Eurobank Research
www.eurobank.gr/research
research@eurobank.gr

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Focus notes: Greece

Editor:

Platon Monokroussos
Assistant General Manager
Head of Financial Markets Research
pmonokrousos@eurobank.gr

Quantitative analysis to this issue provided by:

Theofanis Mylonas
Assistant General Manager
Co-Head Global Markets Trading
tmylonas@eurobank.gr

Christos Pnevmatikatos
Head of Trading Stratey & Support
cpnevmatikatos@eurobank.gr

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Focus Greece
Valuation of the Greek PSI deal

The present report constitutes the third installment of a comprehensive Eurobank EFG Research study on the new €130bn bailout package for Greece that was officially endorsed by the February 21, 2012 Eurogroup. It takes a close look at the terms of the debt exchange offer (PSI) and provides a valuation of its components under various "exit yield" assumptions. The first installment of our study, published on February 21, provided a detailed overview on the main parameters and conditionality of the new rescue program as well as an updated timeline of the key dates and events in the crucial weeks ahead. The second one, released late last week, offered a quantitative analysis on the benefits of the new package for the country's sovereign solvency outlook as well as the evolution of the government's borrowing needs and sources of funding until 2020.

On February 24, 2012, Greece formally launched its long-awaited debt restructuring offer to private-sector holders of its sovereign bonds. The proposed exchange, constitutes an integral part of the €130bn bailout package that was officially endorsed at the February 21st Eurogroup. In this report we take a close look at the terms of the debt swap and provide a valuation of the PSI components under various "exit yield" assumptions.

Private sector involvement (PSI) in Greek debt restructuring - Terms of the exchange offer

The universe of privately-held sovereign debt that is eligible to participate in the debt exchange has an aggregate face value of €206bn and consists of *local-* and *foreign-law* bonds *issued* or *guaranteed* by the Hellenic Republic (Table A at the end of this document provides a summary of terms of the Greek exchange offer). The scheme will permit participating private-sector bondholders to exchange their old bonds with a basket of new securities consisting of:

i) new bonds issued by the Hellenic Republic on the PSI settlement date having a face amount equal to 31.5% of the face amount of the exchanged bonds;

ii) EFSF notes with a maturity date of two years or less from the PSI settlement date and face amount equal to 15% of the face amount of the old bonds tendered for exchange; and

iii) detachable GDP-linked securities issued by the Hellenic Republic having a notional amount equal to the face amount to each participating holder's new bonds.

Note that, on the PSI settlement date, the Republic will also deliver short-term EFSF notes to discharge of all unpaid interest accrued up to February 24, 2012 on exchanged bonds. As indicated in a press release issued last Friday by the Greek Ministry of Finance, the formal invitation to private sector for participation in the debt exchange is subject to certain

conditions, including:

a) a *financing condition* linking the implementation of the debt exchange with the disbursement of EFSF notes to participating private-sector bondholders upon approval by the European Working Group (EWG); and

b) *a minimum participation condition*, which states that the Hellenic Republic *will not* be required to settle the debt exchange unless bonds representing at least 90% of the aggregate face amount of all eligible bonds are validly tendered for exchange.

The Finance Ministry's press release also states the following:

— The Republic *intends*, subject to all other conditions being met and in consultation with official creditors, *to*: (i) declare effective a number of amendments to the terms of eligible bonds proposed under the collective action procedures introduced by the Greek Bondholder Act (Law 4050/2012) and (ii) complete the exchange of all eligible bonds, provided that these amendments would result to at least 90% of the aggregate face amount of all eligible bonds being exchanged.

— If at least 75% but less than 90% of the aggregate face value of all eligible bonds are tendered for exchange, the Republic, in consultation with official creditors, *may proceed* to exchange the tendered bonds without putting any of the proposed amendments into effect.

— If less than 75% of the aggregate face amount of all eligible bonds are validly tendered for exchange, and the Republic does not receive consents to exchange eligible bonds representing at least 75% of their aggregate face amount, then *no* exchange will take place.

Valuation of the Greek PSI deal

The quantitative assessment of the Greek debt exchange requires certain assumptions regarding the interest rate (exit yield) used to discount the stream of future cash flows received by participating private-sector bondholders. In reality, the shape and level of the post-exchange GGB yield curve will depend on, among others, the following factors:

— market perceptions of the sustainability of the Greek public debt post-restructuring; and
— the actual outcome of the exchange offer and the "voluntary" nature of the PSI transaction.

For *purely demonstrative* purposes, we utilize below four different "exit yield" levels (9%, 12%, 15% and 17%) for discounting the steam of future cash flows on the new Greek-risk bonds offered to investors participating in the exchange. We will loosely associate these theoretical discount rates with four distinct *investor participation scenarios* as follows:

Greek exchange offer – Investor participation scenarios

Scenario I – Best case

Investor participation > 90% ⇨ Exit yield assumption ~ 9%

Scenario I assumes that at least 90% of the aggregate face amount of all eligible bonds is validly tendered for exchange. Under this scenario, the Hellenic Republic proceeds with the exchange of tendered bonds *without* putting into effect any of the amendments proposed under the collective action procedures (CACs). In other words, the exchange is completed without triggering a credit event and the GGB yield curve benefits from a very successful "voluntary" restructuring and improved perceptions of Greece's solvency outlook post the PSI operation. *(A more thorough analysis on the beneficial impact of the 2nd bailout package for Greece's liquidity and solvency position can be found in Eurobank EFG*

Research, Greece Macro Monitor, Feb 23, 2012). Under Scenario I, we assume an exit yield of 9%.

Scenario II

Investor participation>75% but <90%; and

retroactive triggering of CACs offering same terms for all private-sector holders of eligible debt ⇨

⇨ *Exit yield assumption ~ 12%*

Under *Scenario II*, a *credit event* occurs, leading to the triggering of CDS contracts. Note again that this is a theoretical scenario, depicted here for purely demonstrative purposes. In fact, as noted in a Greek Finance Ministry press release dated February 24, 2012, if at least 75% but less than 90% of the aggregate face value of all eligible bonds are tendered for exchange, the Republic, in consultation with official creditors, *may proceed* to exchange the tendered bonds *without putting* any of the proposed amendments into effect.

Scenario III - Worst case

Investor participation < 75%; and

no investor consent (representing at least 75% of their aggregate face amount of eligible bonds) to amend the terms of eligible bonds, as per the *Greek Bondholder Act* ⇨

⇨ Two exit yield assumptions ~15% and 17%.

Under *Scenario III*, the proposed PSI scheme is abandoned and a straight restructuring process occurs with more severe losses for private-sector bond holders.

Scenario IV – Valuation of PSI package using the Portuguese bond yield curve

As an addition to the above scenarios, we price here the new Greek government bonds using as benchmark curve the current yield curve of the Portuguese government bonds. That is because, under the new bailout package, the targeted value for the Greek public debt to GDP ratio in 2020 is 120.5% *i.e..,* not far from Portugal's current and forecasted debt ratios (2012: 111.79%; 2013: 114.93%; 2014: 114.6%).

Tables B1 & B2 below show the valuation the PSI package (excluding the GDP warrant) in present value (PV) terms. Figure C1 provides a graphical representation of the current position of the GGBs curve and the value of the debt exchange package (excluding the GDP-linked component) under various "exit yield" scenarios.

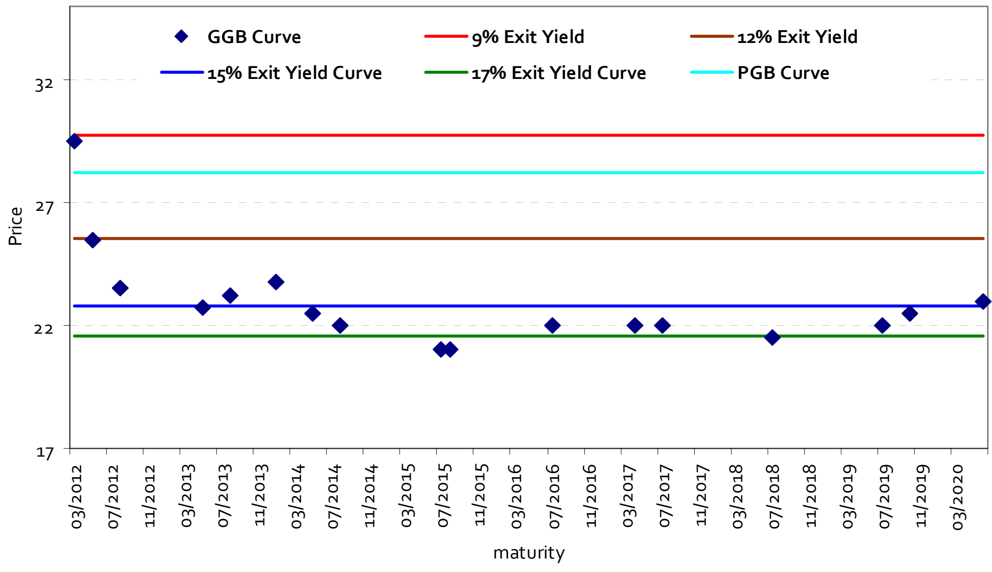
Table B1 – Valuation of the debt exchange package assuming different "exit yields"

Exit Yield (%)	GGB Component	EFSF Component	PV of PSI package (excluding GDP-linked security)	NPV Loss	New Bond Price	Duration
9.00	15.06	15.00	**30.06**	69.94	47.82	12.74
12.00	10.85	15.00	**25.85**	74.15	34.46	11.42
15.00	8.15	15.00	**23.15**	76.85	25.88	10.24
17.00	6.88	15.00	**21.88**	78.12	21.83	9.53
Portugese curve	13.56	15.00	**28.56**	71.44	43.05	14.28

Source: Greek Finance Ministry, Eurobank EFG Global Markets and Research Divisions, Bloomberg

Note: The calculations shown in the table above do not account for the present value of the GDP warrant

Figure C1 – Current position of the GGBs curve Vs. value of the debt exchange package (excluding GDP-linked component) under different "exit yield" assumptions



Source: Greek Finance Ministry, Eurobank EFG Global Markets & Research Divisions, Bloomberg

Table B2 – Indicative payment schedule for the new discount Greek government bonds, assuming an exit yield of 12%

Year	Date	Principal Outstanding	Principal Payment	Coupon Rate	Coupon Payment	Total Payment	DF	PV
1	28/02/2013	31.50	0	2.00	0.63	0.63	0.89286	0.56250
2	28/02/2014	31.50	0	2.00	0.63	0.63	0.79719	0.50223
3	28/02/2015	31.50	0	2.00	0.63	0.63	0.71178	0.44842
4	28/02/2016	31.50	0	3.00	0.95	0.95	0.63552	0.60056
5	28/02/2017	31.50	0	3.00	0.95	0.95	0.56743	0.53622
6	28/02/2018	31.50	0	3.00	0.95	0.95	0.50663	0.47877
7	28/02/2019	31.50	0	3.00	0.95	0.95	0.45235	0.42747
8	28/02/2020	31.50	0	3.00	0.95	0.95	0.40388	0.38167
9	28/02/2021	31.50	0	3.65	1.15	1.15	0.36061	0.41461
10	28/02/2022	31.50	0	4.30	1.35	1.35	0.32197	0.43611
11	28/02/2023	29.93	1.575	4.30	1.35	2.93	0.28748	0.84216
12	28/02/2024	28.35	1.575	4.30	1.29	2.86	0.25668	0.73455
13	28/02/2025	26.78	1.575	4.30	1.22	2.79	0.22917	0.64032
14	28/02/2026	25.20	1.575	4.30	1.15	2.73	0.20462	0.55786
15	28/02/2027	23.63	1.575	4.30	1.08	2.66	0.18270	0.48572
16	28/02/2028	22.05	1.575	4.30	1.02	2.59	0.16312	0.42263
17	28/02/2029	20.48	1.575	4.30	0.95	2.52	0.14564	0.36748
18	28/02/2030	18.90	1.575	4.30	0.88	2.46	0.13004	0.31930
19	28/02/2031	17.33	1.575	4.30	0.81	2.39	0.11611	0.27723
20	28/02/2032	15.75	1.575	4.30	0.74	2.32	0.10367	0.24050
21	28/02/2033	14.18	1.575	4.30	0.68	2.25	0.09256	0.20847
22	28/02/2034	12.60	1.575	4.30	0.61	2.18	0.08264	0.18053
23	28/02/2035	11.03	1.575	4.30	0.54	2.12	0.07379	0.15619
24	28/02/2036	9.45	1.575	4.30	0.47	2.05	0.06588	0.13500
25	28/02/2037	7.88	1.575	4.30	0.41	1.98	0.05882	0.11655
26	28/02/2038	6.30	1.575	4.30	0.34	1.91	0.05252	0.10051
27	28/02/2039	4.73	1.575	4.30	0.27	1.85	0.04689	0.08656
28	28/02/2040	3.15	1.575	4.30	0.20	1.78	0.04187	0.07445
29	28/02/2041	1.58	1.575	4.30	0.14	1.71	0.03738	0.06394
30	28/02/2042	0.00	1.575	4.30	0.07	1.64	0.03338	0.05483

Total value of new GGB	10.85

Source: Greek Finance Ministry, Eurobank EFG Global Markets & Research Divisions, Bloomberg

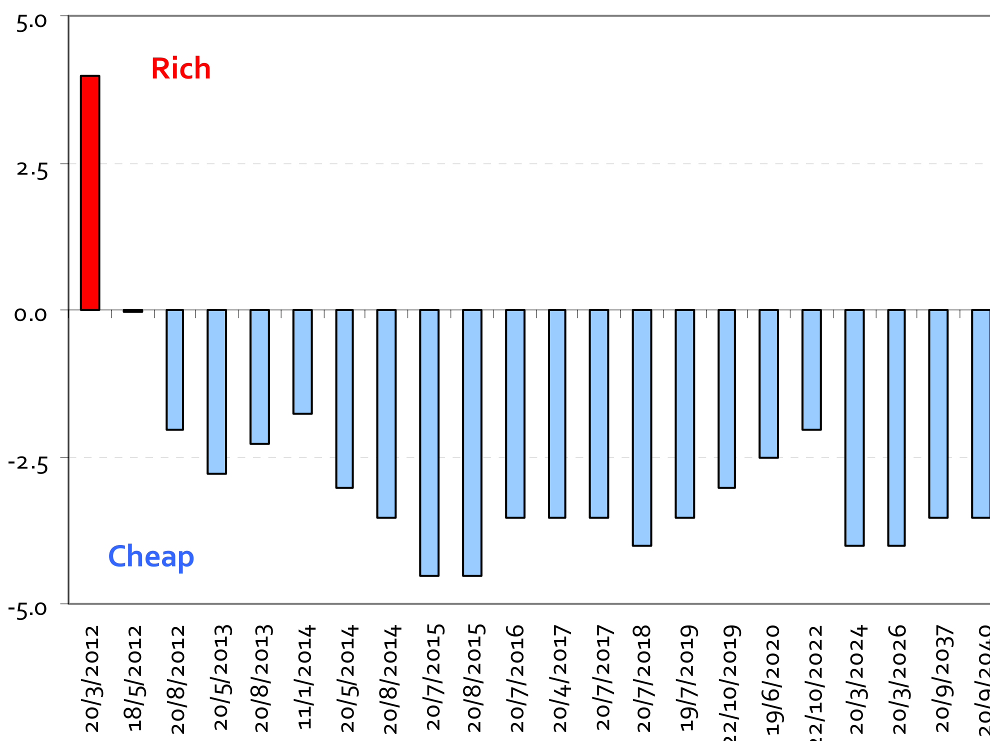
Figure C2 below provides a graphical depiction of the richness/cheapness of the current GGBs yield curve relative to the estimated value of the PSI package (excluding the GDP warrant) assuming a 12% exit yield.

As shown in Figure C2, most existing (old) Greek government bonds are currently trading cheap relative to the debt exchange package, assuming an exit yield no higher than 12%. The present risk premium in old GGB prices mainly reflects lingering uncertainty regarding the implementation of the debt exchange as well illiquidity premia due to

the sovereign's current ratings and the general risk appetite towards Greece. This may leave scope for some potential future gains (relative to current market prices and for investors participating in the exchange), provided that the PSI transaction will be completed successfully and Greece will do what is needed to ensure the timely disbursement of official loans under the 2nd bailout package.

As a final note to this document, a number of recent research pieces on the Greek PSI deal presented a number of approaches to value the GDP-linked security included in the debt exchange offer (see e.g. JPM and Barclays research). These reports provided estimated values for the detachable GDP warrant ranging between 0.5% and 1.2% of the face value of the corresponding security, depending on the exit yield utilized to discount the stream of future cash flows.

Figure C2 - Richness/cheapness of the current GGBs yield curve relative to the estimated value of the PSI package (excluding the GDP warrant) assuming a 12% exit yield



Source: Greek Finance Ministry, Eurobank EFG Global Markets & Research Divisions, Bloomberg

Concluding remarks

In this note we take a close look at the terms of the debt swap and provide a valuation of the PSI components under various "exit yield" assumptions.

Utilizing a number of different discount rate assumption, we derive an array of estimated present values for the debt exchange package (excluding the GDP-linked component) ranging between 28.56 (exit yield assumption ~ 17%) and 30.06 (exit yield assumption ~ 9%). To these values one would also need to add the estimated present value of the GDP-linked security in order to derive the full value of the PSI package.

Most existing (old) Greek government bonds are currently trading cheap relative to the debt exchange package,

assuming an exit yield no higher than 12%. The present risk premium in old GGB prices mainly reflects lingering uncertainty regarding the implementation of the debt exchange as well illiquidity premia due to the sovereign's current ratings and the general risk appetite towards Greece.

Table A. Greek Exchange Offer - Summary of Terms

Description	— Market-based restructuring of privately-held Greek sovereign debt
Universe of eligible bonds	— Universe of privately-held debt eligible to participation in the debt echange consists of *local-* and *foreign-law* bonds *issued* or *guaranteed* by the Hellenic Republic; The total notional amount of eligible debt is estimated at €206bn
CACs	— Greek-law bonds eligible to participate in the exchange - *aggregate outstanding amount of ca €177bn, with issue dates prior to Dec. 31, 2011* - will be subject to retroactive collective action clauses (CACs) enacted by the Greek Parliament on Feb 23, 2012 *(Greek Bondholder Act, Law 4050/2012)* — Hellenic Republic to separately solicit consents in favor of equivalent amendments from the holders of its foreign-law government bonds and its foreign-law guaranteed bonds in accordance with the terms of these bonds
Required bondholder majority for activating CACs *(local-law bonds)*	— Voting threshold = two-thirds (by face amount) of a quorum of these bonds — Required quorum = one-half (by face amount) of all bonds subject to collective action procedure — Aggregation clause: Yes
Exchange rate	— **For every 100-points of maturing notional** of old Greek bonds, a participating investor gets 24 securities consisting of: (i) **20 distinct Greek-risk bonds** with an overall notional amount equal to 31.5% of the face amount of the old bond tendered for exchange and maturities running from the 11th anniversary of the issue date (2023) to the 30th anniversary of the issue date (2042); (ii) **a detachable GDP-linked security** having a notional amount equal to the total face amount of the new bonds (i.e., 31.5 points per 100points of maturing notional of old bonds); (iii) **an equally split portfolio of 1- and 2-year EFSF notes** with a total face value equal to 15% of the face value of the old bond; and (iv) a **6-month EFSF bills** for accrued interest.
Coupon rates on new government bonds	— 2% per annum for payment dates up to 2015 (3 coupons) — 3% per annum for payment dates between 2016 and 2020 (5 coupons) — 3.65% per annum for payment dates in 2021 — 4.3% per annum for payment dates in 2022 and thereafter — Interest on new Greek bonds to accrue from February 24, 2012; interest on 1-year and 2-year EFSF notes to accrue from March 12, 2012
Maturity & amortization profile of new government bonds	— 11-year to 30-year maturities — Amortization structure commences on the 11th anniversary of the issue date (2023)
Governing law	— English law for new Greek bonds, GDP-linked securities and EFSF notes
Clearing	— All new Greek bonds to clear through Bank of Greece — EFSF notes to clear through Clearstream, Frankfurt
GDP Securities	— Each participating holder receives detachable GDP-linked securities of the Hellenic Republic with a notional amount equal to the face amount of the new bonds issued to him — GDP-linked Securities will entitle their holders to annual payments beginning in 2015 of an amount up to 1% of their notional amount, provided that: a) Greece's nominal GDP exceeds a pre-defined threshold; and b) the country features positive *real* GDP growth in excess of pre-specified targets
Co-finacing structure	— Holders of the new bonds will rank pari passu with the EFSF €30bn loan provided for the financing of the debt exchange operation — Common paying agent will be making sure that all payments of principal and interest on the new bonds and the EFSF loan fall on the same dates and on a pro rata basis
Negative pledge on new Greek bonds	— Yes
Some advantages to participating investors	— Upfront distribution of AAA-rated securities (1-year and 2-year EFSF notes) — New bonds rank pari passu and payments rank pro rata with €30bn EFSF loan — GDP-linked securities provide upside — English law

Source: Greek Ministry of Finance; Eurobank EFG Research

Research Team

Financial Markets Research Division
Platon Monokroussos, *Head of Financial Markets Research Division*
Paraskevi Petropoulou, *G10 Markets Analyst*
Galatia Phoka, *Emerging Markets Analyst*

Sales Team
Nikos Laios, *Head of Sales*
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Maria Prandeka, *Economic Analyst*
Theodosios Sampaniotis, *Senior Economic Analyst*
Theodoros Stamatiou, *Research Economist*

Eurobank EFG, 20 Amalias Av & 5 Souri Str, 10557 Athens, tel: +30.210.333 .7365, fax: +30.210.333.7687, contact email: Research@eurobnak.gr

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