

Authored by

Dr. Platon Monokroussos
Head of Global Markets
Research,
pmonokrousos@eurobank.gr

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**Mr. Christos
Pneumatikatos,**
Head of the Credit and
Emerging Markets
Fixed Income Trading,
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Debt forgiveness is not a necessary precondition for restoring debt sustainability

In our October 7, 2013 *Greece Macro Monitor*, we presented a technical study on Greek public debt, forecasting a significant improvement in its dynamics after 2014 and explaining why the present elevated debt-to-GDP ratio may not by itself be the proper metric for assessing fiscal sustainability¹. The present note extends our analysis by demonstrating that under certain conditions outright debt forgiveness is not a strict prerequisite for restoring the sustainability of the country's fiscal position. More specifically, we provide a hypothetical scenario of a new debt relief package for Greece, involving lower interest rates on and extended maturities of EU loans and show that such a package can both facilitate the fulfillment of the agreed debt ratio targets and improve the manageability of the government borrowing requirement on a multi-decade basis. Before presenting in more detail the underlying assumptions and results of our analysis, we emphasize that the scenario presented herein is a hypothetical one and as such, it does not necessarily reflect our expectation about the modalities of a new debt relief package for Greece by the official sector.² Instead, our analysis aims to (i) demonstrate that there is a whole range of possibilities open to official lenders in structuring a new relief package in such a way so as to facilitate the attainability of the agreed program targets for the debt-to-GDP ratio; and (ii) provide a sound counterargument to some recent claims that outright debt forgiveness (i.e., haircuts on official-sector loans) is the only possible way to restore the sustainability of Greece's fiscal accounts.

What the November 2012 Eurogroup statement said about the prospect of a new (third) debt relief package for Greece

Upon a staff-level agreement between domestic authorities and the troika on updated program conditionality, the Eurogroup of November 26/27, 2012 announced a number of relief measures for Greece aiming to improve debt dynamics and to reduce medium-term rollover risks.³ These measures were made conditional on the "positive outcome" of a debt buy-back operation (that was successfully carried out in December 2012), and included inter alia: (i) a 100bps reduction of the interest rate charged to Greece on the loans provided in the context of the 1st EU/IMF bailout program; (ii) a 10bps reduction of the guarantee fee costs paid by Greece on the EFSF loans; (iii) an extension of the maturities of the bilateral and EFSF loans by 15 years; (iv) a deferral of interest payments for Greece on EFSF loans by 10 years; and (v) a commitment by Member States to pass on

¹ *Greece Macro Monitor*, "A Technical Study on Greece's Sovereign Solvency: How an elevated debt ratio conceals dramatic improvement in the debt rollover profile", Eurobank Research, 7 October 2013.

² As per a number of recent official comments (and in line with the statement released by the 26/27 November 2012 Eurogroup), such a package is expected sometime in the first semester of next year, provided that Eurostat's next EDP report (mid-April 2014) confirms a small primary surplus in Greece's ESA95 general government accounts (Eurobank Global Markets Research baseline scenario).

³ For a detailed assessment of the November 2012 debt relief package for Greece see e.g. *Greece Macro Monitor*, "Answers to 5+1 crucial questions on the outlook of Greek public finances and the prospect of a new aid package from official lenders", Eurobank Research, 29 August 2013.

<http://www.eurobank.gr/Uploads/Reports/GREECE%20Macro%20Monitor%20August%2029%202013.pdf>

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to Greece's segregated account, an amount equivalent to the income on the SMP portfolio accruing to their national central bank as from budget year 2013.

In addition to these relief measures, the official statement of the November 2012 Eurogroup read that euro area Member States would be ready to consider further measures and assistance, if needed, including *inter alia* lower co-financing in structural funds and/or further interest rate reduction of the Greek Loan Facility, in order to ensure that Greece can reach a debt-to-GDP ratio of 124% in 2020 and "substantially lower" than 110% in 2022. Under staff's current DSA, the attainability of the aforementioned debt ratio targets would require *yet unspecified* additional relief of 4 percent of GDP by 2020 as well as at least a further 3 percent of GDP by 2022.⁴

As per the November 2012 Eurogroup statement, these new measures would be considered when Greece reaches an annual primary surplus, as envisaged in the MoU, and should be subject to the full implementation of program conditionality. In line with the communiqué released by the Eurogroup of 21 February 2012, euro area partners also reiterated their commitment to provide adequate support to Greece during the life of the program and beyond until the country regains market access.

A hypothetical relief package to facilitate fulfillment of the agreed program targets for the public debt ratio

As noted in the section above, a new debt relief package for Greece should not only aim to improve Greece's borrowing requirement (cash flow relief) over the corresponding projection horizon, but it should also facilitate a cumulative decline in the public debt by 4 percent of GDP by 2020 as well as at least a further 3 percent of GDP by 2022 (stock relief)⁵. In what follows, we present the structure (and analyze the implications) of a theoretical relief package that can: (i) generate a decline in the country's public debt ratio towards 124%-of-GDP by 2020; and (ii) reduce the government borrowing need over a period stretching well beyond the projection horizon of the troika's present DSA.

Table A1 below summarizes the structure and modalities of the EU loans given to Greece under the first and the second (present) bailout programs.

Table A1 – Current structure and modalities of EU loans

	Notional amount (EURbn)	Average maturity ¹ (# of years)	Grace period on principal (# of years)	Grace period on interest (# of years)	Interest rate
EU bilateral loans (1 st program)	52.9	30	10	none	3M euribor + 50bps
EFSF loans	136.6 (by Dec. 2013) 144.7 (by Dec. 2014)	30	10	10	6M euribor + spread (bank recap loans) ² EFSF funding cost + spread (rest of loans) ³

¹, ² & ³ Additional info on EFSF loan amortization and interest payment profiles can be available upon request

Source: EFSF, Eurobank Global Markets Research

Swap of GLF facility into a 50-year fixed coupon amortizing bond with 10 year grace on principal and interest payments

We next proceed with the analysis of our theoretical scenario, which involves the EU bilateral loans provided to Greece under the 1st program (GLF) and assumes the following:

- (i) a new debt relief package for Greece is announced before the end of H1 2014;
- (ii) the total outstanding amount of loans provided under the Greek Loan Facility (GLF) is swapped into a 50-year amortizing bond, involving: **a**) a fixed coupon (0.6% in our example)⁶; **b**) a 10-year deferral of principal payments (i.e., amortization begins in 2025); and **c**) a 10-year deferral of coupon payments.

The implications of the above transaction on the general government borrowing need and gross debt are presented in Tables B1 & B2 below:

⁴ See e.g. Greece- 2013 Article IV Consultation, IMF Country Report No. 13/154

⁵ This additional stock relief would be necessary to ensure fulfillment of the agreed targets for the debt ratio under the troika's baseline macro scenario (i.e., 124%-of-GDP in 2020 and well below 110%-of-GDP by 2022).

⁶ The specific coupon rate has been chosen so as to (i) deliver a significant enough reduction in the debt ratio over the period 2014-2020; and (ii) be approximately equal to the current level of the interest rate on GLF loans (3m euribor + 50bps = c. 70bps, currently).

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Table B1 - General government borrowing requirement improvement (-) / deterioration (+) in EURbn*(Impact of GFL loan swap into 50yrfixed coupon amortizing bond)*

2014-2016		-2.2
2014-2022		-15.9
2023-2032		-25.4
2033-2042		-7.2
2043-2052		15.5
2053-2062		14.7
2063-2064		2.8
Total saving (2014-2064)		-15.5

Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

Table B2 – General government gross debt cumulative improvement (-) / deterioration (+)*(Impact of GFL loan swap into 50yrfixed coupon amortizing bond)*

	EURbn	ppts-of-GDP
2014-2020	-7.6	-3.2
2021-2030	-17.5	-4.0
2014-2030	-25.1	-7.1

Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

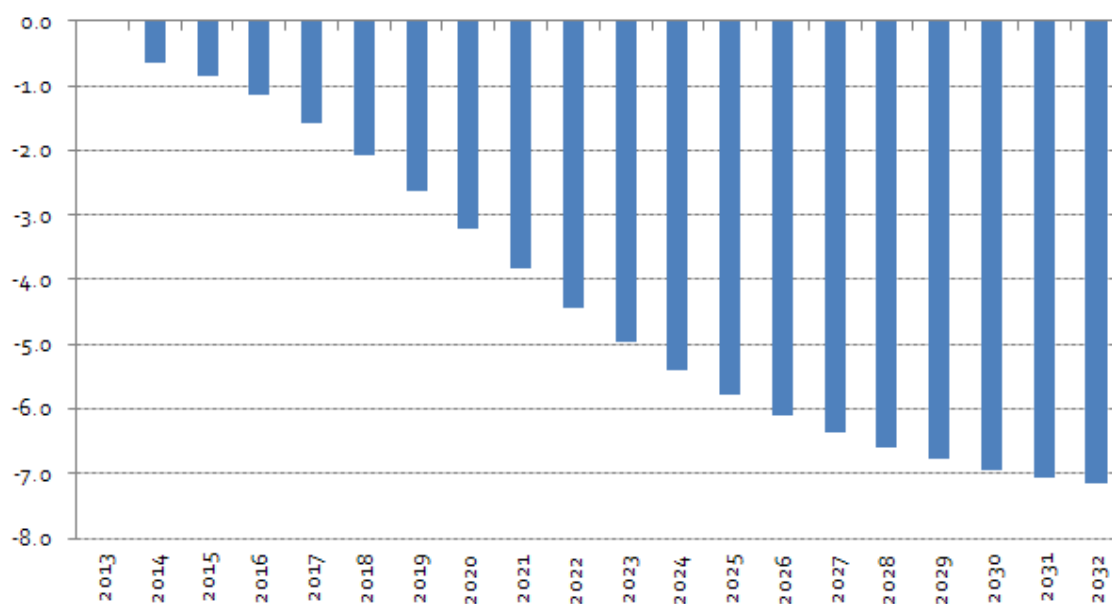
Notes on Tables B1 & B2

- (i) 3 month euribor is assumed to evolve in line with the corresponding forward rate curve (up to the year 2023) and to gradually converge towards 2% (ECB price stability threshold) thereafter;
- (ii) the effective extension of GLF loan maturities by 20 years as a result of the transaction highlighted above exerts an increasing effect on the debt stock after 2040 due to higher interest payments (vs. the present GLF program) over the period 2041-2064; however, this effect is more than outweighed by a more radical reduction of the debt stock in earlier years, leaving the terminal debt ratio in 2064 lower than the baseline scenario (ceteris paribus basis).

Graph 1 below portrays the cumulative reduction in the Greek public debt-to-GDP ratio as a result of the swap of the present GLF facility in a 50-year fixed coupon amortizing bond with a 10year grace period on principal and interest payments. Graphs 1.1 and 1.2 in Annex-II depict the annual change in the general government borrowing requirement over the period 2014-2064 and the amortization profile of EU loans as a result of the aforementioned transaction.

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Graph 1 – Cumulative change in debt-to-GDP ratio due to swap of GLF facility with 50-year fixed coupon amortizing bond (in ppts)



Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

10 year maturity extension in EFSF loans

In addition to the scenario presented above we assume the following transaction to be also part of the theoretical (new) relief package for Greece provided by official lenders: Namely, we assume that the maturity of each component of the EFSF loan package is extended by 10 years, while leaving all other modalities (e.g. interest rates & grace periods on interest and principal payments) unchanged.

Table C1 below displays the various components and associated financing cost of EFSF loans. The sources of the said table are EFSF and Eurobank Global Markets Research (as regards the cost of different loan components). Separately, Tables D1 & D2 display the impact of the 10-year EFSF maturity extension on the general government borrowing requirement and gross public debt.

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Table C1 – EFSF loans to Greece: structure & modalities

	Disbursement day	Disbursement amount (€ bn)	Cumulative disbursement (€ bn)	Interim maturity before roll-over	Final maturity	Interest rate
I	09/03/2012 (1)	34.5	34.5		24/02/2042 (2)	EFSF Cost + 12bps
II	3/19/2012	5.9	40.4		19/03/2047	EFSF Cost + 0.5bps
III	4/10/2012	3.3	43.7		10/04/2041	EFSF Cost + 0.5bps
IV	4/19/2012	2.5	68.7		19/04/2046 (3)	6M Euribor + 73bps
V	5/10/2012	4.2	72.9		10/05/2042	EFSF Cost + 0.5bps
VI	6/28/2012	1	73.9		28/06/2040	EFSF Cost + 0.5bps
VII	12/17/2012	7	80.9		17/12/2046 (4)	EFSF Cost + 0.5bps
VIII	12/17/2012	11.3	92.2		17/06/2042 (5)	EFSF Cost + 0.5bps
IX	12/19/2012	16	108.2	2023, 2024, 2025	(6)	6M Euribor + 35.5bps
X	1/31/2013	2	110.2		31/01/2043	EFSF Cost + 0.5bps
XI	2/28/2013	1.4	111.6		28/02/2043	EFSF Cost + 0.5bps
XII	2/28/2013	1.4	113		28/02/2044	EFSF Cost + 0.5bps
XIII	4/29/2013	2.8	115.8		30/04/2032	EFSF Cost + 0.5bps
XIV	5/17/2013	4.2	120		17/05/2043	EFSF Cost + 0.5bps
XV	5/30/2013	7.2	127.2	2024, 2025	(7)	6M Euribor + 34bps
XVI	6/25/2013	3.3	130.5		25/06/2045	EFSF Cost + 0.5bps
XVII	7/31/2013	2.5	133.04		31/07/2048	EFSF Cost + 0.5bps

Source: EFSF, Eurobank Global Markets Research

(1) As a temporary operation, EFSF provided the Eurosystem with bonds amounting to €35 billion as collateral during Greece's selective default period due to the PSI operation. These bonds were returned to the EFSF on 25 July 2012 and were cancelled.

(2) PSI sweetener and accrued interest loan amortizes constantly over 20 years between 2023 and 2042

(3) Loan for bank recapitalization; amortizing between 2034-2039 and 2043-2046

(4) Loan amortizes constantly between 2044-2046

(5) Loan amortizes constantly between 2023-2042

(6) Loan for bank recapitalization; target WAM after roll-over is 38.06 years; before roll-over: 11.06 years

(7) Loan for bank recapitalization; target WAM after roll-over is 39.5 years; before roll-over: 11.5 years

Current WAM assuming final maturity following the roll-over of disbursed portions to final maturity

Table D1 - General government borrowing requirement improvement (-) / deterioration (+) in EURbn
(Impact of 10 year maturity extension of EFSF loans)

2014-2016	0.0
2014-2022	0.0
2023-2032	-12.5
2033-2042	-11.9
2043-2052	-0.7
2053-2062	42.3
2063-2069	13.9
Total dissaving (2014-2069)	31.1

Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

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Table D2 – General government gross debt cumulative improvement (-) / deterioration (+)*(Impact of 10 year maturity extension of EFSF loans)*

	EURbn	ppts-of-GDP
2014-2020	0.0	0.0
2021-2030	1.3	0.4
2014-2030	1.3	0.4

Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

Notes to Tables D1 & D2

- (i) As shown in Table D1, a 10- year maturity extension of EFSF loans lightens up the general government borrowing requirement over the period 2014-2052 (ceteris paribus basis), but causes a considerable increase in funding needs during the period 2053-2069. The latter implication is due to slower EFSF loan amortization (and the ensuing increase in servicing costs over the period 2053-2069) in the 10-year loan maturities extension scenario under examination.
- (ii) Naturally, the aforementioned strategy has no impact on the government borrowing need over the period 2014-2020 due to the existing (10-year) grace period on interest and principal payments of EFSF loans.
- (iii) The 10-year EFSF loan maturity extension causes no change in the public debt stock in the period 2014-2020/22, but it has an increasing effect thereafter due to higher interest payments (as a result of a slower amortization profile of EFSF loans) over a long period of time beyond 2022. The net effect of the 10-year maturity extension is to leave the debt ratio higher (vs. the no-maturity-extension scenario) in 2068 i.e., the terminal year when the longest-maturity EFSF loan matures.
- (iv) **Annex-I** at the end of this document presents our methodology of deriving long-term forecasts of the EFSF funding cost, which along with the forecasts for the 6-month Euribor are necessary for making long-term projections of interest rates and payments on EFSF loans.

As a final note to this section, Tables E1 & E2 below depict the implication of both strategies under consideration (i.e., GFL swap in 50year bond and 10 year EFSF loan maturity extension) on the government borrowing need and gross debt

Table E1 - General government borrowing requirement improvement (-) / deterioration (+) in EURbn*Impact of (i) GFL loan swap into 50yr fixed coupon amortizing bond & (ii) 10year maturity extension of EFSF loans)*

2014-2016		-2.2
2014-2022		-15.9
2023-2032		-37.9
2033-2042		-19.1
2043-2052		14.8
2053-2062		57.0
2063-2069		16.7
Total dissaving (2014-2069)		15.6

Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

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Table E2 – General government gross debt cumulative improvement (-) / deterioration (+)*Impact of (i) GFL loan swap into 50yr fixed coupon amortizing bond & (ii) 10year maturity extension of EFSF loans)*

	EURbn	ppts-of-GDP
2014-2020	-7.6	-3.2
2021-2030	-16.2	-3.6
2014-2030	-23.8	-6.8

Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

Concluding remarks

The present note demonstrates that under certain conditions outright debt forgiveness *is not* a strict prerequisite for restoring the sustainability of the country's fiscal position. More specifically, we provide a hypothetical scenario of a new debt relief package for Greece, involving lower interest rates on and extended maturities of EU loans and show that such a package can both facilitate the fulfillment of the agreed debt ratio targets and improve the manageability of the government borrowing requirement on a multi-decade basis.

The scenario presented herein is a hypothetical one and as such, it does not necessarily reflect our expectation about the modalities of a new debt relief package for Greece by the official sector. Instead, our analysis aims to (i) demonstrate that there is a whole range of possibilities open to official lenders in structuring a new relief package in such a way so as to facilitate the attainability of the agreed program targets for the debt-to-GDP ratio; and (ii) provide a sound counterargument to some recent claims that outright debt forgiveness (i.e., haircuts on official-sector loans) is the only possible way to restore the sustainability of Greece's fiscal accounts.

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Annex-I

Derivation of future EFSF funding cost curve

As per the “MASTER FINANCIAL ASSISTANCE FACILITY AGREEMENT” between EFSF and the Hellenic Republic, (12 December 2012), the EFSF funding costs is determined by the Fund’s average borrowing cost in the context of all existing funding programs of euro area member states and after incorporating all relevant cost components⁷.

In order to forecast the future evolution of EFSF funding cost, we assume that the Fund will apply its existing strategy in securing market funding throughout the entire time horizon of the Greek program. Up to this point, the EFSF has issued bonds of a total notional amount of 180,504,200,000 EUR, with c. 73% of these (in notional terms) constituting fixed coupon bonds and the remainder 27% floating-rate securities.

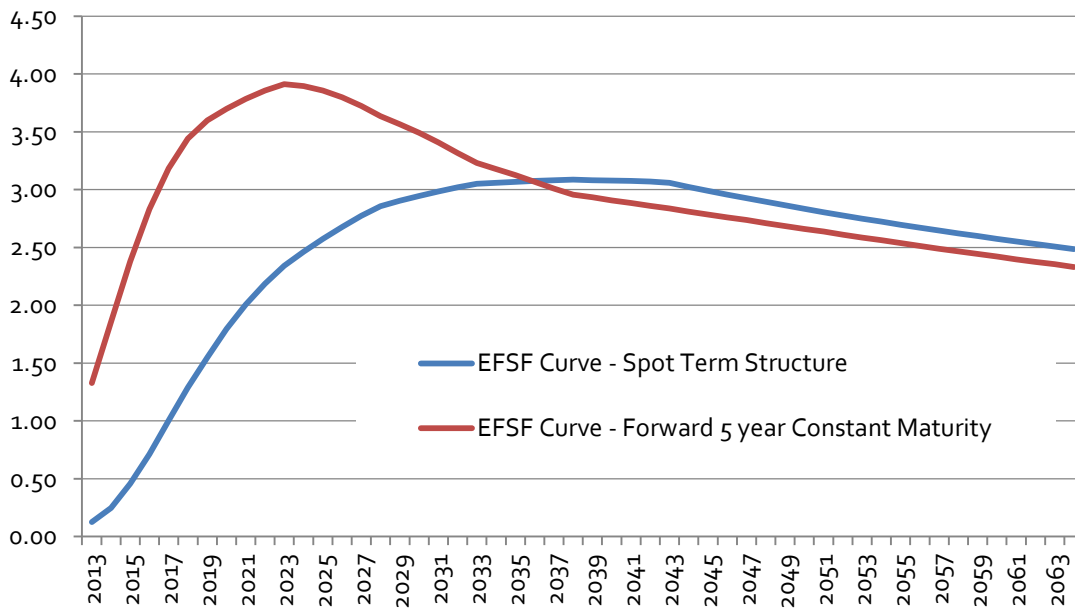
According to our calculations, the average-weighted maturity of EFSF bonds is 4.88 years, as implied by the table below:

ISIN	Issue Date	Maturity Date	COUPON TYPE	AMOUNT (Bio EUR)	ISIN	Issue Date	Maturity Date	COUPON TYPE	AMOUNT (Bio EUR)
EU000A1GoA32	04/12/12	12/4/2012	FIXED	7.00	EU000A1GoAN9	19/04/12	4/19/2012	FLOAT	5.00
EU000A1GoAG3	08/03/12	3/8/2012	FIXED	15.00	EU000A1GoBG1	17/07/13	7/17/2013	FIXED	5.99
EU000A1GoAE8	12/01/12	1/12/2012	FIXED	3.00	EU000A1GoBK3	29/10/13	10/29/2013	FIXED	6.00
EU000A1GoAS8	01/06/12	6/1/2012	FIXED	4.48	EU000A1GoAP4	19/04/12	4/19/2012	FLOAT	5.00
EU000A1GoBA4	05/03/13	3/5/2013	FIXED	5.50	EU000A1GoAB4	22/06/11	6/22/2011	FIXED	5.00
EU000A1GoAA6	01/02/11	2/1/2011	FIXED	5.00	EU000A1GoAD0	14/11/11	11/14/2011	FIXED	3.00
EU000A1GoAC2	29/06/11	6/29/2011	FIXED	3.00	EU000A1GoAQ2	19/04/12	4/19/2012	FLOAT	5.00
EU000A1GoAK5	28/03/12	3/28/2012	FIXED	4.96	EU000A1GoA16	05/09/12	9/5/2012	FIXED	3.97
EU000A1GoBF3	05/06/13	6/5/2013	FIXED	4.00	EU000A1GoA57	19/12/12	12/19/2012	FLOAT	5.00
EU000A1GoAU4	17/07/12	7/17/2012	FIXED	6.00	EU000A1GoBC0	23/05/13	5/23/2013	FIXED	5.00
EU000A1GoA24	23/10/12	10/23/2012	FIXED	5.90	EU000A1GoA65	19/12/12	12/19/2012	FLOAT	5.00
EU000A1GoA99	05/02/13	2/5/2013	FIXED	5.00	EU000A1GoBE6	31/05/13	5/31/2013	FLOAT	3.60
EU000A1GoBB2	16/04/13	4/16/2013	FIXED	8.00	EU000A1GoA73	19/12/12	12/19/2012	FLOAT	6.00
EU000A1GoAL3	19/04/12	4/19/2012	FLOAT	5.00	EU000A1GoBD8	31/05/13	5/31/2013	FLOAT	3.60
EU000A1GoBH9	31/07/13	7/31/2013	FIXED	4.00	EU000A1GoAJ7	26/03/12	3/26/2012	FIXED	2.50
EU000A1GoAM1	19/04/12	4/19/2012	FLOAT	5.00	EU000A1GoBJ5	04/09/13	9/4/2013	FIXED	3.00
EU000A1GoAR0	02/05/12	5/2/2012	FIXED	5.50	EU000A1GoAT6	19/06/12	6/19/2012	FIXED	3.50
EU000A1GoA81	22/01/13	1/22/2013	FIXED	8.00					
					Total				180.50

Taking into account the aforementioned, the forecast of the future EFSF funding cost curve is then calculated as the 5year forward of the current EFSF cost curve (see following graph):

⁷ http://www.efsf.europa.eu/attachments/efsf_greece_fafa.pdf

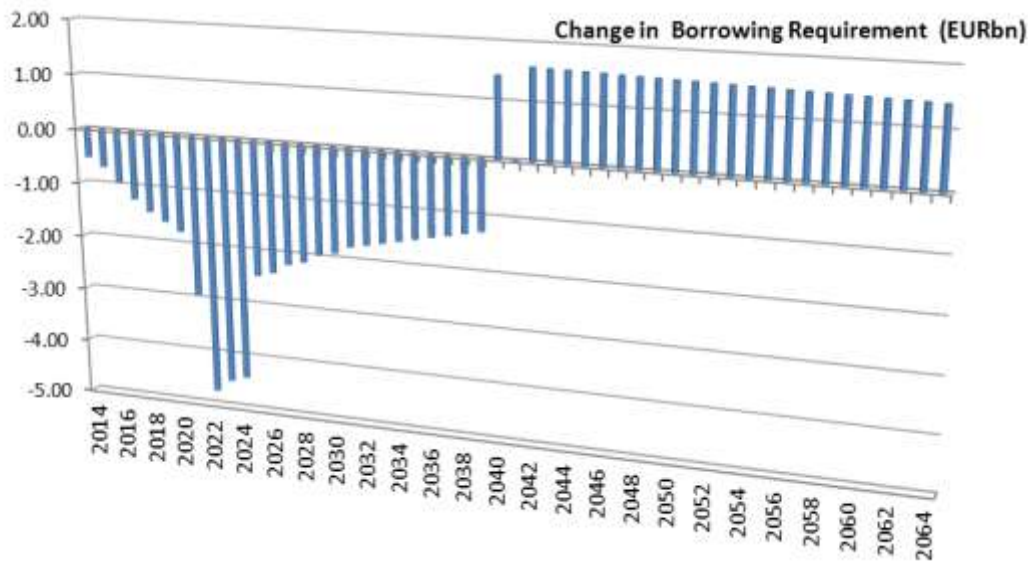
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Annex-II

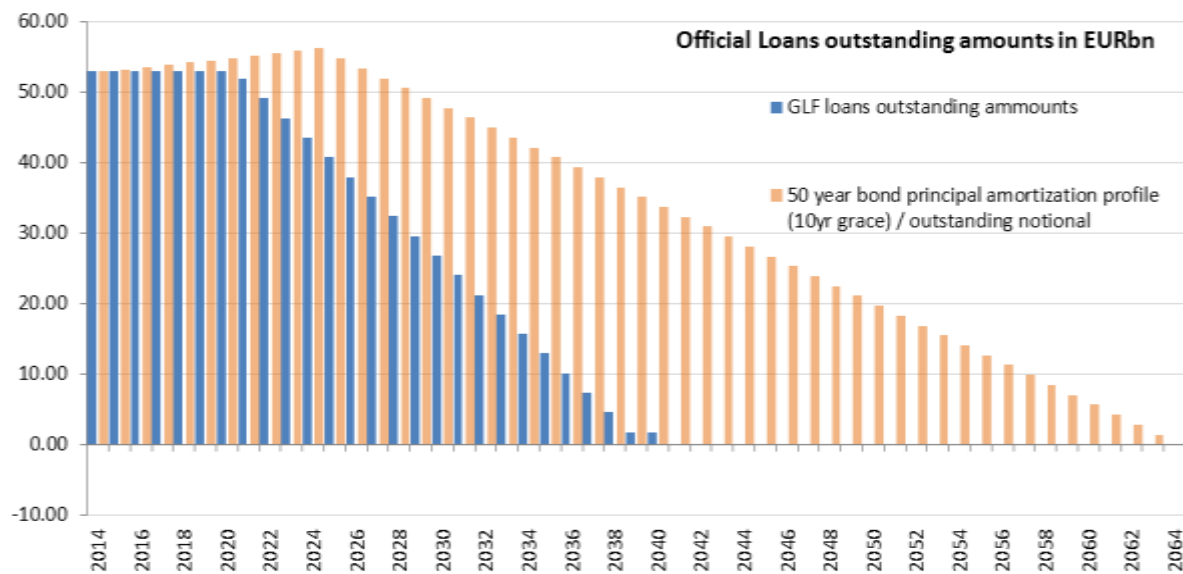
Graph 1.2 – Change in general government borrowing requirement due to swap of GLF facility with 50-year fixed coupon amortizing bond (in EURbn)

(negative numbers indicate improvement / positive numbers indicate deterioration)



Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

Graph 1.2 – EU loans outstanding amounts in EURbn (1st bailout program)



Source: IMF (July 2013), EFSF, Eurobank Global Markets Research

Eurobank Global Markets Research

Global Markets Research Team

Dr. Platon Monokroussos

*Head of Global Markets Research
pmonokroussos@eurobank.gr, + 30 210 37 18 903*

Paraskevi Petropoulou: *G10 Markets Analyst
ppetropoulou@eurobank.gr, + 30 210 37 18 991*

Galatia Phoka: *Emerging Markets Analyst
gphoka@eurobank.gr, + 30 210 37 18 922*

Global Markets Sales

Nikos Laios: *Head of Treasury Sales
nlaios@eurobank.gr, + 30 210 37 18 910*

Alexandra Papathanasiou: *Head of Institutional Sales
apapathanasiou@eurobank.gr, +30 210 37 18 996*

John Seimenis: *Head of Corporate Sales
yseimenis@eurobank.gr, +30 210 37 18 909*

Achilleas Stogioglou: *Head of Private Banking Sales
astogioglou@eurobank.gr, +30 210 37 18 904*

George Petrogiannis: *Head of Shipping Sales
gpetrogiannis@eurobank.gr, +30 210 37 18 915*

Eurobank Ergasias S.A, 8 Othonos Str, 105 57 Athens, tel: +30 210 33 37 000, fax: +30 210 33 37 190, email: EurobankGlobalMarketsResearch@eurobank.gr

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