Huerta de Soto, 1998).

[184] See (Hayek F. A., 1931) (Lachmann L. M., 1956) (Huerta de Soto, 1998).

$$(41) \quad \partial Q_1 / \partial irr_1 > 0$$

$$(42) \quad \partial Q_2 / \partial irr_2 > 0$$

The longer the return of the more time-consuming production processes are counterbalanced by the higher interest rate paid by the enterprises to use third party savings on longer terms $(r_1 < r_2)$. The higher the interest rate, the lower the demand for investment, both short-term and long-term investments[185].

$$(43) \quad \partial Q_1 / \partial r_1 < 0$$

$$(44) \quad \partial Q_2 / \partial r_2 < 0$$

Short term investment will depend on short term internal rate of return and, since no maturity transformation is taking place, on short term interest rate. In the same way, long term investment will depend on long term internal rate of return and on long term interest rate.

$$(45) \quad Q_1 = f(irr_1, r_1)$$

$$(46) \quad Q_2 = f(irr_2, r_2)$$

Since we are assuming lack of mobility of funds between maturities, maturity transformation is absent here. Consequently, long term investment decisions are not linked with short term interest rate and short term investment decisions are independent of the long-term interest rate.

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[185] See (Hayek F. A., Prices and Production, 1931), (Lachmann L. M., 1956) and (Huerta de Soto, 1998).

$$(47) \qquad \partial Q_1 / \partial r_2 = 0$$

$$(48) \qquad \partial Q_2 / \partial r_1 = 0$$

The internal rate of return depends on autonomous influences and capital accumulation[186]. Capital accumulation leads to diminishing returns on both, long term and short term production processes. The relation of the internal rate of return with capital accumulation is asymmetrical. When the internal rate of return rises, new investment takes place and new capital is accumulated. However, when capital accumulation is the driver factor, the diminishing returns on capital leads to lower internal rate of return which in turn curtails the extent of the new capital formation.

$$(49) \qquad IRR = f(a, Q)$$

$$(50) \qquad \partial irr_1 / \partial Q_1 < 0$$

$$(51) \qquad \partial irr_2 / \partial Q_2 < 0$$

The interest rates are set in the loanable funds market where savings and demand for savings are met[187]. Capital accumulation needs increased amounts of savings, pushing up the interest rate.

$$(52) \qquad r_i = f(S_t, Q_t)$$

---

[186] The autonomous influences that are not included in the model and that can be accounted for are the existent capital structure, that is, production decisions made in the past, or technological factors. See (Lachmann L. M., 1956).

[187] See (Garrison, 2001).

$$(53) \qquad \frac{\partial r_1}{\partial Q_1} > 0$$

$$(54) \qquad \frac{\partial r_2}{\partial Q_2} > 0$$

Capital accumulation forces the internal rate or return for both short term and long term downwards, meanwhile the capital accumulation process is pushing up the interest rate. New investment (i.e. new production processes maturing in the future) stops when the internal rate of return equals the interest rate.

In equilibrium, the net expected return between investing in near future or investing in distant future production processes are both equal to zero.

In the limit, entrepreneurial profits for both, short term and long term production processes are equal to zero. The short term internal rate or return is equal to short term interest rate and long term internal rate of return is equal to long term interest rate.

$$(55) \qquad \lim_{j \to \infty} E_1 = irr_1 - r_1 = 0$$

$$(56) \qquad \lim_{j \to \infty} E_2 = irr_2 - r_2 = 0$$

$$(57) \qquad E_1 = \sum_{1}^{J} e_{1j}$$

$$(58) \qquad E_2 = \sum_{1}^{J} e_{2j}$$

In competitive markets $(j = \infty)$, the entrepreneur's earnings (E) will be equal to zero.

As we have already mention, in this second model short term and long term interest rate will set in separate markets, which means a complete lack of mobility of savings between maturities once that consumers have determined their consumption preferences over time.

In the short-term loanable funds market, short term savings are the supply side and demand for funds for short term production projects are the demand side. Similarly, in the long-term loanable funds market, long term savings are the supply side and demand for funds for long term production projects are the demand side.

So, we can decompose equation (52) in short-term interest rate formation and long-term interest rate formation.

$$(59) \quad r_1 = f(S_1, Q_1)$$

$$(60) \quad r_2 = f(S_2, Q_2)$$

Both, short-term and long-term interest rate, are depressed by an increase in savings.

$$(61) \quad \partial r_1 / \partial S_1 < 0$$

$$(62) \quad \partial r_2 / \partial S_2 < 0$$

Both, short-term and long-term interest rate, are pushed up by an increase in investment.

$$(63) \quad \partial r_1 / \partial Q_1 > 0$$

$$(64) \quad \partial r_2 / \partial Q_2 > 0$$

By not allowing for maturity transformation (i.e. no funds mobility between maturities), the short-term interest rate is independent of both, long term investment and long terms savings.

$$(65) \quad \frac{\partial r_1}{\partial S_2} = 0$$

$$(66) \quad \frac{\partial r_1}{\partial Q_2} = 0$$

Similarly, long term interest rate is independent of both, short term investment and short term savings.

$$(67) \quad \frac{\partial r_2}{\partial S_1} = 0$$

$$(68) \quad \frac{\partial r_2}{\partial Q_1} = 0$$

2.3. Second Model: Introduction of Financial Intermediaries.

Our second model will include financial intermediaries as capital allocators in the economy. We are relaxing the assumption that savings from households are channelled directly to enterprises. We are replacing direct finance in our earlier model with indirect finance through financial intermediaries[188]. Financial sector assets and liabilities can also be invested or financed at a near or distant future. Each financial institution decides to place their funds between short term assets and long term assets.

$$(69) \quad fa_k = fa_{1k} + fa_{2k}$$

Each financial institution decides also the maturity structure of their own debt by issuing short term and long term securities.

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[188] Financial intermediaries here fulfil the function of reduce imperfect and asymmetric information problems between lenders and borrowers. See (Freixas & Rochet, 2008).

$$(70) \quad fl_k = fl_{1k} + fl_{2k}$$

Financial intermediaries are placed between the liability structure and the portfolio structure of society. The maturity of the assets of the financial sector matches perfectly with the maturity of the enterprises' liabilities[189].

$$(71) \quad \left.\sum_1^Z l_{1k} \middle/ \sum_1^Z l_{2k}\right. = \left.\sum_1^Z fa_{1k} \middle/ \sum_1^Z fa_{2k}\right.$$

Similarly, the maturity of financial sector liabilities match perfectly with the maturity of the portfolio structure of society.

$$(72) \quad \left.\sum_1^Z fl_{1k} \middle/ \sum_1^Z fl_{2k}\right. = \left.\sum_1^Z s_{1k} \middle/ \sum_1^Z s_{2k}\right.$$

The aggregate financial sector assets form the financial sector asset structure, that is, the short term to long term financial assets ratio.

$$(73) \quad FA_1 = \sum_1^Z fa_{1k}$$

$$(74) \quad FA_2 = \sum_1^Z fa_{2k}$$

$$(75) \quad FA = FA_1 \middle/ FA_2$$

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[189] No direct finance takes place in this model, so households cannot bypass the financial sector to place their funds.

The aggregate financial sector liabilities form the financial sector liability structure, that is, the short term to long term financial sector liabilities ratio.

$$(76) \quad FL_1 = \sum_1^Z fl_{1k}$$

$$(77) \quad FL_2 = \sum_1^Z fl_{2k}$$

$$(78) \quad FL = {FL_1}/{FL_2}$$

In aggregate terms, since we are placing the financial intermediaries between the liability structure and the portfolio structure of society, the assets of the financial sector matches perfectly with enterprises liability structure and liabilities of the financial sector matches with savers´ portfolio structure.

$$(79) \quad LS = FA$$

$$(80) \quad FL = PS$$

The financial sector short term to long term assets ratio matches the liability structure ratio, that is, the enterprises´ ratio between short term and long term liabilities.

$$(81) \quad LS = {L_1}/{L_2} = {FA_1}/{FA_2} = FA$$

In the same sense, financial sector short term to long term liabilities ratio matches the portfolio structure ratio, that is, the savers´ ratio between short term and long term savings.

$$(82) \quad FL = \frac{FL_1}{FL_2} = \frac{S_1}{S_2} = PS$$

We are assuming lack of mobility of funds between maturities in the interest rate formation. As we have already pointed out, long term interest rate and the short-term interest rate are set in different markets. For the financial sector this means that no mismatch maturity is taken. The savers´ funds placed at the financial sector are invested with the same maturity pattern than the originally expressed in the portfolio structure by the savers. The financial sector assets have the same average maturity than the financial sector liability structure. This assumption will be relaxed in the fourth model in which we will explore the implications of maturity transformation for the structure of production and for interest rate formation.

$$(83) \quad FA = FL$$

$$(84) \quad \frac{FA_1}{FA_2} = \frac{FL_1}{FL_2}$$

$$(85) \quad \frac{\sum_1^Z fa_{1k}}{\sum_1^Z fa_{2k}} = \frac{\sum_1^Z fl_{1k}}{\sum_1^Z fl_{2k}}$$

Returning to our earlier equilibrium condition expressed in equation (24):

$$(24) \quad AS = LS = PS$$

We can introduce the financial sector expressed in equation (83) in the equilibrium condition expressed in equation (24).

$$(86) \quad AS = LS = FA = FL = PS$$

We can rewrite in terms of short term to long term ratio of each component of the equation.

$$(87) \qquad Q_1\big/Q_2 = L_1\big/L_2 = FA_1\big/FA_2 = FL_1\big/FL_2 = S_1\big/S_2$$

If we decompose the relationships to their micro level, then we have the following equilibrium condition.

$$(88)\ \sum_1^T q_{1j}\Big/\sum_1^T q_{2j} = \sum_1^T l_{1j}\Big/\sum_1^T l_{2j} = \sum_1^Z fa_{1k}\Big/\sum_1^Z fa_{2k} = \sum_1^Z fl_{1k}\Big/\sum_1^Z fl_{2k} = \sum_1^N s_{1i}\Big/\sum_1^N s_{2i}$$

Equation (88) is an extension of equation (26) expressed in the first model. It shows that the system is equilibrium when the asset structure is able and can deliver goods when its commitments expressed in liability structure become due. The liability structure commitments are mirrored in the financial sector assets structure since in this model, enterprises´ finance are carried out indirectly by financial intermediaries. Financial sector asset structure is also mirrored in financial sector liability structure, that is, no maturity mismatch is undergoing in our model. Since no direct finance takes place, financial sector liabilities structure matches with the expected consumption pattern expressed by savers in the portfolio structure.

So, as in our first model, ex-ante consumers´ choices regarding when to consume are in line with the asset structure ability to produce the consumption goods at the time required. Savers´ plans are in equilibrium with entrepreneurial plans.

2.4. Third Model: Introduction of the Central Bank as an unlimited provider of liquidity. The maturity mismatch disequilibrium.

2.4.1. Introduction of the Central Bank.

In the first and second models, we have supposed that monetary base was exogenously provided. This could be the case of commodity money. Financial system liabilities were provided as short-term or long-term promissory notes to pay an amount denominated in base money.

Now we are going to introduce the central bank as an entity which provide the monetary base endogenously. We are going to introduce the central bank as a special bank whose liabilities are the base money and that holds government assets.

$$(89) \quad CB = CBA^G \big/ CBL^{MB}$$

Firstly, we are going to suppose that the central bank has the only role of providing the monetary base and no other duty. There are several ways to do that, but in this first approximation we are going to focus on the way that introduces no incentives to modify the equilibrium reached between the asset structure, the liability structure and the portfolio structure. This could be achieved by avoiding monetary expansion or contraction in any way or by targeting NGDP at 0%[190]. If the central bank does not provide liquidity to the financial sector by issuing new base money, there are no incentives within the financial sector to invest at longer term than its own financing. So, both, assets and liabilities of the central bank remains constant.

$$(90) \quad CB = \overline{CBA^G} \big/ \overline{CBL}^{BM}$$

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[190] The Hayek´s Rule. See (Cachanosky, 2014). In this case the base money should change when the demand for money changes. We are going to assume however, that velocity remains constant, so no change in monetary base in needed at all.

Being $\overline{CBA}^G$ central bank assets composed by government bonds and $\overline{CBL}^{BM}$ central bank liabilities used as base money.

2.4.2. Disequilibrium Between Asset Structure and Portfolio Structure. Central Bank as a Source of Unlimited Liquidity.

However, there are numerous roles assigned to central banks and almost each economic or financial doctrine has its own idea about what a central bank should do[191]. Probably the most important role recognized to the central bank is to be the guarantor of the credit system, that is, to promote the credit system stability by becoming the lender of last resort[192]. The lender of last resort duty entails the extension of lending facilities against good collateral at a high price[193]. The last part of Bagehot´s motto is often forgotten and central bank lending facilities in crisis or recessions are usually performed at an extremely low interest rate[194]. In this framework, the central bank is seen by the financial sector as an unlimited source of liquidity.

The central bank is a source of new short term liabilities that acts as base money. The new base money is created against contingent assets. If the financial sector needs new liquidity, then the central bank provides liquidity by extending new short term loans against eligible collateral (mainly long term bonds). If the central bank steps in, the long term financial investments placed as collateral are contingent central bank assets[195]. New central bank liabilities provide extra funding to the financial sector to fulfil their commitments with savers. The maturity mismatch would be then absorbed by the central bank.

$$(91) \quad CB = \left. (\overline{CBA}^G + CBA_2^C) \middle/ (\overline{CBL}^{BM} + CBL'^{BM}) \right.$$

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[191] Probably the exception is the Austrian School of Economics. This economic doctrine defends that no central banks should even exist. See (Huerta de Soto, 1998) and (White, 1995).
[192] See (Bagehot, 1873) and (Freixas & Rochet, 2008).
[193] See (Bagehot, 1873) and (Repullo, 2005).
[194] The extension of new credit by central bank against good collateral is also questioned by some authors. See (Goodhart, 1994) and (Goodhart & Illing, Financial Crises, Contagion, and the Lender of Last Resort, 2002).
[195] If the financial institution is unable to repay the central bank loan, the collateral is transferred to the central bank.

Being CBA_2^C the contingency assets posed as collateral by the financial sector to receive fresh loans from the central bank (mainly long-term assets) and CBL'^{BM} the new monetary base created to ease financial distress.

However, central bank liabilities are base money, and therefore new issuances does not mean liquidity problems for the central bank in the future, but inflation[196].

When the central bank steps in, liquidity becomes a free good for the financial system since no scarcity is felt by it[197]. We have already pointed out that one of the interest rate elements that keeps the yield curve with an upward slope is the liquidity premium. Liquidity premium is also one of the reasons to assume an imperfect mobility between short term and long term funds[198].

$$(32) \qquad \frac{\partial lp}{\partial m} > 0$$

The introduction of Central Bank as an unlimited liquidity provider, promotes maturity mismatch in the sector that can access to the central bank liquidity, that is, the financial sector[199]. Taking in account, as we have argued, that long term interest rate is higher than short term interest rate, and that financial sector no longer need to worry about its liquidity position, the financial sector can improve its profitability by investing or lending at longer term than its own financing[200].

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[196] In strict sense, this base money serves mainly as banking reserves, not so much to make payments. See (Keister & McAndrews, 2009). However, in our model, the net addition of reserves allows the financial sector the fulfilment of commitments without call in loans (i.e. withdraw financing to the business sector). That is, the amount of monetary claims in the economy actually rises. See the last section of the current chapter.

[197] See (Mehrling, 2010).

[198] See (Culbertson J. M., 1957) and (Modigliani & Sutch, 1966).

[199] Only the banking sector has direct access to Central Bank liquidity. However, the liquidity provided by the central bank is extended through financial channels to the rest of the financial sector (shadow banking). See (Kacperczyk & Schnabl, 2010) and (Adrian & Ashcraft, 2012).

[200] The financial sector externalizes the liquidity risk via central bank, that is, once maturity transformation has taken place, the risks of roll over financial sector liabilities is taken by the central bank.

So, the financial sector asset structure tends to show longer maturity than the financial sector liability structure. The role that demand the central bank to act as an unlimited liquidity provider encourages the financial sector to invest at a longer term than the financing. Maturity transformation is not the main business of banking[201], but the main result of central bank policies[202].

$$(92) \quad FA < FL$$

$$(93) \quad {FA_1}/{FA_2} < {FL_1}/{FL_2}$$

$$(94) \quad {\sum_1^Z fa_{1k}}\Big/{\sum_1^Z fa_{2k}} < {\sum_1^Z fl_{1k}}\Big/{\sum_1^Z fl_{2k}}$$

The maturity mismatch promoted by the central bank and fulfilled by the financial sector breaks the equilibrium condition established in equations (86), (87) and (88).

$$(95) \quad AS = LS = FA < FL = PS$$

$$(96) \quad {Q_1}/{Q_2} = {L_1}/{L_2} = {FA_1}/{FA_2} < {FL_1}/{FL_2} = {S_1}/{S_2}$$

$$(97) \quad {\sum_1^T q_{1j}}\Big/{\sum_1^T q_{2j}} = {\sum_1^T l_{1j}}\Big/{\sum_1^T l_{2j}} = {\sum_1^Z fa_{1k}}\Big/{\sum_1^Z fa_{2k}} < {\sum_1^Z fl_{1k}}\Big/{\sum_1^Z fl_{2k}} = {\sum_1^N s_{1i}}\Big/{\sum_1^N s_{2i}}$$

The financial sector maturity mismatch provokes that the asset structure ability to produce goods at short notice falls short in comparison with the expected demand for them by consumers.

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[201] See (Stigum & Crescenzi, 2007).
[202] See (Palyi, 1936) and (Rallo, 2011).

$$(98) \qquad \frac{\sum_1^T q_{1j}}{\sum_1^T q_{2j}} < \frac{\sum_1^N s_{1i}}{\sum_1^N s_{2i}}$$

As we already have mentioned, once that enterprises undertake their production decisions (q_{1j}, q_{2j}), they fixed their production processes and therefore the expected consumers' goods flows $(\overline{c_{1j}^*}, \overline{c_{2j}^*})$ are also fixed.

$$(16) \qquad q_{1j} \equiv \overline{c_{1j}^*}$$

$$(17) \qquad q_{2j} \equiv \overline{c_{2j}^*}$$

We remember that in our models, savers are future consumers, so the maturity flow of savings are the ex-ante consumers' expectations regarding when to consume.

$$(3) \qquad c_{1i} = s_{1i}$$

$$(4) \qquad c_{2i} = s_{2i}$$

In consumption goods terms the relationship is the following.

$$(99) \qquad \frac{\sum_1^T \overline{c_{1j}^*}}{\sum_1^T \overline{c_{2j}^*}} < \frac{\sum_1^N c_{1i}}{\sum_1^N c_{2i}}$$

Production processes are more future oriented than consumers' expectations. The fixed amount of future consumer goods arriving to the market are not enough to fulfil the ex-ante consumers' expectation. The short term productive power falls short to fulfil short term demand for consumer's goods.

2.4.3. Disequilibrium in Interest Rate: Inversion of the Yield Curve

The central bank, by provoking financial sector maturity mismatch also enables the transfer of saver funds between short term and long term projects, so the short term and long term interest rates are no longer set in different markets. Part of the short-term savings are channelled toward long term investments since long term interest rate are higher than short term interest rate. Long term investments are no longer feed only with long term funds provided by savers willing to wait until the production process matures, but also with short term funds provided by savers that has the right to use their funds and become consumers at short notice.

Short term funds now are divided between those funds which goes towards short term investments (S_1'), and those redirected towards long term investments (S_1'').

$$(100) \quad S_1 = S_1' + S_1''$$

The supply of savings in the loanable funds market for short term interest rate is now S_1'. The supply of savings in the loanable funds market for long term interest rate is now $S_1' + S_2$.

$$(101) \quad r_1 = f(S_1', Q_1)$$

$$(102) \quad r_2 = f(S_1'', S_2, Q_2)$$

Since we assumed diminishing returns on capital accumulation, the short-term funds that moves towards long term investments tend to provoke lower long term interest rate. Meanwhile the short-term funds are flying away from short term investments increasing the short-term interest rate.

$$(103) \qquad \partial r_1 \big/ \partial S_1^{''} > 0$$

$$(104) \qquad \partial r_2 \big/ \partial S_1^{''} < 0$$

Our model provides a theoretical explanation for the yield curve inversion that precedes economic crises[203].

We have to remember that the relationship between interest rate and investment is an inverse one as we explained above and showed with equations (43) and (44).

$$(43) \qquad \partial Q_1 \big/ \partial r_1 < 0$$

$$(44) \qquad \partial Q_2 \big/ \partial r_2 < 0$$

When the long-term interest rate is falling, it fosters long term investment since the difference between long term internal rate of return and the cost of capital widens. The rise in the short-term interest rate curtails short term investment since the short term internal rate of return and the cost of capital.

$$(105) \qquad Q_1^{'} < Q_1$$

$$(106) \qquad Q_2^{'} > Q_2$$

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[203] See (Estrella & Mishkin, 1997) (Estrella & Mishkin, Predicting U.S. Recessions: Financial Variables as Leading Indicators, 1998) and (Estrella & Trubin, 2006).

The investment in long term production processes $Q_2^{'}$ is bigger than the long-term investment equilibrium level Q_2, that is, an over-investment arises. Long-term investment is not backed by enough long-terms savings[204].

At the same time, the investment in short term production processes, $Q_1^{'}$ is lower than the short-term investment equilibrium level Q_1, that is, an infra-investment arises[205].

New equilibrium could be achieved when short term interest rate and long term interest rate are equal. At this point, the maturity transformation within the financial sector would stop. However, as we will analyse in the next section, this is an unstable equilibrium since the maturity transformation is provoking an accumulation of short-term claims against consumer goods that cannot be delivered in time. Sooner or later a liquidity crisis will happen and forced savings will happen through inflation or through impairment of some of the financial sector liabilities.

2.4.4. Liquidity Crisis, Central Bank Intervention and Forced Savings.

The short-term investment shortage implies a relative scarcity of consumer goods available at short notice in comparison with the short-term claims against them. Similarly, the long-term over-investment implies a relative surplus of consumer goods available at long term in comparison with the long-term claims against them.

$$(107) \qquad \sum_{1}^{T} \overline{c_{1j}^{*}} < \sum_{1}^{N} c_{1i}$$

$$(108) \qquad \sum_{1}^{T} \overline{c_{2j}^{*}} > \sum_{1}^{N} c_{2i}$$

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[204] In Austrian terms, the first stages of the structure of production widens, but a shortage of long-term capital will prevent them to reach a sustainable level. See (Garrison, 2001), (Huerta de Soto, 1998) and (Hayek F. A., 1931).

[205] In Austrian economic tradition terms, a bottleneck in working capital appears. There is not enough investment in the later stages of the capital structure to feed the demand for it. See (Garrison, 2001), (Huerta de Soto, 1998) and (Hayek F. A., 1931).

If short term savers exercise their right to consume in $t = 1$, then a liquidity crisis within the financial system will develop. Financial system´s long term investments cannot be called in, meanwhile short term financial sector funding is flying away.

The central bank could step in rediscounting financial system´s long term investments. By doing so, the central bank creates new liquidity that can ease financial stress[206]. The central bank can prevent liquidity crises by transforming financial long term investments into short term claims. However, the long-term asset capital structure cannot be transformed by central bank intervention. Central banks are powerless to transform the asset structure. The creation of new liquidity cannot entitle short term savers with consumer goods that still does not exist.

In this framework, a liquidity crisis is only the symptom, not cause of an economic crisis. Financial system collapse by liquidity crunch is the result of an asset structure of society excessively future oriented[207]. Central bank liquidity facilities are useful to avoid financial sector breakdown but completely useless to avoid economic collapse[208].

Now we can introduce the concept of forced savings[209]. Since there are not enough consumer goods available at short notice to fulfil all the claims against them, then some of the short-term savers must be transformed into long term savers.

$$(109) \qquad \sum_{1}^{N} c_{1i} = \sum_{1}^{N'} c'_{1i} + \sum_{N'}^{N} c''_{1i}$$

Being $\sum_{1}^{N} c_{1i}$ the short-term savers that want to exercise their claims against consumer goods at short notice, $\sum_{1}^{N} c'_{1i}$ the short-term savers that would be able to exercise their rights, and $\sum_{1}^{N} c''_{1i}$ the short-term savers that cannot exercise their rights and therefore have to be converted into long-term savers.

[206] See (Mehrling, 2010).
[207] See (Garrison, 2001), (Hayek F. A., 1931) and (Huerta de Soto, 1998).
[208] See (Huerta de Soto, 1998).
[209] See (Hayek F. A., 1931)

If the decompose equation (100) to its micro level, then we have.

$$(100) \quad S_1 = S_1' + S_1''$$

$$(110) \quad \sum_1^N s_{1i} = \sum_1^{N'} s_{1i}' + \sum_{N'}^N s_{1i}''$$

The extent of forced savings needed to re-establish equilibrium is equal to the extent of maturity mismatch originally taken.

$$(111) \quad \sum_1^N c_{1i}'' = \sum_1^N s_{1i}''$$

The short-term savings redirected by the financial system into long term investments in $t = 0$, $\sum_1^N s_{1i}''$ is equal to the short-term consumer's claims needed to be transformed into long term claims, $\sum_1^N c_{1i}''$ in $t = 1$.

But one question remains open, how those short-term savers are going to be converted into long term savers? The concept of "forced savings" mean that the process is not voluntary. There are two mechanisms that can fulfil this purpose. If central bank decision is to extend new liquidity at low interest rate, then inflation will appear. If central bank decision is to limit the liquidity extended by raising the discount rate, then an economic crisis will be inevitable.

2.4.4.1.　Inflation

When a liquidity crisis breaks out or new liquidity is needed within the financial system, then the central bank has two options. If the central bank does not extend new liquidity, a liquidity crisis would develop, this is the case analysed in the next section. On the other hand, if the central bank decides to create new liquidity, it means that more base money is brought into

circulation. Then, the financial sector would be able to fulfil its commitments with short-term savers without call in long-term loans. The eligible collateral used as guarantee are now the central bank contingent assets, FA_2^C, meanwhile the new central bank liabilities CBL'^{BM} are new base money[210].

New central bank liabilities provide extra funding to the financial sector to fulfil their commitments with short-term savers. However, since the very beginning of the maturity mismatch, there were more claims against short-term consumer goods than the ability to produce those consumer goods by the asset structure, the central bank can do nothing to prevent the conversion of some of the short-term savers into long-term savers. The central bank by providing new liquidity are creating inflation and inflation means diluted consumer claims against the available amount of consumer goods.

The central bank, by creating new monetary base, is validating the short-term financial sector claims against the consumer goods available at short notice. The central can do so by creating monetary base against long term assets, that is, by creating inflation. Inflation means diluting the purchasing power of the monetary base and therefore diluting the right to demand consumer goods expressed in the short-term financial claims against the financial sector. Inflation necessarily results in consumers´ diluted purchasing power.

So, we are in a situation of disequilibrium as expressed in equation (97) due to central bank intervention that promotes maturity mismatch and we need to go back to the equilibrium situation expressed in equation (88).

$$(97) \quad \frac{\sum_1^T q_{1j}}{\sum_1^T q_{2j}} = \frac{\sum_1^T l_{1j}}{\sum_1^T l_{2j}} = \frac{\sum_1^Z fa_{1k}}{\sum_1^Z fa_{2k}} < \frac{\sum_1^Z fl_{1k}}{\sum_1^Z fl_{2k}} = \frac{\sum_1^N s_{1i}}{\sum_1^N s_{2i}}$$

$$(88) \quad \frac{\sum_1^T q_{1j}}{\sum_1^T q_{2j}} = \frac{\sum_1^T l_{1j}}{\sum_1^T l_{2j}} = \frac{\sum_1^Z fa_{1k}}{\sum_1^Z fa_{2k}} = \frac{\sum_1^Z fl_{1k}}{\sum_1^Z fl_{2k}} = \frac{\sum_1^N s_{1i}}{\sum_1^N s_{2i}}$$

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[210] See (Hicks J. , 1989).

In order to restart equilibrium, we need equation (109) and (111), that is, a share of short-term consumers $\sum_1^N c''_{1i}$ must be transformed into long-term consumers.

$$(109) \qquad \sum_1^N c_{1i} = \sum_1^{N'} c'_{1i} + \sum_{N'}^N c''_{1i}$$

$$(111) \qquad \sum_1^N c''_{1i} = \sum_1^N s''_{1i}$$

We can decompose the short-term savings received by the financial sector, expressed as financial sector liabilities, between those savings directed towards short-term investments and those savings directed towards long-term investments.

$$(112) \qquad \sum_1^Z fl_{1k} = \sum_1^{Z'} fl'_{1k} + \sum_{Z'}^Z fl''_{1k}$$

Being $\sum_1^Z fl_{1k}$ the total financial sector liabilities, $\sum_1^{Z'} fl'_{1k}$ the share of short-term financial sector liabilities directed towards short-term investment projects and $\sum_{Z'}^Z fl''_{1k}$ the share of short-term financial sector liabilities directed towards long-term investment projects.

The financial sector asset side would be backed then by long-term savings and short term savings (maturity mismatch) and expressed by long-term and short term financial sector liabilities.

$$(113) \qquad \sum_1^Z fa_{2k} = \sum_1^Z fl_{2k} + \sum_{Z'}^Z fl''_{1k}$$

We can also decompose the financial sector assets into those backed by long-term liabilities and those backed by short-term liabilities.

$$(114) \qquad \sum_1^Z fa_{2k} = \sum_1^{Z'} fa'_{2k} + \sum_{Z'}^Z fa''_{2k}$$

Being $\sum_1^Z fa_{2k}$ total long-term financial sector assets, $\sum_1^{Z'} fa'_{2k}$ long-term financial sector assets backed by long-term financial sector liabilities and $\sum_{Z'}^Z fa''_{2k}$ long-term financial sector assets backed by short-term financial sector liabilities. Then, $\sum_{Z'}^Z fa''_{2k}$ expresses the maturity mismatch in financial sector terms.

The financial sector long-term assets backed by short-term liabilities (and ultimately by short-term savers) are the source of the disequilibrium. When the liabilities that funds those assets became due, the assets cannot be called in and therefore a liquidity crisis develops.

Financial sector long-term assets backed by short-term liabilities match the contingency assets that the central bank need to monetize in order to avoid financial distress and an economic crisis at the cost of higher rate of inflation.

The new monetary base is created against the long-term contingency assets in the asset side of the central bank´s balance sheet. At micro level.

$$(115) \qquad CBA_2^C = \sum_1^W cba_2^C = CBL'^{BM} = \sum_1^W cbl'^{BM}$$

$$(116) \qquad \sum_{Z'}^Z fa''_{2k} = \sum_1^W cba_2^C = \sum_1^W cbl'^{BM}$$

By monetizing long-term financial assets backed by short-term financial liabilities assets, the central bank avoids financial crisis by creating new inflation. At the same time, inflation means

diluted consumer rights and prevents some of the consumers to reach the desired consumer goods at the desired time.

$$(117) \quad (\overline{CBL}^{BM} + CBL'^{BM}) = \sum_1^X \overline{cbl}^{BM} + \sum_1^W cbl'^{BM}$$

$$(118) \quad \sum_1^X \overline{cbl}^{BM} + \sum_1^W cbl'^{BM} \rightarrow \sum_1^N c_{1i}^D = \sum_1^T \overline{c_{1j}^*}$$

Being $\sum_1^X \overline{cbl}^{BM}$ the fixed amount of central bank base money that ensures monetary stability, $\sum_1^W cbl'^{BM}$ the new base money created by the central bank by discounting long-term financial assets backed by short-term financial liabilities, $\sum_1^N c_{1i}^D$ the diluted consumers´ goods claims (forced savings) and $\sum_1^T \overline{c_{1j}^*}$ the amount of short-term consumer goods actually available at short term.

Diluted consumer good claims mean less actual consumption. The amount of new central bank base money must produce enough inflation to equal the diluted consumer rights with the actual short term consumer goods production.

$$(119) \quad \sum_1^T \overline{c_{1j}^*} = \sum_1^{N'} c_{1i}' = \sum_1^N c_{1i}^D$$

By this way, the equilibrium is restored, however it is a non-stable equilibrium since the moral hazard created by discounting high-yield long-term financial assets and monetizing them, means that a new round of long-term financial sector investments funded with low-yield short-term financial liabilities would happen. The cost of restoring equilibrium and prevent a crisis is the development of a bigger crisis in the future.

2.4.4.2. Economic crisis

However, another role assigned to central banks is keeping inflation low. If the central bank never ceases to extend new liquidity against long-term financial assets, that is, if the central increases monetary base widely to ease financial stress, then inflation would never cease to rise. At some point, the central bank would have to reduce the liquidity provided to the financial sector in order to keep inflation under control. At this point, when $t = 1$ arrives, the enterprises can deliver consumers goods by an amount of $\sum_1^T \overline{c_{1j}^*}$, repaying financial assets by an amount of $\sum_1^Z fa_{1k}$, which it is an amount that equals the short term saving directed in $t = 0$ toward short term investment projects $\sum_{N'}^N s_{1i}'$. This is the maximum amount that the financial sector can repay to consumers without experiencing liquidity problems. However, this amount is not enough to fulfil all the consumer claims due to maturity mismatch.

$$(120) \qquad \sum_1^T \overline{c_{1j}^*} = \sum_1^Z fa_{1k} = \sum_{N'}^N s_{1i}' < \sum_1^Z fl_{1k} = \sum_1^N s_{1i} = \sum_1^N c_{1i}$$

If central bank does not step in, or it does inadequately, then the financial sector is in an untenable position[211]. Some of the short-term financial sector claims would be defaulted. Over the total short-term financial liabilities, some of them would be honoured and paid back and some of them would become impossible to be paid back. We can reinterpret equation (112) along these lines.

$$(112) \qquad \sum_1^Z fl_{1k} = \sum_1^{Z'} fl_{1k}' + \sum_{Z'}^Z fl_{1k}''$$

[211] By inadequately central bank intervention we mean central bank intervention that does not increase enough monetary base to cover the liquidity that financial institutions are losing because of the maturity mismatch taken in an earlier period. That is, central bank would fail to provide enough new monetary base to hold equation (116): $\sum_{Z'}^Z fa_{2k}'' = \sum_1^W cba_2^C = \sum_1^W cbl'^{BM}$. Or to express it in other terms, the central bank would be failing to create enough inflation to dilute consumer goods claims to the point that equation (118) holds: $\sum_1^X \overline{cbl}^{BM} + \sum_1^W cbl'^{BM} \rightarrow \sum_1^N c_{1i}^D = \sum_1^T \overline{c_{1j}^*}$.

Being $\sum_1^Z fl_{1k}$ total short-term financial sector liabilities, $\sum_1^{Z'} fl_{1k}'$ the short-term financial claims payable and $\sum_{Z'}^Z fl_{1k}''$ the short-term financial claims unpayable.

If the central bank does not step in, then the amount of financial sector liabilities defaulted is equal to the maturity mismatch originally taken.

$$(122) \qquad \sum_{Z'}^Z fl_{1i}'' = \sum_{N'}^N s_{1i}''$$

The distribution of defaulted claims between financial institutions will be directly proportional to the maturity mismatch promoted by each one of them.

By trying to avoid default, the financial system raises its demand for short term funds, raising the short-term interest rate abruptly. The inversion of the yield curve that precedes every recession is due to the financial system demand for short term funds in order to make payments to short-term savers. The inversion of the yield curve has its deepest roots in the maturity mismatch promoted by central banking by promising to extend unlimited liquidity against eligible collateral. When the central bank faces high inflationary pressures, it will limit the liquidity extended and a liquidity crisis will emerge. This provide a theoretical explanation for the ample evidence of yield curve inversion preceding economic crisis[212].

In short, we can trace the main cause of economic crises to the asset allocation mismanagement of the financial sector. This mismanagement is induced by central bank intervention and the moral hazard that it entails[213]. The central bank lender of last resort role ultimately creates inflation and economic crisis when inflation wanted to be avoided.

If the central bank promotes maturity mismatch by providing unlimited liquidity to the financial sector, it would provoke that a financial sector long-term oriented asset structure. Enterprises, by receiving long-term loans, receive the information that long-term consumer goods are in demand. The financial sector liability structure would be short-term oriented.

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[212] See (Estrella & Mishkin, 1997), (Estrella & Mishkin, 1998) and (Estrella & Trubin, 2006).
[213] See (Huerta de Soto, 1998) and (White, 1995).

Savers, by providing short term funding are expecting that consumer goods will be available at short notice. When $t = 1$ arrives, forced savings mechanism must take place, some short-term claims over consumption goods needs to be transformed into long term claims through inflation or some of the short-term claims over consumption goods need to be destroyed through an economic crisis.

3. Empirical Testing

3.1 Empirical Methodology

We will test each stage of the recession mechanism shown in Figure 1 using OLS regressions as well as Probit regressions depending on the stage being tested. We will run test for the Euro and USA economies. The stages regarding the mechanism behind a recession are shown in Figure 1:

Figure 1

Recession mechanism stages
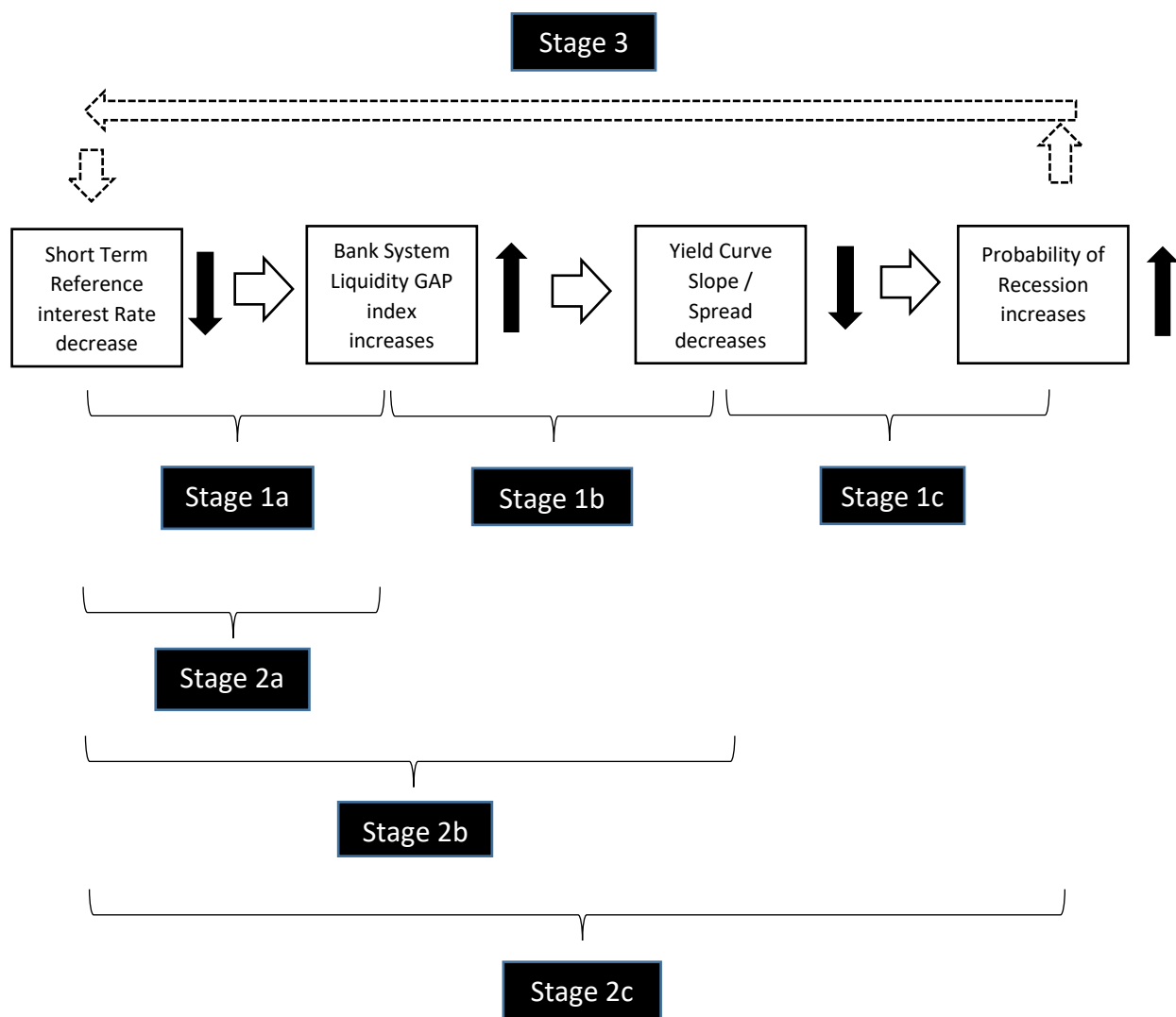
The recession mechanism begins by a decrease in the system's reference interest rate, that is, the Federal Funds Rate (FFR) in the case of USA or short term Libor rate in the case of EU. This causes an increase in what we call the Liquidity Gap (Stage 1a in Figure 1). The liquidity gap index is defined as:

$$Liquidity_{Gap} = \frac{STL/LTL}{STA/LTA}$$

Where STL and LTL are short term and long term liabilities, respectively while STA and LTA refers to short term and long term assets.

Notice that for the Liquidity GAP to increase, the numerator has to increase and/or the denominator has to decrease. An *increasing* numerator means that banks are preferring short term liabilities (STL) over long term liabilities (STL), i.e. their balance sheets are becoming dominated by short term pressure. On the other hand, a decreasing denominator implies that banks are preferring long term assets (LTA) over short term assets (STA). In other words, banks are deciding to move to the future their potential to respond to short term financial pressure (the increasing numerator). This is a risky situation for banks. The Liquidity Gap is a measure of the extent of the maturity mismatch taken by the financial sector.

We expect to observe that when the countries reference interest rate decreases (Federal Funds Rate or Libor), the banking system will tend to increase its Liquidity Gap index, that is, we expect to see a lagged and negative relationship between the respective FFR and Libor rates (Stage 1a in Figure 1).

The decreasing reference rate pushes banks to predominantly borrow short term, and predominantly lend long term, that is, to increase the maturity mismatch.

When the Liquidity Gap is increasing, it means that banks are taken long positions in long-term assets and funding it with short-term instruments. The increased demand for short term funds by banks tends to move short-term rates upward and the increased investment in long-

term assets move long-term rates downward. That is, the maturity mismatch is provoking an inverted yield curve.

Hence, as the Liquidity Gap Index increases, we also expect a lagged negative relationship with the yield curve spread (Stage 1b in Figure 1). Next, the yield curve inversion causes a banking crisis or a credit availability shortage and thus precedes the recession. The negative relationship between the Yield Curve Spread and the probability of a recession is well documented by Estrella and others (Stage 1c in Figure 1)[214].

3.2. Description of the regressions of each stage and the data used.

<u>Stage 1a regressions</u>. In order to test the expected relationships on each stage, in the case of Stage 1a we ran OLS regressions using the monthly Liquidity Gap Index as dependent variable and a reference interest rate with lags of 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60. We used the monthly average FFR in the case of USA and the monthly average Libor Overnight rate for EU. The sources for each data, as well as estimation details are described in Table 1a. The lags used will be standard for all stages, and the intent is to observe the structure of the lagged coefficients and see what dominates, either positive or negative relationships. We will also search for the strongest lag in terms of p value as well as economic significance. We stopped in a lag of 60 due to sample size issues. We are using 6 month apart lags in order to circumvent as much as possible multicollinearity issues. Of course, a reasonable concern is the endogeneity risk implicit in using contemporaneous explanatory variables (lag 0). In the Robustness section we will show that we get essentially the same results and reach the same conclusions if we restrict all the regressions to only lagged variables. This applies to all Stage 1 and Stage 2 regressions.

Since the Liquidity Gap Index is a continuous variable truncated at 0 (it cannot be negative), we will check robusticity of results using a Tobit Model. As control variables, we will use M2 with lags of 0, 6 and 12 to control for any monetary effects.

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[214] See (Estrella & Mishkin, 1997), (Estrella & Mishkin, 1998) and (Estrella & Trubin, 2006).

<u>Stage 1b regressions</u>. In this case, again we ran OLS regressions using as dependent variable the monthly German Yield Curve Spread estimated as the difference between the 10 year maturity bond and the 3-month maturity bond, denominated in Euro for Germany. A similar estimation is made for the USA. In this case, the explanatory variable now becomes the Liquidity Gap Index again with the standard lags of 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, and 60 months. In all regressions, we control for monetary effects using M2 with lags of 0, 6 and 12 months, but also for the short-term yield. Again, in the robustness section we will see that the conclusions remain even when we restrict the regression to only lagged variables.

<u>Stage 1c regressions</u>. In this case, following Estrella[215], we use a probit model where the dependent variable is a Dummy representing the presence (1) of a recession or no recession (0) according to the National Bureau of Economic Research classification methodology which defines a recession as the end of a peak and the beginning of a through in the business cycle. In this case, the explanatory variable now becomes the Yield Curve Spread again with the standard lags of 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, and 60 months. Again, following what is standard in the literature, we control for monetary effects using M2 with lags of 0, 6 and 12 months, but also for the short-term yield.

<u>Stage 2a, 2b and 2c regressions</u>. If all the mechanism described through stages 1a, 1b and 1c is valid, we should also see that the correlation between the reference interest rate and the Liquidity Gap, then with the Yield Curve Spread and then with the emergence of a recession, should lag more and more as we move through each step in Stage 2. Hence, Stage 2a is essentially the same regression as Stage 1. However, for Stage 2b, the dependent variable is the yield curve spread and the explanatory variable is again the Federal Funds Rate, and for Stage 2c again we ran an probit model were the dependent variable is the dummy for the occurrence of a recession and the explanatory variable is the Federal Funds Rate. In all cases, we use lags of 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, and 60 months. Again, we control for monetary effects using M2 with lags of 0, 6 and 12 months and run the regressions using only lagged variables. The source of the data used and other details are shown in Table 1a.

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[215] See (Estrella & Trubin, 2006).

Table 1a

Database sources and estimation details.

Variable	Source	Data Dates and other estimation details
Libor overnight	Federal Reserve Bank of St. Louis	*Dates: Jan 2001-Sept 2016* Overnight London Interbank Offered Rate (LIBOR), based on Euro© , Percent, Daily, Not Seasonally Adjusted
EU Liquidity Gap	European Central Bank	*Dates: Sept 1997-June 2016* Proposed indicator that takes the form: $\frac{STL/LTL}{STA/LTA}$ STL are financial sector liabilities with less than one year until maturity. LTL are financial sector liabilities with more than one year until maturity. STA are financial sector assets with less than one year until maturity. LTA are financial sector assets with more than one year until maturity.
German spread and rates	European Central Bank	*Dates: Sept 2004-Sept 2016* To deal with seasonality issues, both series within the spread where equivalent. The 10Y and 3M monthly values where estimated from averages of daily values.
USA Spread and Yield rates including FFR.	Federal Reserve System	*Dates: Jan 1982-June 2016* To deal with seasonality issues, both series within the spread where equivalent. The 10Y and 3M monthly values where estimated from averages of daily values.
Euro Recessions	Center of Economic Policy Research	*Dates: Jan 1970-Sept 2016* The recessions where adapted to coincide with NBER recession classification, that is the beginning of peak and the end of a through. The data from the source is quarterly, it was adapted to a monthly database.

USA Recessions	Federal Reserve Bank of St. Louis	*Dates: Dec 1854-Aug 2014* NBER based Recession Indicators for the United States from the Period following the Peak through the Trough, +1 or 0, Monthly, Not Seasonally Adjusted
Euro Monetary Aggregates	Federal Reserve Bank of St. Louis	*Dates: July 1980-Sept 2016* Monthly data in billions of Euros. This where seasonality adjusted using 2x12 MA by the researches to use them in the regressions.
USA Monetary Aggregates	Federal Reserve Bank of St. Louis	*Dates: Jan 1959-Augest 2016* Monthly data in billions of dollars and seasonality adjusted.

3.3. Empirical Results: European Union.

Column a of Table 1b shows that, as expected, the dominant lagged relationship between the Euro Liquidity Gap (dependent variable, DV) and the overnight Libor rate (explanatory variable, EV) is negative. As the Libor rate decreases, the banking system generates more internal pressure manifested in an increasing Liquidity Gap. It can be seen that 11 out the 11 tested lags are negative, however 7 out of 11 are significant at standard level. Lag 6 has the strongest significance, that is, the banking system seems to react 6 months after the Libor rate is lowered.

Column b of Table 1b shows how the Liquidity Gap influences the Euro yield curve spread. It can be seen that 7 out of 11 lags have the expected negative sign, that is, as the Liquidity Gap increases, the yield curve starts to invert. 5 lags are statistical significant at standard levels, being lags 0 and 18 the ones with the strongest significance. That is, the yield curve seems to start inverting about a year and a half after pressure has been built in the banking system.

Column c of Table 1-b shows that there is some evidence that as the yield curve starts to invert (decreases in the yield spread), the probability of a crisis increases. We observe 4 out of 9 lags to be negative, with the strongest effects in lag 6 and lag 48. That is, the curve inversion my signal a recession between 6 months and 4 years apart. This is the weakest result in Table 1b. As can be seen there are various significant unexpected positive relationships, but when comparing size to size the size of the overall positive and negative coefficients, it can be seen that the negative coefficients dominate. One issue here might be the small sample size for the Euro area. We will see below that this result is stronger for the USA.

In Table 1c it can be seen that the impact of the Libor overnight rate becomes more distant as we correlated Libor against Liquidity Gap (Colum a), Libor against Yield Spread (Colum b), and Libor against Recession (Column c). The strongest expected lagged sign becomes more lagged. Libor seems to have its predominant negative impact on the Liquidity Gap six months after its movements. However, it seems to impact positively (as expected) the 18 months after. Finally, it seems to impact the probability of a recession in a negative correlation around 24 months after.

Table 1-b

European Union recession mechanism

Dependent variables: each column represents a regression with a different dependent variables (DV) corresponding to each stage of the proposed recession mechanism described in Figure 1. Column a is an OLS regression which uses as DV the *monthly Liquidity Gap* for the Euro zone estimated using Equation 1. Column b is also an OLS regression that uses as DV the monthly *German Yield Curve Spread* estimated as the difference between the 10 yearsç maturity bond and the 3-month maturity bond, denominated in Euro for Germany. Column c is a Probit regression that uses as DV a dummy that takes a value of 1 for a month where a *recession* is taking place in the Euro area and zero otherwise. A recession is identified as the end of a peak and the beginning of a through in the Euro area business cycle. Column d is an OLS regression that as DV uses the Libor Overnight rate in Euros. Details on data sources and estimation procedures for each DV are shown in Table 1a.

Explanatory variables: the explanatory variables (EV) are essentially the same as the DV but each regression uses a different combination of DV and EV to depict Figure 1 mechanism. See each regression to stablish which combination is being used where. As a standard, for all regressions, the EVs have lags of 0 6 12 18 24 30 36 42 48 54 and 60 months.

Control variables: these are the standard controls in the literature, that is, M2 for the Euro monthly monetary aggregate with lags of 0, 6 and 12 months and the Libor overnight rate (lag 0). Whenever a coefficient appears with an NA, it means a collinearity issue did not allow for an estimation or and MLE convergence. Standard heteroscedastic corrected errors are in parenthesis. ~,*, **, *** denote significance at the 89.8%, 90%, 95% and 99% levels respectively. Gray shade identifies the coefficients with the expected signs. Green shades identify the strongest result in significance with the expected sign. Red cells are results that contradict the predictions.

Dependent variable	(a) Stage 1a: Liquidity Gap	(b) Stage 1b: Yield Curve Spread	(c) Stage 1c: Recession
Main Explanatory variable LAG	Libor Euro Overnight	Liquidity Gap	Yield Curve Spread
Intercept	4.579*** (0.250)	11.4629*** (1.0570)	11.9168 (1.8957)
Lag 0	-0.0512*** (0.0133)	−3.7185*** (1.1535)	2.2700** (0.8171)
Lag 6	-0.0594*** (0.0010)	2.4087** (1.1953)	-2.2104*** (0.61546)
Lag 12	-0.0454*** (0.0077)	−0.0322 (0.9468)	0.400617 (0.2982)
Lag 18	-0.03607*** (0.0.0072)	−2.6968*** (0.8591)	-1.9264*** (0.7554)
Lag 24	-0.0146 (0.0108)	0.2849 (1.3448)	0.9247 (0.6197)
Lag 30	-0.0086 (0.0.0118)	−2.1573~ (1.3286)	2.4158*** (0.8162)
Lag 36	-0.0297* (0.0162)	4.7831*** (0.9745)	0.6888 (0.5116)
Lag 42	-0.0280* (0.0158)	−2.3345*** (0.9279)	-0.3750 (0.5740)
Lag 48	-0.0234 (0.0165)	−1.8124** (1.0142)	-1.668*** (1.72e-08)
Lag 54	-0.0187 (0.0185)	2.7324*** (1.0560)	NA
Lag 60	-0.0701*** (0.0126)	−0.12073 (0.8996)	NA
Reference rate lag 0		−0.7422*** (0.0549)	NA

M2 lag 0	NA	NA	NA
M2 Lag 6	NA	NA	NA
M2 lag 12	-2.1789 e -13*** (0.0000)	4.006e-013*** (0.00000)	NA
N	126	142	97
R2 adj	0.913	0.938	0.507 (McFadden adj R2)
Proportion of negative relationships	11 (-) /11	7 (-) /11	4 (-) / 9
Period of Dependent Variable	Sept 1997-June 2016	Sept 2004-Sept 2016	Jan 1970-Sept 2016

Table 1-c

European Union crisis mechanism increasing lagged impact of Libor overnight rate

Dependent variables: each column represents a regression with a different dependent variables (DV) to test Stages 2a, 2b and 2c in Figure 1. Column a is an OLS regression which uses as DV the *monthly Liquidity Gap* for the Euro zone estimated using Equation 1. Column b is also an OLS regression that uses as DV the monthly *German Yield Curve Spread* estimated as the difference between the 10-year maturity bond and the 3-month maturity bond, denominated in Euro for Germany. Column c is a Probit regression that uses as DV a dummy that takes a value of 1 for a month where a *recession* is taking place in the Euro area and zero otherwise. A recession is identified as the end of a peak and the beginning of a through in the Euro area business cycle. Details on data sources and estimation procedures for each DV are shown in Table 1a.

Explanatory variables: the only explanatory variable (EV) is the Libor Overnight rate in Euros with lags of 0 6 12 18 24 30 36 42 48 54 and 60 months.

Control variables: these are the standard controls in the literature, that is, M2 for the Euro monthly monetary aggregate with lags of 0, 6 and 12 months. Whenever a coefficient appears with an NA, it means a collinearity issue did not allow for an estimation or an MLE convergence. Standard heteroscedastic corrected errors are in parenthesis. *, **, *** denote significance at the 90%, 95% and 99% levels respectively. Gray shade identifies the coefficients with the expected signs. Green shades identify the strongest result in significance with the expected sign. Red cells are results that contradict the predictions.

Dependent variable	(a) **Stage 2a: Liquidity Gap**	(b) **Stage 2b: Yield Curve Spread**	(c) **Stage 2c: Recession**
Main Explanatory variable LAG	Libor Overnight	Libor Overnight	Libor Overnight
Intercept	4.579***	-1.6332	-4.1201

	(0.250)	(1.1508)	(4.7358)
Lag 0	-0.0512*** (0.0133)	-0.7406*** (0.0611)	-3.6220 (1.0916)***
Lag 6	-0.0594*** (0.0010)	0.2377*** (0.0457)	3.4594*** (1.2467)
Lag 12	-0.0454*** (0.0077)	0.0699* (0.0357)	-0.0303 (0.7824)
Lag 18	-0.03607*** (0.0.0072)	0.27060*** (0.0314)	10.7905*** (3.1693)
Lag 24	-0.0146 (0.0108)	-0.2490*** (0.0551)	-13.5179*** (4.0412)
Lag 30	-0.0086 (0.0.0118)	0.3340*** (0.0628)	2.1464** (0.9516)
Lag 36	-0.0297* (0.0162)	0.1356** (0.0641)	NA
Lag 42	-0.0280* (0.0158)	0.1535* (0.0779)	NA
Lag 48	-0.0234 (0.0165)	0.0236 (0.0535)	NA
Lag 54	-0.0187 (0.0185)	-0.1128* (0.0594)	NA
Lag 60	-0.0701*** (0.0126)	0.3554*** (0.0482)	NA
M2 lag 0	NA	NA	NA
M2 Lag 6	NA	NA	NA
M2 lag 12	-2.1789 e -13*** (0.0000)	2.368e-13* (1.369e-13)	3.1793e-13 (5.094e-13)
N	126	129	142
R2 adj	0.913	0.919	0.6419 (McFadden adj R2)

Proportion of expected relationships	11(-)/11	8(+)/11	3(-)/6

3.4. Empirical Results: United States.

Table 2a shows the regressions for Stage 1a, 1b and 1c as shown in figure 1 applied to the USA economy. Column a shows the OLS regression where our measure of the EURO Liquidity Gap is regressed against the USA Federal Funds Rate (FFR). Unfortunately, due to a lack of access to USA banking data on assets and liabilities classified by maturity, we have not yet been able to estimate a Liquidity Gap index specific for USA. However, since there is some cross border financial integration between USA and the European Union, we are willing to test if some correlations emerge using the Euro area liquidity index for the USA. Interestingly, although there is Pearson correlation coefficient of 0.798 between the overnight Libor rate and the FFR, column a shows that there are no relevant lagged correlations between the FFR and the Euro Liquidity Gap. Nevertheless, 7 out of the 11 lags are of the negative expected sign. Furthermore, in regressions not shown for regression a in Table 2a, if we remove from the regression those variables with the highest p values (above 0.80), two of the negative coefficients become significant at 95% level (lag 30 and 48). That is the negative expected correlation is there but in a weak form. Furthermore, if we run a Tobit regression where the Liquidity Gap is left side limited, we get a negative and significant coefficient at lag 12 (see Robustness Section).

Column b of Table 2a tests if there is a correlation between the USA Yield Curve Spread and the Euro Liquidity Gap. Since it is reasonable to expect some level of international financial integration between the USA and the Eurozone banking system, we would expect to observe some impact of the EU liquidity gap on the USA yield curve. Column b shows that there is some evidence of that: 4 out 5 significant correlations are of the expected sign and there seem to be important lagged effects of around 12 to 30 months. For regression b in Table 2a if we remove the lag 0 for the liquidity gap, the results are practically the same.

Column c in Table 2a shows that, as expected, there is a negative relationship between the USA Yield curve spread and the probability of a recession. As the spread decreases, the likelihood of a recession increases with a relevant lagged effect of around 12 months which is basically what Estrella and Mishkin[216], among others, find for the USA economy. Column d replicates column c but now we have removed all the contemporary variables to deal with

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[216] See (Estrella & Mishkin, 1998)

any endogeneity issues. It can be seen that the basic conclusion remains. In unreported regressions, we verify endogeneity issues in all the regressions and this is basically what we observe, that is, the conclusions are robust.

Table 2b verifies if the Federal Funds Rate has an increasing lagged impact as we move through the recession mechanism as described in stages 2a, 2b and 2c in Figure 1. Of course, since we are not using a Liquidity Gap specifically estimated for the USA we expect a weaker result for the regression of stage 2a, which is exactly what we observe in column a. However, again it is important to emphasize that 7 out of the 11 lags are of the negative expected sign. Furthermore, in regressions not shown for regression a in Table 2b, if we remove from the regression those variables with the highest p values (above 0.80), two of the negative coefficients become significant at 95% level (lag 30 and 48). That is the negative expected correlation between FFR and EU liquidity gap is there but in a weak form.

Column b of Table 2b now shows that, as expected, there is a dominant positive lagged relationship between the USA yield curve spread and the Federal Funds Rate. The lag is of a little over 30 months. Likewise, and as expected, column c of Table 2b shows that there is a more distant negative lag effect between the FFR and the probability of a recession, of around 60 months.

Table 2a

United States recession mechanism

Dependent variables: each column represents a regression with a different dependent variables (DV) corresponding to each stage of the proposed recession mechanism described in Figure 1. Column a is an OLS regression which uses as DV the *monthly Liquidity Gap* for the Eurozone estimated using Equation 1. We do not have a measure specific for USA but since there is cross-border relationship between USA and the Europe banking system we are willing to verify if some correlations exist with the USA banking system. Column b is also an OLS regression that uses as DV the monthly *USA Yield Curve Spread* estimated as the difference between the 10-year maturity bond and the 3-month maturity bond, denominated in dollars for USA. Column c is a Probit regression that uses as DV a dummy that takes a value of 1 for a month where a *recession* is taking place in the USA and zero otherwise. A recession is identified as the end of a peak and the beginning of a through in the USA business cycle. Column d is an OLS regression that as DV uses the Federal Funds Rate (FFR). Details on data sources and estimation procedures for each DV are shown in Table 1a.

Explanatory variables: the explanatory variables (EV) for the USA economic system are essentially the same as the DV but each regression uses a different combination of DV and EV to depict Figure 1 mechanism. See each regression to stablish specific combinations. As a standard, for all regressions, the EVs have lags of 0 6 12 18 24 30 36 42 48 54 and 60 months.

Control variables: these are the standard controls in the literature, that is, M2 for the USA monthly monetary aggregate with lags of 0, 6 and 12 months and the FFR (lag 0). Whenever a coefficient appears with an NA, it means a collinearity issue did not allow for an estimation or and MLE convergence. Standard heteroscedastic corrected errors are in parenthesis. *, **, *** denote significance at the 90%, 95% and 99% levels respectively. Gray shade identifies the coefficients with the expected signs. Green shades identify the strongest result in significance with the expected sign. Red cells are results that contradict the predictions.

Dependent variable	(a) Stage 1a: Liquidity Gap	(b) Stage 1b: Yield Curve Spread	(c) Stage 1c: Recession	(d) Stage 1c: Recession
Main Explanatory variable LAG	FFR	Liquidity Gap	Yield Curve Spread	Yield Curve Spread without lag 0
Intercept	2.4184*** (0.2931)	0.9906 (1.1313)	-22.4023*** (7.4470)	−2.3696 (2.1712)
Lag 0	0.0625** (0.0300)	−1.5067*** (0.5742)	3.2291*** (0.9974)	Omitted
Lag 6	-0.0690 (0.0517)	3.3968*** (1.000)	-0.7971 (0.5358)	0.36031 (0.3919)
Lag 12	-0.01394 (0.0613)	−1.9965** (0.9734)	-1.6303** (0.6918)	−1.7154*** (0.5864)
Lag 18	0.0048 (0.0492)	−0.3417 (1.0706)	-0.4688 (0.8089)	−0.5693 (0.4266)
Lag 24	-0.0171 (0.0472)	1.4844 (1.5145)	-2.8932** (1.1853)	-1.5968 (0.5864)***
Lag 30	--0.0280 (0.0501)	−2.8687* (1.6657)	-0.7342 (0.9095)	−0.8126* (0.4185)
Lag 36	0.0052 (0.0472)	1.47305 (1.2871)	0.0948 (0.6071)	0.4102 (0.4573)
Lag 42	0.0234 (0.0426)	1.0450 (1.0875)	-1.5301** (0.6705)	−1.4960*** (0.5488)
Lag 48	-0.0166 (0.0387)	1.1703 (0.9819)	-1.0340~ (0.6454)	0.0972 (0.4324)
Lag 54	-0.00519 (0.0313)	1.1604 (1.1258)	1.2622** (0.5463)	0.1295 (0.4461)
Lag 60	-0.01353 (0.0182)	-1.5656** (0.7402)	0.9058* (0.47650	0.9851*** (0.3573)

Reference rate lag 0		−0.7637*** (0.0385)	2.6828*** (0.7993)	Lag 1: 0.5067** (0.2222)
M2 lag 0▯	-0.000104 (0.00023)	-.00119*** (0.00037)	0.0182*** (0.0056)	Omitted
M2 Lag 6	-9.333 e -5 (0.0000)	0.00102*** (0.00039)	-0.0184*** (0.0066)	-0.00474 (0.0055)
M2 lag 12	0.000196 (0.000232)	-8.1729e-05 (0.000372)	0.0014 (0.0085)	0.00519 (0.0058)
N	226	166	354	357
R2 adj	0.467	0.937	0.626 (McFadden adj R2)	0.505
Proportion of negative relationships	7 (-) /11	4 (-) /11	7 (-) / 11	5 (-) /10
Period of Dependent Variable	Sept 1997-June 2016	Jan 1982-June 2016	Dec 1854-Aug 2014	Dec 1854-Aug 2014

Table 2-b

United States crisis mechanism increasing lagged impact of Federal Funds Rate

Dependent variables: each column represents a regression with a different dependent variables (DV) to test Stages 2a, 2b and 2c in Figure 1. Column a is an OLS regression which uses as DV the *monthly Liquidity Gap* for the Euro zone estimated using Equation 1. We do not have a measure specific for USA but since there is cross-border relationship between USA and the Europe banking system we are willing to verify if some correlations exist with the USA banking system. Column b is also an OLS regression that uses as DV the monthly *USA Yield Curve Spread* estimated as the difference between the 10-year maturity bond and the 3-month maturity bond, denominated in dollar for the USA. Column c is a Probit regression that uses as DV a dummy that takes a value of 1 for a month where a *recession* is taking place in the USA area and zero otherwise. A recession is identified as the end of a peak and the beginning of a through in the USA area business cycle. Details on data sources and estimation procedures for each DV are shown in Table 1a.

Explanatory variables: the explanatory variables (EV) is the Federal Funds Rate with lags of 0 6 12 18 24 30 36 42 48 54 and 60 months.

Control variables: these are the standard controls in the literature, that is, M2 for the USA monthly monetary aggregate with lags of 0, 6 and 12 months. Whenever a coefficient appears with an NA, it means a collinearity issue did not allow for an estimation or an MLE convergence. Standard heteroscedastic corrected errors are in parenthesis. *, **, *** denote significance at the 90%, 95% and 99% levels respectively. Gray shade identifies the coefficients with the expected signs. Green shades identify the strongest result in significance with the expected sign. Red cells are results that contradict the predictions.

Dependent variable	(a) **Stage 2a: Liquidity Gap**	(b) **Stage 2b: Yield Curve Spread**	(c) **Stage 2c: Recession**

Main Explanatory variable LAG	FFR	FFR	FFR
Intercept	2.4184***	0.9989**	−1.68360***
	(0.2931)	(0.5062)	(0.2113)
Lag 0	0.0625**	-0.4504***	−0.2243***
	(0.0300)	(0.0608)	(0.0603)
Lag 6	-0.0690	-0.02014	0.3552***
	(0.0517)	(0.0932)	(0.0925)
Lag 12	-0.01394	0.1729**	0.2322***
	(0.0613)	(0.0816)	(0.0690)
Lag 18	0.0048	0.00784	0.0589
	(0.0492)	(0.0631)	(0.751)
Lag 24	-0.0171	-0.0195	−0.2047***
	(0.0472)	(0.0628	(0.0670)
Lag 30	--0.0280	0.03979	−0.0376
	(0.0501)	(0.0.0504)	(0.0578)
Lag 36	0.0052	0.0983***	−0.0653
	(0.0472)	(0.0088)	(0.0664)
Lag 42	0.0234	0.12448***	0.09680
	(0.0426)	(0.0303)	(0.0771)
Lag 48	-0.0166	0.0424	−0.1038~
	(0.0387)	(0.0327)	(0.0636)
Lag 54	-0.00519	-0.012296	0.1193**
	(0.0313)	(0.0310)	(0.0463)
Lag 60	-0.01353	0.00399	−0.2216***
	(0.0182)	(0.0331)	(0.0512)
M2 lag 0⏎	-0.000104	-0.00265***	0.0039***
	(0.00023)	(0.00069)	(0.0014)
M2 Lag 6	-9.333 e -5	0.0021***	−0.0016
	(0.0000)	(0.0008)	(0.0022)
M2 lag 12	0.000196	0.00075	−0.0024

	(0.000232)	(0.00062)	(0.0018)
N	226	414	680
R2 adj	0.467	0.558	0.323 (McFadden adj R2)
Proportion of expected relationships	7 (-) /11	7(+)/11	6 (-) / 11

3.5. Robustness of the Empirical Results

<u>Endogeneity</u>: Since we were interested in observing the structure of the signs of the coefficients and to see which seem to be the dominant sign and which lag, we also wanted to verify if contemporaneous effects were relevant and how robust were the results of the lags once considering endogeneity issues. Thus, we ran all the regressions for stages 1 and 2 for Europe and USA removing all the contemporaneous correlations in all the variables, and testing only lags. As a whole, the results and main conclusions are sustained. The next Table describes which regressions are most influenced and which remain essentially the same.

Table 3

Is endogeneity a relevant issue?

No change means the dominant and relevant signs are the same with and without the lag 0 component. The conclusion is the same.

Stage	Europe Union	United States
Stage 1a: Liquidity Gap versus Reference rate	No change: relevant negative lag is still around Lag 6. The Tobit regression improves the significance of all the negative lags. *Robust conclusion: Lag 6.*	No change: again, no coefficients are significant although most are of the expected sign. If we remove the least significant lags (24, 36, 48), we get lags 12 and 30 negative and significant. With the Tobit regression and no lag 0 variables, lag 12 is the relevant result. *Robust result: Lag 12*
Stage 1b: Term Spread versus Liquidity Gap	Again, the strongest negative lag is 18 and then 42 and 48. In terms of number of negative signs: 6 of 10 are negative instead of 7/11. There are	4/10 are negative instead of 4/11, lag 60 is the most significant of the negatives, and then again lag 30. *Robust Result: Lag 30*

	now only two inconsistent positive values instead of 3. *Robust conclusion Lag 18.*	
Stage 1c: Recession versus Term Spread	Now 5 of 8 are negative signs instead of 4/9. Lag 36 is now significant and inconsistent but it is the only one because it is a positive sign. The strong result for the negative sign in lag 48 is still there. Lag 6 and 18 are still negative but now insignificant. *Sensible result: This result shows some sensitivity to the removal of lag 0 because the negative effect lags a little more. This might be a sample size issue because this is the smallest sample of the three stages.* *Lag 6-48 probably 48*	We still get a strong result for lag 12, but also for later lags. *Robust result: Lag 12*
Stage 2b: Term Spread versus reference rate	Again, Lag 18 is the strongest result, but now Lag 60 is not significant although it is still positive. Now only 5 of 10 lags are positive instead of 8/11, however, now two are positive and significant (12 and 18) and only one is negative and significant (Lag 6). We are unable to use M2 as controls. *Robust result: Lag 18*	7/10 are positive instead of 7 out of 11. Lag 48 and then 42 are the strongest and positive. Lag 48 is now significant. Lag 12 is no longer strongly significant but still positive and significant at 88%. *Robust result for Lag 42*
Stage 2c: Recession versus reference rate	The proportion of expected negatives signs improves, now 5/9 are negatives instead of 3/6, the strongest negative lag economically and statistically is Lag 30 instead of	5/10 are negative instead of 6 of 11. Strongest significance is negative with lag 60. Again 3 inconsistent positive results.

	24. Thus the relevant lag shifts 6 months but the result is essentially the same. *Robust result: lag 24-30*	*Robust result for lag 24-60 probably 60*
TOTAL LAGGED EFFECT	Stage 1(a,b,c): 6+18+48 = 72 → 6 years Stage 2(a,b,c): 24 to 30 → 2-3 years	Stage 1(a,b,c): 12+30+12 = 54 → 5-6 years Stage 2(a,b,c): 60 → 2-5 years

Control variables: In preliminary regressions, the results are robust to the use of percentage changes in M2, instead of M2 levels. Likewise, the use of M1 instead of M2 does not seem to affect the conclusions.

Tobit regression: In Stage 1a and 2a, the Liquidity Gap index is a semi-continuous dependent variable left side limited on zero. Thus, we ran regressions 1a and 2a using a Tobit model truncated at 0. In unreported regressions available upon request, the results and conclusions for Stage 1a in Europe regressions are robust. The coefficients are practically of the same size, but the significance becomes stronger. The same happens with the USA, where the predominantly insignificant coefficients now become significant at around lag 12 with the right negative sign once contemporaneous variables are removed.

4. Conclusions

- The central bank as an unlimited liquidity provider, that is, the central bank acting as lender of last resort, promotes maturity mismatch within the financial sector. The financial sector no longer need to worry about its liquidity position. Since long-term interest rate is higher than short term interest rate, the financial sector can improve its profitability by investing or lending at longer term than its own financing.

- The financial sector maturity mismatch provokes that the asset structure ability to produce goods at short notice falls short in comparison with the expected demand for them by consumers. Production processes are more future oriented than consumers´ expectations. The fixed amount of future consumer goods arriving to the market are not enough to fulfil the ex-ante consumers´ expectation. The short term productive power falls short to fulfil short term demand for consumer´s goods.

- The central bank, by provoking financial sector maturity mismatch also enables the transfer of saver funds between short term and long term projects. Since we assumed diminishing returns on capital accumulation, the short-term funds that moves towards long term investments tend to provoke lower long term interest rate. Meanwhile the short-term funds are flying away from short term investments increasing the short-term interest rate. We are providing a theoretical explanation for the yield curve inversion that precedes economic crises.

- Maturity mismatch provokes a short-term investment shortage that implies a relative scarcity of consumer goods available at short notice in comparison with the short-term claims against them. Similarly, the long-term over-investment implies a relative surplus of consumer goods available at long term in comparison with the long-term claims against them. We can reinterpret classical Austrian Business Cycle Theory within this framework.

- The equilibrium model presented is compatible with the Austrian Business Cycle Theory concept of forced savings. Due to maturity mismatch, there are not enough consumer goods available at short notice to fulfil all the claims against them, then some of the short-term savers must be transformed into long term savers. The short-term savers are forced to renounce some of their claims to consume by two

mechanisms, inflation and economic crisis. The emergence of inflation or economic crisis depends on the policy taken by the central bank.

- We propose a new financial indicator, the Liquidity Gap Index. The Liquidity Gap measures the extent of the maturity mismatch taken by the financial sector.

- A crisis propagation mechanism is proposed along the lines of the Austrian Business Cycle Theory in which the management of short term rates by the central bank is the cause of the business cycle. The lowering of the short-term interest rate by the central bank provokes a spike in the Liquidity Gap Index, that is, an increase in maturity mismatch. The increase in the maturity mismatch provokes an increase in economic activity and a pressure to diminish the yield curve spread. When the yield curve spread narrows or become negative the probability of recession increases.

- The proposed crisis propagation mechanism is empirically tested for Eurozone and United States economies. The results suggest that the proposed mechanism takes 72 months to be completed for the Eurozone economy, that is, it takes 72 months since the central bank decides to lower the short-term interest rate to the emergence of a recession. For the United States economy, the cycle is shorter, taking 54 months since the lowering of the interest rate by the central bank to the emergence of a recession.

Third section The Cyprus´ collapse in 2013 and the developments since the rescue package.

Chapter 6: Cyprus Financial Breakdown: Over-banking as a Succession of Carry Trades

1. Introduction

The Cyprus economy is very small, with less than a million people and €17.5 billion in GDP it represents barely 0.1% of the entire European Union GDP. However, in 2013, the Cyprus financial crisis shook the very foundations of European Union economy and the stability of the Euro. We suggest that the Cypriot crisis can be explained as a series of failing carry trades. The Cypriot pound pegging to the Euro and the fix of the domestic interest rate at a higher level than Euro Area interest rate resulted in an enormous amount of capital flowing into Cyprus. Consequently, this led to an overbanking and the formation of bubble in the domestic housing sector. Moreover, the government bond carry trade, an investment strategy carried out by banks in Europe since the beginning of the Great Recession, was widely performed by Cypriot financial intermediaries. The Cyprus banking sector was too big for the Cypriot bond market, so they expanded the bond carry trade to the Greek government bond market. When Greece defaulted, the Cypriot financial intermediaries were so severely hit that most Cyprus banks went bankrupt almost instantaneously.

Despite the numerous causes that can provoke a financial crisis, the consequences of these crisis are surprisingly similar. They are typically characterized by bank capital shortages, widespread runs on financial firms, excessive public expenditure and the continual need for external financing. These traits are easily identifiable as characteristic of an economy gone bust. However, when it comes to correctly identifying the specific causes of the prior disequilibrium, specifically financial causes, there is much more nuance and variance. There are different potential causes that lead to the boom phase of the business cycle. Additionally, there are another separate set of factors which could fuel a boom economy.

The case of Cypriot depression during the European Union's great recession was an example of multi-factor causes that fueled boom phase. Cyprus was at the time and still is a very small

part of the European Union. Yet in 2013, its financial crisis shook the very foundations of the European Union and the euro currency.

This paper has two primary focal points. The first is to present a theoretical model which aids in identifying the specific causes of economic and financial disequilibrium that affected the Cyprus´ economy. The model incorporates principles rooted in banking theory, capital theory and liquidity theory. We discuss the important distinction between money markets and capital markets and the important roles of financial intermediaries in each market. We touch upon the difference between discount rate and interest rate and how financial intermediaries arbitrage in both markets. Consequently, we examine in detail the theory behind the various trading strategies employed by large financial institutions, particularly the carry trade strategy. We also provide an analysis of the increasing risks associated with carry trade activity due to institutional incentives. In particular, we discuss how such incentives often redirect or externalize risk away from the entity engaged in the risk taking activity. This externalization of the costs of risk taking activity causes decisions to be made and a sequence of cause and effect events to occur that otherwise would not.

In the second part of this paper, we will provide an analysis of the Cypriot financial sector over three different periods: Before the alleged liberalization in 2001; from 2001 to the embracement of the Euro in 2008; and from 2008 to the financial breakdown in 2013. We will identify some of the current imbalances caused by the interest rate ceiling which was inherited from colonial times and lasted until 2001. We will argue that the alleged liberalization of the financial sector happened in 2001 was, at best, a partial liberalization. Moreover, this partial liberalization of the financial sector made possible an interest rate carry trade that allowed new financial imbalances to spread all over the Cyprus economy. In the last section, we will analyze the role of the financial sector in the bond carry trade which ultimately caused vast problems in the entire European banking sector, especially those financial institutions which held long positions in Greek government bonds.

2. Theoretical model

2.1. The Separation of money markets and capital markets

The separation between money markets and capital markets can be summarized as the compliance with the golden rule of banking[217]. Financial intermediaries should not invest in assets with longer maturities than those of their liabilities. To express it in Minsky's words, the cash inflow of the investments must be sufficient to cover the cash commitments previously agreed to, that is, cash outflow from liabilities[218]. If the cash inflow is not enough to cover the cash outflow, then the bank is forced to constantly roll over its liabilities. This comes with a risk however. If the market for short term financing freeze up, then the bank will be unable to renew its borrowing. If this happens, the bank might have to suspend payments and thus fall into bankruptcy. Even if the bank is solvent, the impossibility of refinancing could prove detrimental, if not fatal, to their business. In other words, the asset side of the balance sheet can be healthy – showing positive yielding assets with no impairments - and yet the bank could fail simply because the liability side is not adequately funded.[219]

Traditionally the banking sector has been divided into commercial and investment banking. The scope of these markets differ significantly. Commercial banks are the primary intermediaries in the money market, while investment banks are the primary intermediary in capital markets.

The money market facilitates the payment processing. The credit flows find their *reason d´etre* not in funding new ventures, but in the settling and postponing of payments. Credit flows in money markets allows for deferred payments and offsetting balances[220]. This avoids large and costly movements of base money[221]. The money market does not necessarily need

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[217] See (Hübner, 1854) and (Alonso Neira, Bagus, & Rallo Julián, 2012)

[218] See (Minsky, 1992)

[219] That is, the bank would have the ability to pay, but not the ability to pay in time. See (Fernández Méndez, 2015).

[220] See (Scherman, 1938).

[221] See (Dunbar & Sprague, The Theory and History of Banking, 1917) and (Scott, 1902). For a modern interpretation see (Stigum & Crescenzi, Stigum´s Money Market, 2007), unfortunately, in the modern version of the money market, this important distinction is still unclear.

financial intermediaries in order to accomplish it function. Bills of exchange can be circulating media and there is no need to be monetized by financial intermediaries[222].

The capital market on the other hand is the market for long term capital exchanges and for financing long term business ventures. The capital market channels funds from savers to investors[223]. Capital market does not need financial intermediaries in order to perform it function. Savings can be exchanged within family units or performed within the boundaries of small communities.

The role of commercial banking or any other type of financial intermediary involved in money markets is to increase the velocity of money on deposit with them. This is achieved by monetizing bills of exchange or credit documents backed by consumer goods already in the process of distribution[224]. In other words, the role of commercial banking is to replace the money substitutes or near money instruments issued by the private sector with its own money substitutes or promises to pay out money on demand. This small change in the nature of the circulating media is the fundamental feature of the monetization of commercial credit[225].

Monetizing commercial credit is a way to introduce elasticity in the payment system without incurring maturity mismatch. Monetary substitutes are created against present goods that are already in the process of distribution. What actually happens behind the scenes is the following; there is an increase in demand liabilities against demand assets, i.e. more money substitutes go in the liability side against more present goods acting as collateral on the asset side[226].

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[222] See (Dowd, et al., 1992)
[223] Or impatient consumers
[224] As Cantillon pointed out, there is an increase in the number of transactions with the same amount of gold, that is, an increase in the velocity of money. All that commercial credit can do is to increase the velocity of money. See (Cantillon, An Essay on Economic Theory, 1730)
[225] See (Rist, 1940)
[226] We can trace this theory as far back as Adam Smith. See (Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, 1776)

The role of investment banking is to act as intermediary in capital markets - to channel funds from savers into investment projects. Investment banking is one of the biggest ways of allocating capital in a developed market economy[227].

The concept of liquidity is treated as either a residual effect in the interest rate formation. Or it is completely ignored and treated as a free good. But when maturity mismatch is so widespread that everybody is looking to postpone their payments, then the price of liquidity soars[228]. Liquidity is not a free good. Timing in cash inflows and cash outflows is key to the survival of the various economic agents involved.[229]

In the money market the price of delay payments is the discount rate. This discount rate is not so much influenced by time preference as it is by liquidity constraints. In a liquidity crisis, the discount rate (short term rate) can rise above the interest rate (long term rate), without any changes in time preference. Short term commitments must be fulfilled if business is to continue.

The interest rate in capital markets is determined within two limits. The lower limit is set by the social time preference and the upper limit is set by the expected yield of investment opportunities[230].

Lenders in commercial banking and investment banking are very different[231]. The commercial bank lender is typically a depositor. A deposit is a short term and very liquid type of lending, with a zero or near zero maturity and zero or near zero risk tolerance. In order to best match the deposit liability, the intermediary should invest in self-liquidating short term assets with

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[227] Of course it´s not unique, there are several entities dedicated to provide capital to different projected needs. For instance, angels investors, venture capital, etc.

[228] When this happens, we can see an inverted yield curve, with enormous pressure towards liquidation of long term investments in order to meet short term obligations. This is usually the period that precedes crisis and sometimes depressions. See (Wheelock & Wohar, 2009)

[229] See (Mehrling, 2010) and (Culbertson J. , 1957)

[230] By social temporal preference we mean the price of the interchange between present and future consumer goods between consumers. That is the temporal interchange between high temporal preference individuals and low temporal preference individuals. The setting of the interest rate between the limits outlined is explained by Fisher. This author tried to escape the "traditional" dichotomy between psychological and productivity theories of interest. See (Fisher, The Theory of Interest, 1930)

[231] Investment banking have usually brokerage and dealer functions. When we mention lenders of investment banking we are referring to the dealer activity since this actually involves proprietary trading and the use of their own balance sheet in capital market intermediation. See (Treynor, 1987)

a zero or near to zero maturity and zero or near zero risk[232]. That is, commercial banking activity should comply with the golden rule of banking when it comes to matching the risk profile and time preference on both sides of their balance sheet.

If commercial banking deploys the funding provided by depositors in riskier or longer term investments, that is, if banks divest funds from the money market and allocates it into the capital market, then they are undermining the trust that their lenders, have granted them[233]. Consequently, the success of the commercial banking rests upon the ability of those long term commitments to be filled and their ability to continually roll over their short term liabilities.

2.2. Carry trade

A carry trade often refers to investment strategies with more than one straddle[234]. This implies the possibility of arbitrage between at least two underling assets; i.e. taking long positions in the supposedly under-valued asset and short positions in the over-valued assets. The spread between the straddles is the source of profit in such investment strategies.

The concept of carry trade usually implies some risk exposure since the spread, instead of narrowing, could widen. Losses could then become double since the value of the asset side diminishes while at the same time the liability side increases. The hedge can fail and an assumed positive (negative) correlation between two or more assets can become negative (positive) under certain conditions[235].

The most ancient and commonly known type of carry trade is between currencies. During the period of the classical gold standard, the exchange rate arbitrage served as a way to stabilize currency prices with no need to resort to central bank activity. Known the "fundamental" exchange rate, which is, the ratio between the gold content of every pair of currencies, speculators could conduct a "safe" carry trade by taking long positions in the currency with

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[232] Auto-liquidating assets are those assets backed by consumers' goods which are already produced and are in the process of distribution. See (Palyi, 1936)
[233] Mainly depositors.
[234] See (Bilson, 2013).
[235] The risk to be faced in carry trades are: currency risk, maturity risk (interest rate risk or term spread risk), and counterparty risk. See (Wernz, 2014)

depressed exchange rate and short positions in the currency with an over-valued exchange rate[236]. Under floating currency standard, the exchange carry trades are much riskier than before. Since the disappearance of the classical gold standard, the fundamental value of currencies is much more open to interpretation. Therefore, speculative activity can influence the price, moving it far from its fundamental value[237].

The carry trade can be executed in an almost infinite number of different ways. The key question that have to be answered is, who bears the risk if the carry trade fails? If there is some way in which the risk can be externalized to third parties, then we can assume that more risk will be taken by the original investor.

There are two ways in which the public sector encourages risk taking in carry trade strategies. The first one is the case in which a government agency directly absorbs the risk of the failed investment strategy. The balance sheet of the central bank or some other government agency acting as a lender of last resort absorbs the increase of risk assumed by the private sector. In this scenario, it is the taxpayer who becomes the ultimate bearer of risks. This is also true when monetary authorities have a currency peg in place between two economic regions and decide to set a higher rate interest rate than the other economic region. The higher interest rate acts as a magnet for new funds. The strategy used by the private sector is to take a short position (borrow) in the low interest area and take a long position in the high interest area. The risk involved in this interest rate carry trade is exchange rate risk since there are two or more different currencies in play. However, from the point of view of the private sector, there is no exchange rate risk when there is a currency peg in place.[238][239]

The second way in which public institutions promote high risk carry trade strategies happen when the public sector provides some sort of insurance guarantee such as deposit insurance.

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[236] The mechanism is extremely simplified here. The actual one involves the presence of international trade and foreign bills of exchange in national markets and national bills of exchange in foreign markets. See (Scott, 1902).

[237] There are different theories about which one is the fundamental exchange rate, and therefore there is at least as many strategies as theories.

[238] The risk is just transferred to the balance sheet of the central bank where the funds are received since it has to be loaded with foreign currency. This is what actually happened in Cyprus from 2001 to 2008 as we are going to see below. The same happened in Switzerland from 2012 to 2015.

[239] The influx of funds from capital inflows tends to increase the purchasing power of the receiving area's currency. However, the influx of funds reported in the financial account usually is counterbalanced by a deficit in current account that tends to depreciate the currency of the receiving area funds. The result is usually an increase in volatility. This volatility is the one that can be absorbed by the central bank with a peg currency.

The financial sector is encouraged to engage in proprietary trading[240] because of deposit insurance and implicit or explicit bail-out guarantees. This tends to increase the amount of risky behavior banks engage in with third party resources comprised mainly of depositors and tax-payer funds. Here again it is the taxpayer who bears the risk at the end. In both cases moral hazard problems arises. The risk taken by the financial sector increases because the potential increased return is not balanced by the potential losses that could bring risky investment strategies. Conservative investment strategies which are the root of the money market are economically unprofitable under this scheme.

3. The Cyprus case

Since the late 70´s, Cyprus attracted business from areas that were suffering political stress and public disorder in the region. Cyprus offered political stability and low corporate taxes, a combination that rapidly attracted business to the Hellenic island. Furthermore, the civil war in Lebanon, formerly an important business center in the Middle East, acted as a catalyst to accelerate Cyprus as a new business center in the region.

The Greek debt default happened in June 2012 severely hit the Cypriot economy, in the same month Cyprus asked for financial aid to the European commission. The Cyprus case differs from other bailouts both in its causes and in its final resolution. In March 2013, Cyprus received its first rescue package from the European Union and the International Monetary Fund. The Achilles heel of Cyprus was its financial sector. However, the public sector has much to answer for.

First we are going to analyze the Cypriot financial sector before the imbalances begin to take place. Then we are going to address the state of this same sector after its alleged liberalization happened in 2001. Next we will examine the state of affairs of the financial intermediaries before joining the euro in 2008. Finally, we will analyze the 2008-2013 period until the rescue package was signed.

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[240] Recently there is some reports that highlight the need to avoid proprietary trading or, at least ring-fencing it. See (Whitehead, 2011) and (Acharya, 2011).

3.1. Cyprus Financial Sector before 2000.

The period from 1944 to 2000 was characterized by what can be called monetary and financial repression. Since 1944, interest rate ceilings existed for lending and deposit activities. The lending rate was fixed at 9% from 1944 up until September of 1994. In 1994, the interest rate ceiling was lowered to 8.5% until March 1997 when it was again lowered to 8%[241].

The ceiling did not curtail the quantity of credit in the economy. Instead it prevented the adjustment of different interest rates according to maturity and risk profiles of different types of debtors. Thus, new credit flowed to low risk activities with ample collateral to be placed against the credit extended. The investment landscape was consequently distorted towards buildings and other construction activities instead of machinery and equipment. In the 1980's the percentage of investment in machinery in Cyprus was around 20% of the total investment. This figure contrasts sharply with the OECD countries figure of around 35-40% of investment in machinery for the same period[242]. In the same way, the share of investment in real estate and other buildings and structures for the period of 1997-2000 was 65.5% for the Cypriot economy, meanwhile in the European Union real estate and other buildings accounted for 54.4% of total investment.

Additionally, since 1959 there have been capital controls in place that curtailed the ability of foreigners to invest in the country and Cypriot residents to export their own capital.[243].

The domestic financial sector was protected from international competition until 2001. The International Banking Institutions placed in Cyprus were only permitted to deal with non-residents and only in foreign currencies[244].

The financial sector grew extraordinarily in size in the years before the alleged liberalization happened in 2001. The contribution of the financial sector to GDP was 4.9% in 1995 while in 2000 the figure rose up to 7.5%. The percentage of the employed people by the financial rose

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[241] See (Clerides S. , The Collapse of the Cypriot Banking System: A Bird´s Eye View, 2014) and (Phylaktis, 1995)
[242] See (Clerides S. , Effects of Interest Rate Regulation: The Case of Cyprus, 1993)
[243] See (Government of Cyprus, 1959)
[244] See (Georgiadou, 2002)

from 4.3% to 5.2% of total employment in the same period. The increase in the contribution to GDP against the timid increase in employment from 1995 to 2000 suggest an enormous increase in the productivity per worker during these years, suggesting that the financial business model changed before 2001.

The assets under management by the Cypriot financial domestic sector expanded from 1996 to 2001 at an annual growth rate of 16%. In 2001 domestic bank assets amounted €25.2 billion or 219% of Cyprus GDP, while the figure for the whole banking sector amounted €42.9 billion totaling 372% of the Cypriot GDP[245]. It is interesting to note that these figures were well above the size of banking sector in the euro area. The monetary and financial institutions of the euro area managed assets that accounted for 250% of GDP in 2001[246]. The Cypriot banking sector was 48.8% bigger than the euro area financial sector in 2001.

The business model used during this period was an expensive and inefficient inward oriented relationship banking. The model changed quickly to a more international banking structure as will be explained in the next section. Given the magnitude of the increase in the banking sector over this period, it suggests that the internationalization of the Cypriot banking system actually happened well before the generally recognized date of 2001[247].

The decision to apply for European Union membership in 1990 and the subsequent peg of the Cypriot Pound to the European Currency Unit, the precursor of euro, in 1992 and to the Euro since 1999[248] could explain the early internationalization of Cyprus's financial sector years before the interest rate ceiling and capital controls were abolished[249].

In short, the financial sector in Cyprus showed imbalances since at least early 1980´s due to interest rate ceilings and capital controls that provoked a capital allocation significantly biased towards housing and other construction activities. Meanwhile the Cypriot economy showed a lack of provision of capital towards machinery and equipment. In addition, the financial sector before 2001 showed evidence of overbanking with a huge increase in the quantity of assets managed in the years prior to 2001.

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[245] See (Georgiadou, 2002). GDP figures are taken from Eurostat.
[246] Own calculations based on data from ECB Statistical Data Warehouse and Eurostat.
[247] See (Clerides S. , The Collapse of the Cypriot Banking System: A Bird´s Eye View, 2014)
[248] See (Georgiadou, 2002)
[249] See (Government of the Republic of Cyprus, 1990)

3.2.   Cyprus Financial Sector from 2001 to 2007

This period covers the so-called liberalization that happened in 2001 up to the embracement of the euro in 2008. In this period the accession of Cyprus to the European Union happened in 2004.

The main features of the Cypriot economy during this period were three:

- The Cypriot Pound was pegged to the euro.

- The interest rate was fixed at a different rate than the interest rate in the euro zone.

- Final abolishment of capital controls.

3.2.1.   The Alleged Liberalization of the Financial Sector

It is unclear that the financial reform which took effect in 2001 can truly be called a liberalization of the financial sector. At best the financial sector reform can be called partial liberalization. Before 2001, the interest rate, as we have seen, was directly set by the central bank. In this period, the central bank did not directly fix the interest rate. Instead, the central bank established bands into which the short term interest rate is permitted to fluctuate. The set up of the marginal lending facility, that is, the rediscount rate, sets a maximum price for the short term interest rate and the deposit facility sets a minimum price for the short term interest rate. The mechanism is at its core a price fixing mechanism within bands determined by the central bank[250]. The long term interest rate is indirectly influenced by central bank

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[250] In 2001 the interbank interest rate remained at an average of 4.9%, the marginal lending facility 5.5%, the deposit facility 2.5% and the Cyprus Central Bank Rate for Open Market Operations between 4% and 5%.

actions which lead the financial sector to arbitrage the yield curve. This in turn provokes the maturity mismatch taken by the financial sector[251].

The Banking Law enacted in 1997 was highly restrictive and introduced several anti-market elements. It forbids the deposit taken activities from entities without licenses issued by the central bank. Also the Law established a deposit protection scheme, which become operational beginning in September 2000[252].

The credit cooperatives had a lighter regulatory burden until 2003 when the legislation concerning them was amended to transpose the EU directives on banking, equalizing its regulatory burden to that of other banking institutions. It was expected that many of them would not be able to comply with the new regulatory burden and would have to merge with the most important Cypriot cooperative[253]. The European Union legislation seemed to be designed to avoid a decentralized financial system.

The cooperatives will now be expected to conform to the capital requirements and other prudential obligations of EU credit institutions. It is expected that some will prove too small for this to be feasible, and these can opt to be affiliated with the cooperative Central Bank, meeting consolidated prudential requirements[254].

Finally, the European Union and Eurozone officials forced the introduction of additional legislation concerning corporate governance for banks, money laundering activities, prevention of financing terrorism, and sharing internal banking information to international supervisory institutions with special attention given to the identities of banking consumers[255].

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[251] One of these actions is the eligibility of different types of collateral accepted by the Central Bank in order to get new sources of liquidity. This allows the financial intermediaries to neglect their autonomous liquidity and to impose confidence in the derived liquidity, that is, in the continuous refinancing of their short term liabilities. For a further explanation of these concepts see (Somary, 1915) and (Fernández Méndez, 2015)

[252] In this regard the Law was adjusted to fit the EU directive that required a deposit insurance. See (Georgiadou, 2002), (International Monetary Fund, 2006) and (Papageorgiou & Kouzoupi, 2005)

[253] The Cooperative Central Bank was the only one out of 361 cooperatives that was subject to regular banking laws and supervised by the Central Bank of Cyprus. See (Papageorgiou & Kouzoupi, 2005)

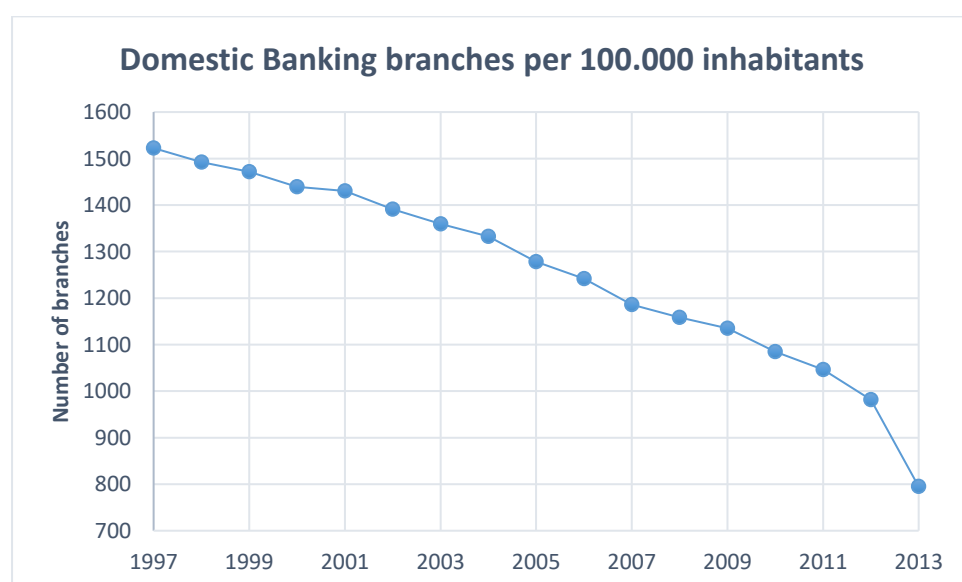[254] See (International Monetary Fund, 2006)

[255] See (International Monetary Fund, 2006)

The only activity which truly was deregulated was capital controls[256]. As we will see, this capital control deregulation acting together with the currency peg and interest rate fixing at a different rate than the European Central Bank rate was proved disastrous for the Cypriot economy. In addition, the activities taken and provoked by the Central Bank of Cyprus, accelerated the financial imbalances of the Cypriot financial institutions.

3.2.2. From Relationship Banking to International Banking

The change from a domestic relationship banking to international intermediary banking began in this period. The number of banking commercial branches per 100.000 citizens shows a continual decline during this period (graph 1). The powerful banking union prevented an stronger decline in the number of commercial banking branches[257]. This data suggests a clear transition from inward banking activities to international arbitrage activities.

Graph 1: Banking Branches in Cyprus from 1997 to 2013

Source: ECB Statistical Warehouse; Statistical Service of Cyprus.

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[256] The capital controls were abolished gradually, the complete liberalization doesn´t finish until 2004. See (Republic of Cyprus, 2003)
[257] See (International Monetary Fund, 2006)

3.2.3. Interest Rate Carry Trade

The partial liberalization of the financial markets brought some problems to the financial intermediaries in Cyprus. The abolishment of capital controls with a pegged currency and a fixed interest rate is troublesome if the interest rate is fixed at a different rate than the interest rate of the pegged currency[258].

In this scenario, if the domestic interest rate is set above the abroad interest rate, then capital will flow into the country in two ways. First, domestic citizens will borrow abroad and invest domestically. Second, foreigners will borrow in their native country and then invest in the country that offers higher interest rate. In both cases the investment strategy can be seen as a risk free carry trade, and can be performed because there is a peg between the two currencies. Due to central bank activity, the currency exchange rate risk is removed[259]. Consequently, we can expect an increase in the financial account because of the influx of funds. The smaller the economic area, the greater these imbalances will become.

The increase in the financial account lead to subsequent pressure in two economic variables. Namely the interest rate and the exchange rates of the currencies involved. When the domestic market is flooded with foreign funds, the interest rate tends to diminish while the exchange rate tends to appreciate. The influx of foreign currency makes the price of the national currency to raise in terms of foreign currency, that is, the exchange rate to appreciate. If foreign funds are channeled towards investment, it lowers the interest rate.

If, as we are arguing, the exchange rate and the interest rate are both fixed, then the economic pressure is rerouted directly to the central bank. The most common way for the Central Bank to deal with this situation is to expand its balance sheet. The only way to avoid a rising exchange price for the national currency due to an abundance of foreign funds flowing into the domestic sector is by central bank action. In this case the central bank is urged to

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[258] Or if the mechanism that interlinks short and long term interest rates works differently in the two currencies, leading finally to one long interest rate above the other and the opportunity to take advantage of the carry trade.

[259] Very similar situation happened in Switzerland and Euro area from 2012 to 2015. This gave rise to many imbalances.

purchase foreign funds and hold them in its balance sheet. The foreign currency goes on the asset side of the Central Bank balance sheet meanwhile the liability side expands, increasing the central bank monetary liabilities and the overall level of monetary reserves in the country[260].

Therefore, pegging the Cyprus pound to the euro become an issue after the abolition of capital controls. The interest rate spread between Cyprus and the Eurozone lead to an enormous increase in borrowing by Cypriot economic agents since the very beginning of 2001. This borrowing was reflected in the financial account of the balance of payments (graph 2). The exchange rate remained above the pegged exchange rate, in the upper limit of the band, for almost the entire period closing in 2008 at a final exchange rate of around 1.7086 EUR/CYP. This developing suggest that the Cyprus pound was under pressure to appreciate and it would have appreciated if the Central Bank of Cyprus would have not intervened the exchange rate by buying euros. At the end, the Cypriot pound closed in the upper side of the fluctuating band of +/-2.5% (graph 3). Anytime the upper limit of the band, that is, +2.5% was reached, the pressure was redirected towards the Central Bank of Cyprus which in turn expanded its balance sheet. (Graph 5).

Graph 2: Cyprus financial account 1998 to 2007

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[260] This is usually known as the Mundell-Flemming Trilemma or the impossible trinity. It is the impossibility of maintaining a fixed exchange rate, free capital movement and independent monetary policy. Note that we are arguing that the last component, independent monetary policy is the indirect fixation of interest rate by the Central Bank of Cyprus at a different rate than the European Central Bank interest rate. See (Mundell, 1963) and (Fleming, 1962).
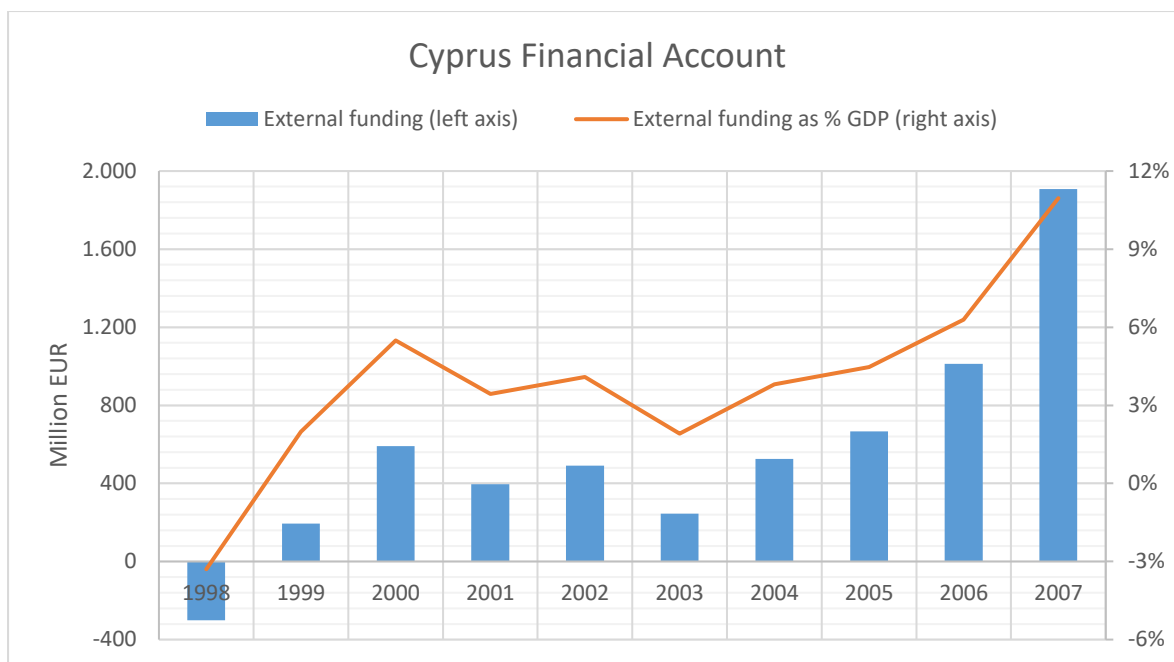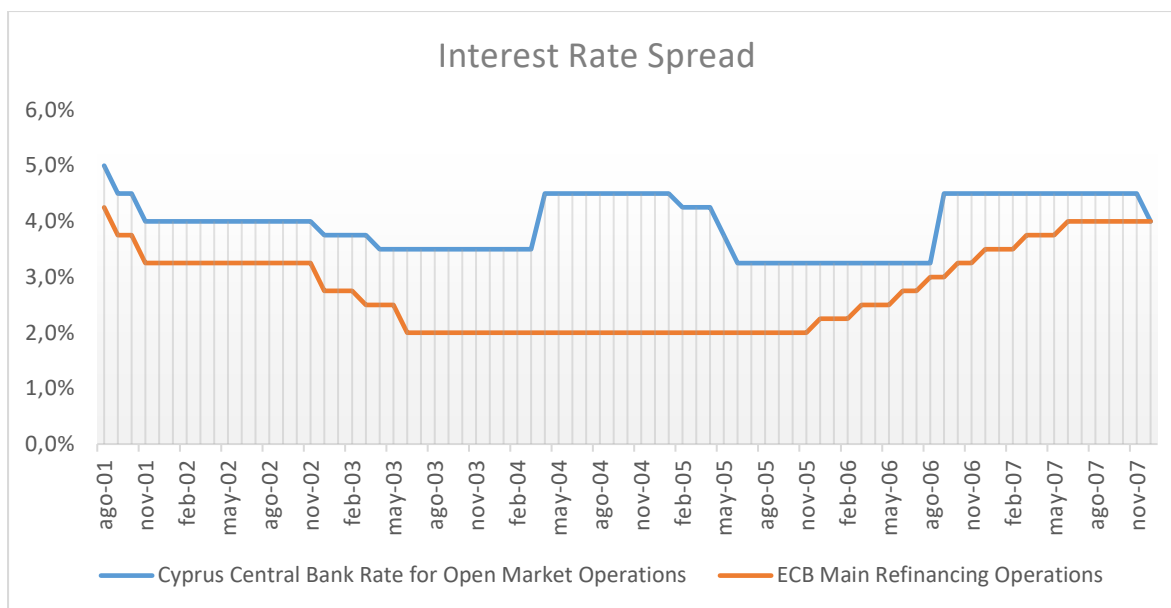
Source: Central Bank of Cyprus. ECB Statistical Data Warehouse

Graph 3: Exchange rate Euro/Cyprus Pound
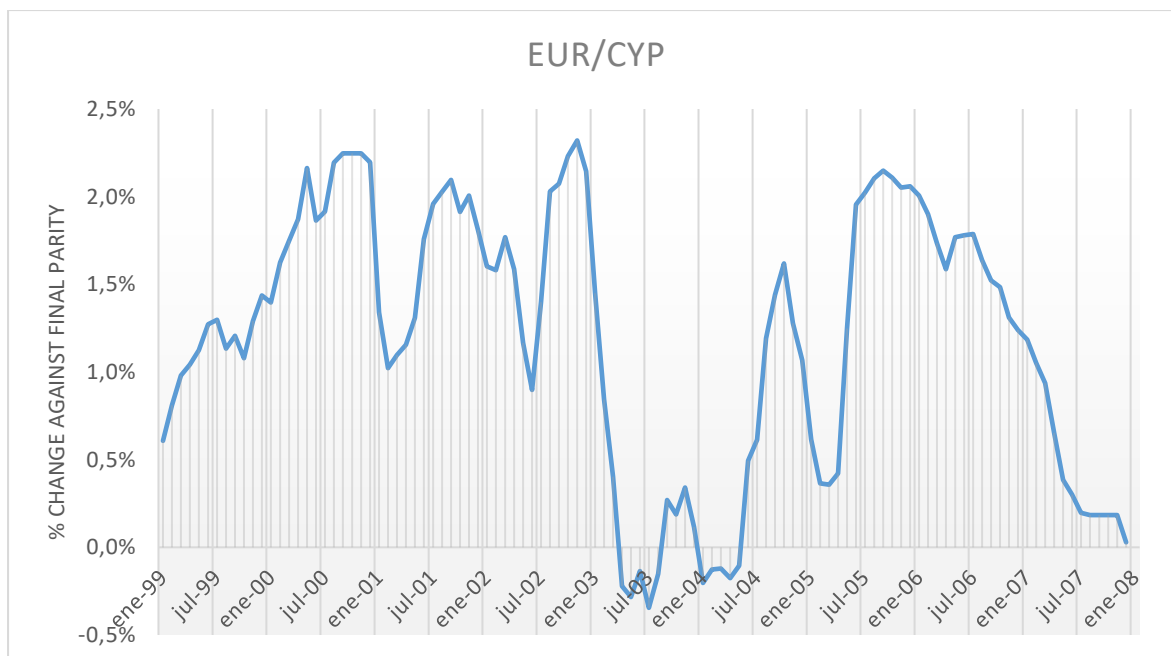
Source: Own calculations using data from ECB Statistical Data Warehouse

**Graph 4: Interest Rate Spread Central Bank of Cyprus vs European Central Bank**

Source: ECB Key Interest Rates. Central Bank of Cyprus.

As we are arguing, the economic pressure on the Central Bank of Cyprus soon became noticeable and it was reflected in the expansion of its balance sheet. Regularly, central bank balance sheets do not grow during expansionary periods, the private sector financial institutions balance sheets do. Central bank balance sheet often grows during periods of crisis and depressions because of monetary policies put in place to mitigate the stress suffered by the private financial sector.

Consequently, the European Central Bank balance sheet remains almost flat until 2004. In 2005 and 2006 it started to grow due to some liquidity issues felt in the European private financial intermediaries. In 2007, the European Central Bank balance sheet rose noticeably because of wide financial strain and liquidity crunch. The balance sheet of the Central Bank of Cyprus expanded during the entire period in an effort to maintain the peg to the Euro. Due to the enormous amount of foreign currency flowing into Cyprus to take advantage of the higher interest rate, the Central Bank of Cyprus was forced to sterilize them in order to avoid the appreciation of its own currency[261].

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[261] We can construct an unfair analogy with the "invention" of the Open Market Operations by Governor Benjamin Strong in the 20´s. In this case the sterilization referred to the enormous quantities of gold entering the country. See (Palyi, 1972).

Graph 5: Index of Asset managed by Central Bank of Cyprus 1998 to 2007
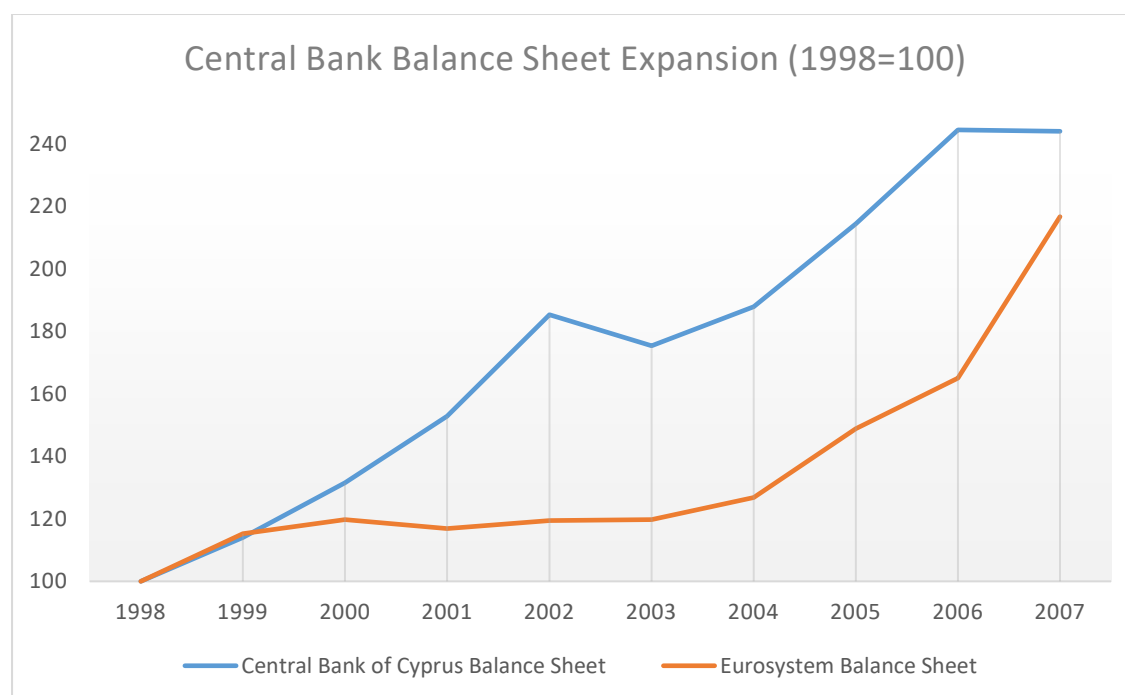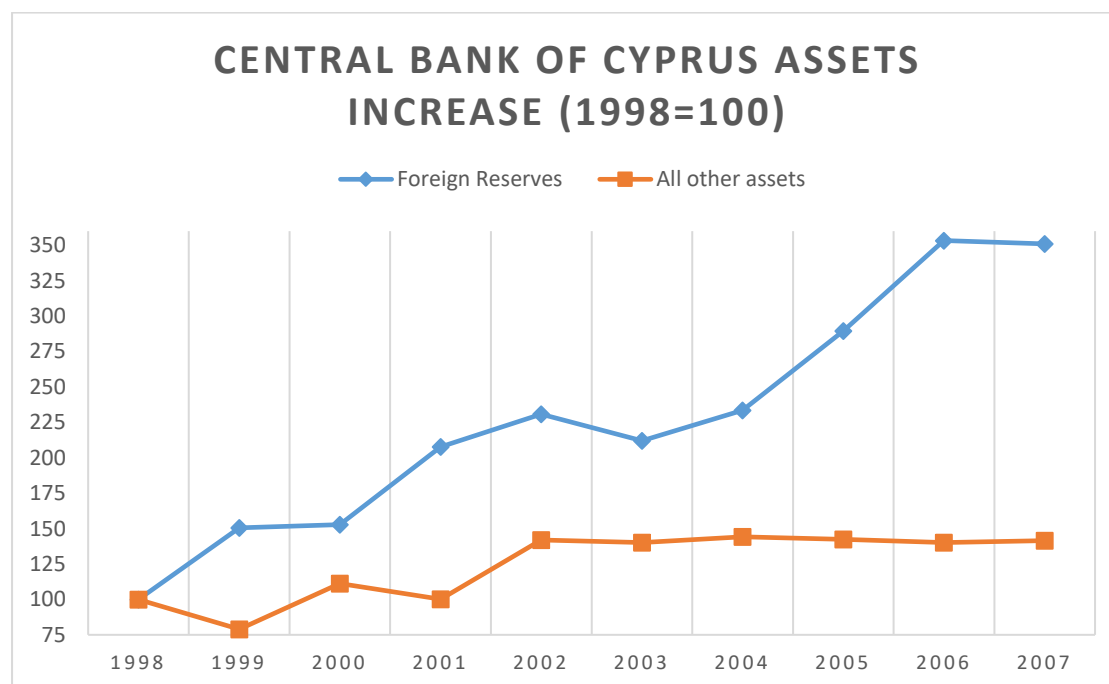

Source: Central Bank of Cyprus. Cyprus: Selected Issues and Statistical Appendix, February 2003 (IMF). ECB Statistical Data Warehouse

If we go deeper into the data, we can see that in the asset side of the Central Bank of Cyprus balance sheet the largest increase lies precisely in the foreign assets account. From 1998 to 2007, foreign reserves increased by 350% while the rest of the assets increased by only 41% (graph 6). Foreign reserves held by the Cypriot central bank accounted for 49% of total assets in 1998 and those reserves were above 70% of total assets in 2007 (graph 8).

Similarly, if we examine the liability side of the Central Bank of Cyprus we can see that the increase in monetary liabilities was much higher than the remaining liabilities. From 1998 to 2007 the increase in central bank monetary liabilities was 270% meanwhile the increase in the remaining liabilities was less than 19% (graph 7). Monetary liabilities amounted for 83% of total liabilities of the central bank in 1998. In 2007 the monetary liabilities grew up to 92% of total liabilities (Graph 8). The carry trade ended up not affecting the interest rate nor the

exchange rate because its impact was primarily absorbed by the Central Bank of Cyprus balance sheet.

Graph 6: Central Bank of Cyprus composition of outstanding assets 1998 to 2007

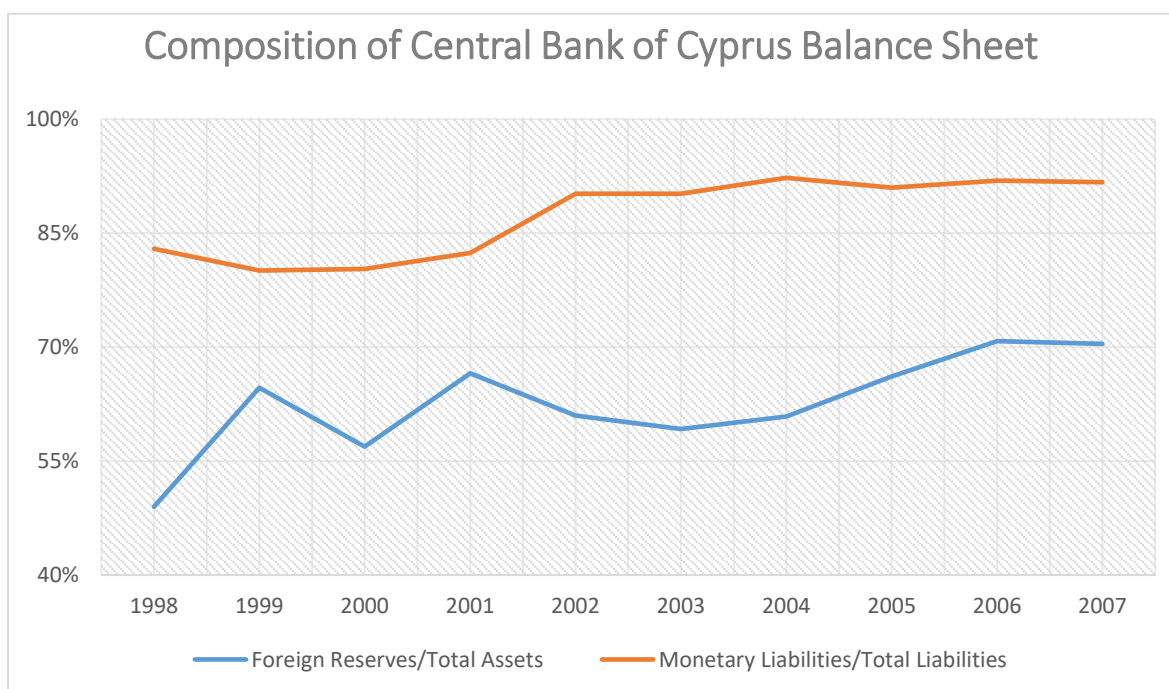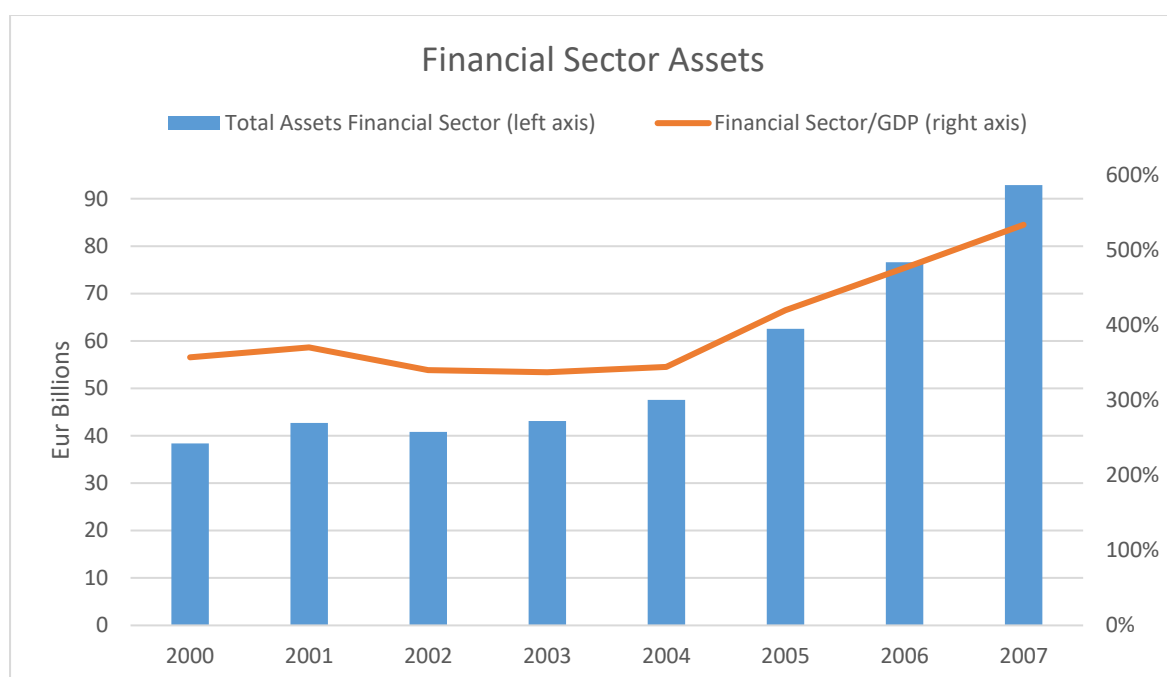CENTRAL BANK OF CYPRUS ASSETS INCREASE (1998=100)

Source: Central Bank of Cyprus. Cyprus: Selected Issues and Statistical Appendix, February 2003 (IMF). ECB Statistical Data Warehouse

Graph 7: Central Bank of Cyprus composition of outstanding liabilities 1998 to 2007
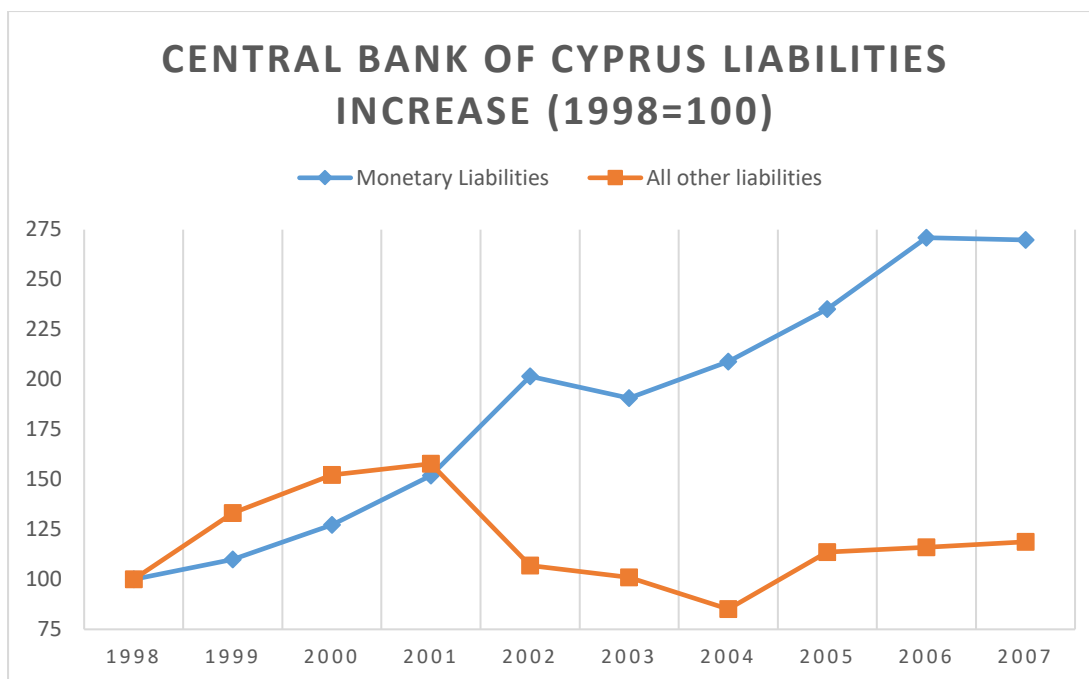
CENTRAL BANK OF CYPRUS LIABILITIES INCREASE (1998=100)

Source: Central Bank of Cyprus. Cyprus: Selected Issues and Statistical Appendix, February 2003 (IMF). ECB Statistical Data Warehouse

Graph 8: Central Bank of Cyprus composition of balance sheet 1998 to 2007

Composition of Central Bank of Cyprus Balance Sheet

Source: Central Bank of Cyprus. Cyprus: Selected Issues and Statistical Appendix, February 2003 (IMF). ECB Statistical Data Warehouse

Because central bank action, the risk-free carry trade had no stops in motion. Capital flows flowed into Cyprus and inflated capital asset prices. This is especially true since 2004 when capital controls were completely abolished[262]. We can clearly see how balance sheets of monetary and financial institutions exploded in both absolute and relative terms (graph 9).

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[262] See (Clerides S. , The Collapse of the Cypriot Banking System: A Bird´s Eye View, 2014)

Graph 9: Cyprus financial sector assets 2000 to 2007

Source: ECB Statistical Data Warehouse. Cyprus: Selected Issues and Statistical Appendix, February 2003 (IMF). Eurostat National Accounts

The risk-free carry trade promoted by the Central Bank of Cyprus provoked a credit boom as suggested by the growth in the aggregated balance sheet of the Cyprus financial system. Assets under management by the Cypriot financial sector grew 24% between 2000 and 2004, and an astonishing 95% between 2004 and 2007, totaling 142% for the entire period. In 2007 the financial sector of Cyprus accumulated assets that were equivalent to 534% of Cyprus GDP, in 2000 the figure was 370% of GDP (graph 9).

The flooding of foreign funds provoked an increased pressure on the current account balance. Large capital inflow tends to be reflected in trade deficits[263]. Massive inflows of funds are commonly correlated with massive imports of goods. As we are going to see in the next section, in the Cyprus case, the goods imported were mainly investment goods related to construction activities. The domestic currency comes under pressure to depreciate because

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[263] The secondary income balance of the current account is usually not under pressure because of the capital inflow. The primary income will become negative but in a longer term than the expected deficit in trade account.

of the current account deficit. Therefore, there is a tendency towards depreciation of the domestic currency that counterbalance the already mentioned tendency to appreciation due to capital surplus. The result of the two counterbalancing tendencies is an increased volatility in the exchange rate. The exchange rate volatility serves to curtail investment flows from abroad due to increased risk perception. In the Cyprus case, however the volatility risk was absorbed by the Central Bank via currency peg.

Graph 10: Cyprus Current account 1998 to 2007
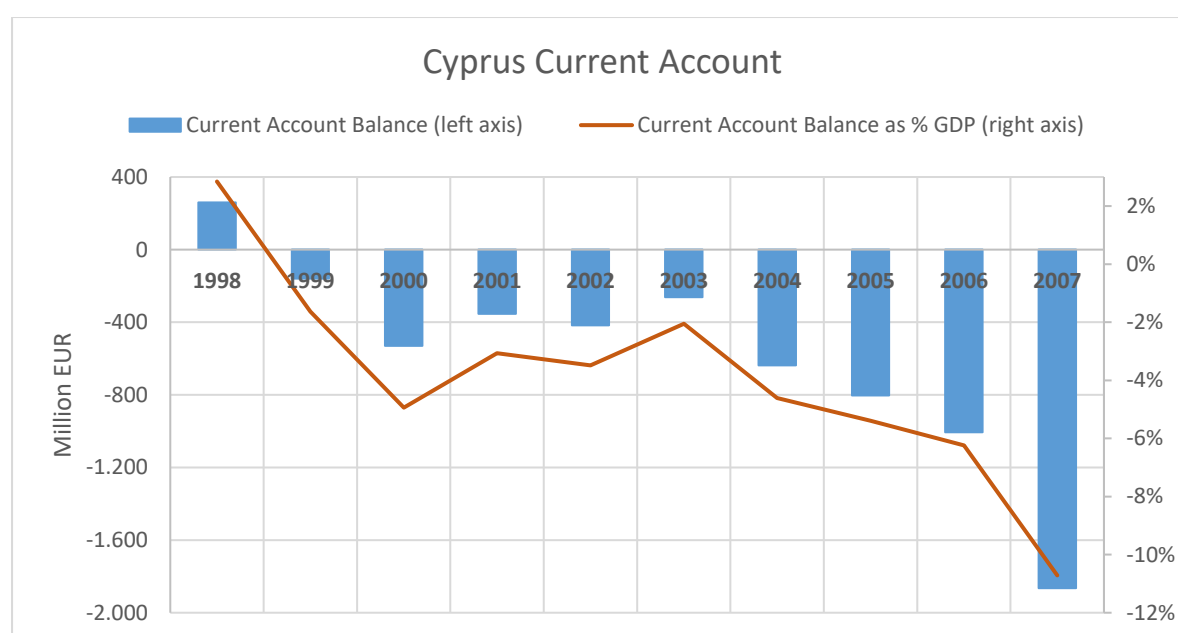
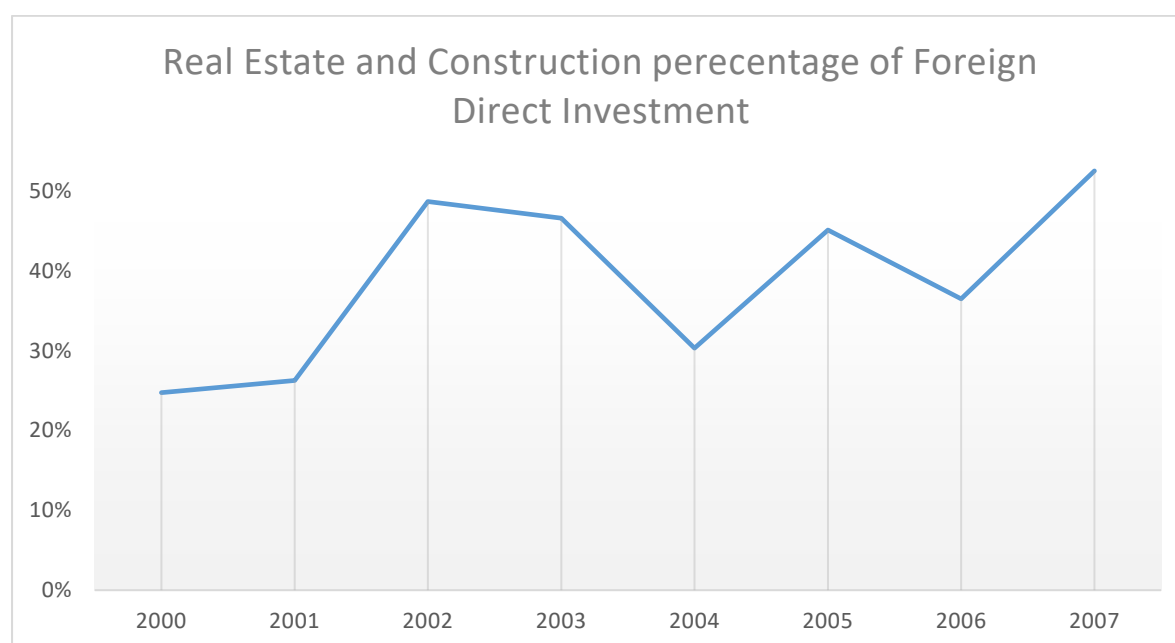Source: Central Bank of Cyprus. ECB Statistical Data Warehouse

3.2.4. Investments in the Cypriot economy

The Cyprus economy was receiving significant amounts of external funds. What kinds of investments were happening as a result? If those investments would have been directed towards high value economic sectors, then no problem would have arisen. Unfortunately, the new investments were directed towards low value sectors, mainly housing and construction. We already have pointed out that Cyprus carried the burden of earlier imbalances due to the

interest rate ceiling put in place until 2001. During this period the same investment pattern happened.

Real estate and construction activities absorbed an increasing percentage of foreign direct investment. The foreign direct investment towards those sectors grew from 25% in 2000 to 52,5% in 2007 (graph 10). This suggests that the imbalances inherited from the interest rate ceiling era were deepened during this period. The residential property price index was skyrocketing, showing annual increases that reached levels as high as 26% for the last quarter of 2004. From 2002 to 2007 housing prices increased by 41% in the Eurozone, 27% more than the consumer price index. In Cyprus, housing prices increased by 115% from 2002 to 2007, a figure 96% above the consumer price index (graph 11)[264].
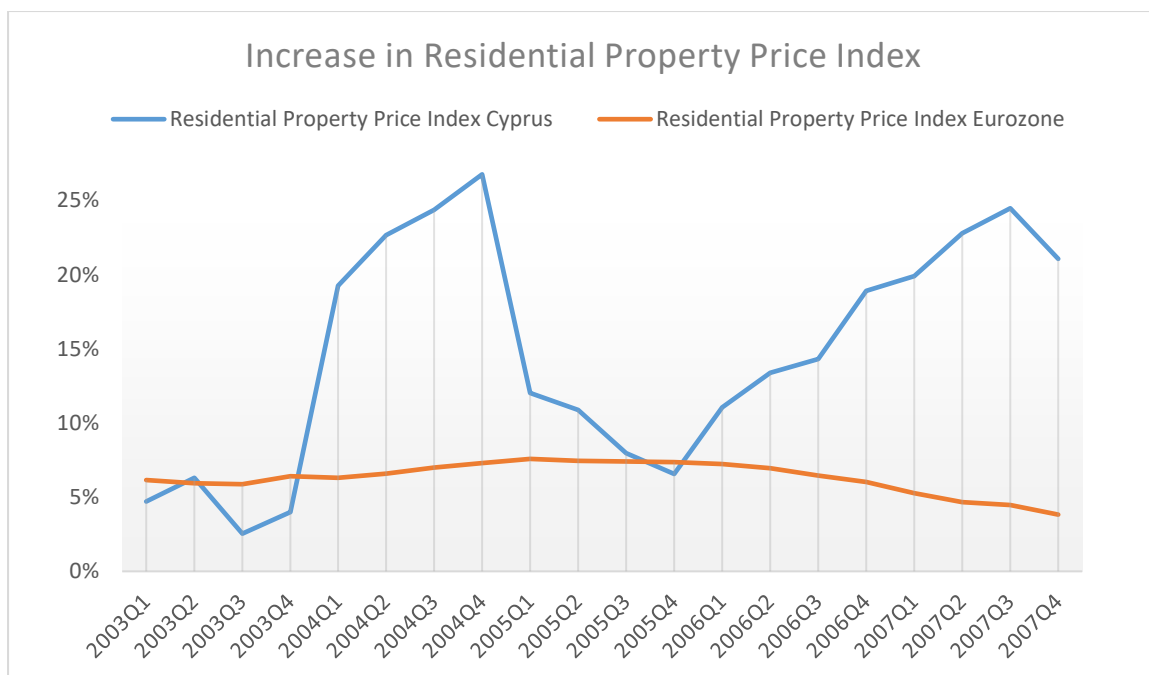
Graph 10: Cyprus foreign direct investment composition 2000 to 2007

Source: Central Bank of Cyprus

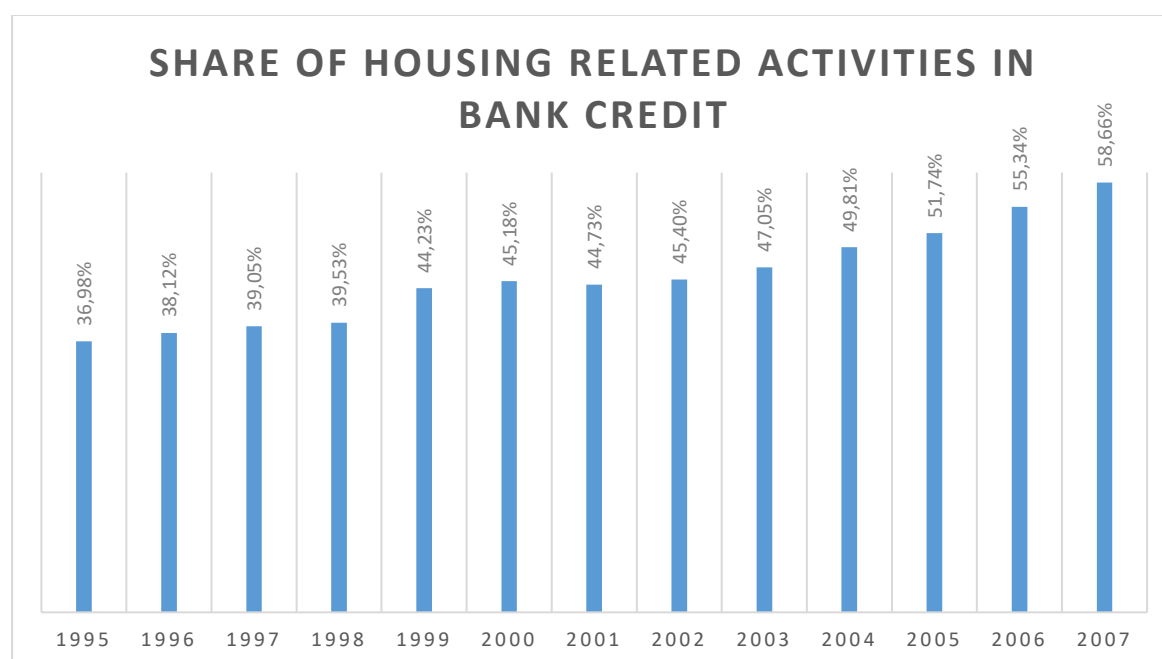**Graph 11: Cyprus vs Eurozone Residential Property Indexes 2003 to 2007**

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[264] The data of inflation is taken from ECB Statistical Data Warehouse. It is the HICP monthly overall index.

Increase in Residential Property Price Index

Source: ECB Statistical Data Warehouse. The Eurozone figures are the most recent revision of the Eurozone, including all 19 countries. The data is expressed quarterly on an annualized basis.

Carry trade foreign funds were directed towards financing a bubble in housing prices, the composition of loans extended by the Cypriot financial sector support our interpretation. The share of financial sector lending to activities related to housing was consistently growing during since 1995. The credit directed toward housing grew from 45% of total lending in 2001 to almost 59% in 2007. If we take in account the enormous increase in the size of the Cypriot financial sector balance sheet, then it becomes perfectly understandable why we see such skyrocketing prices among residential properties (graph 12).

Graph 12: Banking share lending to real estate activities 1995 to 2007


SHARE OF HOUSING RELATED ACTIVITIES IN BANK CREDIT

Year	Value
1995	36,98%
1996	38,12%
1997	39,05%
1998	39,53%
1999	44,23%
2000	45,18%
2001	44,73%
2002	45,40%
2003	47,05%
2004	49,81%
2005	51,74%
2006	55,34%
2007	58,66%

Source: Central Bank of Cyprus. Monetary Survey. Cyprus: Selected Issues and Statistical Appendix, February 2003 (IMF). Cyprus: Selected Issues and Statistical Appendix, March 2005 (IMF).The figures of housing related credit activities are calculated by adding building and construction activities and an estimation of the personal loans associated with this area. The Survey on Consumer Finance suggest that 70% in 1999 and 72% in 2002 of personal loans were directly related with home secured debt and other residential property. There is no further data concerning how much of the personal loans in this period were related to real estate activities. We will use 72% as a conservative figure in our estimations. Despite the speculation in the sector, we didn´t assume higher figures[265].

We have presented evidence that suggests that in this period a housing bubble could be under way in the Cypriot real estate and construction sector. Nevertheless, before we can confirm such a claim, we must first examine the price of the investment against its yield. We have to compare the change in housing prices with the change in the housing rental price. If the price of an asset rises above the expected cash flows discounted by the interest rate, then we can undoubtedly say that we are in the midst of a bubble.

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[265] See (Haliassos, Karamanou, Ktoris, & Syrichas, 2008) and (Haliassos, Karagrigoriou, Ktoris, & Syrichas, 2006)

The data suggest that there is evidence to support the idea that a housing bubble was forming in this period. From 2001 to 2007 the housing rental price increased 20%, an increase that follows the same pace that consumer price index. Meanwhile, housing prices increased 115% from 2001 to 2007 (graph 13). Therefore, it is reasonable to assert that the risk free carry trade promoted by the Central Bank of Cyprus was causing the domestic housing bubble in this period.

Graph 13: Index of price and rental in housing 2002 to 2007
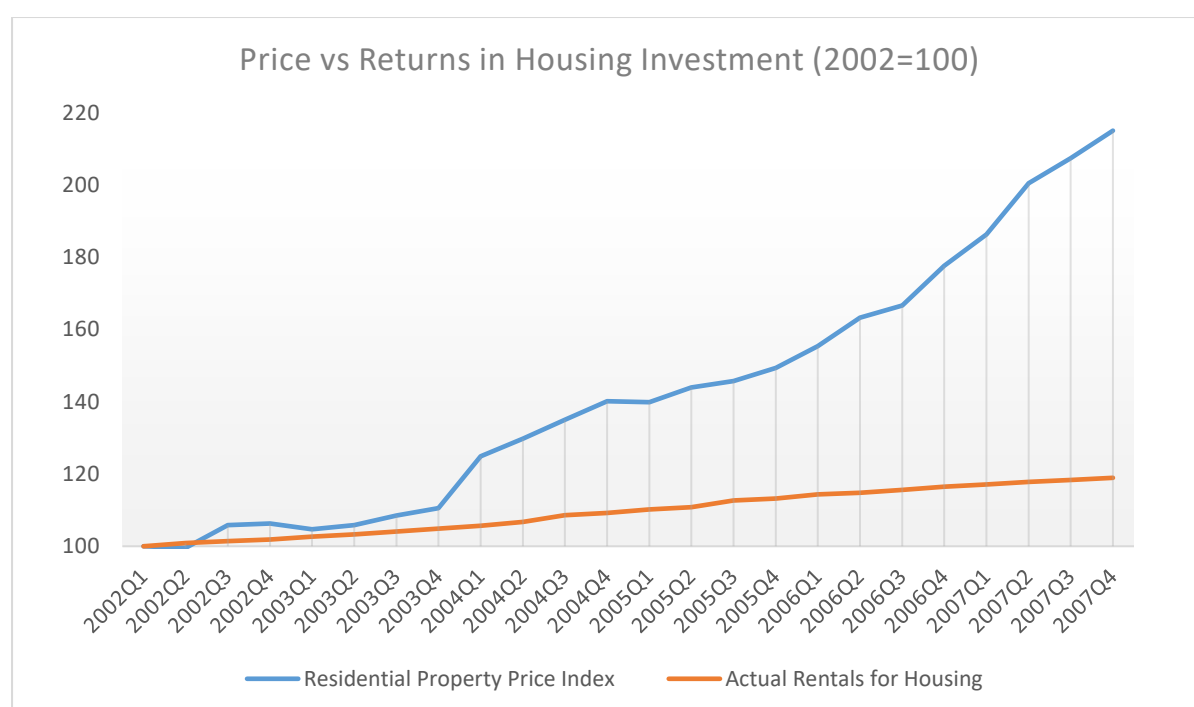
Source: Eurostat. ECB Statistical Data Warehouse. The original index base has been modified to match between the two indicators. The base year for both indicators is 2002.

The evidence presented suggests that the interest carry trade sponsored by the Central Bank of Cyprus attracted enormous quantities of funds from abroad from 2001 to 2007. The foreign funds that flooded the Cypriot economy deepened the financial imbalances that came from the pre-liberalization period, before 2001. The foreign funds were directed towards real estate and construction activities and consequently a bubble in housing started.

Since 2001, the Cypriot government was involved in the housing bubble. Government involvement in housing activity was strong and grew throughout the Cypriot business cycle. The government of Cyprus provided low-cost plots to families and was subsidizing mortgages. The government social transfers for housing purposes rose from 0.7% of GDP in 2005 to 1.9% in 2009. For 2010, social transfers for housing purposes remained at the same level than the year before event taken in account that the housing bubble was already in the process of collapsing[266].

3.3.   The Cypriot financial sector from 2008 to 2013

During this period, the housing bubble continued to be fueled by the financial sector (graph 14), but at a slower pace. The housing prices showed an stagnation until 2010. By 2010 the busting of the housing bubble became obvious, the housing prices declined sharply and started to adjusting to rental prices again (graph 15). In 2010 the financial sector started a deleveraging process (graph 14) and became involved in "the greatest carry trade ever."[267]

**Graph 14: Cyprus financial sector assets 2007 to 2014**

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[266] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012)
[267] See (Acharya & Steffen, The "Greatest" Carry Trade Ever? Understanding Eurozone Bank Risks, 2013)

Financial Sector Assets
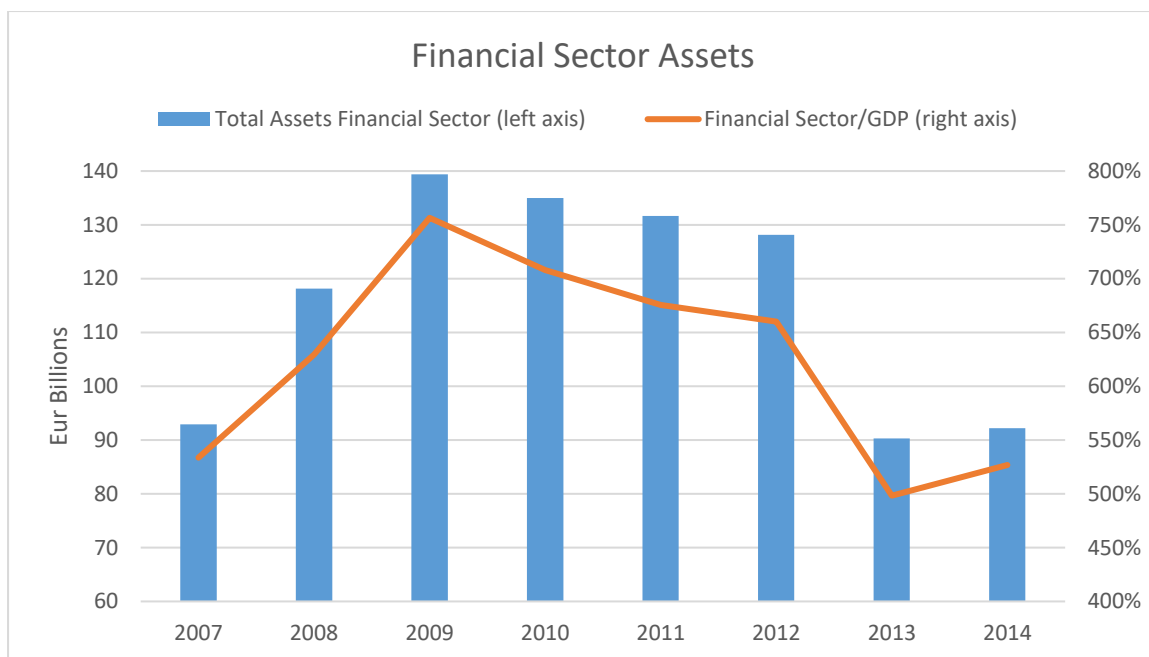
Source: ECB Statistical Data Warehouse. Eurostat National Accounts.

Graph 15: Index of price and rental in housing 2008 to 2014
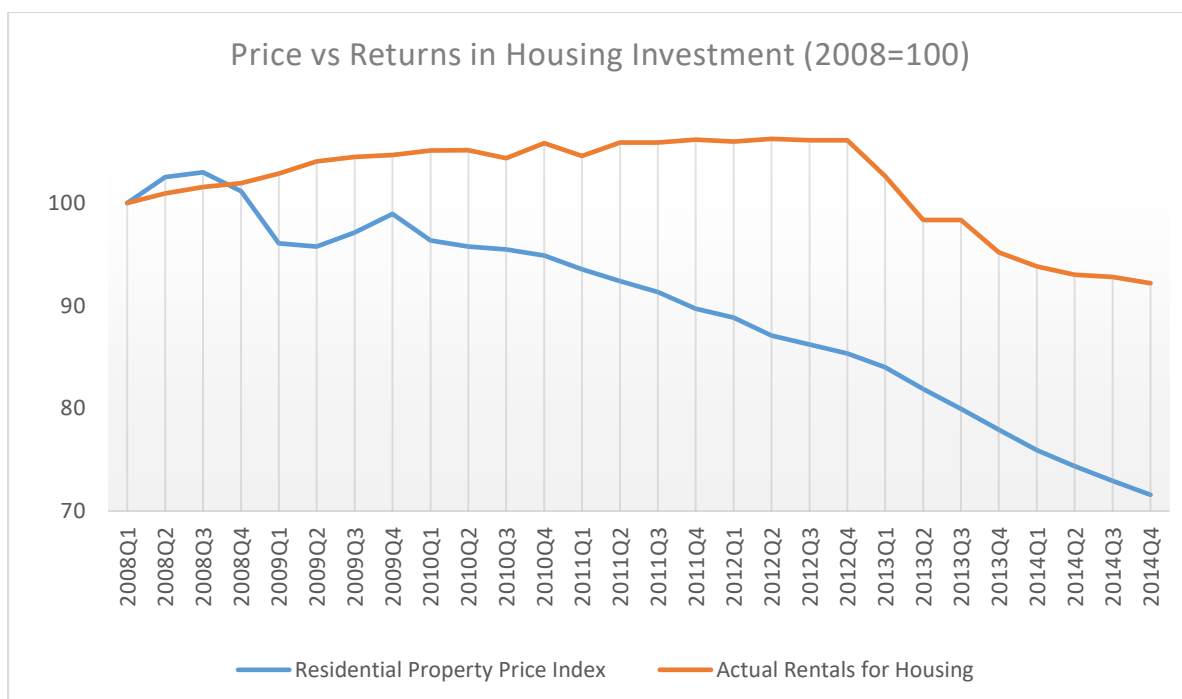
Price vs Returns in Housing Investment (2008=100)

Source: Eurostat. ECB Statistical Data Warehouse. The original index base has been modified to match between the two indicators. The base year for both indicators is 2008.

During this period the possibility of a risk-free interest rate carry trade may seem to be eliminated because of the integration of Cyprus into the euro area. However, a new opportunity arose in another kind of carry trade that could be arbitrated, the government bond carry trade. In order to take advantage of this kind of carry trade, the Cypriot financial intermediaries increased their presence and activity abroad. The internationalization of activities was perceived at the time as a good way to diversify risk. An investment in conservative assets such as government bonds was seen as another way to reduce the risk of Cyprus financial intermediaries. We have to remember that the Cyprus banks were loaded with housing loans and the Cypriot housing market was having some troubles as we pointed out before. Non-performing loans were skyrocketing and the return on assets and return on equity suffering important drawbacks. In this scenario, investing the new carry trade seemed the best way to mitigate the Cypriot financial sector problems.

3.3.1. Carry trade in bonds

The increasing risk assumed by the financial sector during the boom period, and even during the beginning stages of the crisis and depression was largely concentrated in the domestic housing sector.

In 2008 the possibility to conduct another profitable and seemingly risk free carry trade emerged. This time the arbitrage opportunity consisted in taking long positions in the Eurozone bonds with rising yields, and straddling with short positions in bonds with declining yields, mainly German bonds. This carry trade assumes that sovereign bonds issued by governments located in the same currency area tend to converge.[268] For Eurozone government bonds before 2008 this tendency seemed to have some empirical evidence to support it. The risk premiums on sovereign bonds diminished since late 1990´s and virtually converged in the early 2000´s. Since 2000 the government bond yields of the Eurozone remained at the same yield levels until late 2007[269].

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[268] See (Ehrmann, Fratzscher, Gürkaynak, & Swanson, 2008)
[269] See (Acharya & Steffen, The "Greatest" Carry Trade Ever? Understanding Eurozone Bank Risks, 2013)

However, since the outbreak of the 2007 crisis and the subsequent depression, the bond spreads started to widen. In late 2008 the risk premiums soared rapidly. If the convergence theory would have been sound, the possibility of a carry trade would have existed.

Since there was a theory that explained that government bond spreads between Eurozone countries have to go back to zero and the government bonds yields needed to remain at the same level and also the empirical evidence seemed to support that theory, a vast share of Eurozone financial intermediaries bet on that trade. Some problems started to show when the risk premiums and spreads did not go back to the level predicted by the convergence theory. In other words, the government bonds spreads did not narrow, but widen. Indeed, spreads continued to widen until the second Greek bailout took place in February 2012 (graph 16). At this moment the Eurozone financial sector suffered massive losses because of this failed trading strategy. The losses suffered by the financial intermediaries with exposure to Greek government bonds was even worse because of the Greek default.

Graph 16: Government Bond Risk Premium Eurozone 1994 to 2015
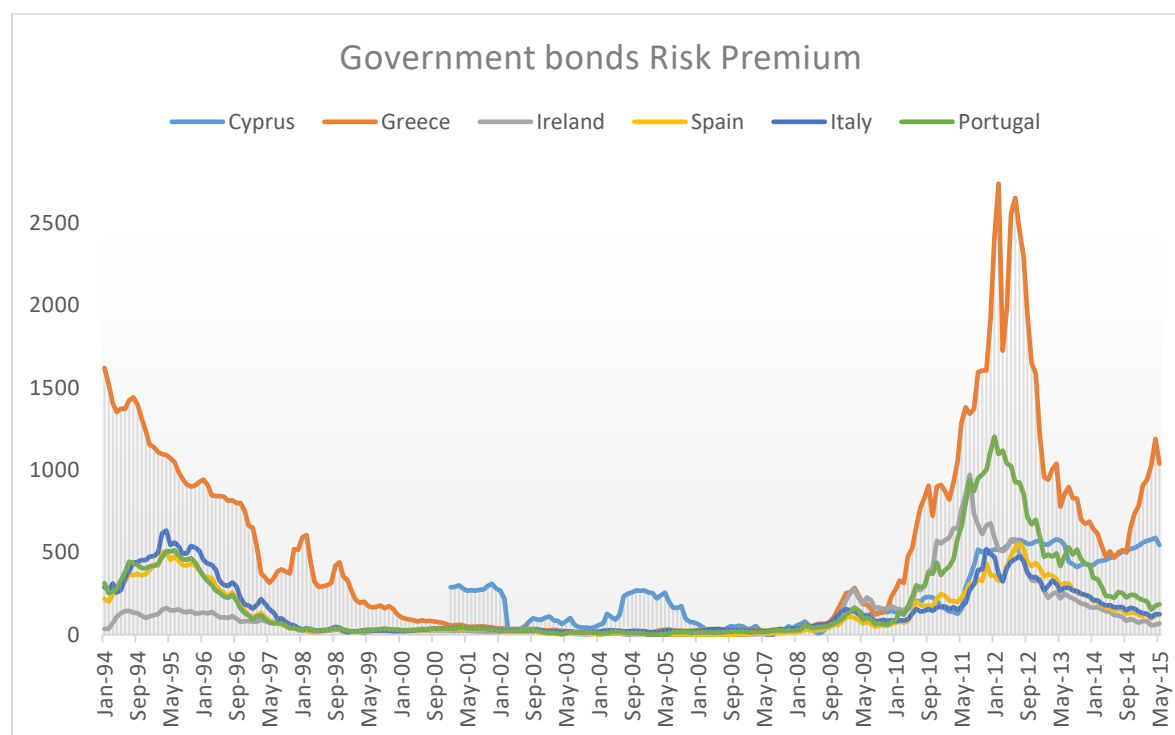
Source: Eurostat. ECB Statistical Data Warehouse

The Greek debt impairment threw additional pressure on a financial sector that was already suffering heavy losses. The amount of the default was 53,5% of the nominal value of the bonds and more than 75% in terms of net present value[270]. In a highly leveraged financial system is not necessary of show great exposure to the defaulted bonds in order to end up bankrupt. The capital/assets ratio in February 2012 for Eurozone financial intermediaries was 8.5%, that means that an exposure of just 11.33% of total assets to Greek securities would have completely exhausted the capital of a financial intermediary.[271]

The bond carry trade strategy seemed perfectly suitable to Cyprus banks in 2009 for several reasons. First, the domestic non-performing loans were rising rapidly, eroding bank profitability (graph 19). Second, international investments were seen as a way to reduce exposure to the already failing domestic housing sector. In other words, diversification by investing abroad seemed like a good way to reduce risk at home. Third, investing in traditional assets like government bonds was seen as much safer than investing in exotic derivatives and non-traditional financial products.

One question remains though. Why was the Cyprus financial system investing in Greek Government bonds and not in their own government bonds? The answer is twofold. First, because the size of the national bond market was too small compared with the enormous balance sheet of Cypriot financial intermediaries. In fact, the financial sector was increasing their exposure to Cyprus government bonds, but the potential for growth in this area was limited due to the small relative size of the Cypriot bond market. From 2009 to 2012 the financial sector holdings of government securities was higher than the total amount of Cyprus government securities (graph 17). Second, as have been pointed out, the internationalization of investments was seen as a good way to diversify risk.

Graph: 17: Government securities and securities held by Financial Sector

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[270] See (Reserve Bank of Australia, 2012)

[271] The capital/asset ratio for the Cyprus financial sector was 8.74% at the same date, this means 11,65% of exposure would have exhausted all the capital resources. All these figures are our own calculations based on data provided by ECB Statistical Data Warehouse.

Financial Sector Government Securities Held
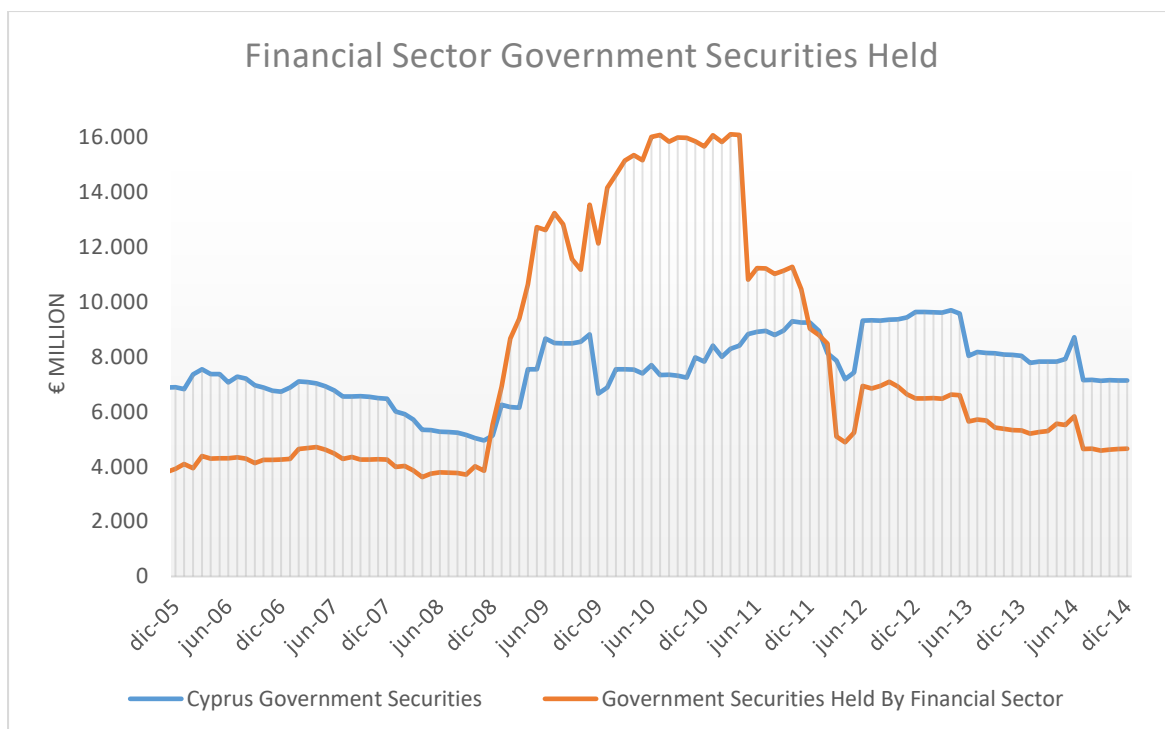
Source: ECB Statistical Data Warehouse.

Investment in government securities soared by late 2008. The figures multiplied by more than four times in less than 2 years, from €3.8 billion in November 2008 to a peak of €16.1 in July 2010 (graph 17). In the same period the aggregated balance sheet of the financial sector was increased by 52% against the 324% increase in government securities investments.

The impact of these investments on the Cyprus financial sector was twofold. On the one hand it suffered losses due to the failed carry trade in foreign bonds. Since the yields of periphery bonds were increasing, the Cypriot financial sector long straddle position suffered losses. Meanwhile, the short straddle position was suffering similar losses since the euro core countries government bond yields were falling. The increased concern about the solvency of the Cypriot banking system did not help either. The implication of which meant higher financing costs to the Cypriot banking system.

On the other hand, the second bail-out to Greece included the Private Sector Involvement, that is, the default on the debt held by the private sector.[272] This default severely hit the asset

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[272] See (Reserve Bank of Australia, 2012)

side of the Cypriot banking system. The exposure of Cyprus banks to Greek government default was enormous (graph 18).

Graph 18: Estimation of Greek government securities held by Financial Sector 2008 to 2013
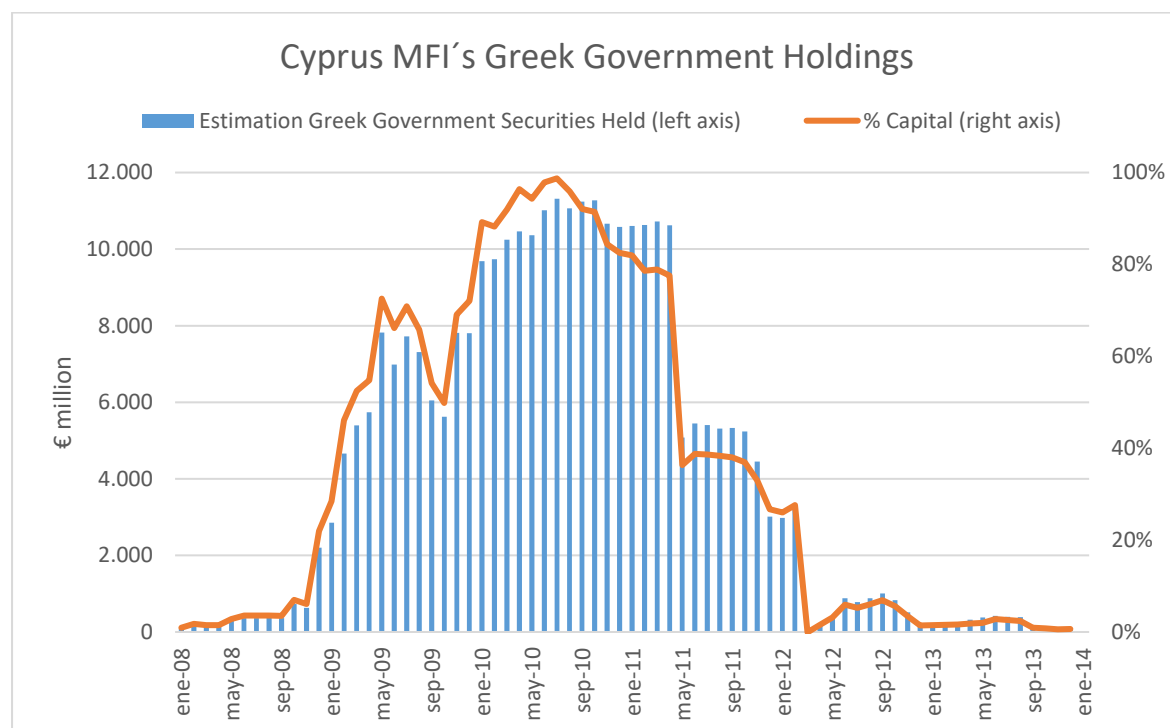
Source: ECB Statistical Data Warehouse. The estimation is based on the amount of total holdings of government securities by Monetary and Financial Institutions. The share of Cyprus government securities held by financial sector before 2008 and after 2013 is consistently around 65% of total government securities. The share of Cyprus government securities held in this period (2008-2013) is presupposed to be this 65%. The excess of holdings are supposed to be Greek Government Bonds.

The Cypriot banking sector exposure to Greek government bonds increased from almost nil in 2007 to €12 billion in July of 2011. The exposure was, at its peak, almost 100% of the capital and reserves of the financial sector[273]. The capital of the Cypriot financial sector had been shrinking due to the increasing loan impairment in the domestic housing sector. When the

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[273] According to our own calculations based on ECB data of the Cyprus Monetary and Financial Intermediaries Aggregated Balance Sheet.

final agreement on the Greek debt restructuration was released in October 2011[274], the estimated exposure of the Cypriot banking sector was €5.2 billion with an estimated loss of €3.9 billon, 27.5% of the capital and reserves on balance[275]. We remind that the exposure was trimmed down from early 2011 to around half the amount finally faced on October 2011. Since the bulk of the bonds were acquired in 2009 and during the first half of 2010 and then sold when the situation had deteriorated significantly, the final impact in the capital was much higher than the proposed figure of 27.5%.

The total exposure of the Cyprus financial sector to Greek debtors, public sector plus private sector, was €28.5 billion in September 2011. The impairment to the credit of the Greek private sector was spiking too at the time, so the impact in capital is even higher than the 27.5% figure.[276].

The massive impact of the impairment of domestic credit and Greek government bonds can be seen in the return on equity and return on assets figures. The deterioration in the domestic sector revenues can be seen in the extraordinary fall in the return on assets in 2009, a fall from 0.87% to 0.58%, a decline of more than 33% in one year. This led the financial sector to become heavily involved in the bond carry trade that completely exhausted their capital in 2012, with the return on equity reaching -100% (graph 19).

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[274] The default entailed more than 50% write-off in nominal terms and approximately 75% loss of value in present value terms.

[275] Our estimations are lower than Clerides estimations. See (Clerides S. , The Collapse of the Cypriot Banking System: A Bird´s Eye View, 2014)

[276] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012)

Graph 19: Cyprus Financial Sector RoE and RoA from 2008 to 2013
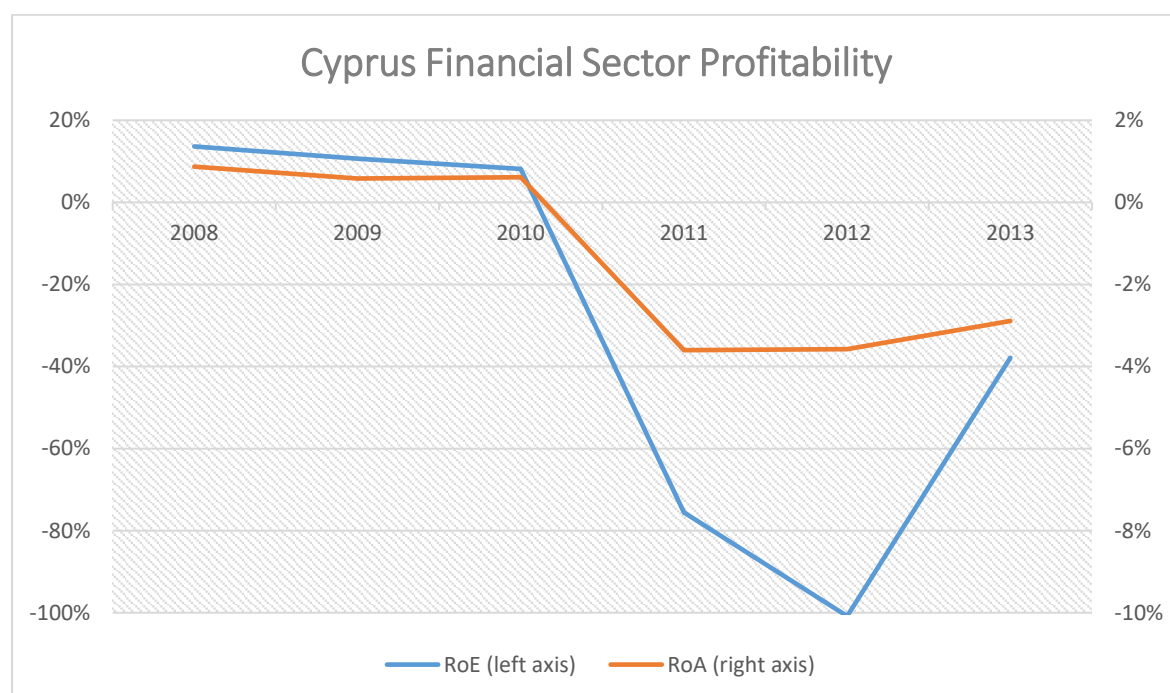
Source: ECB Statistical Data Warehouse.

3.3.2. Impairment of private credit. Busting of the domestic housing bubble and exposure to Greek private sector.

As we already pointed out, the Cypriot domestic asset portfolio was suffering from an over-exposition to different kinds of collateral lending, specifically to real estate and construction activities. When the housing bubble started to bust, non-performing loans spiked. The profitability of the banks steadily decreased during the entire period (graph 19). This loss of profitability is partially explained by the busting of the housing bubble (graph 15).

The impairment of private credit was not just a result of the housing bubble at home. The exposure to the Greek private sector was also very large. The external assets of the financial intermediaries were mainly concentrated in Greece. For the year 2013, they comprised approximately 17% of total assets[277].

Non- performing loans to customers, grew from 13% in 2010 to 42% in 2013. The figures between national and international impairment are closely linked. The only the exception was 2012 when the crisis hit Greece more heavily and therefore experienced larger losses (graph 20). The greatest non-performing sector was construction, which amounted to an astonishing 65.6% of loan impairment in 2013. That is 23% above the average impairment in the rest of the loans.[278]

Graph 20 Cyprus financial sector non-performing loans from 2010 to 2013.
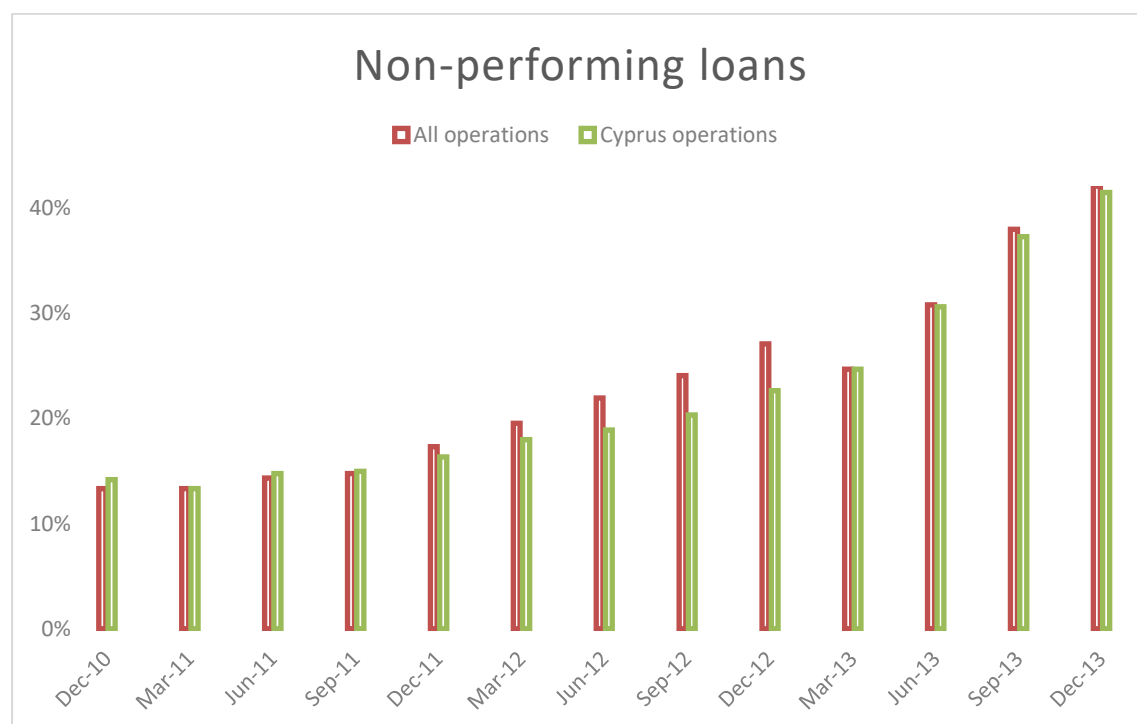
Source: Central Bank of Cyprus. The data is referred to all banks and cooperative sector. The Non-Performing loans are referred to customer credit facilities, it doesn´t include credit facilities granted to other institutions.

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[277] See (Directorate-General for Economic and Financial Affairs - European Commission, 2013)
[278] The data is obtained from Bank of Cyprus, consolidated data of banking and cooperative sector.

To put it briefly, the Cyprus financial system was failing because almost any kind of asset it owned was failing. The impairment of Greek sovereign debt could have been, just by itself, the trigger of the Cypriot crisis and the killer of the Cypriot banking sector. However, non-performing loans to Cypriot consumers and the exposure to the Greek private sector were so large that even if no credit event would have happened in Greece it could have exhausted the Cypriot banks capital.

4. Conclusion

- The interest rate ceiling before 2001 did not curtail the total amount of credit. Instead it allocated it sub-optimally. Collateral lending based on housing or construction were favored as opposed to other activities.

- The liberalization of the financial sector never happened. At best one could argue it was a partial liberalization. Some features of the Cyprus financial system were highly regulated in order to adapt to the externally imposed European Union standards.

- Pegged currencies, indirect fixing of the interest rate at a different level than the European Central Bank rate, and the abolishment of capital controls allowed and encouraged a "risk-free" carry trade that flooded the financial sector with foreign funds. The funds were channeled mostly into construction, real state and the housing sector. Consequently, bubble in domestic housing sector took place.

- The financial system was heavily involved in the European government bond carry trade since 2009. The Cyprus bond market was too small compared with the size of the Cypriot banking sector. Cypriot banks then started to involve in the Greek bond market.

- When non-performing loans on housing activities spiked, a capital shortage appeared. When Greek defaulted on its debt the financial sector's capital was exhausted. The banking system was bankrupt as a result.

Chapter 7

Greece and Cyprus after the economic and financial collapse. A comparison between Hellenic rescue packages.

1. Introduction

As we have already seen, the Cypriot crisis can be seen as another chapter in the financial default history of Greece. Having similar historical background and culture heritage, the institutions formed in Cyprus are similar to those in Greece. However, and as we are going to argue in this chapter, the crisis resolution mechanism proposed by the Troika, that is by the European Central Bank, the European Council and the International Monetary Fund, was different in the case of Greece and Cyprus case.

The Nobel laureate in economics Milton Friedman commented that economists usually complaint that experiments in economics are impossible, but Friedman himself stated that there are certain historical cases that provide us with some empirical evidence on whether an economic system or a given policy produce good economic results. The case studied by Friedman was a comparison between Hong Kong and mainland China. Both countries shared culture and traditions, but counted with different economic systems that led to different economic results[279].

As we have pointed out in the first chapter, the Cypriot case, due to historical circumstances give us a good test of the effectiveness of different types of rescue programs. Greece and Cyprus share the same traditions, language and culture. The western part of the island (that belongs to the European Union and the Euro) considers itself a Greek territory. In fact, Cyprus during the 1950s rebelled against the English rule, being its main claim the *Enosis*, that is, the union with Greece, rather than being an independent country[280]. However, independence

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[279] See (Friedman, The Real Lesson of Hong Kong, 1997).
[280] As we have seen in chapter 1.

was granted and Cyprus became a sovereign country because of political problems between Greece and Turkey[281].

2. Rescue packages in Greece

The Cypriot and Greek economies had suffered a huge impact because of the 2007/08 crisis and the subsequent Great Recession. Both countries needed to request financial aid to their European partners in order to revive their crushing economies.

However, they receive different rescue program in their terms, and, above all, their implementation differed greatly. This is where we find the possibility of carrying out a limited "experiment" in economics. What kind of rescue package works best: anti-austerity (Greece) or structural reforms (Cyprus)?[282]

2.1. Greece first rescue package commitments

The first rescue package for Greece was signed on 3 May 2010. The agreement stated that in consideration for the financial assistance received, 110 billion euros[283], Greece should meet the following criteria[284]:

1. **Close the huge public deficit in a period of three years. The public deficit had to be below 3% of GDP in 2014.**

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[281] See chapter 1 of the current work.

[282] As we are going to see in this chapter, the Greek rescue programs can hardly be called anti-austerity, however, the deficiency on its implementation and the passivity of the European Commission and the International Monetary Fund to press for an effective implementation led to actual anti-austerity measures in Greece.

[283] Out of the €110 billion, €10 billion would be used to create a bank recapitalization fund. The remaining, €100 billion, would be used to cover public sector financial needs. See (Directorate-General for Economic and Financial Affairs, 2010).

[284] See (Directorate-General for Economic and Financial Affairs, 2010)

Table 1: Greek public deficit estimations with and without first rescue package policy implementation.

	2009	**2010**	**2011**	**2012**	**2013**	**2014**
Unchanged policy baseline		-10.5%	-14.2%	-15.6%	-15.9%	-15.6%
Government balance projected within the rescue package agreement	-13.6%	-8.0%	-7.6%	-6.5%	-4.9%	-2.6%

Source: Directorate-General for Economic and Financial Affairs. European Commission.

As we are going to see below, these figures were never met. In addition, the fiscal consolidation requirement had declined. The Greek stability program of January 2010 and the Council decisions of February planned that the Greek fiscal deficit should be below 3% of GDP by 2012.

2. **The public deficit would be primarily based on expenditure cuts rather than public revenue increases.**

The expending cuts would amount 7% of GDP meanwhile the tax measures should be 4% of Greek GDP. Moreover, the tax measures excluded explicitly increase in direct taxation and relied in measures directed toward prevent tax evasion.

3. **Large cuts in public wages and public pensions.**

For 2009, 75% of the primary expenditure of the Greek government came from these components. From 2000 to 2008 the wage bill of the Greek government increased by 100%. In 2009 increased another 7.5%. Not only the public wages would be diminished, the quantity of government officials also had to be reduced.

4. Pension reform

The Greek pension system had a sustainability gap of 14.1% of GDP in 2009 meanwhile the European Union average gap was 6.5%.

The reform included measures such as increasing the retirement age that was set at 60 years. Strengthen the relation between contributions and pension benefits. Removal of incentives for early retirement.

5. Labor reform

Increase in wage flexibility and reduce labor restrictions in order to reduce undeclared work. Decentralization of wage bargaining and include an opt-out clause in the local level if wage increases was agreed at a sectorial level. Introduction of sub-minima wages for young and long term unemployed people.

6. Product market reform

Remove the excessive regulation that the public sector imposed to the private sector, reduction of red tape. Simplification of business start-up requirements and lowering licensing and administration burdens on firms.

In addition, some measures had to be directed towards the services sector with the aim of reduce the rents of vested interest groups, such as liberalize energy sector or face the large losses in railways.

7. Series of structural reforms

- Reformation of government procurement system.

- Simplify the tax system.

2.2. Greece second rescue package commitments

The second rescue package for Greece was signed on 1 March 2012, almost two years after the signature of the first rescue package. The agreement stated that in consideration for the financial assistance received, this time 130 billion euros[285], and for the Private Sector Involvement, that is, the partial default to the private holders of the Greek debt[286], Greece should meet the following criteria[287]:

1. Fiscal target revised.

Fiscal targets had been revised in order to account for worse macroeconomic developments. The inability of the Greek government to implement the measures included in the first Greek rescue program explains part of this macroeconomic situation. In addition, the international economic situation was worse than expected. As a result, the Greek imbalances are aggravated by the distressed economic situation.

The Greek government was committed to reach a surplus in the primary fiscal balance of 4.5% of GDP by 2014. The primary surplus had to be achieved also for 2013 by an amount of 1.75% of GDP. The committed 2012 figure was a deficit of 1% of GDP. The debt over GPD was expected to be at 120% of GDP by 2020.

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[285] Out of the €130 billion, €50 billion would be used to create a bank recapitalization fund. The remaining, €80 billion, would be used to cover public sector financial needs. The bank recapitalization fund increased substantially from the first rescue program mainly because of the Private Sector Involvement (i.e. Greek default) See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012) and chapter 6 of the present work.

[286] The Private Sector Involvement comprised a write-off of 53% of the nominal value of Greek bonds and 75% loss in net present value terms. The Greek debt decreased by €107 billions.

[287] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012).

Table 2: Greek primary balance second adjustment program estimations.

	2012	2013	2014
Government primary balance projected	-1.0%	1.75%	4.5%

Source: Directorate-General for Economic and Financial Affairs. European Commission.

2. Structural spending reforms

After the first rescue program, again, the focus was set on spending cuts rather than increase taxes. The spending measures had to be accounted for 5.5% of GDP. The tax compliance measures had to reach 1.5% of GDP.

Closing some inefficient government bodies and curtail public employment were creditors demands that Greek authorities committed to accomplish. In addition, the social transfers account, the account that most increased since Euro accession had to curtailed. A rationalization of defense expending was also scheduled for the period 2013-14.

3. Public sector wage bill reductions.

Public employee compensation had to be reformed and personal reductions. General government employment had to be reduced by 150.000 between 2011 and 2012. The target was to ensure that spending on public employment in Greece was at the level of the most efficient OECD countries.

4. Rationalizing social spending.

A pension reform was needed in order to limit the increase in the share of GDP used for pension payments. The projected GDP increase with the reforms was 2.5% by 2060. The projected increased with no reform was 12.5% of GDP.

The Greek government committed to bring outpatient pharmaceutical expenditures in line with the rest of Europe. In 2012 the expenditure on this account had to be reduced from 1.9% to 1% of GDP.

The Greek social spending was well above the European countries if we measured it in GDP terms. It was expected that through better design public policies expenditures could be curtailed with no impact on the most needed. One of the policies was to eliminate aid to non-poor families and reducing transfer to individuals who do not require them. Greek social spending had to be reduced by 1.5% of GDP between 2013 and 2014.

5. Tax system reform

The tax system needed to be simplified. The reform was intended to be budget-neutral, that is, the tax rates should not be raised. It was expected an improvement in tax collection through widening the fiscal base and not by an increase in taxes.

Tax exemptions and preferential regimes had to be eliminated. Capital income should be taxed more uniformly. Personal and corporate income tax schedule had to be simplified.

In the event of over-performance in tax collection, a tightening of deficit targets and a reduction in social contribution rates would happen. The intention was to maintain the relative level of tax burden through indirect taxes.

No more tax amnesties would be provided by the Greek government. The new tax code had to be fully enforced.

6. Bank recapitalization and liquidity issues.

The Private Sector Involvement, that is, the Greek default, was expected to hit harshly the Greek financial sector. A financial sector recapitalization was needed once that the Greek public sector debt restructuring took place. Banks were required to reach 9% core tier 1 capital ratio by end September 2012 and 10% in June 2013.

Out of the €130 billion financial aid provided by the European Financial Stability Facility, €50 billion was used to provide funds to the Hellenic Financial Stability Fund, that is, the bank recapitalization fund. So, the Greek banks were helped directly by the Troika.

The Bank of Greece was urged to disbursing emergency liquidity support to its own financial sector.

7. Privatization.

Ports, airports, motorways, energy, real estate, casino and vehicle industry was to be transferred or to private sector or at least exploited by the private sector in concession regime.

This measure intended to encourage foreign direct investment helping the economic recovery and long term growth. The privatization also aim to direct those resources towards more productive uses.

The privatization process was expected to last for some years. Efforts were made to avoid fire sales in the 2012´ poor underlying economic conditions. It was expected that privatizations should provide €19 billion by 2015, €24.2 billion over the 2014-22 period, and a total of €50 billion until 2030.

8. Labour reform

Rigidities in labour market impeded wages to adjust to economic conditions are labour had been pushing out of the formal sector. The government committed to reduce labour unit costs by 15% until the end of the second rescue program.

Specific measures were proposed to limit the unions´ collective bargaining power and to allow more contracts to be bargained and signed at the firm level.

Wage floors had to be revised. Minimum wage level had to be lowered by 22% at all levels. Another 10% cut in minimum wage for those under 25 years was needed to face the huge Greek youth unemployment rate. In addition, the minimum wage had to be freeze until the second rescue package ended.

Non-wage labour costs also had to be revised in order to bring Greek labour tax in line with other Eurozone countries. Social security contribution rates for employers had to be reduce by 5%.

9. Product market and services reform.

Continuing with the recommendations of the first rescue program, a reform of the product market was necessary to prevent that the fall in wages caused by the labour reform goes towards an increase in business income. Product market liberalization that promotes competence through diminishing legal entry barriers and improvement in business environment was essential to translate lower labour cost into lower prices of final products[288].

Abolition of restrictions in professional occupations such as… Speeding up licencing procedures and electronic business registration or simplifying export legislation are among the many measures that the Greek government committed to implement in the time span of the second rescue program.

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[288] That labour and product market reforms can also be translated into better quality products. Not all the adjustment has to be realized through prices.

A reform of the judicial system was also scheduled. The Greek judicial system was highly inefficient, despite having a large number of courts and judges. The judicial procedures were cumbersome and complex and affected negatively to foreign investment in Greece.

3. Implementation of rescue packages in Greece.

Since the very beginning the European Commission, the European Central Bank and the International Monetary Fund were so confident about the resolve and ability of Greek authorities to implement the rescue package agreed measures. In the first economic adjustment program for Greece the European Commission explicitly stated:

> *The Greek programme rests upon very strong foundations. The strong resolve of the authorities to implement the agreed policies, the frontloaded and fully specified fiscal consolidation package, the socially-balanced approach taken, the unprecedented amount of financing available, and the broad support of the programme by the international community are very positive elements. There is no doubt that disciplined implementation of the programme would ensure external and sovereign debt sustainability and go a long way towards restoring Greece's credibility vis-à-vis foreign investors, as well as helping the country to recover successful access to international capital markets[289].*

> *Importantly, the authorities are fully aware of the challenges, and they strongly own and support the programme policies and objectives. They realize the seriousness of the situation and the need for bold measures are needed to help Greece out of the current situation. Their resolve to restore market confidence through large, frontloaded fiscal consolidation measures is strong, as confirmed by the adoption of the consolidation*

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[289] See (Directorate-General for Economic and Financial Affairs, 2010), pp28.

package in Parliament only two days after the end of the discussions on the programme[290].

After the first Greek rescue program implementation, the initial optimism was declining. As we are going to see below, the initial failure made the European Commission more prudent with regard to the ability of the Greek authorities to confront their problems and implement austerity measures. So, in the second rescue program, the European Commission stated.

Implementation risks will remain very high. The success of the second programme depends chiefly on Greece. It crucially hinges on the full and timely implementation of fiscal consolidation and growth-enhancing structural reforms agreed under the programme… The continuation of the very comprehensive international financial assistance can only be expected if policy implementation improves. The determination of the Greek authorities to stick to the agreed policies will be tested already in the coming months… In a similar vein, generating sustained growth and employment will require stronger efforts to overcome the resistance of vested interests. The implementation of structural measures - from product and service market liberalization to business environment reforms, the fight against tax evasion and the reduction in public employment - will have to overcome bureaucratic delays, the resistance of lobbies and vested interests and break longstanding policy taboos. This requires the Government's determination, enhanced political coordination, as well as the consensus of the whole Greek Society[291].

We are going to compare the discrepancies between the measures approved in the different rescue packages and the measures taken by public authorities.

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[290] See (Directorate-General for Economic and Financial Affairs, 2010), pp28.
[291] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012), pp 4.

3.1. Implementation of Greek first rescue program

As soon as autumn 2010, only a few months after the signing of the first rescue package, the European Commission already saw clear signs of delay in the implementation of structural reforms.

> *Policy implementation has become more difficult… Slower progress reflects a combination of factors, including the electoral cycle, the resistance of vested interests, and – in a few cases – difficulties to design and activate a number of complex reforms within a short time-span[292].*

Let´s see point by point the level of compliance of the Greek authorities with the rescue program.

1. Close the huge public deficit.

As we can see in table 3, the public deficit agreed in the first Greek rescue package was constantly unfulfilled. Only in 2014 Greece was close to meeting the target.

Table 3: Greek public deficit estimations with and without first rescue package policy implementation compared with actual data.

	2009	2010	2011	2012	2013	2014
Unchanged policy baseline		-10.5%	-14.2%	-15.6%	-15.9%	-15.6%

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[292] See (Directorate-General for Economic and Financial Affairs, 2010), pp 1.

Government balance projected within the rescue package agreement	-13.6%	-8.0%	-7.6%	-6.5%	-4.9%	-2.6%
Real government balance		-11.2%	-10.3%	-8.8%	-13.2%	-3.6%
Discrepancy between projected and real government balance		-3.2%	-2.7%	-2.3%	-8.3%	-1.0%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Greece GDP.

However, the Greek depression has been much deeper than originally anticipated. So the deficit in terms of GDP might not be falling just because the fall of GDP.

Table 4: Greek Real GDP growth projections included in the first rescue package compared with actual data.

	2009	2010	2011	2012	2013	2014
Real GDP growth projected in the first rescue package	-2.0%	-4.0%	-2.6%	1.1%	2.1%	2.1%
Actual Real GDP growth	-4.3%	-5.5%	-9.1%	-7.3%	-3.2%	0.4%
Discrepancy between projected and real GDP growth		-1.5%	-6.5%	-8.4%	-5.3%	-1.7%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Greece GDP.

We could ask whether the impossibility of reaching this criterion of decline in public spending was due to a greater than expected fall in GDP or because Greek government lack of commitment to implement austerity measures. With this objective we analyze the projected public spending falls in the first rescue program with actual figures in million Euro.

Table 5: Greek public deficit estimations compared with actual data.

	2009	**2010**	**2011**	**2012**	**2013**	**2014**
Government balance projected within the rescue package agreement		-18.508	-17.065	-14.916	-11.399	-6.385
Real government balance	-35.966	-25.309	-21.280	-16.905	-23.759	-6.412
Discrepancy between projected and real government balance		-6.801	-4.215	-1.989	-12.360	-27

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in million Euro.

We can conclude that despite the large fall in Greek GDP, above initial estimates, the Greek government has not been particularly diligent in its deficit commitments. In addition, and as we are going to see below, the GDP was falling at a faster pace than estimations because greater than expected world economic slowdown. However, part of the blame is to fall into the Greek government because delays or lack of structural reforms implementation.

So the Greek government was not able to accomplish this point.

2. **Closure of the public deficit through spending cuts avoiding tax increases.**

Greek government spending cuts in GDP terms were clearly insufficient to meet the rescue program criterion. We have already seen that even in absolute terms, the Greek government spending cuts were well behind the agreed amounts in the first rescue program guidelines.

In 2012, when the second rescue package arrived, the European Commission stated that every attempt to reach the deficit criterion was accompanied with tax increases despite that this was not what the original rescue program envisaged.

In early 2012, the Government adopted a new package of fiscal measures. These measures (1.5 percent of GDP) are all on the expenditure side of the budget. It is the first time since May 2010 that a re-calibration of the fiscal strategy was not accompanied by an increase in taxes, although the programme had envisaged, from the start, a strongly expenditure-based consolidation path. If fully implemented, the new package should allow meeting the 2012 primary deficit target[293].

Tax evasion far from being removed was even increased in the first rescue program period.

Despite some progress, the implementation of those reforms has been slow and results are not yet satisfactory. Tax and social security evasion may have actually increased in 2011, against the backdrop of negative economic growth and increased liquidity constraints of taxpayers[294].

If we analyze the evolution of the most important taxes in Greece we see as a general rule that all of them have increased since 2009. The exception is the corporate tax that fell temporarily until 2012 to finally be placed at a much higher level than the initial one.

Table 6: Greek tax rates from 2009 to 2015

|	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Personal Income Tax Rate	40%	49%	49%	49%	46%	46%	48%
Corporate Tax Rate	25%	24%	20%	20%	26%	26%	29%
Sales Tax Rate	19%	23%	23%	23%	23%	23%	23%
Total Tax Rate for Business	47.7%	47.4%	47.2%	46.4%	44.6%	44%	49.9%

Source: Doing business. Trading economics.

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[293] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012)
[294] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012), pp 34.

If we analyze the doing business indicator "paying taxes" we can see how the tax burden for businesses was even increasing until 2012.

Graph 1: Greek "paying taxes" subindex in Doing Business Report from 2009 to 2015

"Paying Taxes" Index Rank for Greece
Doing Business Report

Grece clasificaton. 1=best 182=worst
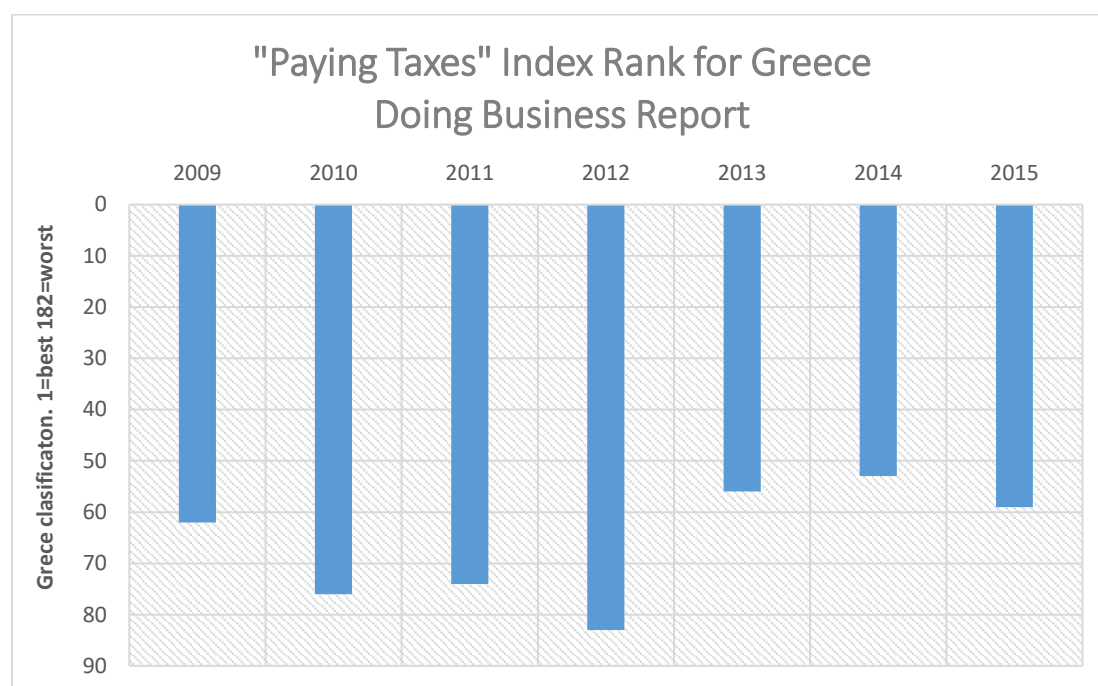
Source: Doing Business reports from 2009 to 2015.

So, the Greek authorities were not able to accomplish this point. The spending cuts were insufficient; the taxes were raised and the tax evasion was increasing.

3. Large cuts in public wages and public pensions.

The Greek government expected to decrease public wages mainly through diminishing the number of government officials. However, it seemed that lack of central coordination between different levels of government prevented the actual reduction in government officials´ work force.

The reduction in public employment has been slower than programmed, as the higher-than expected number of exits in 2011 was overcompensated by a higher-than-expected inflow. This trend appears to be related to the lack of effective centralised coordination of public sector employment decisions and the weak implementation of agreed measures aiming to reduce employment[295].

Spending on government officials has declined slightly in terms of GDP. However, this expenditure on public officials was very high compared with past years. In 2009 Greek government spending on government officials was more than 2% of GDP higher than the Eurozone figure. The payment of Greek officials increased almost 100% between 2001 and 2009, from 10.4% of GDP to 13.1% of Greek GDP.

In current Euros, the expending had diminished steadily. Despite efforts made, spending on government officials in 2012 was similar to that of 2007.

Table 7: Greek government expenditure on government oficcials from 2009 to 2014

Government expending on government officials	2009	2010	2011	2012	2013	2014
% GDP Euro Area 19	10.9%	10.7%	10.5%	10.4%	10.4%	10.3%
% GDP Greece	13.1%	12.4%	12.6%	12.8%	12.2%	12.3%
Greek government public servant expenditures (€million)	31.060	28.066	26.102	24.498	22.059	21.948

Source: Eurostat.

The expenditure on pensions never decreased since 2009 in GDP terms and it increased substantially as percentage of total government expending. In current Euros, pensions started to decrease in 2013, after the second rescue program was launched. However, the drop in

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[295] See (Directorate-General for Economic and Financial Affairs, European Commmssion, 2012), pp 36.

spending was insufficient. The fall in pension expenditures is less than the reduction agreed in the first rescue program.

Table 8: Greek government expenditure on public pensions from 2009 to 2014

Government expending on pensions	2009	2010	2011	2012	2013	2014
% GDP Euro Area 19	10.4%	10.4%	10.5%	10.7%	10.9%	10.9%
% GDP Greece	13.0%	13.5%	14.7%	15.7%	14.7%	15.3%
% Total General Expenditure Euro Area 19	20.5%	20.7%	21.3%	21.6%	21.9%	22.1%
% Total General Expenditure Greece	24%	25.7%	27.2%	28.5%	24.2%	30.7%
Greek government pension expenditures (€million)	30.786	30.515	30.502	30.094	26.560	27.237

Source: Eurostat.

The Greek government was able to accomplish this point partially at best. The spending cuts on pensions never happened in the first rescue program period. The spending cut on government employee´s salaries was partially achieved. The expenditures on government officials was diminished in current Euros but not in GDP terms.

4. Pension reform

Pension reforms have been inadequate although some progress has been made.

The 2010 reform simplified the highly fragmented pension system; enhanced transparency and fairness, postponed the retirement age and decreased the generosity of benefits. The new universally binding rules on entitlements, contributions, accumulation rules and indexation of pension rights apply to the main pension funds[296].

A number of adjustments are still necessary to complete the pension reform. The reform of the main pension schemes at the beginning of the adjustment programme has substantially improved the dynamics of public pension expenditure. However, the supplementary pension schemes (including welfare lump-sum schemes) remained unreformed… the existing setup appeared to give rise to persistent inter- and intra-generational differences, and as such is not socially equitable[297].

However, the inability of the Greek government to reduce pension expenditure is a sign that it has not been able to make a substantial reform in the pension system. The Greek pension system continued off track in 2012 when the first rescue package ended.

5. **Labor reform**

The labor reform is perhaps the agreed point where the Greek authorities have been more diligent. The decentralization of collective bargaining has diminished the importance of traditional labor unions and has allowed wage negotiation to take place at the firm level. This has helped to promote wage flexibility. The minimum wages have been reduced by 22%, the figure reaches 32% for those younger than 25.

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[296] See (Directorate-General for Economic and Financial Affairs, 2011), pp 36.
[297] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012), pp 37.

In 2011, a number of measures were adopted to allow for a greater role of firm level negotiations in the wage bargaining process There was action on three main inter-related fronts: first, not extending occupational and sector collective agreements to non-signatory firms; second, ensuring that firm-level agreements prevail over occupational and sector agreements by suspending the so-called favourability clause; and, third, allowing firm-level agreements to be negotiated by workers' associations (in addition to trade unions), with a view to increasing the number of firms that can conclude those type of contracts[298].

The labour cost index indicates a large internal deflation due to fall in wages since 2010. The Greek labour cost per worker had fallen by more than 20% from 2010 to 2015. In the same time span, labour costs in the euro area had increased by almost 10%. This indicates a gain in competitiveness that could be exploited together with a liberalization reform of the product market. Unfortunately, that reform, as we are going to see in the next subsection, would not happen until much later. The labour market reform seemed to be at work very early.

Table 9: Greek and Eurozone 19 change in labour cost per worker from 2009 to 2014

Labour cost per worker	2009	2010	2011	2012	2013	2014
% Change over previous period Eurozone	2.7%	1.8%	2.7%	2.5%	1.2%	1.3%
% Change over previous period Greece	7.5%	-0.6%	-5.6%	-5.5%	-6.5%	-0.7%

Source: Eurostat.

The achievement is even greater if we take in account that this is not the same as devaluating the currency. The labour cost per worker did not fall in all the industries at the same time. Economic sectors that have suffered the greatest impact from the economic bubble or who

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[298] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012), pp 37.

have less demand see their prices and wages fall more than other sectors. This is one of the main reasons that explains that gaining competitiveness through devaluation or through internal deflation has very different economic results. In this case, the Euro is allowing the Greek economy to reshape it´s production structure in accordance with the real demand of consumers[299].

**Table 10: Greek fall in wage by type of activity from 2010 to 2015.**

Type of activity (Greece)	Change in labour cost from 2010 to 2015
Water supply; sewerage, waste management and remediation activities	-40.6%
Accommodation and food service activities	-39.9%
Construction	-28.5%
Financial and insurance activities	-26.2%
Electricity, gas, steam and air conditioning supply	-17.4%
Industry (except construction)	-17.3%
Administrative and support service activities	-16.9%
Manufacturing	-14.2%
Education	-13.3%
Arts, entertainment and recreation	-10.4%
Mining and quarrying	-5.7%

Source: Eurostat.

As we can see in graph 2, the Greek minimum wage has fallen since 2012. However, the ratio minimum wage / median wage was very close to one. This indicates that the minimum wage is very high compared to the Greek productivity. This ratio is even found since 2014 above 1.

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[299] See (Huerta de Soto, 2012).

Graph 2: Greek minimum wage and median wage from 2003 to 2015.

MINIMUM WAGE AND MEDIAN WAGE IN GREECE
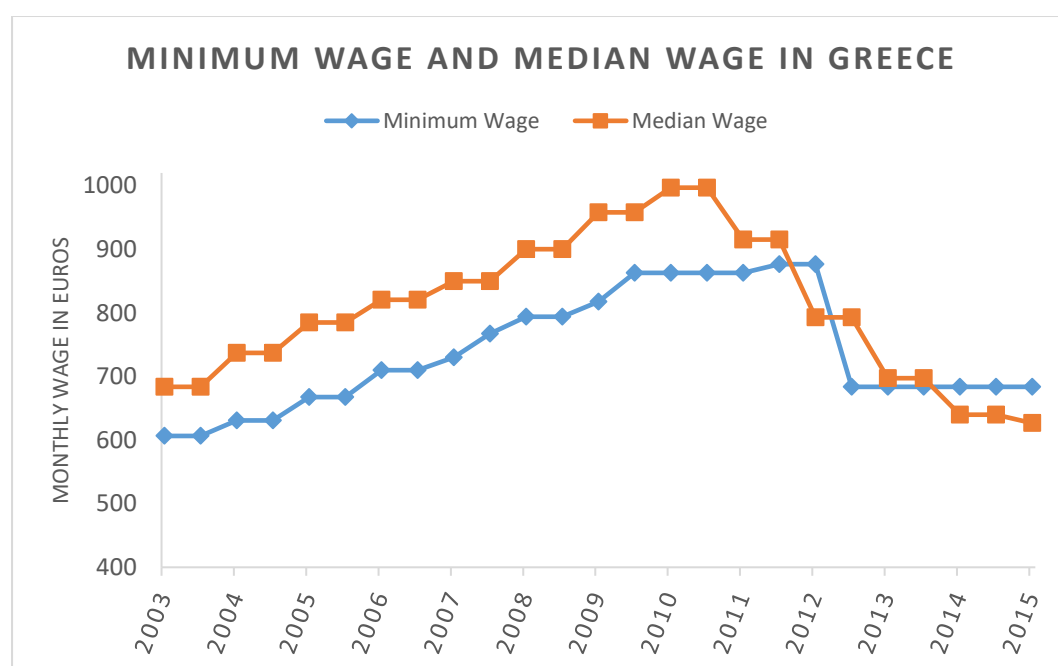
Source: Eurostat.

The minimum wage grew well above worker productivity from 2001 to 2012. The large increase in the minimum wage, above the labour productivity increase, made the Greek labour market very unstable.

Table 11: Greek change in labour productivity and change in minimum wage from 2001 to 2012

Greek labour productivity and minimum wage	2001-2012	2001-2007	2007-2012
% Annual change labour productivity per worker	1.2%	3.2%	1.2%
% Annual change minimum wage	4.8%	5.8%	3.9%

Source: Eurostat; OECD Stat.

The minimum wage, as we have seen, has been set at a very high level taking into account the productivity level of Greek labour. Because the labour reform was successful, many wages had been quickly falling to levels similar to those of the minimum wage. Despite the fall of the minimum wage by more than 20% in 2012, the level of overvaluation of the minimum wage became almost the same in 2013 due to the large fall in wages.

Table 12: Greek wage ratios from 2009 to 2014

Market wage and minimum wage	2009	2010	2011	2012 Jan.	2012 July	2013
Minimum wage / median wage	85.4%	86.5%	94.3%	110.6%	86.3%	98%
Minimum wage / average wage	72.7%	74.1%	82.0%	98.5%	76.9%	88.2%

Source: Eurostat.

The fall in the youth minimum wage to a greater extent than the general minimum wage has also helped to make the incidence of youth unemployment comparatively lower than the pre-crisis situation[300]. It does not mean that youth unemployment is not a problem in Greece. What it means is that the greater labor flexibility for workers under 25 has led to greater job creation in this age range. It helped to ease the dramatic situation of young Greek workers.

Graph 3: Greek youth to general unemployment ratio from 2011 to 2016.

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[300] As we already stated, the fall of the general minimum wage was 22%, meanwhile the youth minimum wage fall was 32%.

Youth/general unemployment ratio
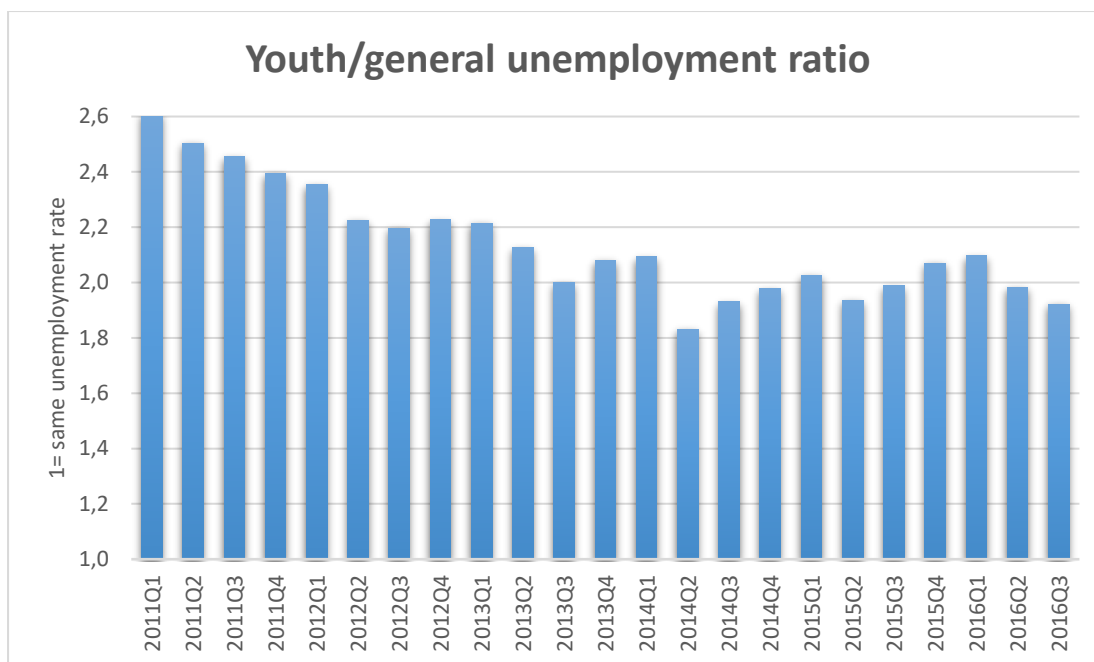
Source: Eurostat. A ratio equal to 1 means that the general unemployment rate matches the youth unemployment rate. A ratio of 2 means that the youth unemployment rate doubles the general unemployment rate.

The Greek government was able to accomplish this point in the first rescue package time span. This is probably the only timely fulfillment of the many commitments made by the Greek government in the first rescue package agreement.

6. Product market reform

The reform of the product market is essential to be carried out at the same time as the reform of the labor market. If this does not happen, it is quite possible that the fall in labor costs will not be transformed into productivity increases, but that the incomes of existing entrepreneurs will increase. Vested interest groups are holding back the introduction of these reforms in Greece. No substantial reform was made during the period of the first rescue package.

The publication of the 'business-friendly Greece' (BFG) action plan continues to accumulate delays. The action plan could serve as a communication tool on the Government's efforts to improve the ease of doing business in Greece. In the meantime, a draft omnibus law has been tabled in Parliament covering several of the actions that the BFG is expected to address, such as the provisions on the new form of limited liability company, the simplification of the regulatory framework on exports, as well as the streamlining of archaic publication requirements of company data in newspapers[301].

We can see the doing business indexes regarding easiness to create new business and easiness to export in Greece had hardly made any progress during these years. It is not until 2013 and 2014 that any progress had been made. This shows that there has been no progress in product market reform during the first rescue program.

Graph 4: Greek "Start a new business" and "Trading across borders" rankings in Doing Business Report from 2009 to 2015
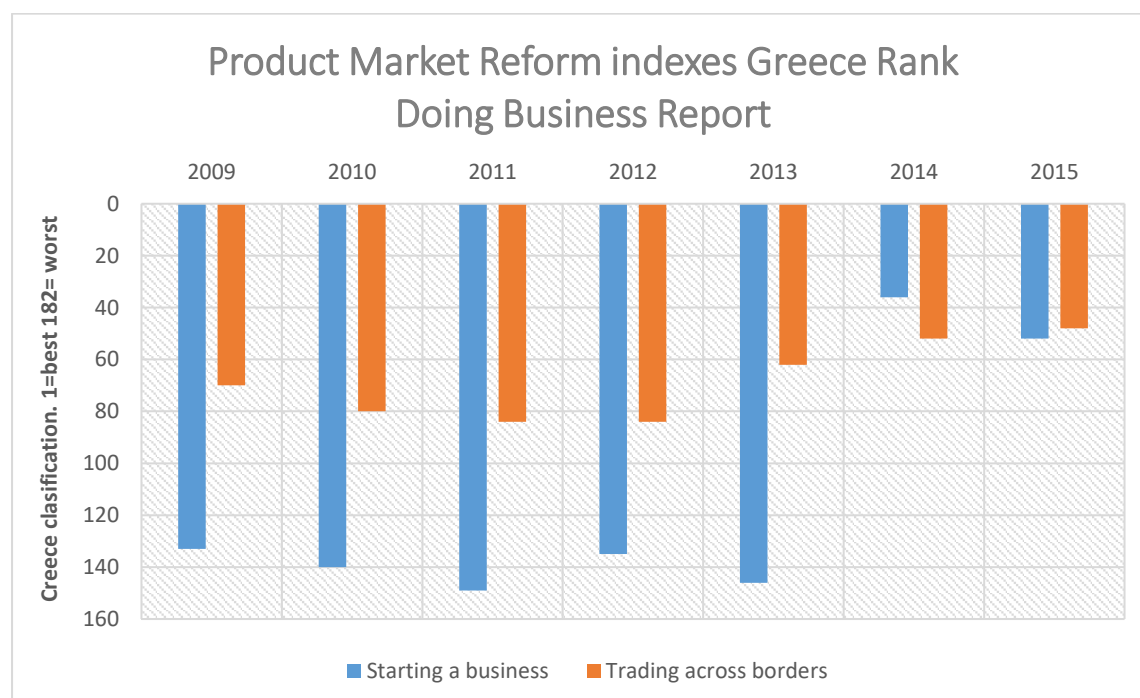
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[301] See (Directorate-General for Economic and Financial Affairs, European Commssion, 2012) pp 42-43.

Starting a business in Greece was incredibly expensive in 2009. The red tape was a heavy burden for new entrepreneurs. A long period of time was needed until the new business could start operating in the market. The cost of setting up a new business was even increased in the period of the first rescue program even though the Greek government was committed to facilitating the creation of businesses. It is not until 2014 that the cost of creating a new business fell dramatically and the time and documents needed to create a new business were diminishing.

Table 13: Greek easiness to start a new business from 2009 to 2015.

Start a new business in Greece	2009	2010	2011	2012	2013	2014	2015
Number of procedures	15	15	15	10	11	5	5
Days needed	19	19	19	10	11	14	13
Cost (% income per capita)	10.2%	10.9%	20.7%	20.1%	20.5%	4.6%	2.2%
Minimum capital (% income per capita)	19.6%	21.4%	22.3%	22.8%	24.4%	0%	0%

In the same way, the openness to foreign trade practically did not move until 2013. Since then, both the time needed to import or export as well as the cost of doing so have diminished.

Table 14: Greek easiness for foreign trade from 2009 to 2015.

Easiness for foreign trade in Greece	2009	2010	2011	2012	2013	2014	2015

Time to export (days)	20	20	20	20	19	16	15
Cost to export (US$ per container)	1153	1153	1153	1153	1115	1040	1040
Time to import (days)	25	25	25	25	15	15	14
Cost to import (US$ per container)	1265	1265	1265	1265	1135	1135	1135

Source: Doing Business reports from 2009 to 2015.

The Greek government was not able to accomplish this point in the first rescue program period. The product market reform was not carried out during the first rescue program time span.

7. **Series of structural reforms**

- Reformation of government procurement system.
- Simplify the tax system.

The reformation of the Greek government procurement system was planned to be made through a new administrative central body for the coordination of public procurement policy named Single Public Procurement Authority (SPPA). By the time of the second rescue package, the European Commission bitterly complaint that Greek public authorities were deliberately delaying the implementation of this administrative body.

The government has delayed the issuing three key ministerial decisions that are necessary for the authority to enter into force; these ministerial decisions provide for the appointment of the members of the board of the SPPA, for the implementing regulation of the authority, as well as for the establishment of positions and organization of human resources in the SPPA. In parallel, following the signature of the

contract for an e-procurement platform, the first module on e-auctioning should be operational in March 2012[302].

The simplification of the tax system did not happen during the period of the first rescue program.

The tax reform has been delayed. The tax reform, whose adoption by Parliament was initially planned for September 2011 and then postponed to March 2012, is now expected to be enacted by end-June 2012[303].

The number of payments as well as the hours needed to pay taxes did not decrease in Greece until 2013.

Table 15: Greek easiness of paying taxes from 2009 to 2015.

Easiness of paying taxes in Greece	2009	2010	2011	2012	2013	2014	2015
Number of payments	10	10	10	10	8	8	8
Hours needed for paying taxes	224	224	224	224	202	193	193

Source: Doing Business reports from 2009 to 2015.

The Greek authorities were not able to accomplish this point. The government procurement system and tax reforms were not achieved during the first rescue program package.

8. **Result of the first rescue program implementation.**

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[302] See (Directorate-General for Economic and Financial Affairs, European Commmssion, 2012), pp 36.
[303] See (Directorate-General for Economic and Financial Affairs, European Commmssion, 2012), pp 34.

Only one of the 7 commitments acquired in the first Greek bailout was actually fulfilled in time, namely the labor market reform. Another commitment was only partially accomplished, in particular some cuts in civil servant wages. The other five commitments were not fulfilled at all in time and some of them have not yet been met.

3.2. Implementation of Greece second rescue program

1. Fiscal target revised.

The Greek government again failed to meet the primary deficit target proposed in the second rescue program. The discrepancies were really serious in 2013, with a deviation of more than 11% of GDP between estimates and actual data. However, in 2014, a primary fiscal surplus was achieved for the first time since the crisis broke out. The surplus achieved in 2014 was much lower than that projected in the second rescue program, but it was sufficient for Greece to be able to re-finance itself in international markets.

Table 16: Greek primary balance second adjustment program estimations and actual primary balance from 2012 to 2015.

	2012	**2013**	**2014**	**2015[304]**
Government primary balance projected	-1.0%	1.8%	4.5%	3.0%
Government primary balance actual	-3.7%	-9.2%	0.4%	-3.9%
Discrepancy between projected and actual government primary balance	-2.7%	-11.0%	-4.1%	-6.9%

Source: Directorate-General for Economic and Financial Affairs. European Commission.

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[304] In the original rescue agreement, there was no provision for the primary fiscal deficit in 2015. Subsequently, in the face of continued non-compliance, a primary fiscal deficit ceiling of 3% of GDP is added for 2015. See (Directorate-General for Economic and Financial Affairs, 2014).

Greece was expected to return to international debt markets in 2015. However, once the first primary fiscal surplus was achieved in 2014, the Greek government was able to return to international capital markets. In April 2014, after four years of financial isolation, the Greek government issued new bonds with maturity of 5 years.

The Greek financial sector was also able to return to international markets. Two large banks issued corporate bonds and new equity in March 2014 satisfactorily. It was the first time this happened since 2009.

However, after the efforts made in 2014, the Greek government showed again a primary fiscal deficit with a deviation of almost 7% from the target set in the second rescue program.

The Greek authorities were not able to accomplish this point. The Greek government was expected to achieve a sustainable primary fiscal surplus and only was able to accomplish the task in 2014.

2. Structural spending reforms

The focus set on spending cuts was accomplish for the year 2014 only. The spending measures had to be accounted for 5.5% of GDP, figure missed in 2013 and 2015.

The year 2014 was the first one in which the Greek authorities made a great effort to bring back the government expenditures to a sustainable level. So we can see that in GDP terms, 2014 was the first year in which a sizable cut in government expenditures took place. Unfortunately, the Greek government in 2015 increased again public spending and therefore failed to meet the commitments agreed upon in the rescue programs.

Graph 5: Greek government expenditures over GDP from 2006 to 2015.

Greek government expenditures/GDP
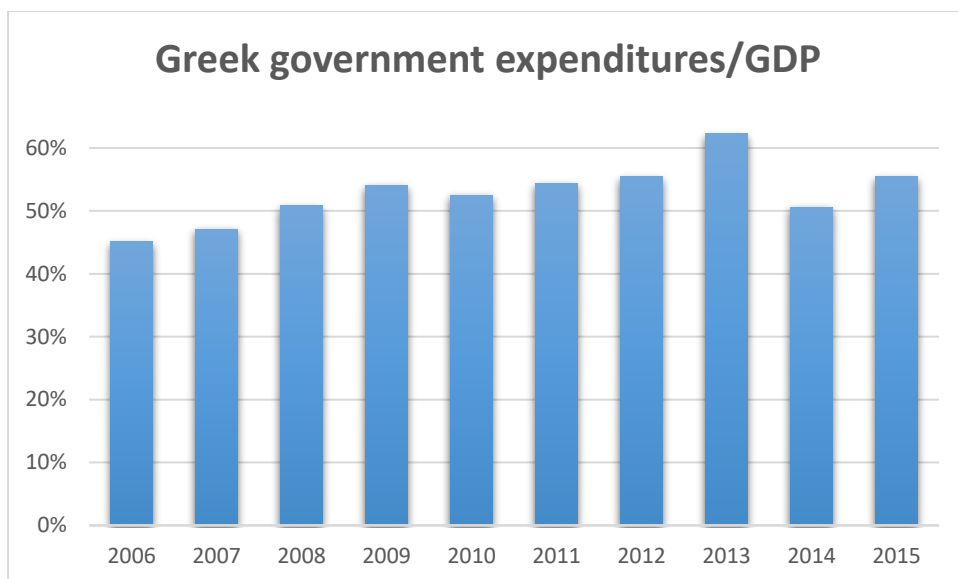
Source: Eurostat.

The expenditure ceilings and reforms in the elaboration of the Greek state budget had also not been adequately carried out during the period of the second rescue program.

…improvements in the area of budget preparation are still needed and should be a priority for 2014. These reforms now allow provision of timely and accurate budgetary information, assure strict compliance with the ceilings of the entity's budget, and ensure the management and optimal utilisation of each entity's resources[305].

The Greek authorities were not able to diminish in GDP terms the defense expenditures. In 2011 the defense expenditures amounted 2.4% of GDP, in 2015, at the end of the program it amounted 2.7% of GDP.

Graph 6: Greek government and Euro area defence expenditures as a share of GDP from 2011 to 2015.

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[305] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 3.

Greek and Euro area defence expenditures
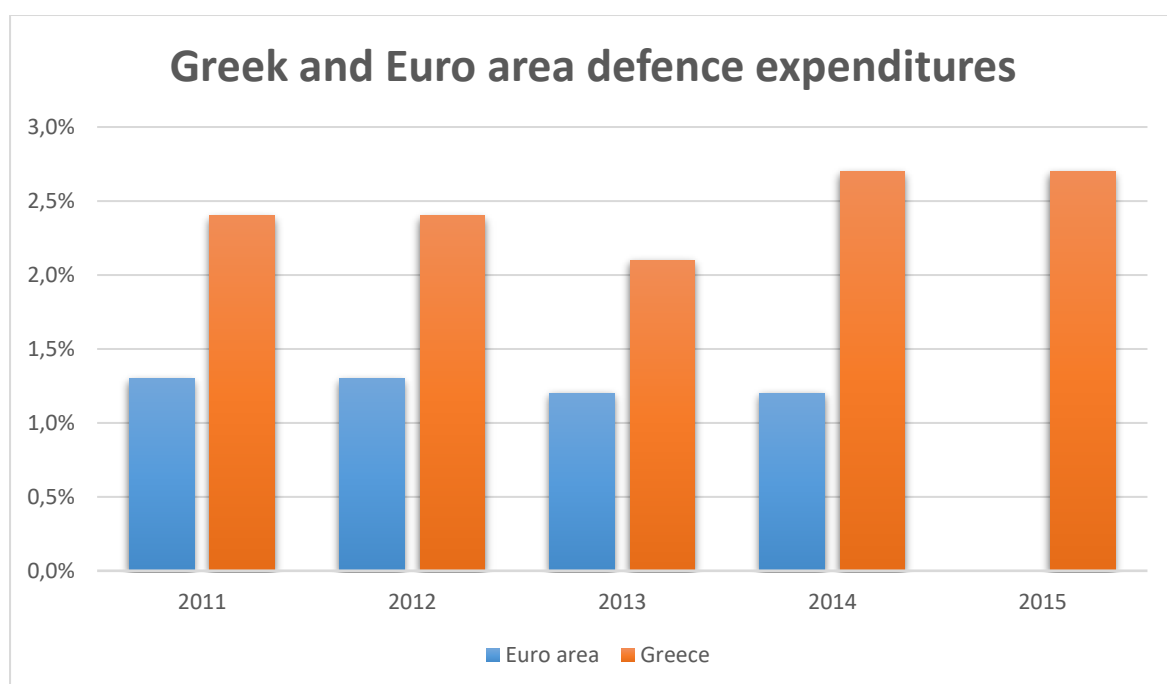
Source: Eurostat.

The Greek authorities were not able to accomplish this point. Public expenditures were back on track only in 2014, improvements in the area of budget preparation are still needed and defense expenditures have not been curtailed.

3. Public sector wage bill reductions.

It seems that the Greek public sector has made a great effort to reduce the number of government officials. According to the European Commission the reduction have been more than 20% from 2010 to 2014.

The crucial reforms of the Greek public sector, notably the rationalisation and modernisation of the public administration, progress further. The strong reduction of

public administration staff is proceeding ahead of plans (over 20% since 2010 for employees of the General Government)[306].

Indeed, the number of Greek government officials has been significantly reduced since the outbreak of the crisis in 2008/09. In 2009 the number of Greek government officials was 900,000 while in 2013 the number was reduced to less than 700,000. Despite this, the percentage of employment in the public sector as total employment has remained stable. In 2009 public employment meant 21.1% of total employment, in 2013 the figure was 21.3%. This is mainly due to the fact that the destruction of employment in the private sector has occurred at the same rate as the destruction of employment in the public sector[307].

Graph 7: Greek employment in public sector from 2009 to 2013.
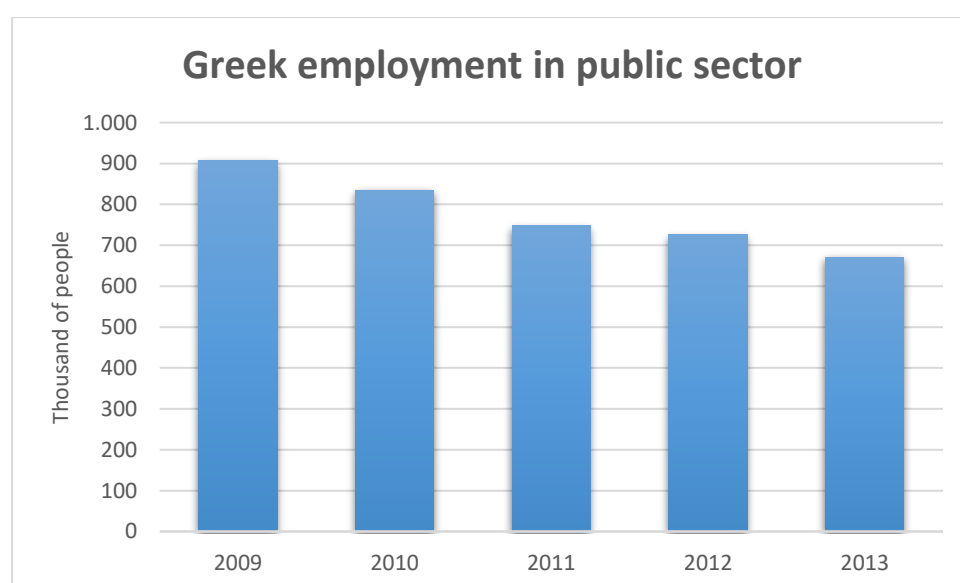
Source: European Commission.

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[306] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 3.
[307] See (OECD, 2015).

As we have seen in the analysis of the previous rescue program, the Greek authorities have made a great effort to reduce spending on government officials, however in terms of GDP the figure has remained almost constant.

Table 17: Greek government expenditure on government officials from 2009 to 2014

Government expending on government officials	2009	2010	2011	2012	2013	2014	2015
% GDP Euro Area 19	10.9%	10.7%	10.5%	10.4%	10.4%	10.3%	
% GDP Greece	13.1%	12.4%	12.6%	12.8%	12.2%	12.3%	12.3%
Greek government public servant expenditures (€million)	31.060	28.066	26.102	24.498	22.059	21.948	21.649

Source: Eurostat.

Spending on government officials in 2012 was similar to the expenditure of the year 2007. The compensation to government officials in 2015, after several reductions since 2009, was similar to the 2004 figure.

The Greek authorities were able to accomplish this point partially. The spending cut on government employee´s salaries was partially achieved. The expenditures on government officials was diminished in current Euros but not in GDP terms.

4. Rationalizing social spending.

It does not seem that the Greek authorities succeeded in making the pension system more sustainable during the period of the second rescue program. By the end of 2014 the system remained unsustainable according to the European Commission.

…important challenges remain. While major steps have been taken to stabilise the system and make it sustainable, there is a clear need for further rationalisation of the social security system. The main pension system remains highly fragmented, relying on increasing financing from state transfer, while pension rules differ greatly across different categories of population[308].

Moreover, if we take a look again at table 8, we can see how pension expenditure actually increases in GDP terms, from 14.7% to 15.3% of GDP. In absolute terms the pension expenditure in 2014 was well above pre-crisis levels, being 18.7% above the 2006 figure and 9% above 2007 expenditure.

Graph 8: Greek government pension expenditure in € millions from 2006 to 2014.

Source: Eurostat.

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[308] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 4.

As far as pharmaceutical spending is concerned, and despite a projection of almost 50% expenditures reduction that is not yet achieved, pharmaceutical costs have been reduced from €3.9 billion to €2.5 billion.

Regarding the pharmaceutical sector, the implementation of established policies continues… However, EOPYY and EOF (National Organisation for Medicines) capacity must be reinforced to ensure that pricing and reimbursement is timely and effective in delivering a cost-effective use of pharmaceuticals and securing the necessary savings[309].

In healthcare, pharmaceutical reforms reduced public spending on pharmaceuticals from EUR 3.9 billion in 2010 to about EUR 2.5 billion in 2013[310].

Greek social expenditures were well above the European average in GDP terms, so the aim was to go back to the European average. As we already pointed out, Greek social spending had to be reduced by 1.5% of GDP between 2013 and 2014.

Graph 9: Greek government social expenditures in % of GDP from 1991 to 2016.

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[309] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 4.
[310] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 10.

GREECE VS OCDE COUNTRIES SOCIAL EXPENDITURES
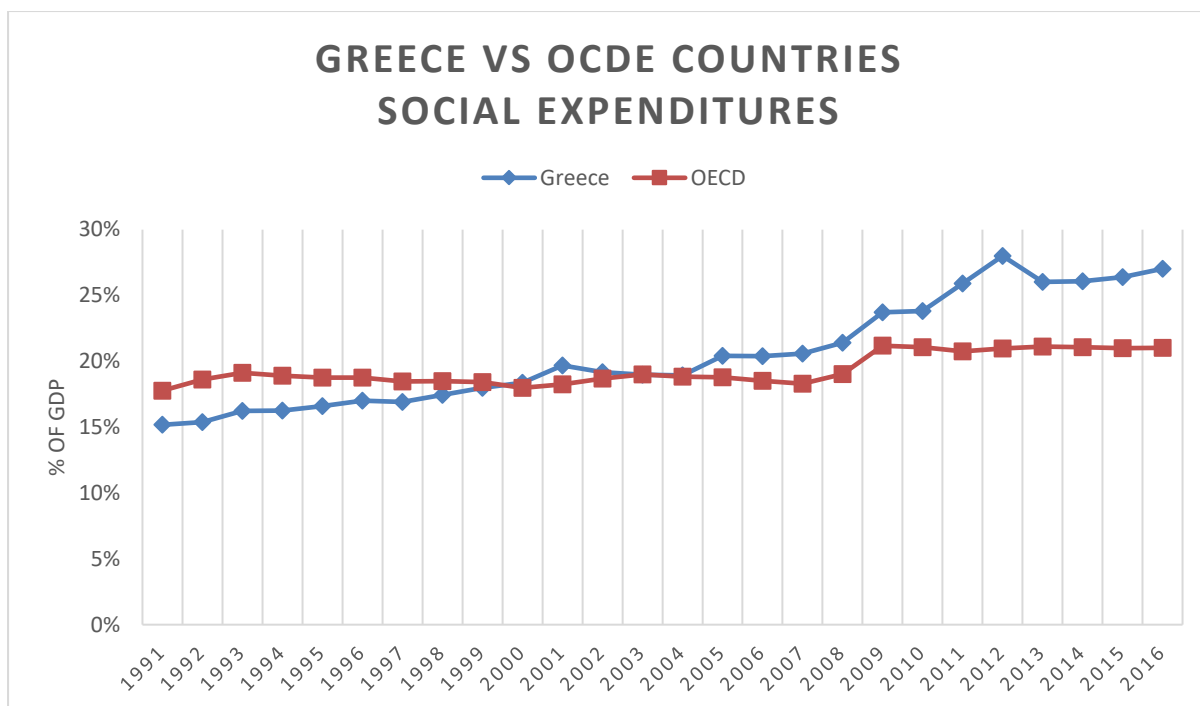
Source: OCDE.

Greek social spending as a % of GDP was 25.9%, meanwhile the 2014 figure was 26.1% and worsened in 2015 and 2016. So we can say that Greek government social expenditures are still off track.

The Greek authorities were not able to accomplish this point. After the second rescue program the pension system was still unsustainable and the social spending did not diminish as planned. Only the pharmaceutical sector showed some advances.

5. Tax system reform.

As we have stated in the section dedicated to the reform of the tax system in the first rescue program, the index of the Doing Business report regarding the payment of taxes did not begin to improve until 2013. It is in the period of the second rescue program when the reform of the tax system started to produce some effects.

Key reforms include the Income Tax and Tax Procedures Codes that have broadened the tax base and modernised the rules of tax administration. The new unified Property Tax has replaced both the PPC tax and the FAP wealth tax and allowed a substantial reduction in transaction taxes… Important progress has also been made with the reform of the revenue administration, after the long delays up to the end of 2012. A semi-autonomous revenue administration has now been created with all competences on tax and custom issues… A programme is now being implemented to address other remaining weaknesses in the system, reinforce tax collection, and support the fight against tax evasion and corruption… Tax collection has been consolidated in the largest offices and cash payments replaced by transfers and checks[311].

Despite the recent positive development in Greek tax administration, the decision to raise some taxes, as opposed to the agreements taken in the rescue programs, has led to an increase in non-compliance. Thus we see how the VAT C efficiency, that is, the VAT compliance, drops drastically when the amount of the tax increases.

Graph 10: Greek VAT C Efficiency, VAT tax rate and VAT collection as % of GDP from 2000 to 2013.

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[311] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 2-3.
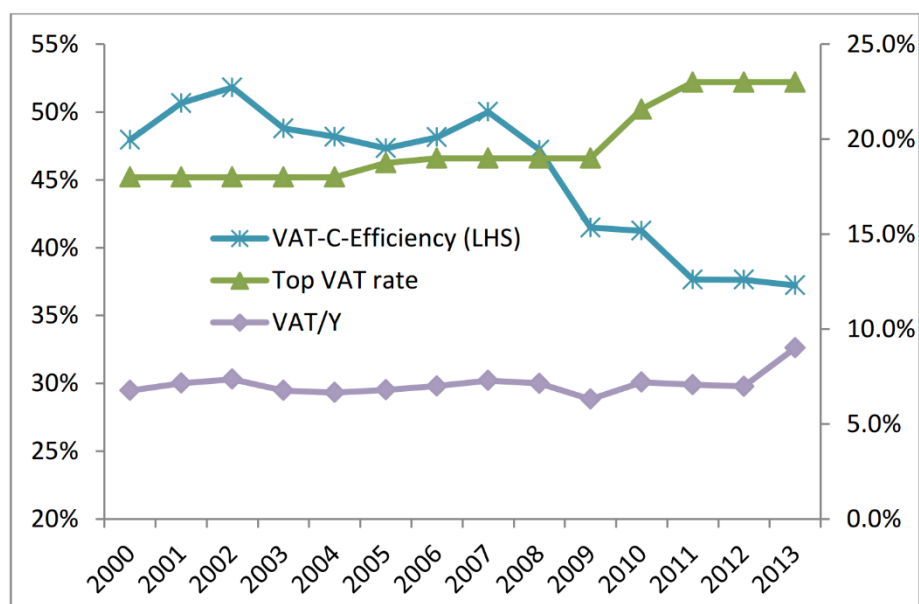
Notes: Top VAT rate is standard VAT rate; VAT/Y is VAT collections as a % of GDP. We define VAT –C-Efficiency as the share of VAT revenues in the private consumption, normalized by the standard tax rate: VAT revenue efficiency ratio = (VAT revenue/private consumption)/standard tax rate*100.

Source: The determinants of VAT revenue efficiency: recent evidence from Greece[312].

After VAT increase, Greece is ranked as one of the countries with the lowest compliance on the payment of this tax. Only Spain and Italy, two countries that have also increased VAT during the Great Recession, are placed behind Greece. In the case of Spain, the VAT increase has been higher than in Greece and the fall in compliance has also been higher.

Graph 11: VAT C Efficiency across Europe 2012.

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[312] See (Tagkalakis, 2014).

VAT C Efficiency Ratio 2012
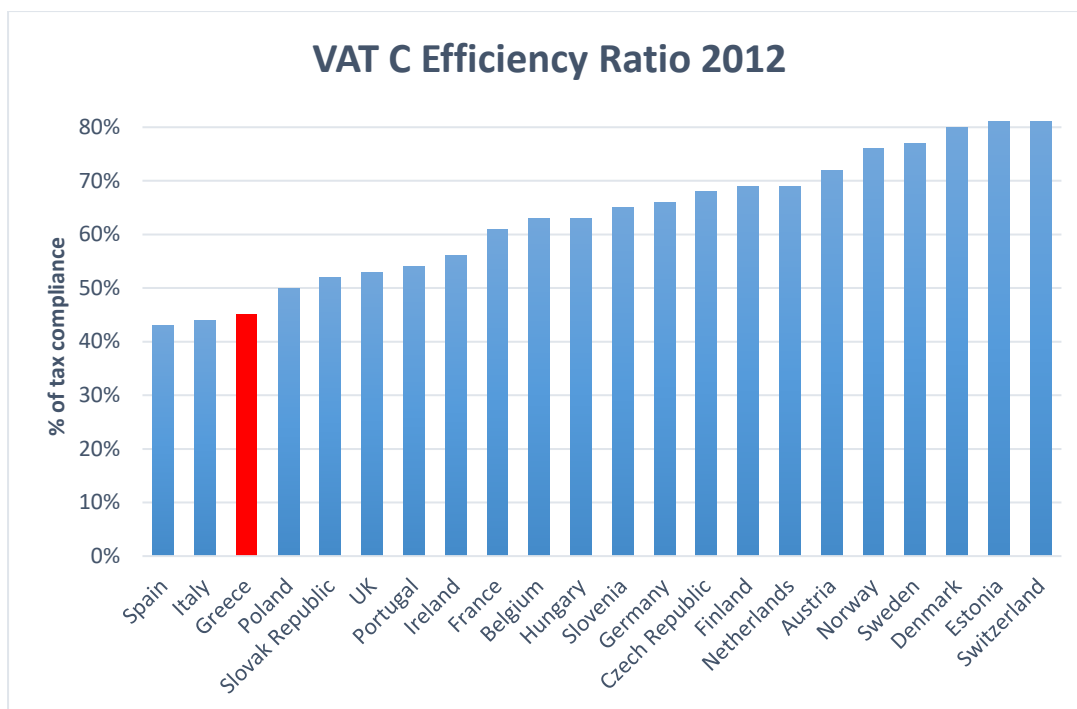
Source: VAT efficiency in the countries worldwide[313].

In fact, the European Commission showed some concern about the measures took to increase tax compliance in Greece.

> *Efforts must also be made to increase compliance, and this goes through a more determined fight against tax evasion and increased efforts on audit. But this cannot bring fast increase of public revenue. Efforts to tackle tax evasion need to be stepped up. The implementation of indirect audit methods is delayed until May 2014[314].*

The Greek authorities were able to accomplish this point despite some inefficiencies in tax compliance. The inefficiencies were caused because of the failure in accomplish other agreed measures such as avoid tax increases.

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[313] See (Sokolovska & Sokolovskyi, 2015).
[314] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 33.

6. Bank recapitalization and liquidity issues.

Despite bank recapitalization by injecting funds from the EFSF, Greek banks continued to suffer from capital shortage issues due to problems with nonperforming loans.

However, thanks to the improvement of the economic situation in Greece, in 2014 two large Greek banks were able to raise capital for €2.95 billion. In addition, one large bank issued a three-year senior debt amounting to €500 million. The demand for the senior debt was €3 billion, i.e. the offering was 6 times oversubscribed.

…there are some upside risks to the capital needs estimates, in particular, if the authorities and banks do not urgently and efficiently address the high level of nonperforming loans. Swift recapitalisation of banks is needed to strengthen their balance sheets. The ongoing injection of fresh private capital into the Greek banks is a sign of confidence, and will help to strengthen the private management of Greek banks[315].

The easiest task to be accomplished had been to get good capital levels for Greek banking. As we have already mentioned, of the 130 billion of the second bailout, 50 billion have been earmarked to recapitalize Greek banking. The problem is that increases in non-performing loans are rapidly decreasing banking profitability ratios. The non-performing loans are causing falls in bank capital ratios. At the end of 2015, on the occasion of the third rescue to Greece, the banking capital increases again. The big question that remains is whether bank capital ratios can be sustained at high levels without further bailouts.

Graph 12: Greek Banking Sector Tier 1 Capital Ratio from 2012Q4 to 2015Q4.

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[315] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 5.
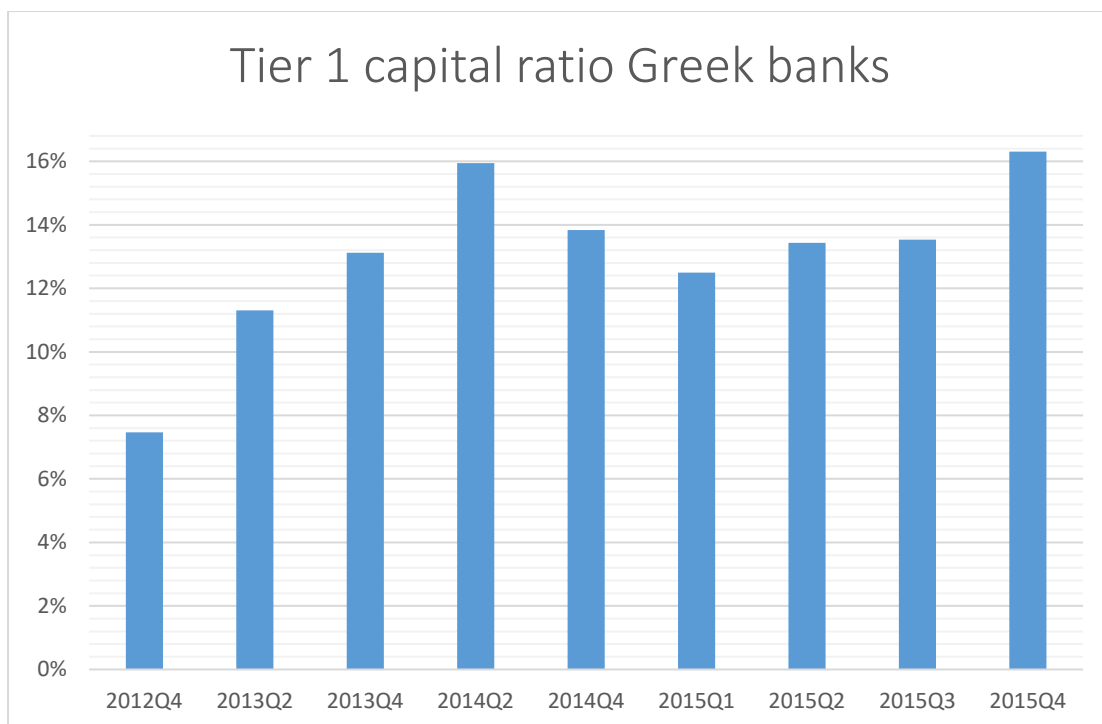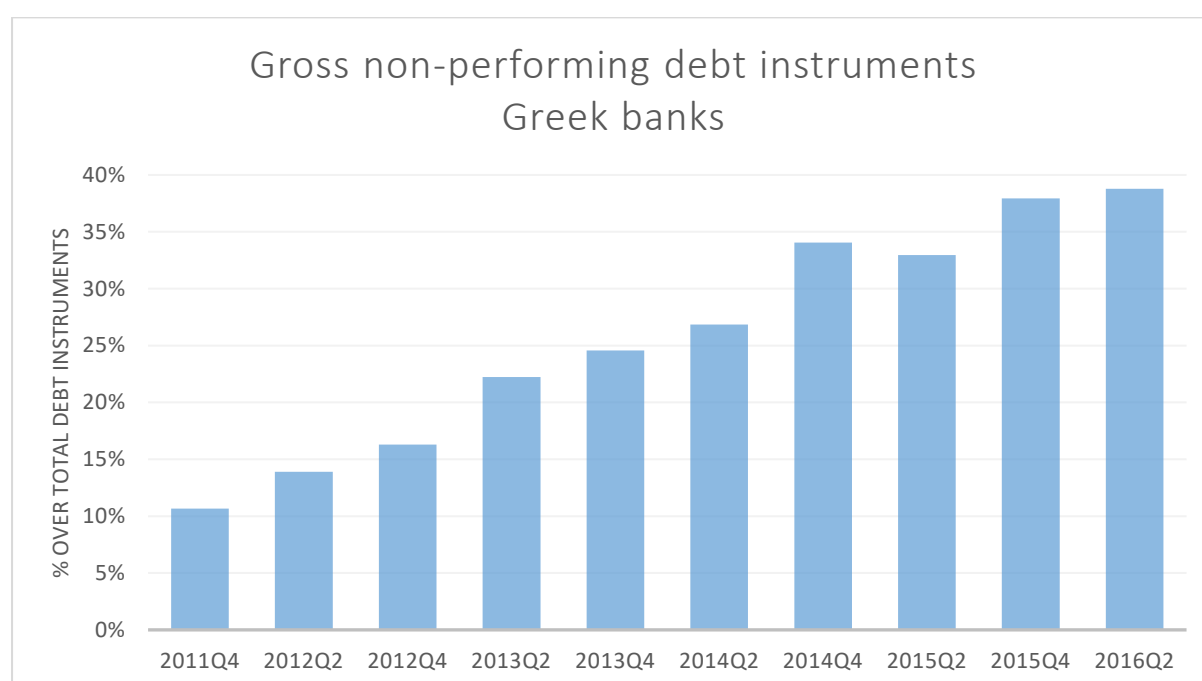
Source: European Central Bank.

Graph 13: Eurozone Banking Sector Tier 1 Capital Ratio from 2012Q4 to 2015Q4.
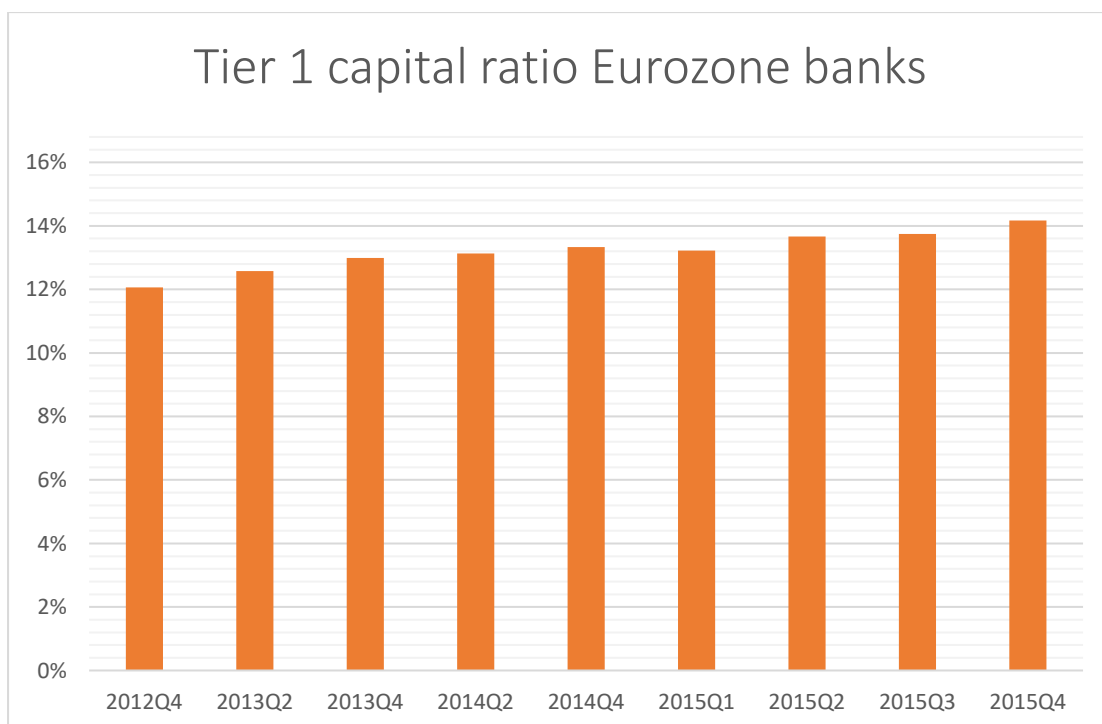
Source: European Central Bank.

We can see how effectively the capital increase is much more stable in the Eurozone banks than in Greek banks. This is due to two reasons. On the one hand we have recapitalizations through bail-out that cause a sudden increase in bank capitalization. On the other hand, we have the continuous increase in nonperforming loans that lead to declines in profitability and losses that reduce bank capital.

Graph 14: Greek non-performing debt instruments from 2011Q4 to 2016Q2.

Source: European Central Bank.

The impact of delinquent loans on the banks' income statement has been so great that in 2015 virtually all of the Greek banks were suffering losses and showed a return on equity below zero[316].

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[316] Although the amount of non-performing loans is one of the major causes of the underperformance of Greek banks, it is probably not the only cause that explains the phenomena. The harsh negotiations between the European and Greek authorities on the occasion of the third rescue program in 2015 have also caused great damage to bank profits. The Greek financial isolation and banking panic suffered in 2015 led the economy to a new recession and left the banking sector on the brink of bankruptcy.

**Graph 15: Greece % banking assets of institutions with ROE < 0% from 2008 to 2015.**
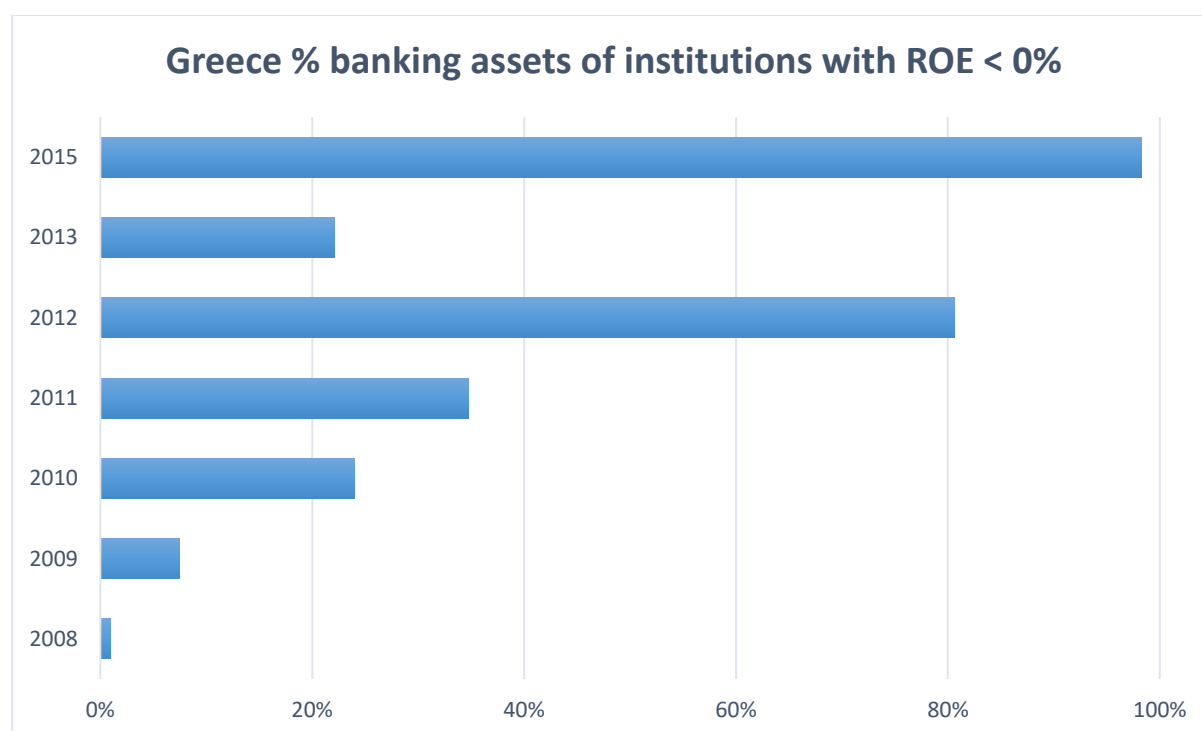
Source: European Central Bank.

The liquidity needs of Greek banks declined gradually from the moment the second bailout is granted to the banking run of 2015. The Greek financial system dependence on the ECB emergency lending facilities declined from more than €130 billion in 2012 to less than €70 billion in early 2014. It seems that confidence in the Greek financial sector was beginning to recover in 2014 and other economic agents were willing to accept their liabilities.

At the end of 2014 the dependence of the Greek financial system on the support of the European Central Bank reached its lowest point since the beginning of 2010, when the Greek crisis started. Confidence was broken again at the beginning of 2015 when a financial panic took over Greece because of the increasing risk of leaving the Eurozone.

Graph 16: Share of central bank funding Greek in credit institutions liabilities from 2010 to 2016.

Share of central bank funding in Greek credit institutions liabilities
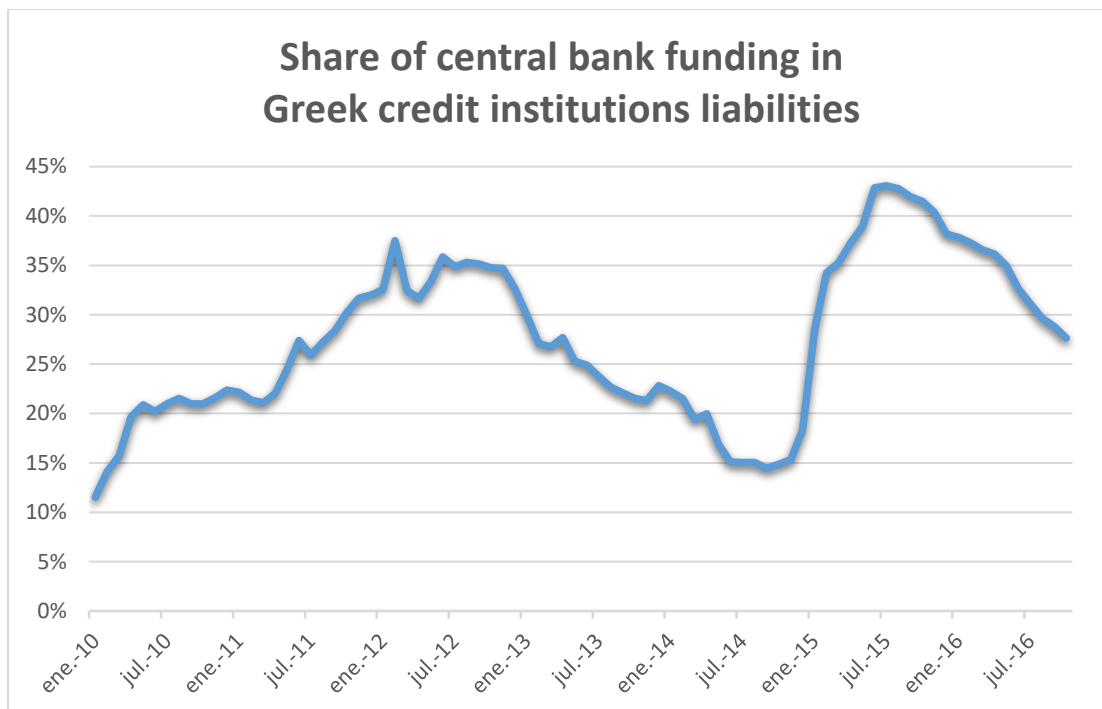
Source: European Central Bank.

The Greek authorities were not able to fully accomplish this point. Two reasons explain why. The first one is the increase in delinquent loans that affect banks profitability and decrease the capital of the banking sector. The second one is the new turn in Greek economic policy since early 2015. The events ended in a new banking crisis and a new distrust towards the Greek financial sector.

7. Privatization

The privatizations foreseen in the second rescue program were delayed. Some of the privatizations have not been carried out due to the expectation that rigid labour relations typical of civil servant structures would be transferred in conjunction with business assets.

Privatisation proceeds continue to come in, but again with some delays... some have been delayed in order to allow proper regulation of markets before privatisation (gas, ports).

Concerning real estate, despite the large number of assets available, current weak demand and immaturity of assets make it difficult to extract much value from real estate in the short term, which has resulted in some adjustment in the projections[317].

The regulatory problems, overall time for selling assets, lack of transparency of the privatization process were among the problems that impeded the scheduled privatizations. Those problems were also behind the need to revise the expected privatization proceeds from €24.2 billion to €22.3 billion by 2020.

…targets remain under review, mindful of both upside (from heightened investor interest) and downside (from continuing significant hurdles to privatization) risks. Improved governance and transparency of the privatisation process are essential to build confidence among the general public that the privatisation process will maximise value for the tax payer. Additional steps are needed to expedite approvals from the Court of Auditors, Council of State, and the Competition Committee to reduce the overall time for the sale of assets[318].

By 2015 the International Monetary Fund was claiming about the pace of privatizations in Greece. The IMF also raised concern about not just the ability, but also about the Greek government desire of advancing towards agreed privatization measures.

...the authorities have provided only vague commitments and have stated their opposition to further privatization of key assets… very poor performance to date of cumulative privatization proceeds[319].

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[317] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 3.
[318] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 27.
[319] See (International Monetary Fund, 2015), pp. 4.

In fact, privatizations have advanced at a much slower pace than foreseen in the rescue programs. Between 2010 and 2015 the Greek authorities have managed to carry out privatizations for a much lower amount than those agreed in the second rescue program and in the reviews of the first rescue program. With projections of the second rescue program, the privatizations carried out up to 2015 are between 16% and 34% of those originally planned. With data from the review of the first rescue program, the privatizations carried out until 2015 are between 6% and 13% of those originally planned.

Graph 17: Greek privatization proceeds actual data and projections from 2010 to 2015.
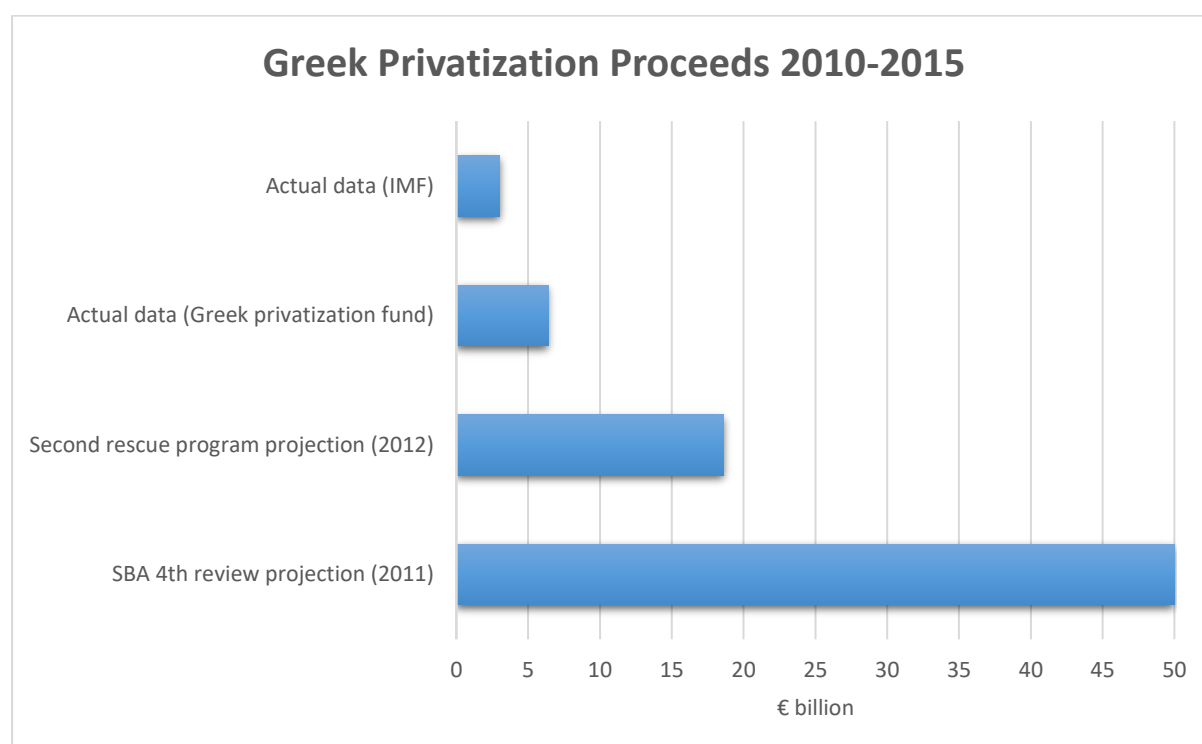
Source: IMF Debt Sustainability Analysis. IMF Greece Fifth Review Under the Stand-By-Arrangement. Hellenic Republic Asset Development Fund.

If we take a look at the projections year by year we see how privatizations in Greece have always gone well below the forecasts of the international organizations and the agreements signed by the Hellenic country.

Graph 18: Greek privatization proceeds actual data and projections by year from 2011 to 2015.

Source: IMF Debt Sustainability Analysis. IMF Greece Fifth Review Under the Stand-By-Arrangement. Hellenic Republic Asset Development Fund.

The Greek authorities were not able to accomplish this point. Privatizations have been always well behind the scheduled plan.

8. **Labour reform**

We have already seen that the labor reform is the only economic measure actually met by the Greek authorities among all the measures proposed in the first rescue program. During the second rescue program the labor flexibility measures followed its progress.

The comprehensive range of labour market reforms adopted over recent years is delivering clear results. Labour costs have been falling steeply on the back of augmented wage flexibility, leading to a significant recovery of the cost competitiveness lost in the earlier decade. At the same time, the diversity of work arrangements now available creates more room for adjustment to the changes in activity and has likely avoided even higher job destruction. In the course of 2013, hiring became more dynamic, despite shrinking economic activity[320].

The ambitious labour market reforms already implemented, such as wider use of decentralised wage bargaining, a lower minimum wage, and reductions in other non-wage labour costs, have allowed Greece to realign wages and to recover almost all of the competitiveness it lost over the last decade, in terms of unit labour costs: by 2014, Greece is projected to have broadly regained its 1995 labour cost competitiveness position relative to the Euro area[321].

Labor flexibilization measures have worked so well that since 2013, in the midst of an economic crisis, employment indicators took a positive turn. The labor market has even continued to create jobs in the recession of 2016. In the light of the data, it seems that Greece has managed to have a flexible labor market in which the remuneration of employees is linked to their productivity, so negative economic shocks does not necessarily imply an adjustment in employment.

Graph 19: Greek economic growth and unemployment from 2012Q1 to 2016Q3.

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[320] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 47.
[321] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 10.

Greek economic growth and unemployment

Greek Increase in GDP (lf axis) — Decrease in unployment Q/Q (rx axis)
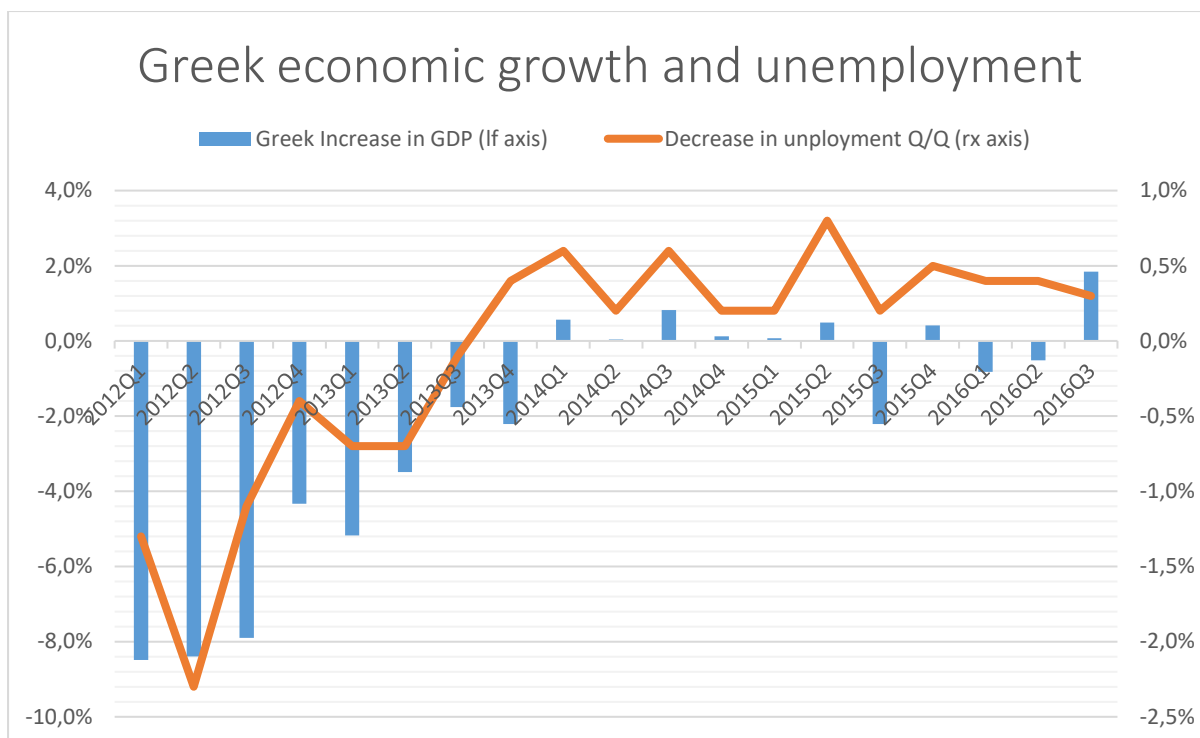
Source: Eurostat.

We can see in graph 19 how the growth in employment precedes economic growth when usually the relation is the inverse[322]. Greek economic growth has suffered a new setback since the third quarter of 2015, however the reduction of unemployment has continued.

The Greek authorities were able to accomplish this point. Labor market reforms have made it possible, despite economic fluctuations, that the Greek economy generates employment on a sustained basis.

9. Product and service market reform.

Some of the reforms, such as elimination of restrictions on competition or diminishing the red tape were having some effect on competitiveness indicators, despite those improvements, Greece is still among the countries with the highest bureaucratic burden of OECD members.

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[322] See (Basnett & Sen, 2013).

While reforms already implemented under the programme have allowed significant progress in this area in recent years, Greece is still among the OECD countries with relatively strict product market regulations… the authorities are taking significant steps to remove restrictions to competition in many areas of the economy, and action is on-going to reduce administrative burden. Since July 2013, the authorities have, among others, lowered the property transfers tax, eased licensing procedures for retail outlets, introduced simplified procedures in pilot customs offices and expanded e-customs functions, and reduced the minimum duration of commercial rental contracts[323].

Efforts to modernise product markets and improve the business environment are starting to bear fruit. The 2013 update of the OECD indicators of Product Market Regulation show that Greece made the largest improvement over the last five years, although it continues to be among the OECD countries with relatively strict product market regulations[324].

With OECD data, we can see how the Greek government was improving timidly its position among the OECD members by 2013.

Graph 20: Product market regulation index for OECD countries in 2008.

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[323] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 5.
[324] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 10.

Product market regulation index 2008 OECD
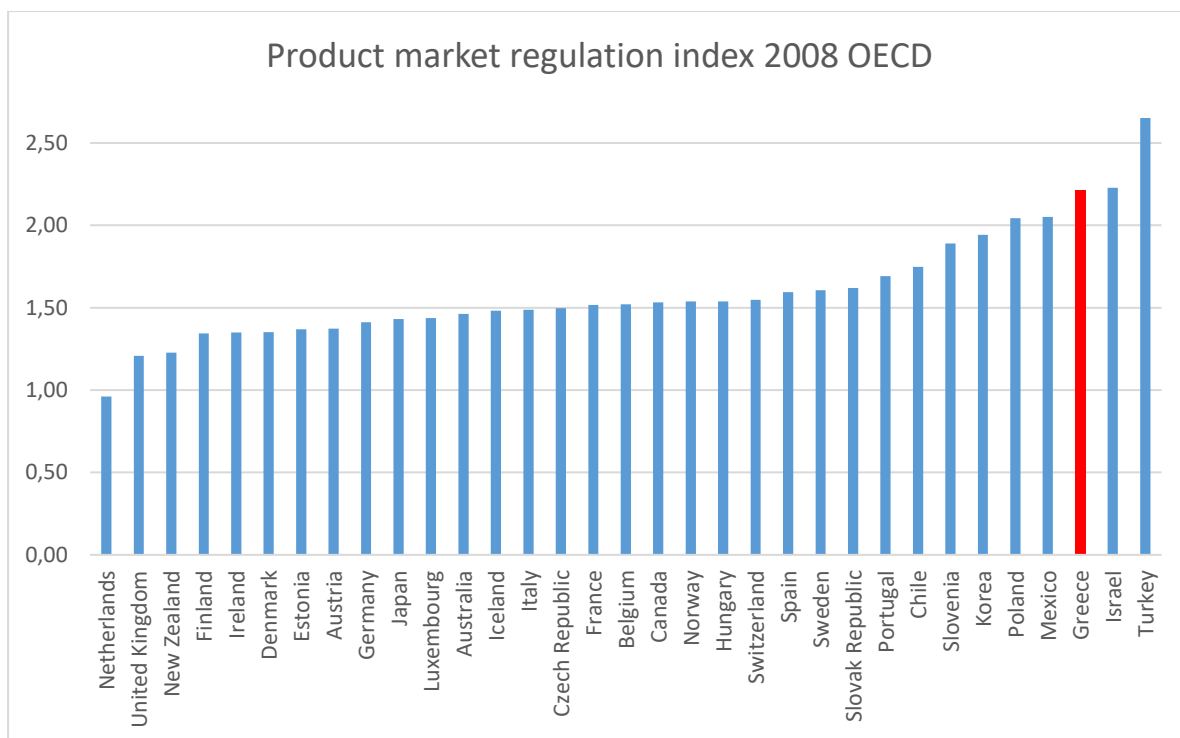
Source: OECD. Latvia and United States are not included because lack of data.

Graph 21: Product market regulation index for OECD countries in 2008.

Product market regulation index 2013 OEDC
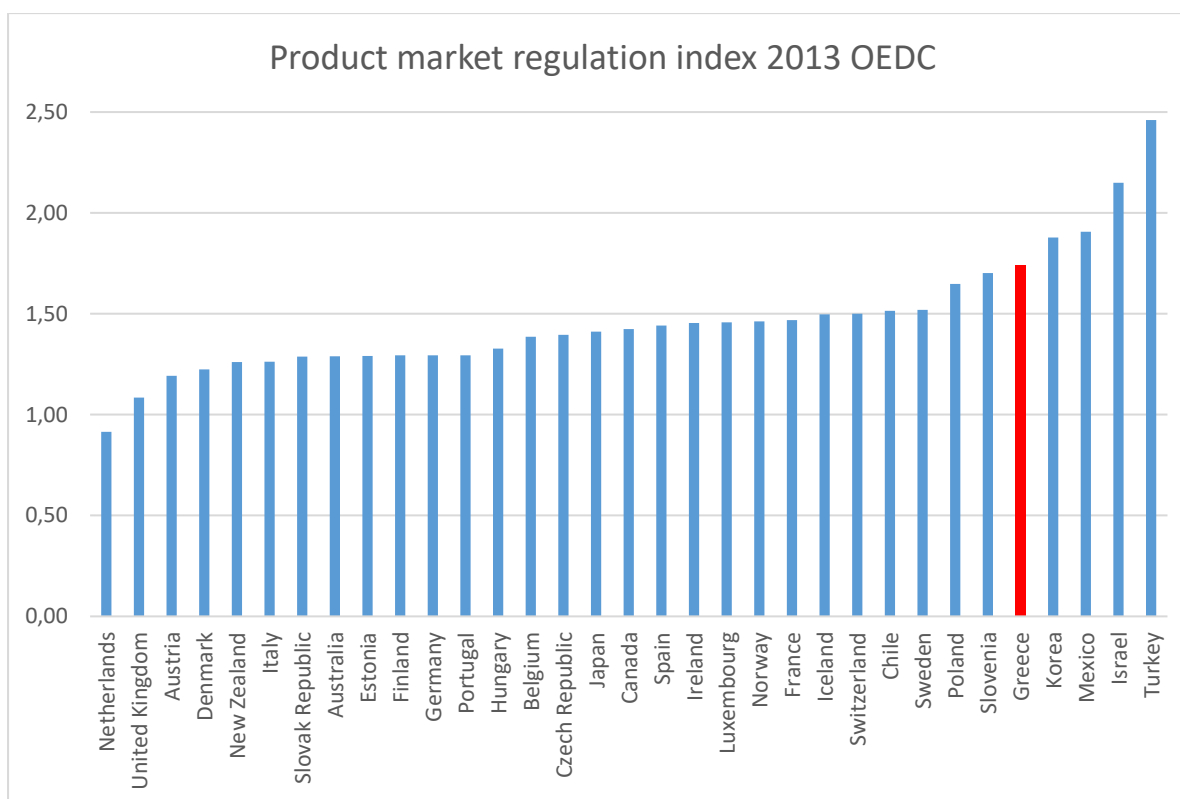
Source: OECD. Latvia and United States are not included because lack of data.

Greece moved from position 31 out of 33 countries in 2008 to position 29 in 2013 as far as product market regulation is concerned. However, the index showed a significant improvement, from 2.21 to 1.74.

With World Bank data, we have already seen in the indicators of Doing Business in Graph 4 and Tables 13 and 14 that Greece was unable to carry out product and service market reforms at the time of the first rescue program. However, the Doing Business indicators started to improved substantially since 2013. This means that the liberalization of these markets began to happen in 2013, so the Greek government was moving toward the agreed measures in this regard.

Barriers to competition have been removed in the sectors of building material, food processing, retail trade and tourism. With support of the OECD and the Hellenic Competition Commission, the Government uncovered over 300 provisions harmful to competition in these sectors[325].

Unfortunately, reform in the judicial system was being carried out at a slower pace. This reform was accumulating important delays. Greece had an expensive and inefficient judicial system that prevents the rapid resolution of conflicts.

A comprehensive reform to improve the functioning of the judicial system and reduce the burden on businesses and citizens is taking place, but backlogs are hefty[326].

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[325] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 53.
[326] See (Directorate-General for Economic and Financial Affairs, 2014), pp. 6.

If we look at the Doing Business indicators we can see how the Greek judicial system is getting worse.

Graph 22: Greek "Enforcing contracts" and "Resolving insolvency" rankings in Doing Business Report from 2009 to 2015.
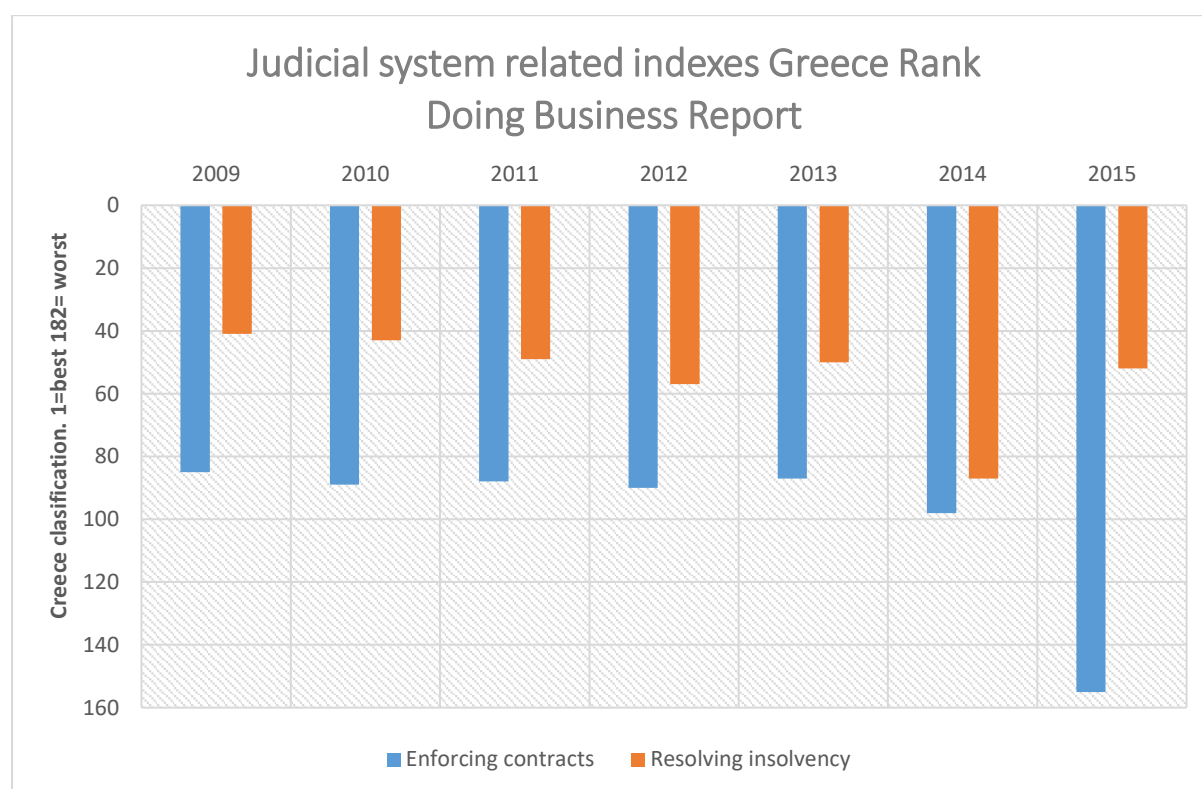

Source: Doing Business reports from 2009 to 2015.

The main cause behind the deterioration in judicial system indicators is that slow procedures increases the accumulation of cases to be addressed. That means that the waiting time for resolving conflicts has increased substantially. In the case of enforcing contracts, the waiting time has gone from 819 days in 2013 to 1300 in 2014 and 1580 days in 2015. In the case of insolvency resolution, waiting time went from 2 years in 2013 to 3.5 years in 2014.

The requested reform that promote abolition of the many restrictions on professional occupations was not under way by 2013. Greece continued to be one of the OECD countries with more regulations for professional services in 2013.

Graph 23: OECD regulatory barriers in professional services index in 2008.
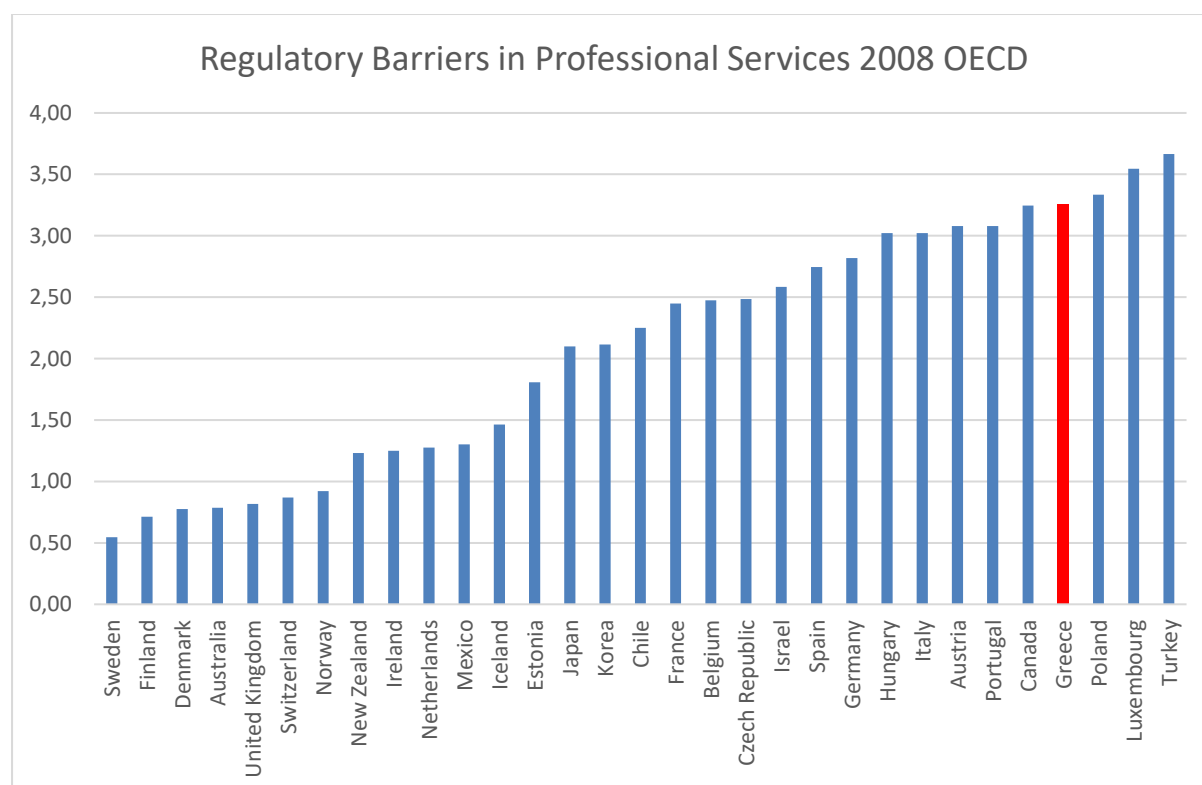
Regulatory Barriers in Professional Services 2008 OECD

Source: OECD. Slovak Republic, Slovenia and United States are not included because lack of data.

Graph 24: OECD regulatory barriers in professional services index in 2013.
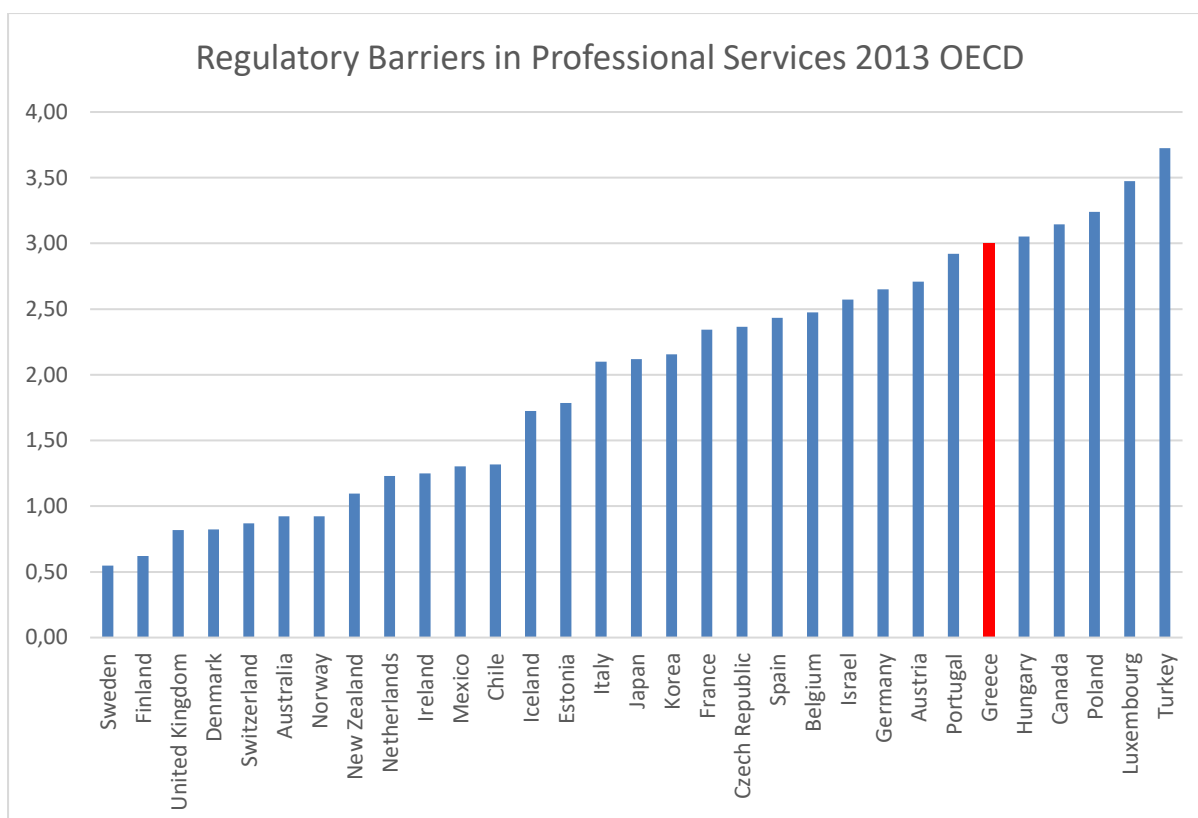
Regulatory Barriers in Professional Services 2013 OECD

Source: OECD. Slovak Republic, Slovenia and United States are not included because lack of data.

The Greek authorities were able to accomplish this point at best partially. The product and service market reforms has been carried out, the judicial system is actually getting worse and barriers on professional services remained.

10. Result of the second rescue program implementation.

Only two of the 9 commitments requested and subscribed by Greek in the second rescue program were actually fulfilled in time, the tax system reform and the labor market reform. We can add two more commitments that were accomplished with some qualifications, that is the financial system recapitalization and the product market reform. Another commitment was only partially accomplished, in particular public sector wage bill reduction. The other four commitments, surplus in primary fiscal balance, structural spending reforms, rationalizing

public spending and privatizations were not fulfilled at all in the time span of the second Greek rescue program and some of them have not yet been met in 2017.

However, we have to point out the remarkable improvement if we compare the successfulness of the implementation of second rescue program against the results of the implementation of the first rescue program. In the first rescue program only one over seven commitments was actually achieved, we can assert that this figure has improved in the second rescue program to four over nine commitments fulfilled in time. We can say that the compliance rate for first rescue program was 14%, meanwhile the compliance rate for the second rescue program was 44%.

The many problems of implementing the second rescue program, despite the improvements with respect to the first program, end up with the same result, a much lower than expected economic performance.

Table 18: Greek Real GDP growth projected in the second rescue program compared with actual data from 2011 to 2015.

	2011	**2012**	**2013**	**2014**	**2015**[327]
Real GDP growth projected in the second rescue package	-6.9%	-4.7%	0.0%	2.5%	2.9%
Actual Real GDP growth	-9.1%	-7.3%	-3.2%	0.4%	-0.3%
Discrepancy between projected and real GDP growth	-2.2%	-2.6%	-3.2%	-2.1%	-3.2%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat.

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[327] The figure was not stated in the document of the second Greece rescue program, but on the fourth review of the program. See (Directorate-General for Economic and Financial Affairs, 2014)

This economic underperformance is more important if we take in account that the second rescue program starts with growth forecasts well below the forecasts included in the first rescue program.

Table 19: Greek Real GDP growth projected in the first and second rescue program from 2011 to 2014.

	2011	2012	2013	2014
Real GDP growth projected in the first rescue package	-2.6%	1.1%	2.1%	2.1%
Real GDP growth projected in the second rescue package	-6.9%	-4.7%	0.0%	2.5%
Discrepancy between first and second rescue package projections	-4.3%	-5.8%	-2.1%	-0.4%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat.

3.3. Result of the Implementation of Greek rescue programs

We are not analyzing the third Greek rescue program because at the time of writing these lines, that is 2016, it is still too early to establish the progress of a rescue program that has only been in operation for a year.

However, we can establish, an explanation of the development of economic events considering the first and the second rescue program until 2015.

The Greek economy accumulated large imbalances until 2009. It was one of the least competitive and most regulated economies between Eurozone and OECD countries. Greece also counted with a government that showed huge structural deficit imbalances. We can add the existence of a capture of the Greek public sector by private vested interests. Then we have all the elements that make us think of a deep crisis and a long recession when a Black

Swan hits the economy[328]. Once the crisis exploded, the way out to this situation might have come from shock plan that entailed deep reforms, this is exactly the purpose of the Greek rescue programs analyzed in this chapter.

The compliance rate of the first rescue program was only 14%, that is, there were almost no reforms in Greece between 2010 and 2012. The Greek GDP fell more than 20% between 2010 and 2012. It could be argued that the extremely difficult situation of the world economy could be causing this enormous GDP fall. However, the Eurozone GDP between 2010 and 2012 grew 2.9%.

Greece was a victim of its own policies. The Greek economy suffers in the period of the first rescue program for two reasons. The first reason is because of its own economic imbalances until 2009. The second reason is because of its inability to undertake reforms that could have put an end those economic imbalances.

The compliance of the second rescue package was 44%. That is, the Greek authorities failed to deliver more than half of the committed reforms. Despite the mixed reform result, some of the efforts realized to restore the Greek competitiveness started to be seen in some areas. The Greek economy showed a remarkable advance in unemployment levels in 2013 when the economy was still in a recession. Greek improved its situation in the Doing Business index, in 2011 Greek was in the position 109 of the ranking, meanwhile in 2015 the position achieved was 61th. Starting a new business in Greece in 2011 entailed 15 different procedures and 20.7% of the income per capita in costs, in addition the minimum capital needed to operate as a business was more than 22% of the income per capita. Starting a new business in Greece in 2015 entailed just 5 procedures and just 2.2% of the income per capita in costs associated to the process of starting the business, the minimum capital needed was lowered to 0. In 2014 even a primary fiscal balance was achieved.

The Greek efforts began to be rewarded in 2014 when the economy started to grow again. The Greek government and Greek financial sector was able to return to international capital markets. The Greek government issued new bonds and the Greek financial sector new shares and new bonds.

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[328] See (Taleb, 2007).

Unfortunately, the Greek reform agenda was stopped and even reversed in early 2015 when a new anti-austerity government was elected. The reform agenda was not return at least until August 2015. Greece suffered again a recession and 2015 finished again with a fall in GDP.

4. Rescue package in Cyprus

As we have seen in Chapter 6, Cypriot economic imbalances were at least as deep as the Greek imbalances in 2009, although the nature of these imbalances was different. Cypriot public finances were much stronger than the Greek ones, however the Cypriot financial system was much more vulnerable than the Greek financial system.

The Cypriot authorities asked for financial aid barely four months after the signature of the second rescue program for Greece. The Private Sector Involvement, that is, the Greek default hits severely the Cypriot banking system. The Greek bonds impairment exhausted the Cypriot banking system capital. The large size of the Cypriot financial system, more than 750% of GDP, made impossible any attempt of bailout by the Cypriot government.

It is interesting to note that many of the measures committed in the Greek rescue packages was put in motion by the Cypriot authorities even before the signature of the Cypriot rescue program. Some of those measures are downsizing the public sector employment, pension reform, and some concessions to the private sector of some areas controlled by the government such as airports, marinas and desalination plants.

4.1. Cypriot rescue package commitments

The Cypriot rescue package was signed on 2 April 2013, a year after the signature of the second rescue package for Greece. The agreement was set for three years, from 2013 to 2016

and stated that in consideration for the financial assistance received, 10 billion euros[329], Cyprus should meet the following criteria[330]:

1. **Restructure and downsize financial institutions to restore the soundness and confidence in the financial system.**

This is one of the most controversial features of the Cypriot rescue program and the quality that make it unique was the private recapitalization of the Cyprus bankrupt financial system. The bail-in policy consisted in the conversion of the senior bondholders and unsecured depositors into new equity owners. The bail-in is analyzed in the next section.

The downsizing plan was directed toward the domestic banking sector and consisted in three different steps[331]. The downsizing plan expected to achieve 275% reduction of the financial sector size in GDP terms.

Graph 25: Cyprus financial sector downsizing plan 2013-2020.

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[329] Out of the €10 billion, €4.1 billion would be used to face refinancing requirements, €3.4 billion would be used to cover public sector financial needs. The remaining €2.5 billion were expected to be used in for bank recapitalization needs. €9 billion were going to be provided by the European Stability Mechanism and 1€ billion by the International Monetary Fund. See (Directorate-General for Economic and Financial Affairs, 2013).

[330] See (Directorate-General for Economic and Financial Affairs, 2013)

[331] The international banking sector and the cooperative credit institutions were out of this plan.

CYPRUS FINANCIAL SECTOR DOWNSIZING PLAN
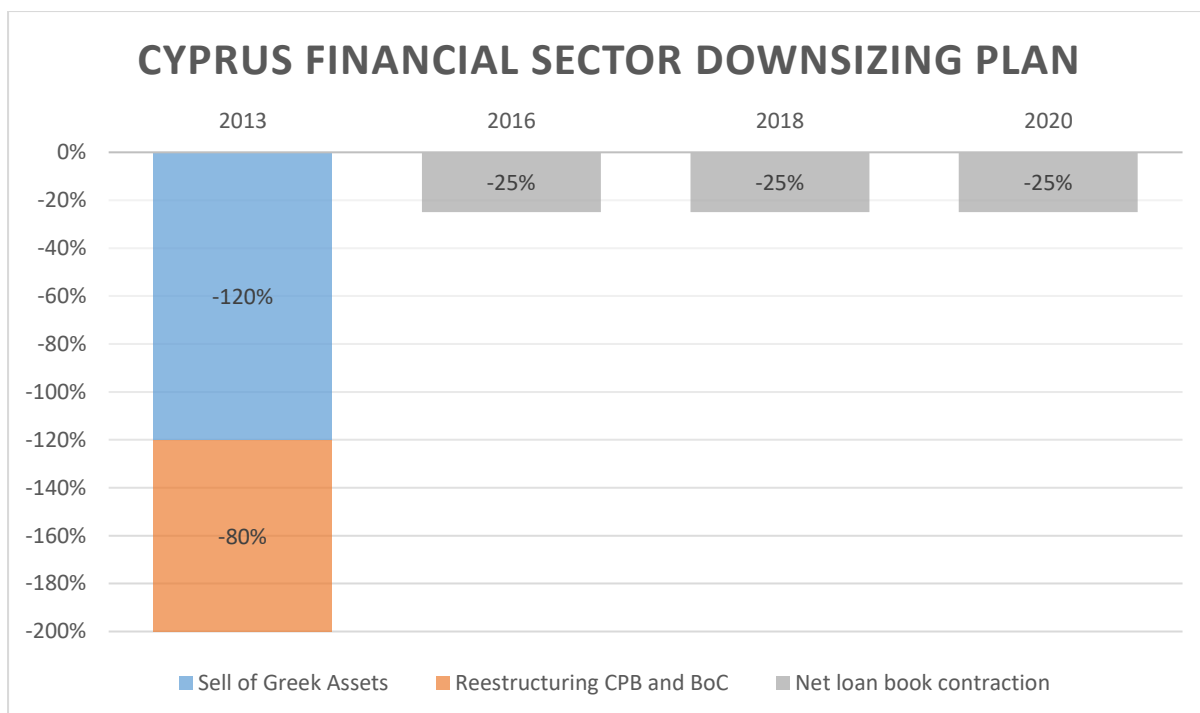
Source: Directorate-General for Economic and Financial Affairs. European Commission.

The first step was selling Greek operations of the domestic bank sector to the Greek Pireaus bank. This would achieve more than 120% downsizing in GDP terms.

The second step was to related to the bail-in policy. The two main banks had to be restructured. The capital needs of these two main banks, €10 billion, had to be covered through full contributions of equity and bond shareholders and partial contributions of non-insured depositors.

The restructuration plan involved the foreclosure of The Cyprus Popular Bank and consolidation of some of its assets and liabilities with those of the Bank of Cyprus. The insured deposits of Cyprus Popular Bank along with the Cypriot and UK assets had to be moved to Bank of Cyprus. Non-insured deposits and remaining assets had to be held in the Cyprus Popular Bank in order to be liquidated. Bank holidays had to be declared until the process of bank restructuration finished.

The third and last step was to achieve a net loan book contraction. The cooperative credit institutions also has to be restructured and recapitalized by June 2013.

2. Reform and enhance the banking regulation framework

Increase minimum capital buffers in the system, from 8% to 9% Core Tier 1 capital ratio. It was expected to be achieved by all banking groups by December 2013.

The definition of non-performing loans had to be revised to include all loans with more than 90 days in arrears.

A central credit register that allows identification of borrowers in arrears had to be established by September 2014.

Unified data reporting system for banks had to be implemented by June 2013.

The Cyprus Central Bank had to become the supervisor of cooperative credit institutions by July 2013. Regulation and supervision exercise on the banking sector had to be exercise also on the cooperative credit institutions.

Financial transparency issues needed to be addressed by the enhancing of anti-money laundering framework.

3. Continue the on-going process of fiscal consolidation.

The Cypriot government committed to accomplish with Maastricht criterion of deficit by 2016. That is, the government deficit should be below 3% of GDP by 2015. The primary balance budget should be positive for 2016. Mirroring the Greek rescue packages, the Cypriot consolidation had to be focused on the expenditures side and directly on public sector wage bill and social benefits.

The Cypriot authorities was making an effort to consolidate the unsustainable public deficit even before the rescue program agreement. The consolidation effort made in 2012 was about 4% of GDP, however more effort was asked to bring back the public on track.

4. **Fiscal consolidation plan**

The consolidation plan was designed to focus primarily on curtail the government expenditures, however, in the Cyprus rescue package, some of the required measures are directed towards an increase in some taxes.

Several measures are required and signed by the Cyprus government.

- Cuts in public sector employees´ compensation.

The compensation needed to decrease in 1.2% of GDP for 2013 and an additional 0.4% of GDP for 2014.

- Social benefits.

Better targeting of social transfers was expected to achieve a save equivalent to 0.6% of GDP in 2013 and 0.25% in 2014.

- Pension reform

Even taking in account that pension expenditures were low in we compare with the rest of the Euro Area, the Cypriot pension system expenditures were on an unsustainable path.

The reform entails a linkage of the retirement age with life expectancy and introduction of penalties for early retirement. Those measures should contribute to 0.5% of GDP saving during the life of the rescue program, that is, until 2016.

- Tax increases

Introduction of property tax that was expected to amount 0.4% of GDP in 2013. The excise duties on alcohol, tobacco and gas should account for 0.7% of GDP for the period 2012-14. VAT increase of 1% in 2013 on the standard rate should account for 0.2% of GDP. In 2014

another VAT increase, again 1% on the standard and also on reduce rate was expected to increase revenues for 0.25% of GDP.

An increase in corporate tax, withholding tax on interest and bank levy needed to be implemented, although an specific amount was not pointed out.

- Upgrade the budgetary framework.

Cyprus was in 2013 one of the few Euro Area members that does not count with functioning fiscal rules or medium-term budgetary framework. The indexes that measure the adequacy of fiscal rules were placed Cyprus at the bottom of the Euro Area States.

The budgetary framework pretends to increase transparency and accountability in public accounts and more important, a mid-term plan to comply with the Maastritch fiscal criterion. Many fiscal decisions imply costs that goes beyond the current fiscal year. Mid-term plans try to diminish the effect of one shot fiscal measures such as electoral cycle expenditures.

5. **Privatizations**

State-Owned Enterprises and semi-governmental organizations were targeted for privatization. The Cypriot government enterprises in the area of telecommunications, electricity and ports were requested for privatization. The privatization process should amount €1 billion by 2016 and €1.4 billon for 2018.

Table 20: Cyprus expected privatization proceeds from 2015 to 2018.

	2015	2016	2016-18
Expected privatization proceeds	€500 m	€500 m	€400 m

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in million Euro.

6. **Labor market reform.**

The wage indexation system needed to be revised. The Cyprus authorities committed to suspend the cost of living adjustment in the public sector and to reform that of the private sector. In particular, the frequency of adjustment needed to be reduce from twice a year to once a year, has to be suspended under adverse economic conditions and the system change from full indexation to a 50% indexation.

7. Remove non-competitive obstacles in the service sector.

Numerous and onerous entry barriers were causing restrictions on competitiveness generating excess profits in many areas in the service industry. The situation was particularly burdensome in the tourist sector and in the professional services such as architects, engineers and lawyers.

4.2. Implementation of the Cyprus rescue program

Since the Private Sector Involvement details in Greece began to be known in mid-2011, Cyprus has been, de facto, shut out of international capital markets[332]. The dependence of the Cypriot financial sector on the repayment of Greek debt made international investors suspicious about the ability of the Cypriot government to repay its debt. It resulted in prohibitive premiums for Cypriot bonds.

This rescue program could have been needed much earlier, but Cyprus secured a bilateral loan from Russia in 2011 for €2.5 billion that allowed it to cover most of Cyprus's financial needs until 2013[333].

It is interesting to note that the Cyprus authorities managed to left the rescue program using less funds than those provided by the European Stability Mechanism and the International

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[332] On 31st May 2011, Cyprus suffered a triple-notch sovereign downgrade by Fitch. By August 2011, the ten year government bond spread reached more than 1200 basis points.
[333] The initial terms of the loan foreseen the repayment in 2016 and an interest rate of 4.5%. Cyprus renegotiated the terms of loan and rescheduled the repayment for 2018 and the interest rate was lowered to 2.5%.

Monetary Fund. As we have already mentioned, the original rescue program made available €10 billion, while the funds finally used by the Cypriot government have been €7.8 billion[334].

1. **Restructure and downsize financial institutions in order to restore the soundness and confidence in the financial system.**

Since this is probably the most outstanding feature of the Cyprus rescue package, we are going to explain the procedures and outcomes by dividing it in two subsections.

a. **First step: The Greek subsidiaries sell-off.**

The first step in the restructuration and downsizing of the Cypriot banking sector had a great deal of controversy. The Greek subsidiaries of Cyprus banks were sold to Pireaus Bank. Considering that Cyprus banks showed a significant capital shortage at the time of the selling and considering that the recapitalization of the financial sector was going to be addressed via bail-in, any patrimonial separation should have been forbidden until the capital restructuration would have been finished.

However, the transfer of the Greek subsidiaries was made as if no capital shortage existed. This was clearly in the disadvantage of the Cyprus depositors and other holders of Cyprus financial sector liabilities.

The selling of the Greek assets at market value was an operation planned to protect the Greek financial sector and not to provide the best way of restructure the Cyprus financial sector. Greek depositors were protected against Cypriot depositors.

b. **Second step: The Bail-in policy.**

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[334] See (Directorate-General for Economic and Financial Affairs, 2016).

The second step in the restructuration and downsizing of the Cypriot banking sector caused even greater amount of controversy.

Out of the €10 billion needed to be raised for capital purposes by the creditors of the financial sector, that is through bail-in, €9.1 billion was raised. €0.1 billion was coming from senior debt, €1.2 billion from junior debt and €7.8 billion from uninsured depositors.

Table 21: Cyprus bail-in proceeds by type of creditor.

Bail-in total proceeds	€9.1 billion
of which coming from senior debt	€0.1 billion
of which coming from junior debt	€1.2 billion
of which coming from unsecured deposits	€7.8 billion

Source: European Commission[335].

It is interesting to note that the bail-in policy was applied only to the domestic private banking sector. The cooperative sector was bailed-out by receiving State aid for €1.5 billion[336].

In addition, the bail-in policy did not apply to all the domestic private sector banks equally. The more damaged the bank, the higher the loss suffered by uninsured creditors. In fact, the loss total amount and the capacity to absorb these losses by the capital of each bank played a central role in the size of the bail-in applied to uninsured depositors. We can see how the capacity to face the losses was so very different for each bank.

Table 22: Cyprus domestic private sector banks capital shortage by bank in 2013.

	Bank of Cyprus	Laiki (CPB)	Hellenic	Total

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[335] See (European Commission, 2016).
[336] See (European Commission, 2016).

PIMCO expected loss estimates	-6894	-7313	-1685	-15892
Loss absorption capacity	3997	4540	1619	10156
Capital shortage	-2897	-2773	-66	-5736

Source: The Cyprus Bail-in: Policy Lessons from the Cyprus Economic Crisis[337]. Figures in € millions.

The Hellenic Bank, the third domestic private bank in Cyprus by asset size, only applied the bail-in policy to bondholders by converting contingent convertible bonds into equity[338]. The Bank of Cyprus, the first domestic private bank by asset size, applied a conversion of 47.5% of uninsured deposits into new shares. Meanwhile the uninsured depositors of Cyprus Popular Bank, the second domestic private bank by asset size, lost 100% of their deposits[339]. So it seems that the private recapitalization was made by bearing in mind the financial record of the institutions involved in the bail-in policy.

However, the high haircuts could have been prevented or at least diminished if the recapitalization would have taken in account all the assets and liabilities that the banks counted on. The sell-off of Greek subsidiaries in which the Greek uninsured depositors of those banks suffered no losses at all undermined the financial situation of the remaining depositors within Cyprus. In addition, the Emergency Liquidity Assistance provided by the European Central Bank was also treated as if it was a secured deposit, so it did not suffer any haircut. In the Cyprus Popular Bank case, it seems that the Emergency Liquidity Assistance was provided by the European Central Bank when the bank was already bankrupt, contrary to the European Union Law[340].

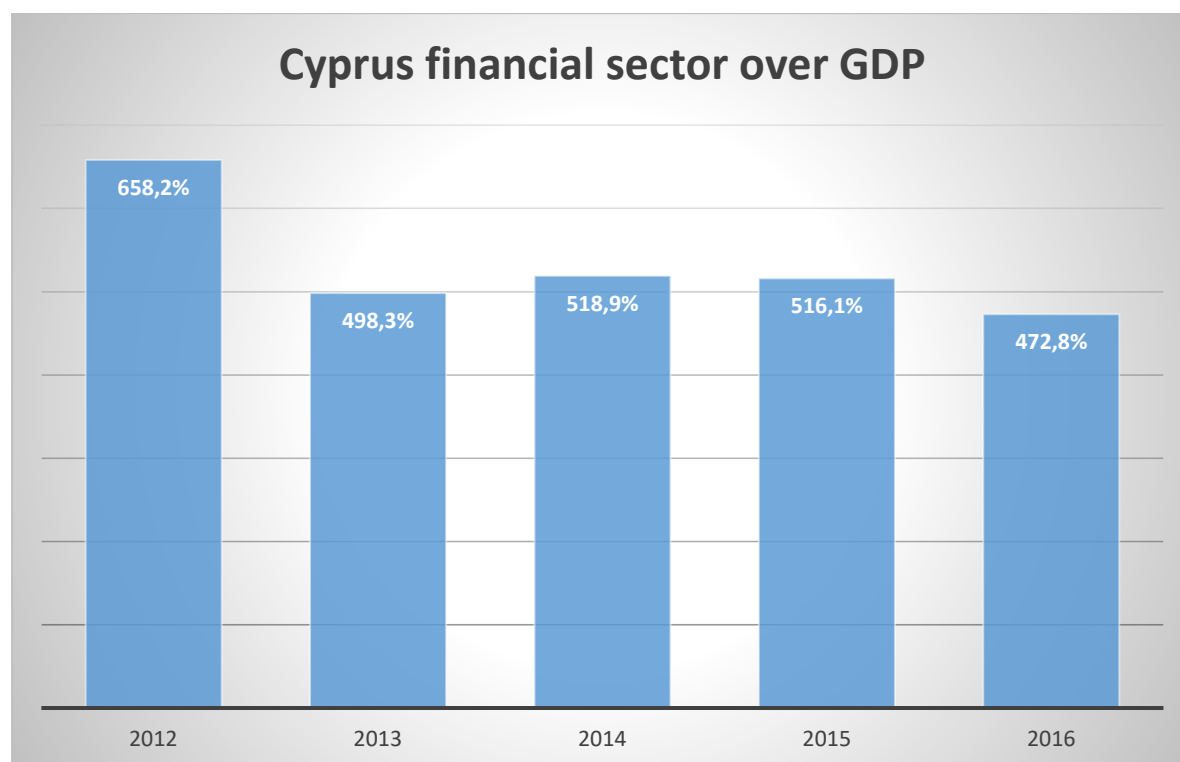[337] See (Zenios, 2016).
[338] See (European Commission, 2016).
[339] See (Zenios, 2016).
[340] See (Xiouros, 2016).

Nevertheless, the multiple-stage strategy to downsizing the financial sector succeed. The Cyprus financial sector diminished its size from 658% of GDP in 2012 to 473% of GDP in the third quarter of 2016[341].

Graph 26: Cyprus financial over GDP from 2012 to 2016.

Source: ECB; Eurostat. The last available figure for 2016 at the time of the writing of this chapter is the third quarter figure. For the rest of years, the figure showed is the one of the fourth quarter.

Even if we take in account the great deal of controversy generated by the bail-in policy and the decision to sell the Greek subsidiaries of Cyprus banks in order to protect the Greek financial system, we can say that the target of downsizing the Cyprus financial system was achieved. For 2016 the size of the financial sector was 473% of GDP meanwhile in 2012 the

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[341] The third quarter of 2016 was last available figure when this chapter was written.

figure was 658%, a downsize of more than 185% of GDP in three years. So, the Cyprus authorities were able to accomplish this point in time.

2. Reform and enhance the banking regulation framework

It seems that the Cypriot government was actually making great efforts to reform the failing banking regulation that was in place in Cyprus prior to the 2013 financial crisis.

> *With the recent approval of a law allowing banks to sell their loans, the infrastructure to clean-up banks' balance sheets has now been largely put in place. The legal frameworks for foreclosure and insolvency, along with the relevant institutions and processes, have been established, and these are starting to operate[342].*
>
> *Reforms that facilitate the transfer of title deeds need to be finalized to improve the functioning of the property market and the debt restructuring framework[343].*

The definition of non-performing loans was successfully changed in July 2013 and now it included all the loans with more than 90 days in arrears. Despite the fundamental factors behind the spike in non-performing loans since 2013[344], this redefinition and widening of the concept could be behind some of the enormous increase in the non-performing loans figure.

> *…a broader definition and classification of non-performing loans was introduced in July 2013, now also including fully collateralised loans[345].*

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[342] See (International Monetary Fund, 2016), pp. 9.
[343] See (International Monetary Fund, 2016), pp. 11.
[344] See chapter 7 of the present work for a detailed analysis.
[345] See (European Commission, 2016), pp. 16.

The legal framework for debt restructuring has changed in order to face the worst problem of the Cypriot financial system, the resolution of non-performing loans. The Cypriot authorities have been taking a number of measures directed towards accelerates the final settlement of non-performing loans.

The authorities took measures to facilitate the reduction of the large pool of non-performing loans. The Cypriot parliament adopted new legal frameworks for foreclosure and insolvency to reduce the time and cost of enforcing loan collateral, while also incentivising repayment discipline. A troubled borrowers' framework was set up, including a Code of Conduct for banks and the mediation process between lenders and borrowers, headed by a Financial Ombudsman[346].

In addition, the Cypriot parliament has pass a law that allows the selling of loans to third parties, this is helping in the cleaning up of financial sector balance sheets. In fact, if we take a look at the most recent data on the matter, we can see how the non-performing loans of the Cypriot banking system are starting to be lowered down.

Graph 27: Cyprus financial sector non-performing loans from 2011 to 2016.

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[346] See (European Commission, 2016), pp. 16.

Cyprus financial system non-performing loans
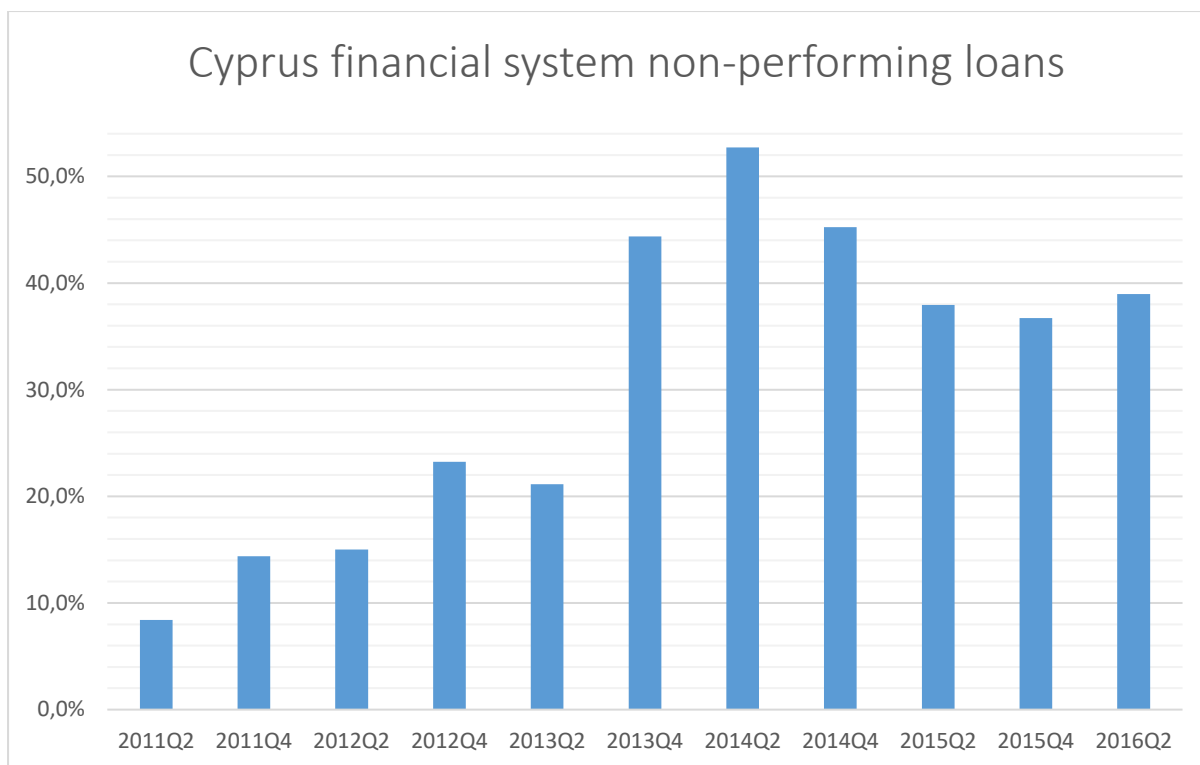
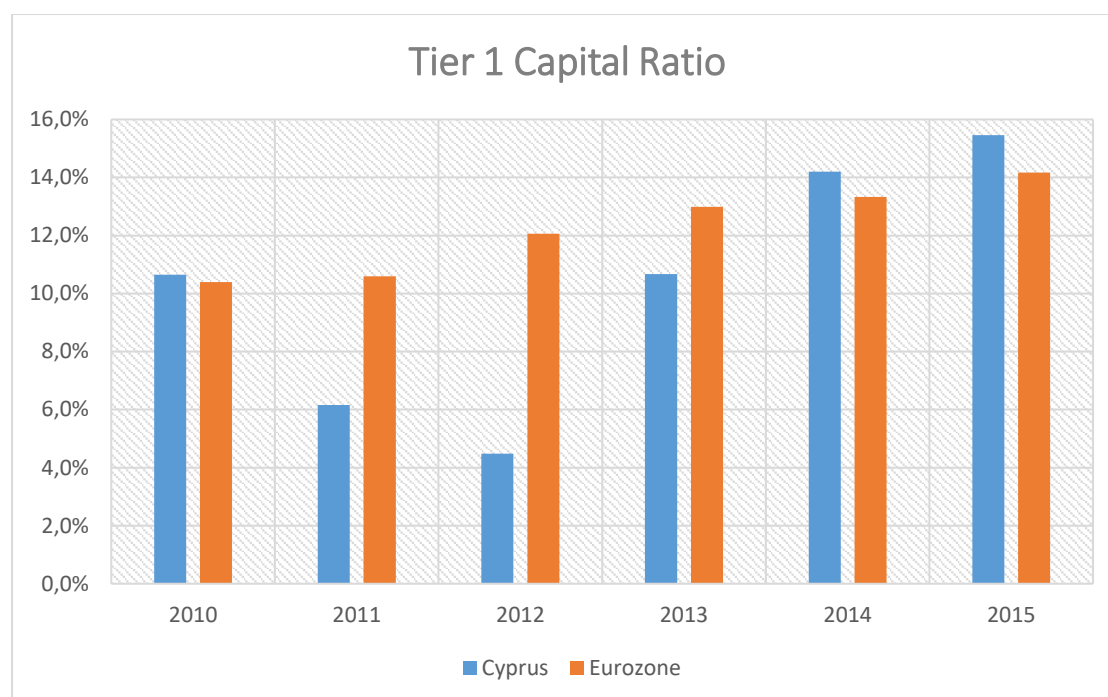Source: European Central Bank Statistical Data Warehouse.

The Cyprus Central Bank became, as was foreseen, the supervisor of cooperative credit institutions.

> *The Central Bank of Cyprus has improved its capacity to monitor and regulate banks' activities. One objective was to improve prudential oversight, notably by increasing the capacity and resources of the Central Bank of Cyprus and aligning the regulation and supervision of the cooperative banking sector to that of commercial banks[347].*

The Cypriot banking sector was successful in its recapitalization plan despite the high share of non-performing loans. Since 2014, the Cypriot banking capital ratio has been larger than the banking capital ratio of Eurozone countries.

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[347] See (European Commission, 2016), pp. 16.

Graph 28: Cyprus financial sector Tier 1 Capital Ratio from 2010 to 2015.

Source: European Central Bank Statistical Data Warehouse.

The Core Tier 1 of the three main banks of the country was in line with Basel requirements at the end of 2015.

**Graph 29: Cyprus main banks Core Tier 1 Capital Ratio in 2015.**

CET 1 Ratio Main Cypriot Banks
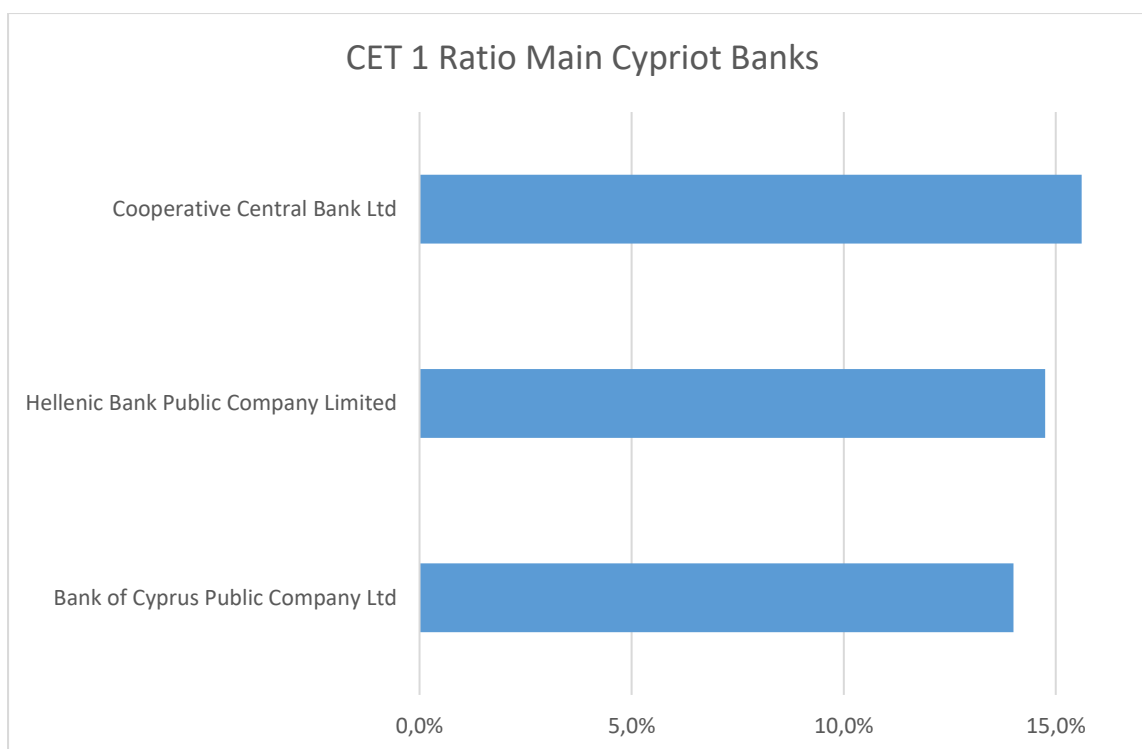
Source: Bank of Cyprus Annual Financial Report 2015[348].

The target set in the rescue program was to achieve a Core Tier 1 Capital Ratio equal to 9% by December 2013. By the end of 2013, the Core Tier 1 capital ratio for the Cypriot financial system was 12.1%. Since 2013 to September 2015 the Core Tier 1 has grown to 15.3%.

Graph 30: Cyprus financial sector Core Tier 1 Capital Ratio from 2012 to 2015.

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[348] See (Bank of Cyprus Group, 2015).

CET 1 Capital Ratio Cyprus financial sector
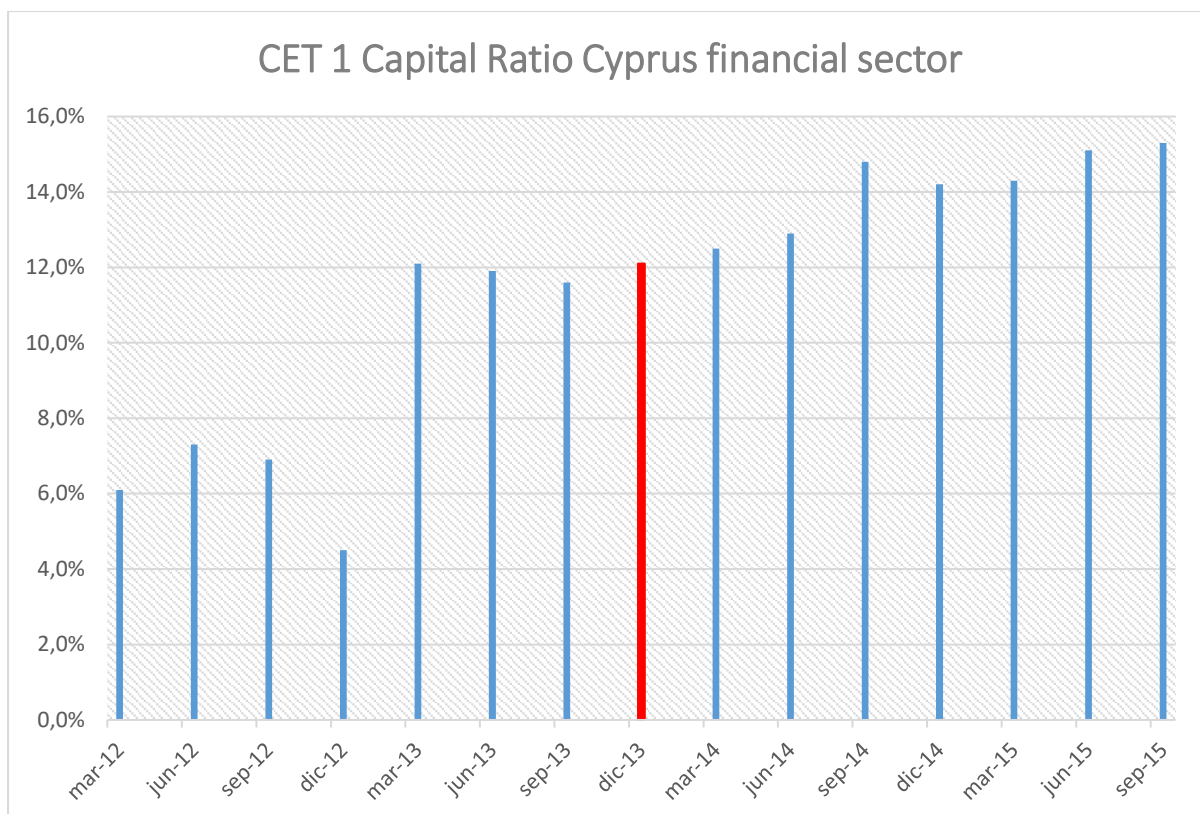
Source: European Commission.

The Cyprus authorities were able to accomplish this point in time, the legal framework has change in order to provide a better management of non-performing loans and prudential regulations have been extended to the cooperative sector. The recapitalization of the Cypriot banks has been successful to the point that we can even say that, at the end of 2015, the Cypriot financial system is over-capitalized.

3. **Continue the on-going process of fiscal consolidation.**

The greatest success in the implementation of the Cyprus rescue program has been the rapid adjustment of deficit imbalances taken by the Cypriot government. The Cypriot authorities have been able to fully meet and even surpass all fiscal targets included in the rescue package in 2013.

The Cypriot government meets the deficit target each year with the exception of 2014. In 2014, the government failed to meet the deficit target by only 0.4% of GDP.

In the rescue program, the Cypriot government was expected to comply with the Maastricht deficit criterion of 3% of GDP in 2016 and to show a positive fiscal primary balance also in 2016. In both cases, the Cypriot authorities have managed to achieve those goals in 2015.

Table 23: Cyprus fiscal balance projection and actual fiscal balance from 2013 to 2016.

	2013	2014	2015	2016
Government balance projected	-6.5%	-8.4%	-6.3%	-2.9%
Actual government balance	-4.9%	-8.8%	-1.1%	-0.9%
Discrepancy between projected and actual government balance	1.6%	-0.4%	5.2%	2.0%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Cyprus GDP. The 2016 figure for actual government balance is the fourth quarter cumulative balance at the third quarter of 2016.

Table 24: Cyprus fiscal primary balance rescue program projection and actual primary fiscal balance from 2013 to 2016.

	2013	2014	2015	2016
Government primary balance projected	-2.4%	-4.3%	-2.1%	1.2%
Government primary balance actual	-1.9%	-6.0%	1.7%	1.8%
Discrepancy between projected and actual government primary balance	0.5%	-1.7%	3.8%	0.6%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Data expressed in % of Cyprus GDP. The 2016 figure for actual government primary balance is the fourth quarter cumulative balance at the third quarter of 2016.

If we analyze the Cypriot government debt figures, we see that the developments are similar to the deficit developments. The 2013 government debt over GDP projection for 2015 was 127.9% of GDP meanwhile the actual figure was 107.5% of GDP, more than 20% GDP discrepancy. The discrepancy with the projection made in 2012 is even greater, 33% GDP. This is the biggest success in fiscal consolidation between the rescue programs launched by the European Commission.

Table 25: Cyprus debt over GDP rescue program projection and actual debt over GDP from 2013 to 2016.

	2013	2014	2015	2016
Government debt projected	109.5%	124.0%	127.9%	123.9%
Actual government debt	102.2%	107.1%	107.5%	110.6%
Discrepancy between projected and actual government debt	7.3%	16.9%	20.4%	13.3%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Cyprus GDP.

Table 26: Cyprus debt over GDP commission services projection in November 2012 and actual debt over GDP from 2013 to 2016.

	2013	2014	2015	2016
Government debt projected in November 2012 by Commission Services	134%	143%	141%	135%
Actual government debt	102.2%	107.1%	107.5%	110.6%
Discrepancy between projected and actual government debt	31.8%	35.9%	33.5%	24.4%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Cyprus GDP.

The Cypriot authorities were able to accomplish this point. The fiscal consolidation has been more deeply undertaken by the Cypriot government than the fiscal consolidation committed in the Cypriot rescue program. Deficit and public debt are well below European Commission and International Monetary Fund estimations.

4. Fiscal consolidation plan

Let´s see point by point if the Cypriot government was able to accomplish the agreed sub-measures included in the Cyprus rescue program regarding the fiscal consolidation plan:

- Cuts in public sector employees´ compensation.

In euros, the government compensation to employees has diminished more than 21% from 2012 to 2015, from €2.82 billion in 2012 to €2.22 billion in 2015.

In GDP terms the compensation to employees has also diminished from 14.5% of GDP in 2012 to 12.6% of GDP in 2015.

It was expected that between 2013 and 2014 the compensation to employees decreased by 1.6% of GDP. The actual decrease in government compensation to employees was 1.4%, however in 2015 the decrease was another 0.5% of GDP.

Table 27: Cyprus and Eurozone government compensation to employees from 2011 to 2015.

	2011	**2012**	**2013**	**2014**	**2015**
Cyprus	14.6%	14.5%	14.2%	13.1%	12.6%
Eurozone	10.5%	10.4%	10.4%	10.3%	10.1%

Source: Eurostat. Data expressed in % of Cyprus GDP.

The Cypriot government has made a great effort to diminish the compensation to government employees and we can say that so far has succeeded in doing so. However, for 2015 we see that still remain a huge gap between the compensation to government officials in Cyprus and other Eurozone countries.

- Social benefits.

Through better targeting and not by cutting social benefits, it was expected that the Cypriot government would be able to cut expenditures in social benefits by 0.85% of GDP in 2013 and 2014. The actual figure is an increase in 0.7% of GDP from 2012 to 2015. If we measured in euros, there has been a timid decrease in social expenditures of just 4%, from €2.58 billion in 2012 to €2.47 billion in 2015.

Graph 31: Cyprus government expenditure on social benefits from 2011 to 2015.
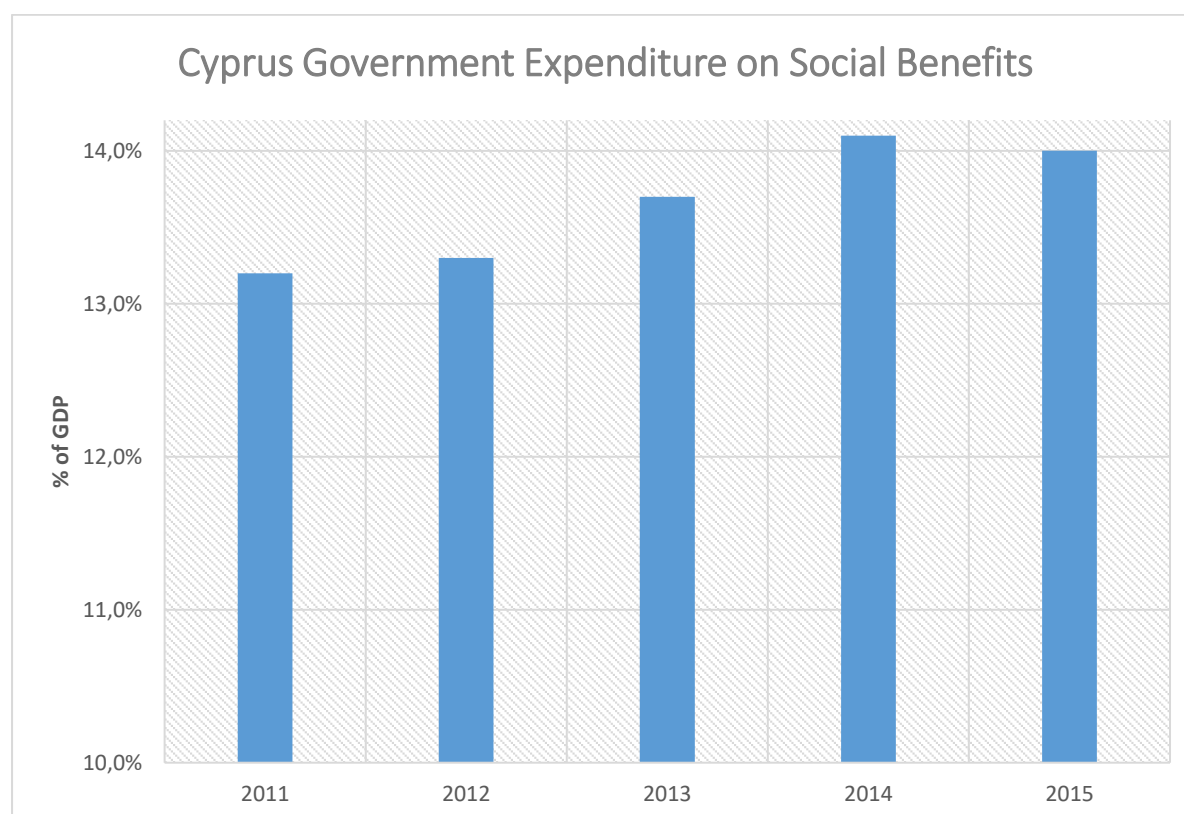
Source: Eurostat.

The Cypriot government was not able to accomplish a real decrease in social benefits expenditures.

- Pension reform

As early as 2012, even before the rescue program started, the public pensions were cut and then frozen until the end of 2016.

Implement a scaled reduction in emoluments of public and broader public sector pensioners and employees as follows: EUR 0-1000: 0%; EUR 1001-1500: 6.5%; EUR 15012000: 8.5%; EUR 2001-3000: 9.5%; EUR 3001-4000: 11.5%; above EUR 4001: 12.5%[349].

Extend the freeze of increments and general wage increases in the public and broader public sector and temporary contribution in the public, broader public and private sectors on gross earnings and pensions by three additional years until 31 December 2016[350].

In 2013 several measures were introduced in the public pension system in order to make it more sustainable and reduce the implicit liability of the government. The retirement age was increase in 2 years, introduction of early retirements penalties and reduction of preferential treatment to some groups.

increase the statutory retirement age by 2 years for the various categories of employees; increase the minimum age for entitlement to an unreduced pension (by 6

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[349] See (European Commission, 2015), pp. 97.
[350] See (European Commission, 2015), pp. 97.

months per year) to be in line with the statutory retirement age; while preserving acquired rights, introduce an early retirement penalty of 0.5% per month of early retirement so as to make early retirement actuarially neutral… reduce preferential treatment of specific groups of employees, like members of the army and police force, in the occupational pension plans, in particular concerning the contribution to the lump-sum benefits… pension benefits will be calculated on a pro-rata basis taking into account life-time service[351].

The pensions system for non-government employees (social security) were also reformed in 2013. The minimum age for retirement was increase to 65 years and penalties for early retirement were also included. The pensions were also freeze until 2016.

…reducing pension entitlements from the General Social Insurance Scheme by 0.5% per month for retirements earlier than the statutory retirement age at the latest from January 2013, in line with the planned increase in the minimum age for entitlement to an unreduced pension to reach 65 (by 6 months per year), between 2013 and 2016…freezing pensions under the Social Security Fund for the period 2013-2016[352].

In 2014 a further decrease in government pensions took place. The pensions were reduced 3%.

Implement a further reduction in emoluments of public and broader public sector employees and pensioners by a flat rate reduction of 3% on all wages[353].

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[351] See (European Commission, 2015), pp. 98.
[352] See (European Commission, 2015), pp. 99.
[353] See (European Commission, 2015), pp. 102.

It seems that the Cypriot government accomplish the commitment to reform the pension system. However, the pension expenditure as % of GDP has skyrocketed in the last years. It does not seem that the pension reforms taken have slow down the tendency. The pension expenditure in Cyprus is still well below the pension expenditure in the Eurozone.

Graph 32: Cyprus government expenditure on pensions from 2008 to 2014.

Source: Eurostat.

- Tax increases

Value added tax and excise duties has been increased as foreseen. The VAT was increased from 17% to 19% in 2013. The Cypriot corporate tax was raised to 12.5% from 10% in 2013. Social security contributions have also been increased from 17.3% to 19.3% of gross salary in 2014.

The share of indirect taxes in total public sector revenue has increase since 2013. Meanwhile the direct taxes share in total public sector revenue has plummeted because low corporate

profits and reductions in household income. The increase in direct taxes showed a short term increase in revenues, however the direct tax increases provoked a long term decrease in revenues.

Table 28: Cyprus direct and indirect taxes revues from 2013 to 2015.

	2012	**2013**	**2014**	**2015**
Indirect taxes	14.0%	13.8%	14.8%	14.8%
Direct taxes	9.9%	10.4%	10.2%	9.7%
Social security contributions	7.8%	7.6%	8.9%	9.1%

Source: 9th review Cyprus rescue program[354]. Data expressed in % of Cyprus GDP.

It seems that the Cypriot government accomplished with the raising taxes agenda included in the Cypriot rescue program. We are not claiming that this is a positive development, on the contrary, the fiscal contraction can have an expansionary effect on the economic development[355]. In this regard, the Greek rescue programs are better designed than the Cyprus rescue program.

- Update the budgetary framework

The budgetary framework has been revised by included medium-term budgetary framework and fiscal rules. The target is to design the annual government budget by taking in account the consequences that the budget can have in later years. Conservative rules in public financing has been included among the new fiscal rules, such as the fiscal position of the government to be balanced or in surplus.

The Cypriot authorities adopted a Law on the Medium-Term Budgetary Framework and Fiscal Rules together with the 2013 Budget Law, which stated as a matter of

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[354] See (International Monetary Fund, 2016).
[355] See (Alesina, Fiscal adjustments: lessons from recent history, 2010).

principle that the nominal fiscal position of the general government should be balanced or in surplus[356].

The Cypriot authorities were able to accomplish this point. Government employees´ compensation has been curtailed, the budgetary framework updated, the pension scheme reformed and taxes were raised. However, expenditures in social benefits has not been reduced.

5. Privatizations

Privatizations in Cyprus are experiencing significant delays. None of the telecommunications or electricity industry has been privatized. The only successful privatization process so far has been that of the biggest port of the island, the Limassol port, now in private hands under concession regime.

There are significant delays in implementing the privatisation plan, with the notable exception of the concession of Limassol port's commercial services awarded in April 2016. The delays are mostly due to the difficulty of fostering political consensus in Parliament around an ambitious privatisation agenda, but also due to coordination issues within the administration[357].

The concession of Limassol port only provided €10 million over the €1 billion proceeds expected in privatizations, barely 1% of the initial plan.

The Cypriot authorities were not able to accomplish this point. Just one privatization has happened and only provided 1% of the funds planned.

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[356] See (Directorate-General for Economic and Financial Affairs, 2013), pp. 51.
[357] See (Directorate-General for Economic and Financial Affairs, 2016), pp. 25.

6. Labor market reform.

The collective bargaining, in opposition to what happened in Greece, showed some features that helped to improve flexibility in troublesome times. Collective bargaining was already showing some degree of decentralization, with many company and sector agreements instead of more centralized collective bargaining.

> *Rapid downward adjustment of compensation per employee during the downturn prevented higher unemployment and safeguarded Cyprus' external competitiveness. During the crisis, the Cypriot labour market benefited from its long history of effective social dialogue enabling a consensus to be reached between employees and employers on the need for downward wage adjustments... The system of collective bargaining at company and sector level allows for a certain degree of flexibility. More specifically, as agreements have opening clauses and can be renegotiated as needed, they facilitate efficient collective bargaining outcomes in many sectors. [358].*

Wage indexation system was revised deeply in the public sector and suspended until 2016 in the private sector. This allowed the Cypriot economy to adjust the compensation to employees and prevented an spike in unemployment.

> *Responding to the crisis, indexation rules were reformed in the public sector, Indexation thus became annual, as opposed to bi-annual, and partial (at 50 % of inflation) as opposed to full. Moreover, automatic suspension during recessions was introduced. In the private sector, though, although COLA is suspended until end-2016, no agreement like that in the public sector has been reached on the adoption of partial*

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[358] See (European Commission, 2016), pp. 55.

indexation. However, the private sector has agreed to less frequent indexation and the suspension of COLA during recessions[359].

Effectively, labor costs in Cyprus had been raising at a much higher pace than labor costs in the rest of the Eurozone until 2010. From 2010 to 2012, the aforementioned flexibility that the Cypriot collective bargaining showed helped to keep labor costs under control. From 2013, when the indexation rules were suspended, the labor costs fell 2.9% in 2013, 3% in 2014 and 0.8% in 2015.

Graph 33: Cyprus and Eurozone labor costs from 2001 to 2015.
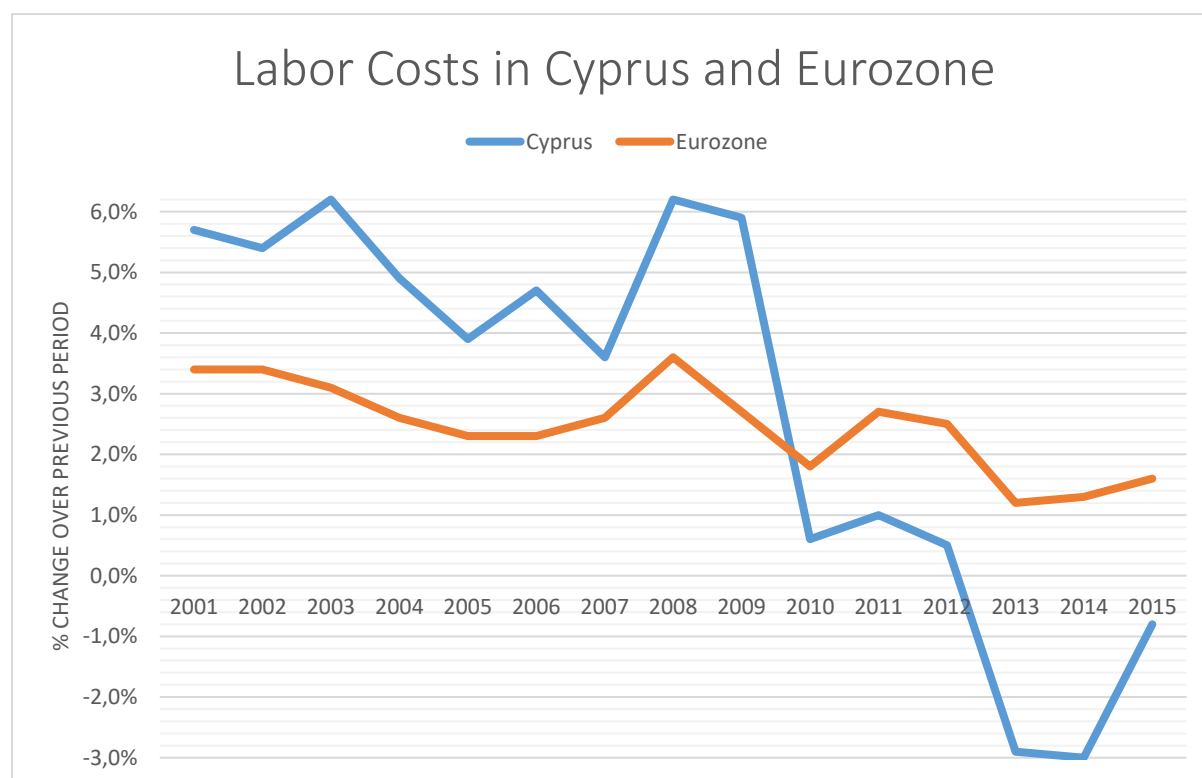
Source: Eurostat.

If we analyze the changes in labor cost against the changes labor productivity, we can see how the Cypriot economy was losing competitiveness until 2010 because of labor costs were

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[359] See (European Commission, 2016), pp. 56.

increasing more rapidly than labor productivity. From 2010 to 2012 the tendency reversed and the competitiveness remained flat. Since 2013, when the wage indexation system was suspended, the productivity per worked was increasing at a higher pace than labor costs and therefore an increase in competitiveness took place.

Graph 34: Cyprus labor costs and real labor productivity changes from 2001 to 2015.
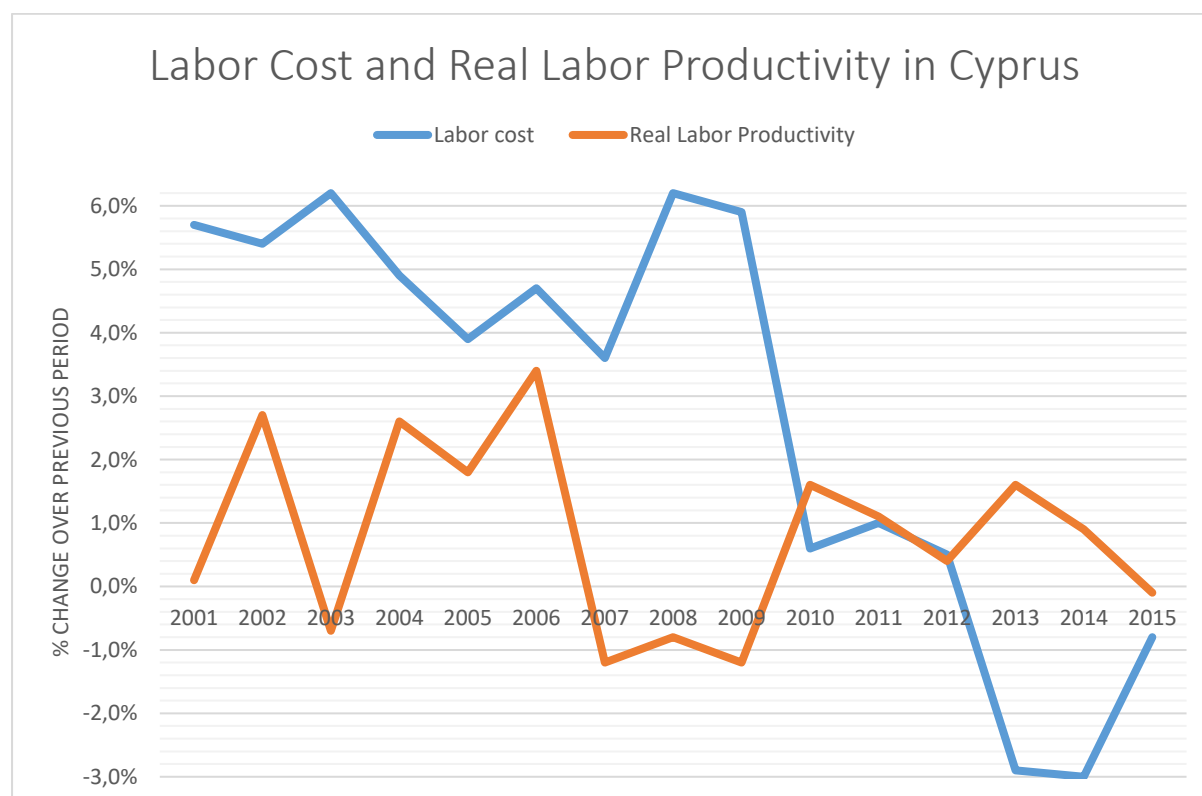
Source: Eurostat.

The labor market developments prevented a high rise in unemployment levels. The unemployment rate reached 16.6% in the third quarter of 2013, since then has been diminishing to 13.1 in the third quarter of 2016.

Graph 35: Cyprus unemployment rate from 2012Q1 to 2016Q3.

Cyprus unemployemnt rate
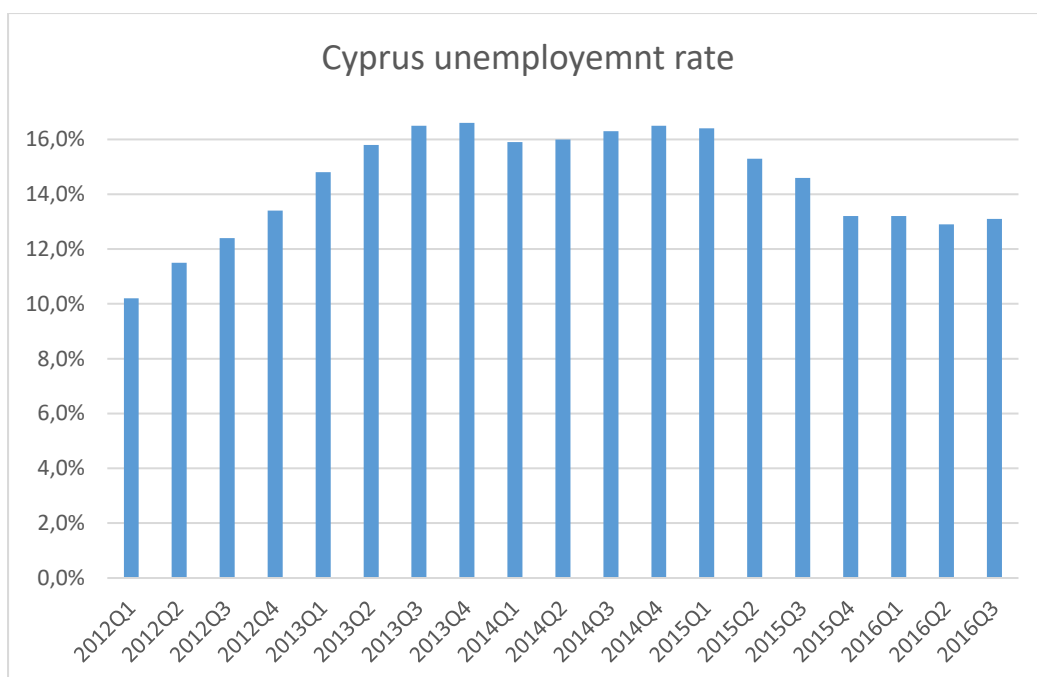
Source: Eurostat.

The Cypriot authorities were able to accomplish this point. The wage indexation system was suspended and it prevented a spike in the unemployment rate.

7. Remove non-competitive obstacles in the service sector.

The regulatory framework for tourism was not revised under the timespan of the rescue program. For April 2016, the legislation concerning the tourism sector was still not modified.

> a project on the institutional framework and simplification of legislation and procedures of the tourism sector is underway… the revised regulatory framework is currently being re-drafted. It is expected to enter into force in Q4 2016[360].

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[360] See (European Commission, 2016).

Professional services regulation was not reformed. In one of the latest review of the Cyprus rescue package, the European Commission stated the need to further actions in the removal of the unjustified requirements for competition in professional services.

On the basis of the comprehensive review of requirements affecting the access and exercise of activity of the regulated professions sector, the elimination of unjustified requirements for the specific case of engineers remains subject to close monitoring and possible further actions by the Commission, so as to ensure compliance with EU law[361].

The Cypriot authorities were not able to accomplish this point in the Cyprus rescue program timespan. The targeted tourism and professional services sectors frameworks were not modified.

4.3.   Result of the Implementation of Cyprus rescue program

The Cypriot economy was suffering from two great economic imbalances, the domestic housing bubble and the bankruptcy of its financial sector. The Greek government debt default was just the event that brought to the surface the economic imbalances.

The Cypriot rescue program was unique in its design since it demanded a private recapitalization of the financial sector in order to receive a bailout from the European Commission and the International Monetary Fund.

The compliance rate of the Cypriot rescue program was 71%. The only objectives in which the Cypriot government was not able to achieve were the privatizations and the reform of the legal framework of the service industry. As successful achievements we can cite the downsizing and restructuration of financial institutions, the reform of the legal framework of the financial system, the attainment of fiscal consolidation, the peg to the fiscal plan prescheduled and the labor market reform.

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[361] See (European Commission, 2015), pp. 92.

The Cypriot government was able to put an end to the rescue program before the scheduled date and with no need of using all the funds made available by the bailout entities.

The high compliance rate with the rescue program guidelines soon started to be paid off in the form of economic growth. The Cyprus economy surpasses all the years the projections made by the European Commission, for 2016 the Cypriot economy is growing at 2.9% meanwhile the projection was 1.9%.

5. Economic developments in Cyprus and Greece since rescue packages agreements.

5.1. Greek economic performance.

Greece economic performance since the first rescue program has been very disappointing. Behind the poor economic performance are the low compliance of Greek authorities with the rescue programs commitments and a worse than expected international economic situation. These two facts caused a deeper than expected Greek recession.

The Greek economic performance was well below European Commission projections since 2010. The discrepancies between actual GDP growth and the first Greek rescue program projections were huge. We have to remember that the Greek compliance with the first rescue program commitments was only 14%.

Table 4: Greek Real GDP growth projections included in the first rescue package compared with actual data.

	2009	2010	2011	2012	2013	2014
Real GDP growth projected in the first rescue package	-2.0%	-4.0%	-2.6%	1.1%	2.1%	2.1%
Actual Real GDP growth	-4.3%	-5.5%	-9.1%	-7.3%	-3.2%	0.4%
Discrepancy between projected and real GDP growth		-1.5%	-6.5%	-8.4%	-5.3%	-1.7%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Greece GDP.

The Greek compliance with the second rescue program was 44%, the compliance level improved but was still poor. However, the reforms taken started to pay off in 2014 when the Greek economy started to growth again. In 2015 a new political turnover happened and some of the reforms were reversed being 2015 again a difficult year for the Greek economy.

Table 18: Greek Real GDP growth projected in the second rescue program compared with actual data from 2011 to 2015.

	2011	**2012**	**2013**	**2014**	**2015**[362]
Real GDP growth projected in the second rescue package	-6.9%	-4.7%	0.0%	2.5%	2.9%
Actual Real GDP growth	-9.1%	-7.3%	-3.2%	0.4%	-0.3%
Discrepancy between projected and real GDP growth	-2.2%	-2.6%	-3.2%	-2.1%	-3.2%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. Data expressed in % of Greece GDP.

The low level of Greek compliance with the commitments included in its rescue programs hampered the economic developments in the Hellenic country.

5.2.   Cyprus economic performance

The economic forecasts for Cyprus were pessimistic at the time of the signature of the Cypriot rescue program.

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[362] The figure was not stated in the document of the second Greece rescue program, but on the fourth review of the program. See (Directorate-General for Economic and Financial Affairs, 2014)

Looking ahead, the Cypriot economy is expected to face heavy headwinds in the coming years, with a projected return to growth only in 2015. The contraction of economic activity in 2013 is expected to intensify. Domestic demand will continue to contract up to and including 2014, in particular due to a strong drag on economic activity from private consumption and investment. The immediate restructuring of the banking sector (which will impact on net credit growth), the fiscal consolidation efforts pursued, the rapid deterioration in labour market conditions, and the high degree of economic uncertainty are together expected to continue to weigh heavily on domestic demand. In addition, the temporary restrictions required to safeguard financial stability are likely to hamper international capital flows and reduce business volumes in both domestic- and internationally-oriented companies. The bail-in of uninsured depositors is projected to cause a loss of wealth, reducing private consumption and business investment. This, compounded by the impact of the fiscal consolidation already undertaken and the new measures agreed, is forecast to result in a sharp fall in domestic demand. Little reprieve can be expected from exports amid uncertain external conditions and a shrinking financial services sector[363].

However, the Cyprus economic performance has been surpassing the European Commission projections since the first year of the rescue program. The Cyprus government not only was able to get a great level of compliance, 74%, but also the steps were implemented promptly. Steps towards fiscal consolidation were taken in 2012, even before the official starting date of the rescue program in March 2013.

Table 29: Cyprus Real GDP growth projected in the rescue program compared with actual data from 2013 to 2016.

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[363] See (Directorate-General for Economic and Financial Affairs, 2013), pp. 40.

	2013	2014	2015	2016
Real GDP growth projected in the rescue package	-8.7%	-3.9%	1.1%	1.9%
Actual Real GDP growth	-6.0%	-1.5%	1.7%	2.9%
Discrepancy between projected and actual GDP growth	2.7%	2.4%	0.6%	1.0%

Source: Directorate-General for Economic and Financial Affairs. European Commission. Eurostat. The 2016 figure for actual real GDP growth is the annual growth rate at the third quarter of 2016.

6. Conclusion

The economic performance between Greece and Cyprus after receiving rescue programs have greatly diverged. The difference in the economic growth figures can be attributed to the level of compliance with the commitments agreed in their own rescue programs.

The Greek government achieved a 14% compliance level with the first rescue program received and 44% with the second rescue program. Meanwhile the Cyprus government achieved a 71% compliance level with the commitments agreed and included in its own rescue program.

For the third quarter of 2016 Greece has lost 26.7% of its GDP since the peak reached in the first quarter of 2008. The Cyprus economy has lost 7.1% of its GDP since the peak reached in the second quarter of 2011.

The Greek GDP for 2016 fell back to the same level as the year 2000, almost two decades lost. The Greek GDP it is just starting to grow again The Cyprus GDP is at the same level as the year 2007 and it has recover 3.7% since 2014.

In both cases the crisis has severely hit the domestic economy, however the Cyprus crisis has taken a V form meanwhile the Greek crisis has taken a W form with several drawbacks.

The measures included in the rescue programs, despite some recommended counterproductive measures such as increase in taxes (not included in the Greek rescue

programs), works. A comparison between Hellenic rescue programs shows that the austerity measures, when are applied, results in good economic performance.

List of Conclusions

- The southwestern part of Cyprus is an Hellenic territory with close bonds to mainland Greece.

- The economic history of modern Greece is a history of defaults; the Cyprus case can be seen as an another chapter in the long lasting history of Greek defaults.

- The Cyprus economy inherited several imbalances from the financial repression period (1959-2001). The economy showed a lack of investment in machinery and an over-expanded construction and real estate sector.

- The Cyprus economic downturn can be understood as the consequence of a series of carry trades promoted by the Central Bank of Cyprus from 2001 to 2008 and by the European Central Bank from 2008 to 2012.

- The Fleming-Mundell trilemma explains the first carry trade. The Central Bank of Cyprus pegged the Cyprus Pound to the Euro, followed an independent monetary policy (the interest rate was set at a higher level than the interest rate of the Eurozone economy) and removed capital controls. The island was flooded with external funds in euros that were accommodated at a fixed rate by the Central Bank of Cyprus. This enormous amounts of external funds were directed towards the real estate sector and provoked a housing price bubble.

- The "biggest carry trade ever" that happened in the Eurozone between 2008 and 2012 explains the second big carry trade in which the Cypriot financial sector was heavily involved. The currency optimum area theory predicted that the yields of the sovereign bonds should be the same for all the members of the area. In 2008 it was expected that the crisis was going to be a short one and that the weakest States in terms of public finance would receive unlimited help from States with solid public finances. The

European financial sector started to invest in periphery bonds as soon as their yield started to rise above the yield of Euro-core countries. The carry trade also involved that the short-term (financing) leg would be the low interest rate bonds, that is, those of the Euro-core countries. The yields instead of narrowing, were widening and by 2012 the European financial sector was at the verge of bankrupt. The Cyprus financial system was one of the financial sectors most involved in "the biggest carry trade ever".

- The Cyprus financial sector suffered heavy losses at the end of 2012. The losses almost vanished all the capital of the financial sector. The first failed carry trade leaves the island with a huge housing bubble. Mortgage and loans granted to the real estate sector were failing and the value of the collateral was a fraction of the original loan. At the same time, the Private Sector Involvement in Greece, that is, the Greek default, hits the financial sector of Cyprus severely. The Cypriot banks that were involved in the "biggest carry trade ever" choose as the long leg of the carry trade the Greeks bonds that now were in default.

- The heavy losses suffered by the Cypriot financial sector forced its government to ask for financial aid to its European partners and the International Monetary Fund in 2012. The financial aid was received in 2013 and it entailed an ambitious program of reforms including the bail-in policy, that is, the private recapitalization of the Cypriot financial system.

- Cyprus showed a great accomplishment of the rescue package measures agreed. Meanwhile, Greece shows a low level of compliance with the rescue package measures. Consequently, Cyprus shows a V shape economic performance, with a rapid and strong downturn and a rapid and strong recovery. The Greek economy shows a W shape economic performance, displaying an impossibility to fully recover after a long period of time suffering several crises and recessions.

References

Acharya, V. V. (2011). Ring-fencing is good but not panacea. In T. Beck (Ed.), *The Future of Banking* (pp. 35-39). London: Centre for Economic Policy Research (CEPR).

Acharya, V. V., & Steffen, S. (2013, March). The "Greatest" Carry Trade Ever? Understanding Eurozone Bank Risks. *National Bureau of Economic Research*. Retrieved from https://www.stern.nyu.edu/sites/default/files/assets/documents/con_040568.pdf

Adrian, T., & Ashcraft, A. (2012, April). Shadow Banking Regulation. *Federal Reserve Bank of New York Staff Reports*(559).

Agger, E. E. (1914). The Commercial Paper Debate. *The Journal of Political Economy, 22*, 661-683. Retrieved from https://archive.org/details/jstor-1820113

Alesina, A. (2010). *Fiscal Adjustments: Lessons from Recent History.* Madrid: The Economic and Financial Affairs Council (ECOFIN).

Alesina, A., & Ardagna, S. (1998). Tales of Fiscal Adjustment. *Economic Policy*, 489-585.

Alogoskoufis, G. (2012). *Greece´s Sovereign Debt Crisis: Retrospect and Prospect.* Hellenic Observatory. London: London School of Economics and Political Science. Retrieved from http://eprints.lse.ac.uk/42848/1/GreeSE%20No54.pdf

Alonso Neira, M. A., Bagus, P., & Rallo Julián, J. R. (2012). The First Global Financial Crisis of the 21st Century: Origins and Proposals for Reform. An Austrian Approach. *Interdisciplinary Journal of Economics and Business Law, 2*(1), 51-80. Retrieved from http://www.philippbagus.com/archivos/IJEBL_paper%20publicado%20First%20crisis%20with%20Rallo%20Alonso.pdf

Bagehot, W. A. (1873). *Lombard Street* (14th ed.). (H. Withers, Ed.) London: Henry S.King and Co. Retrieved 1915

Bagus, P. (2010). *The Tragedy of the Euro* (2nd ed.). Auburn: Ludwig Von Mises Institute. Retrieved 2012

Bagus, P., & Howden, D. (2010). The Term Structure of Savings, the Yield Curve, and Maturity Mismatching. *The Quarterly Journal of Austrian Economics, 13*(3), 64-85. Retrieved from https://mises.org/system/tdf/qjae13_3_5.pdf?file=1&type=document

Bank of Cyprus Group. (2015). *Annual Financial Report.* Nicosia.

Bank of International Settlements. (2010). *Basel III: A global regulatory framework for more resilient banks and banking systems.* Basel: Bank for International Settlements Communications.

Basnett, Y., & Sen, R. (2013). Whatdo empirical studies say about economic growth and job creation in developing countries? *EPS Peaks*.

Bilson, J. F. (2013). *Adventures in Carry Trade.* Chicago: CME Group. Retrieved from http://www.cmegroup.com/education/files/bilson-adventures-in-the-carry-trade.pdf

Bloomberg. (2012, March 12). Credit-Default Swap Time Bomb Failed to Go Off Over Greece: View. Retrieved from https://www.bloomberg.com/view/articles/2012-03-12/credit-default-swap-time-bomb-failed-to-go-off-over-greece-view

Böhm Bawerk, E. v. (1890). *Capital and Interest.* London: Macmillan and Co.

Bondone, C. A. (2012). *Teoría de la moneda.* Buenos Aires. Retrieved from http://www.carlosbondone.com/pdf/Teoria_de_la_Moneda(Carlos_Bondone).pdf

Brown, L. C. (1984). *International Politics and the Middle East: Old Rules, Dangerous Game.* New Jersey: Princeton University Press.

Buchanan, B. (2017). *Securitization and the Global Economy: History and Prospects for the Future.* Seattle: Palgrave Macmillan US.

Cachanosky, N. (2014). Hayek´s Rule, NGDP Targeting, and the Productivity Norm: Theory and Application. *J. Stock and Forex Trading, 3*(2). Retrieved from https://www.omicsgroup.org/journals/hayeks-rule-ngdp-targeting-and-the-productivity-norm-theory-and-application-2168-9458-3-121.pdf

Cannan, E. (1921). The Application of the Theoretical Apparatus of Supply and Demand to Units of Currency. *Economic Journal*, 453-461.

Cantillon, R. (1755). *Essai sur la Nature du Commerce en Général.*

Clerides, G. (1989). *Cyprus: My Deposition Vol. 1.* Nicosia: Alithia.

Clerides, S. (1993). *Effects of Interest Rate Regulation: The Case of Cyprus.* University of Wisconsin.

Clerides, S. (2013). Cyprus pays for its own failures. In *Greek Myths and Reality* (pp. 31-36). Brookings Institution. Retrieved from http://www.brookings.edu/~/media/research/files/papers/2013/08/06-greece-recovery-dervis/eliamep_brookings-greek-myths-and-reality.pdf

Clerides, S. (2014). The Collapse of the Cypriot Banking System: A Bird´s Eye View. *Cyprus Economic Policy Review*, 3-35.

Crawshaw, N. (1978). *The Cyprus Revolt. An Account of the Struggle for Union with Greece.* London: Allan & Unwin.

Creditex. (2012). *Hellenic Republic Auction Results, 19 March 2012.* Markit. Retrieved from http://creditfixings.com/CreditEventAuctions/results.jsp?ticker=GREECE

Culbertson, J. M. (1957). The Term Structure of Interest Rates. *The Quarterly Journal of Economics*, 485-517.

Cyprus, B. o. (2013). *Annual Financial Report.* Nicosia: Bank of Cyprus.

Directorate-General for Economic and Financial Affairs - European Commission. (2013). *The Economic Adjustment Programme for Cyprus.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2010). *The Economic Adjustment Programme for Greece.* Brussels: European Commision.

Directorate-General for Economic and Financial Affairs. (2010). *The Economic Adjustment Programme for Greece Second review - autumn 2010.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2011). *The Economic Adjustment Programme for Greece Fourth Review.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2011). *The Economic Adjustment Programme for Ireland.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2012). *The Financial Sector Adjustment Programme for Spain.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2012). *The Second Economic Adjustment Programme for Greece.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2013). *The Economic Adjustment Programme for Cyprus.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2014). *The Second Adjustment Programme for Greece Fourth Review.* Brussels: European Commission.

Directorate-General for Economic and Financial Affairs. (2016). *Post-Programme Surveillance Report.* Luxembourg: European Commission.

Directorate-General for Economic and Financial Affairs, European Commission. (2012). Macroeconomic Imbalances - Cyprus. *Occasional Papers*.

Dowd, K., Schuler, K., Meisel, A., Selgin, G., Nataf, P., Bodenhorn, H., . . . Weber, E. (1992). *The Experience of Free Banking.* (K. Dowd, Ed.) London: Routledge.

Dunbar, C. F. (1891). *The Theory and History of Banking.* New York: G.P. Putnam´s Sons.

Dunbar, C. F., & Sprague, O. (1917). *The Theory and History of Banking* (3th ed.). New York and London: G.P. Putnam´s Sons. Retrieved from https://archive.org/details/bankingtheoryhi00dunbuoft

Ehrmann, M., Fratzscher, M., Gürkaynak, R., & Swanson, E. (2008, November). Convergence and Anchoring of Yield Curves in the Euro Area. *Federal Reserve Bank of San Francisco Working Paper Series*. Retrieved from http://www.frbsf.org/economic-research/papers/2007/wp07-24bk.pdf

Emmerson, C., Frayne, C., & Love, S. (2001). *The Government´s Fiscal Rules.* London: The Institute for Fiscal Studies.

Espinosa, L. (2014). El sorprendente caso de la medición de la deuda griega, crímenes, mentiras y estadísticas. *Papeles de Europa*, 47-76.

Estrella, A., & Mishkin, F. (1997, July). The predictive power of the term structure of interest rates in Europe and the United States: Implications for the European Central Bank. *European Economic Review, 41*(7), 1375-1401.

Estrella, A., & Mishkin, F. S. (1998, February). Predicting U.S. Recessions: Financial Variables as Leading Indicators. *The Review of Economics and Statistics, 80*(1), 45-61.

Estrella, A., & Trubin, M. R. (2006, August). The Yield Curve as a Leading Indicator: Some Practical Issues. *Current Issues, 12*(5).

Eurogroup. (2012, February 21). *The European Council.* Retrieved from http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ecofin/1280 75.pdf

European Central Bank. (n.d.). *Haircut Category*. Retrieved from http://www.ecb.europa.eu/mopo/assets/risk/liquidity/html/index.en.html

European Central Bank. (n.d.). *Statistical Data Warehouse*. Retrieved from http://sdw.ecb.europa.eu/reports.do?node=10000024

European Commission. (2010). *Report on Greek Government Deficit and Debt Statistics.* Brussels: European Commission. Retrieved from http://ec.europa.eu/eurostat/documents/4187653/6404656/COM_2010_report_gre ek/c8523cfa-d3c1-4954-8ea1-64bb11e59b3a

European Commission. (2010). *Report on Greek Government Deficit and Debt Statistics.* Brussels: European Commission.

European Commission. (2013). *Cyprus: assessment of the risks to the financial stability of the Euro Area (Art 13 of ESM Treaty).* Directorate General Economic and Financial Affairs. Brussels: European Commission.

European Commission. (2015). *Cyprus 7th Review.* Brussels: European Commission.

European Commission. (2015, August 19). Memorandum of Understanding between The European Commission Acting on Behalf of the European Stability Mechanism and The Hellenic Republic and The Bank of Greece. Brussels: European Commission. Retrieved from http://ec.europa.eu/economy_finance/assistance_eu_ms/greek_loan_facility/pdf/01_mou_20150811_en.pdf

European Commission. (2016). *Country Report Cyprus 2016 Including an In-Depth review on the prevention and correction of macroeconomic imbalances.* Brussels: European Commission.

European Commission. (2016). *Europe 2020: Cyprus National Reform Programme.* Brussels: European Commission. Retrieved from http://ec.europa.eu/europe2020/pdf/csr2016/nrp2016_cyprus_en.pdf

European Community. (1992). Retrieved from http://www.eurotreaties.com/maastrichtec.pdf

European Stability Mechanism. (2015, August 19). Financial Assistance Facility Agreement between European Stability Mechanism and The Hellenic Republic as the Beneficiary Member State and The Bank of Greece as Central Bank and Hellenic Financial Stability Fund as Recapitalisation Fund. Luxembourg City: European Stability Mechanism.

Eurostat. (2004). *Report by Eurostat on the Revision of the Greek Government Deficit and Debt Figures.*

Faustmann, H. (1999). *Divide and Quit? The History of British Colonial Rule in Cyprus 1878 - 1960 Including a Special Survey of the Transitional Period February 1959 - August 1960.* Mannheim.

Federal Reserve. (n.d.). *Federal Reserve Statistical Release*. Retrieved from http://www.federalreserve.gov/releases/h41/current/h41.htm

Feldstein, M. (1976). Social Security and Saving: The Extended Life Cycle Theory. *The American Economic Review, 66*(2), 77-86.

Fernández Méndez, D. (2015). Liquidez autónoma y liquidez derivada en intermediarios financieros y su relacion. *VII Congreso Economía Austriaca*.

Fernández-Villaverde, J. (2010, March). The Econometrics of DSGE Models. *International Review of Economics, 1*, 3-49.

Fisher, I. (1911). *The Purchasing Power of Money.* New York: The McMillan Co.

Fisher, I. (1930). *The Theory of Interest.* New York: Macmillan.

Fleming, J. M. (1962). Domestic Financial Policies Under Fixed and Under Floating Exchange Rates. *International Monetary Fund Staff Papers*, 369-380. Retrieved from http://www.palgrave-journals.com/imfsp/journal/v9/n3/pdf/imfsp196215a.pdf

Freixas, X., & Rochet, J.-C. (2008). *Microeconomics of Banking.* London: MIT Press.

Friedman, M. (1986). The Resource Cost of Irredeemable Paper Money. *Journal of Political Economy*, 642-647.

Friedman, M. (1997). The Real Lesson of Hong Kong. In M. Friedman, *The Collected Works of Milton Friedman.* Hoover Institution.

Garrison, R. (2001). *Time and Money: The Macroeconomics of Capital Structure.* London: Routledge.

Georgiadou, L. (2002). The Financial Sector in Cyprus: Structure, Performance and Main Developments. In C. Thimann (Ed.), *Financial Sectors in EU Accession Countries* (pp. 51-66). Frankfurt: European Central Bank. Retrieved from https://www.ecb.europa.eu/pub/pdf/other/financialsectorseuaccessionen.pdf

Goodhart, C. (1994, November). What Should Central Banks Do? What Should Be Their Macroeconomic Objectives and Operations? *The Economic Journal, 104*(427), 1424-1436.

Goodhart, C., & Illing, G. (2002). *Financial Crises, Contagion, and the Lender of Last Resort.* Oxford: Oxford University Press.

Government of Cyprus. (1959). Exchange Control: Chapter 199 of the Laws. Retrieved from http://www.mahkemeler.net/ifasil/Cap199.pdf

Government of the Republic of Cyprus. (1990, July 3). Cyprus Government application for membership to the European Economic Community. Nicosia, Cyprus. Retrieved from http://www.cvce.eu/content/publication/2005/6/15/00e7a9d4-8fd5-44f5-a3cd-329d4c43a9fd/publishable_en.pdf

Haliassos, M., Karagrigoriou, A., Ktoris, C., & Syrichas, G. (2006, January 30). On Recent Changes of Debts of Cyprus Households: The 1999 and 2002 Cyprus Surveys of Consumer Finances. Retrieved from http://www.ucy.ac.cy/hermes/documents/goto/hermes/06-03Onrecentchanges.pdf

Haliassos, M., Karamanou, P., Ktoris, C., & Syrichas, G. (2008, April). Mortgage Debt, Social Customs and Financial Innovation. *Central Bank of Cyprus: Working Paper Series*. Retrieved from http://www.centralbank.gov.cy/media/pdf/NPWPE_No2_042008_.pdf

Hardin, G. (1968). The Tradegy of the Commons. *Science, New Series, 162*(3859), 1243-1248. Retrieved 2010

Hayek, F. (1935). The Present State of the Debate. In *Collectivist Economic Planning* (pp. 201-244). London: Routledge & Kegan.

Hayek, F. A. (1931). *Prices and Production.* London: George Routledge & Sons.

Hayek, F. A. (1941). *The Pure Theory of Capital.* London: McMillan and Co.

Hicks, J. (1989). *A Market Theory of Money.* Oxford: Clarendon Press.

Hicks, J. R. (1939). *Value and Capital.* Oxford: Clarendon Press.

Holland, R. (1998). *Britain and the Revolt in Cyprus.* Oxford: Clarendon Press.

Hübner, O. (1854). *Die Banken.*

Huerta de Soto, J. (1992). *Socialismo, cálculo económico y función empresarial.* Madrid: Unión editorial.

Huerta de Soto, J. (1998). *Dinero, Crédito Bancario y Ciclos Económicos.* Madrid: Unión Editorial.

Huerta de Soto, J. (2009). A theory of liberal nationalism. In J. Huerta de Soto, *The Theory of Dynamic Efficiency* (pp. 100-112). New York: Routledge.

Huerta de Soto, J. (2012). En defensa del Euro: un enfoque austriaco (Con una crítica a los errores del BCE y al intervencionismo de Bruselas). *Procesos de Mercado, 9*(1), 15-49.

Hume, D. (1752). Essays, Moral, Political, and Literary. In D. Hume, *Political Discourses.*

International Monetary Fund. (2006). *Cyprus: Assessment of Financial Sector and Regulation.* Monetary and Financial Systems Department. Washington D.C.: International Monetary Fund. Retrieved from https://www.imf.org/External/Pubs/FT/SCR/2006/cr06347.PDF

International Monetary Fund. (2011, December 13). *Greece: Fifth Review Under the Stand By Arrangement, Rephasing and Request for Waivers of Nonobservance of Performance Criteria.* Washington D.C.: IMF. Retrieved from https://www.imf.org/external/pubs/ft/scr/2011/cr11351.pdf

International Monetary Fund. (2015). *Greece Preliminary Draft Debt Sustainability Analysis.* Washington D.C.: International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/scr/2015/cr15165.pdf

International Monetary Fund. (2016, September 23). Greece: Staff Concluding Statement of the 2016 Article IV Mission. IMF. Retrieved from https://www.imf.org/en/News/Articles/2016/09/23/MS092316-Greece-Staff-Concluding-Statement-of-the-2016-Article-IV-Mission

International Monetary Fund. (2016). *Ninth Review Under the Extended Arrangement, Under the Extended Fund Facility and Request for Waiver of Applicability of Performance Criteria.* Washington D.C.: International Monetary Fund.

Kacperczyk, M., & Schnabl, P. (2010). When Safe Proved Risky: Commercial Paper during the Financial Crisis of 2007-2009. *Journal of Economic Perspectives*, 29-50.

Karyos, A. (2009). EOKA and Enosis in 1955-59: Motive and Aspiration Reconsidered.

Keister, T., & McAndrews, J. (2009, July). Why Are Banks Holding So Many Excess Reserves? *Federal Reserve Bank of New York Staff Reports*(380).

Lachmann, L. M. (1956). *Capital and Its Structure* (2nd ed.). (L. S. Science, Ed.) London: Bell & Sons.

Mehrling, P. (2010). *New Lombard Street.* New Jersey: Princeton University Press.

Merhling, P. (1999). The vision of Hyman P. Minsky. *Journal of Economic Behavior & Organization*, 129-158.

Minsky, H. P. (1992, May). The Financial Instability Hypothesis. *Levy Economics Institute Working Paper Collection*. Retrieved from http://www.levyinstitute.org/pubs/wp74.pdf

Mises, L. V. (1920). Economic Calculation in the Socialist Commonwealth.

Mises, L. v. (1949). *Human Action: A Treatise on Economics.* New Haven: Yale University Press.

Modigliani, F., & Sutch, R. (1966). Innovations in Interest Rate Policy. *The American Economic Review, 56*(1), 178-197.

Mundell, R. (1961). A Theory of Optimum Currency Areas. *The American Economic Review*(51), 657-665.

Mundell, R. (1963, November). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. *Canadian Economics Association, 29*(4), 475-485. Retrieved from http://www.jstor.org/stable/139336

Oberling, P. (1982). *The Road to Bellapais: The Turkish Cypriot Exodus to Northern Cypress.* New York: Columbia University Press.

OECD. (2015). *Government at a Glance 2015.* Paris: OECD Publishing. Retrieved from http://www.oecd-ilibrary.org/docserver/download/4215081e.pdf?expires=1486937331&id=id&accname=guest&checksum=41E2162C1CCA9BF454ADDEA2DD9DC4DE

Palyi, M. (1936). *Liquidity.* Minnesota Bankers Association.

Palyi, M. (1972). *The Twilight of Gold, 1914-1936: Myths and Realities.* Chicago: Henry Regnery Co.

Papageorgiou, E., & Kouzoupi, E. (2005). Freedom of Establishment and Free Movement of

    Services: An Opportunity to Harmonise and Liberalise the Cyprus Service Sector. In C.

    Stefanou (Ed.), *Cyprus and the EU: The Road to Accession* (pp. 135-162). Aldershot:

    Ashgate. Retrieved from http://www.gbv.de/dms/sbb-berlin/394089197.pdf

Phylaktis, K. (1995). *The Banking System of Cyprus: Past, Present and Future.* Palgrave

    Macmillan.

Rallo, J. R. (2011). *Atesoramiento, ¿un arma de destrucción masiva?* Retrieved from

    http://juanramonrallo.com/2011/07/atesoramiento-%C2%BFun-arma-de-

    destruccion-masiva/

Rallo, J. R. (2011). *Los errores de la vieja economía: Una refutación de la Teoría General del*

    Empleo, el Interés y el Dinero de J.M. Keynes. Madrid: Union Editorial.

Rallo, J. R. (2011). Una aplicación de la teoría del ciclo económico desde la perspectiva de la

    Escuela Austriaca a la Gran Recesión. Tesis no publicada.

Rallo, J. R. (2012, Diciembre 03). *Juan Ramón Rallo*. Retrieved from

    http://juanramonrallo.com/2012/12/leccion-8-el-ciclo-economico-como-una-

    degradacion-generalizada-de-la-liquidez/

Reinhart, C. M., & Trebesch, C. (2015). The Pitfalls of External Dependence: Greece, 1929-

    2015. *Brookings Papers on Economic Activity*, 307-328.

Republic of Cyprus. (2003). The Capital Movement Law (english translation). Nicosia, Cyprus:

    Republic of Cyprus. Retrieved from

    http://www.olc.gov.cy/olc/olc.nsf/all/332B7F61ECC2E20BC225748E001CE2E5/$file/

    L.%20115(I)%20of%202003.pdf?openelement

Repullo, R. (2005, February). Liquidity, Risk Taking, and the Lender of Last Resort.

    International Journal of Central Banking. Retrieved from

    ftp://ftp.cemfi.es/pdf/papers/repullo/Liquidity%202005.pdf

Reserve Bank of Australia. (2012). Statement on Monetary Policy. 30-32. Retrieved from

    http://www.rba.gov.au/publications/smp/2012/may/pdf/0512.pdf

Riskdata. (2012). *Greek Debt Default: Investors´ and Risk Managers´ Perspective.* Retrieved from https://www.riskdata.com/resources/greek-debt.html

Rist, C. (1940). *The History of Monetary and Credit Theory: From John Law to the Present Day.* MacMillan.

Ross-Thomas, E., & Davis, A. (2010, April 27). Greece Cut to Junk at S&P as Contagion Spreads. *Bloomberg*. Retrieved from http://www.bloomberg.com/news/articles/2010-04-27/greek-debt-cut-to-junk-at-s-p

Rothbard, M. N. (1962). *Man, Economy and State.* William Volker Fund and D. Van Nostrand.

Scherman, H. (1938). *The Promises Men Live By: A New Approach to Economics.* New York: Random House.

Scott, W. A. (1902). *Money and Banking.* New York. Retrieved from https://archive.org/details/moneybanking00scotuoft

Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations* (5th ed.). (E. Cannan, Ed.) London: Methuen&Co. Retrieved 1904

Sokolovska, O., & Sokolovskyi, D. (2015). VAT efficiency in the countries worldwide. *Research Institute of Financial Law, State Fiscal Service of Ukraine*. Retrieved from https://mpra.ub.uni-muenchen.de/66422/1/MPRA_paper_66422.pdf

Somary, F. (1915). *Bankpolitik.*

Sowards, S. W. (1996). *Michigan State University.* Retrieved from http://staff.lib.msu.edu/sowards/balkan/

Sprague, O. M. (1917). Foreign Exchange. In C. F.Dunbar, *The Theory and History of Banking* (pp. 103-131). New York: G. P. PUTNAM'S SONS.

Stadler, G. W. (1994, December). Real Business Cycles. *Journal of Economics Literature, 32*, 1750-1783.

Stadtler, L., Schmitt, A., Klarner, P., & Straub, T. (2010). *More than Bricks in the Wall: Organizational Perspectives for Sustainable Success.* Gabler.

Stigum, M., & Crescenzi, A. (2007). *Stigum´s Money Market* (4th ed.). New York: McGraw-Hill.

Tagkalakis, A. O. (2014, May). The determinants of VAT revenue efficiency: recent evidence from Greece. *Bank of Greece Economic Analysis and Research Department - Special Studies Division*. Retrieved from http://www.bankofgreece.gr/BogEkdoseis/Paper2014181.pdf

Taleb, N. N. (2007). *The Black Swan: The Impact of the Highly Improbable.* Random House.

The Economist. (2015, June 8). Why Greece is in trouble (again). Retrieved from http://www.economist.com/blogs/economist-explains/2015/06/economist-explains-5

The Maddison Project. (2013). Retrieved from http://www.ggdc.net/maddison/maddison-project/home.htm

Treynor, J. L. (1987, November). The Economics of the Dealer Function. *Financial Analysts Journal, 43*(6), 27-34.

Wernz, J. (2014). *Bank Management and Control: Strategy, Capital and Risk Management.* Springer-Verlag Berlin Heidelberg.

Wheelock, D. C., & Wohar, M. (2009, September). Can the Term Spread Predict Output Growth and Recessions? A Survey of the Literature. *Federal Reserve Bank of St. Louis Review*, 419-440. Retrieved from https://research.stlouisfed.org/publications/review/09/09/part1/Wheelock.pdf

White, L. H. (1995). *Free Banking in Britain: Theory, Experience and Debate 1800-1845* (2nd ed.). London: Institute of Economics Affairs. Retrieved from http://www.iea.org.uk/sites/default/files/publications/files/upldbook115pdf.pdf

Whitehead, C. K. (2011). The Volcker Rule and Evolving Financial Markets. *Cornell Law Faculty Publications Paper 184*. Retrieved from http://www.hblr.org/wp-content/uploads/2014/09/Volcker-Rule.pdf

Xiouros, C. (2016). Handling of the Laiki Bank ELA and the Cyprus Bail-In Package. In A. Michaelides, & A. Orphanides, *The Cyprus Bail-In; Policy Lessons from the Cyprus Economic Crisis* (pp. 33-102). London: Imperial College Press.

Zenios, S. (2016). Self-fulfilling Prophecies in the Cyprus Crisis: ELA, PIMCO, and Delays. In A. Michaelides, A. Orphanides, A. Michaelides, & A. Orphanides (Eds.), *The Cyprus Bail-In; Policy Lessons from the Cyprus Economic Crisis* (pp. 9-31). London: Imperial College Press.

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