



OECD Sovereign Borrowing Outlook 2013



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Foreword

Each year, the OECD circulates a survey on the borrowing needs of member governments. The responses are incorporated into the OECD Sovereign Borrowing Outlook to provide regular updates of trends and developments associated with sovereign borrowing requirements, funding strategies, market infrastructure and debt levels from the perspective of public debt managers. The Outlook makes a policy distinction between funding strategy and borrowing requirements. The central government marketable gross borrowing needs, or requirements, are calculated on the basis of budget deficits and redemptions. The funding strategy entails decisions on how borrowing needs are going to be financed using different instruments (e.g. long-term, short-term, nominal, indexed, etc.) and which distribution channels (auctions, tap, syndication, etc.) are being used.

Accordingly, this fifth Outlook (OECD Sovereign Borrowing Outlook 2013) provides data, information and background on sovereign borrowing needs and discusses funding strategies and debt management policies for the OECD area and country groupings, including:

- Gross borrowing requirements;*
- Net borrowing requirements;*
- Central government marketable debt;*
- Sovereign stress and the supply of safe public assets;*
- Interactions between fiscal policy, public debt management and monetary policy;*
- Funding strategies and instruments;*
- Distribution channels;*
- Structural changes in the investor base;*
- Buybacks and exchanges.*

OECD Sovereign Borrowing Outlook 2013, is published this year for the second time as a stand-alone publication. Shorter assessments of sovereign borrowing needs were published in OECD Journal: Financial Market Trends Volumes 2009/1, 2009/2, 2010/2 and 2011/2. (See www.oecd.org/daf/publicdebtmanagement.)

The Borrowing Outlook is part of the activities of the OECD Working Party on Public Debt Management, incorporated in the programme of work of the Directorate for Financial and Enterprise Affairs' Bond Market and Public Debt Management Unit. This Borrowing Outlook was prepared by a drafting group from the Unit and comprised Hans J. Blommestein (Team Leader), Emre Elmadag (Public Debt Analyst), and Perla Ibarlucea Flores (Research Assistant). Hakan Bingol and Sofia Poole Vanheeuverswyn (Public Debt Analysts) also contributed. Comments and suggestions can be sent to Dr Hans J. Blommestein, Head of Bond Market and Public Debt Management Unit, OECD, Paris, France, hans.blommestein@oecd.org

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Acronyms

AFT	Agence France Trésor
AKK	Hungarian Debt Management Agency
AOFM	Australian Office of Financial Management
APF	Asset Purchase Facility Operations
APP	Asset Purchase Programme
BOE	Bank of England
BOJ	Bank of Japan
BTP	Buono del Tesoro Poliennale
CACs	Collective Active Clauses
CAPM	Capital Asset Pricing Model
CBs	Central Banks
CDS	Credit Default Swap
CRAs	Credit Rating Agencies
CY	Calendar Year
DDA	Dutch Direct Auction
DMOs	Debt Management Offices
DSL	Dutch State Loan
DTC	Dutch Treasury Certificate
ECB	European Central Bank
EFSF	European Financial Stability Facility
EFSM	European Financial Stabilisation Mechanism
EMTN	Euro Medium Term Note
ESM	European Stability Mechanism
EU	European Union
FAS	Fiscal Authorities
FED	Federal Reserve
FRAs	Forward Rate Agreements
FRBNY	Federal Reserve Bank of New York
FRNs	Floating Rate Notes
GBR	Gross Borrowing Requirement
GDP	Gross Domestic Product
GEMMs	Gilt-edged Market Makers
IGCP	Portuguese Treasury and Debt Management Agency
IMF	International Monetary Fund
JGB	Japanese Government Bond
LHS	Left Hand Side
LSAP	Large Scale Asset Purchase
LTROs	Longer-term Refinancing Operations

MEP	Maturity Extension Programme
NBR	Net Borrowing Requirement
NTMA	National Treasury Management Agency
NZDMO	New Zealand Debt Management Office
OECD	Organisation for Economic Co-operation and Development
OLO	Obligations Linéaires Ordinaires
OMT	Outright Monetary Transactions
ONS	Office for National Statistics
OSI	Official Sector Involvement
PDM	Public Debt Management
PDs	Primary Dealers
PSI	Private Sector Involvement
QE	Quantitative Easing
RBNZ	Reserve Bank of New Zealand
RHS	Right Hand Side
RWAs	Risk Weighted Assets
SMP	Securities market Programme
SNA	System of National Accounts
SOMA	System Open Market Account
SPFA	Slovenian Public Finance Act
TIPS	Treasury Inflation-Protected Securities
WB	World Bank
WPDM	Working Party on Public Debt Management

Executive summary

OECD sovereign issuers continue to face major challenges in the government securities markets as a result of continued strong borrowing operations amid an uncertain environment with elevated borrowing costs in some sovereign debt markets and negative yields in others.

The *OECD Sovereign Borrowing Outlook 2013* provides estimates of borrowing needs for 2012 and projections for 2013. Compared with pre-crisis levels, gross borrowing by OECD governments is expected to remain elevated at USD 10.8 trillion in 2012. In 2013, the gross borrowing needs of OECD sovereigns are projected to increase slightly to around USD 10.9 trillion, with a high level of longer-term redemptions in 2013.

Government debt ratios for the OECD as a whole are expected to grow or remain at high levels. In countries where public deficits and debt ratios have not yet begun to decline, the legacy of public debt exposes sovereign issuers to shifts in confidence. The huge stock of public debt has put the spotlight on the urgency of fiscal consolidation.

Issuers have also had to face new challenges associated with structural changes in the investor base for government securities with a notable increase in home bias in peripheral euro area markets. In this challenging environment many debt management offices have had to adjust their issuance procedures and distribution channels as well as reinforce investor relations programmes.

Additional complications for government issuers are those generated by perceptions of a rapid increase in “sovereign risk”. A lack of consensus on what exactly constitutes sovereign risk, and how this is related to concepts such as “safe assets” and the “risk-free rate”, is an obstacle to properly measure and price this risk. Since the track-record of “sovereign risk pricing” is not very impressive, suggested market measures of this risk (including ratings) should be used very carefully for concluding that the sovereign debt of an OECD country has indeed lost its “risk-free” status. In this context, the *OECD Borrowing Outlook* provides new estimates of the supply of so-called “safe” sovereign assets by taking a more robust view on sovereign ratings.

Euro area-induced contagion effects led to upward pressures on funding costs and roll-over risk for sovereigns, a reduced ability by financial institutions’ to pledge sovereign securities as collateral, and “flight-to-safety” by investors. However, the recently announced combined “Outright Monetary Transactions/European Stability Mechanism backstop” had a noticeable downward influence on bond yields in peripheral markets.

Fiscal dominance and unconventional monetary policy operations are creating new challenges for public debt management and associated markets, including possible policy conflicts. The future exit from the current accommodative monetary policy stance may create difficulties for sovereign issuers. However, with proper planning, good communications and a transparent issuance strategy, future asset sales by central banks do not need to be disruptive.

Chapter 1

Sovereign borrowing overview*

OECD debt managers continue to face huge funding challenges. This chapter provides estimates and projections for 2012 and 2013 of a) government borrowing needs and b) central government debt. Raising large volumes of funds at lowest cost, with acceptable roll-over risk, remains a great challenge, with most OECD debt managers continuing to rebalance the profile of debt portfolios by issuing more long-term instruments and, where possible, moderating bill issuance. Governments' preferences to enhance fiscal resilience encourage the maintenance of a diversity of nominal and price-indexed instruments along the maturity spectrum.

* The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1.1. A highly uncertain issuance environment with low levels of confidence but mixed signals on volatility

Amid a still highly unsettled economic outlook, the *OECD Sovereign Borrowing Outlook*¹ expects this year's gross borrowing needs of OECD governments to remain at the elevated level of USD 10.8 trillion in comparison to pre-crisis levels. The borrowing needs of OECD sovereigns are projected to increase slightly to around USD 10.9 trillion in 2013 (Figure 1.1 and Table 1.1).

OECD debt managers continue to face major funding challenges

Against the backdrop of a general lack of confidence with significant uncertainty about economic prospects,² elevated budget deficits and market concerns about sovereign debt stress,³ OECD debt managers continue to face significant funding challenges in meeting fairly high borrowing needs, with a relatively high level of longer-term redemptions in 2013. Some debt managers indicated that plans to decrease offering amounts for bills and bonds in the near future have been put on hold, arguing that growing investors' uncertainty over the fiscal and economic outlook makes a wait-and-see approach more prudent. Although in October and November of this year (i.e. 2012) one such measure of uncertainty (i.e. option-implied volatility in government bond markets) showed some improvement, bond market volatility in the euro area remains high by historical standards.⁴ However, other indicators of financial market volatility showed a stronger decline. For example, on 18 September 2012, the Citi Market Risk Index showed that the perception of risk in the system is now the lowest since early 2010 (i.e. before the Greek sovereign debt issue began to move markets in significant way). Fisher (2012) notes that, despite the heightened sense of uncertainty, there are several influences pushing down on market volatility, including "the perception that central banks are on permanent standby to deal with tail risk" (for example, OMT, the recently announced ECB backstop and "unlimited QE" by the US FED).⁵ Caruana (2012) argues that "... there are signs that low policy interest rates and swollen central bank balance sheets have helped to suppress volatility, perhaps by dulling market participants' of tail risks."⁶ In other words, central banks seem increasingly important in setting the level of risk appetite.

Several OECD issuers (in particular within the euro area) had to pay (and are paying) fairly high borrowing rates, although since September of this year, the situation has improved for most peripheral countries in the euro area.⁷ In some extreme cases market access became a huge test for the issuer, a situation further aggravated by contagion pressures and periods of mood swings of markets that seem to be unrelated to changes in economic fundamentals (aka "animal spirits"⁸). Before September of this year, financial stress rose dramatically, in particular in the euro area, with adverse feedback loops between the financial sector and the real economy gaining strength, while most banks had difficulties in accessing the market for senior unsecured bank debt. But in September of this year, the ECB announced new measures to counter speculation about the break-up of

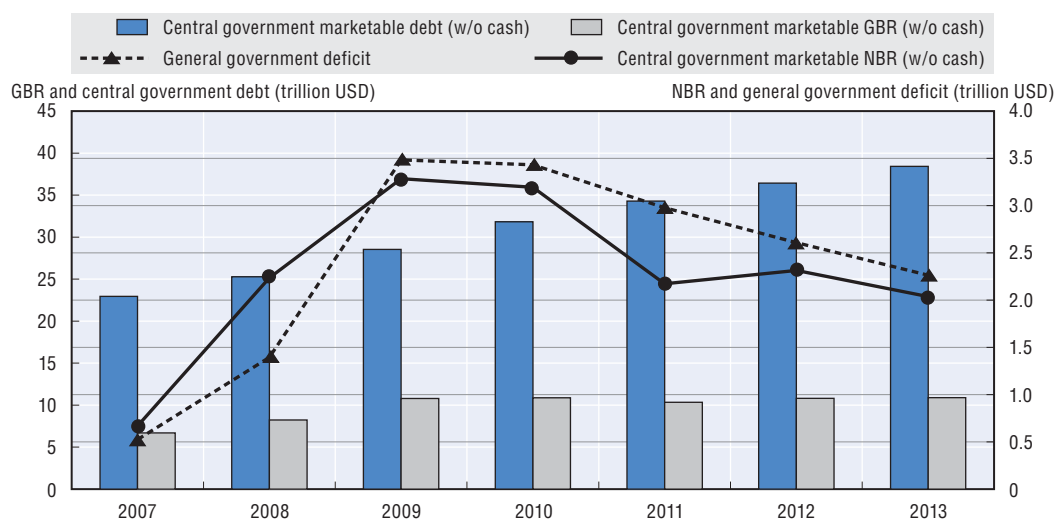
the euro area (see Chapter 2 on “Outlook for Sovereign Stress”, Section 2.3 for details), thereby reducing considerably financial market stress. Also the US FED and the Bank of Japan announced, or are considering, pledges to expand their asset purchases for as long as it takes (“unlimited QE”; see Sections 3.1 and 3.2).

Borrowing needs versus funding strategy

The Outlook makes a policy distinction between funding strategy and borrowing requirements. Central government marketable gross borrowing needs are calculated on the basis of budget deficits and redemptions.⁹ The funding strategy entails decisions on how borrowing needs are going to be financed using different instruments (e.g. long-term, short-term, nominal, indexed, etc.) and distribution channels.¹⁰

Information on methods and sources of the OECD *Sovereign Borrowing Outlook* can be found in Annex A.

Figure 1.1. Fiscal and borrowing outlook in OECD countries for the period 2007-2013



Note: GBR = gross borrowing requirement, NBR = net borrowing requirement.

Source: 2012, Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database; and OECD staff estimates.

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Uncertainty increased due to lower pace of recovery and higher sovereign stress

Uncertainty increased due to the slowdown in the pace of recovery of the world economy, which is somewhat more pronounced than previously anticipated. Real GDP growth in the OECD area¹¹ is estimated to be 1.4% in both 2012 and 2013.¹² Many issuers had to deal with complications generated by the pressures of a rapid increase in sovereign stress, whereby “the market” suddenly perceives the debt of some sovereigns as “risky”. Subtle shifts in confidence may have huge consequences. Bond market pressures have the potential to generate self-fulfilling debt problems by triggering higher interest rates by way of demanding compensation for (perceptions of) higher sovereign risk that, in turn, may affect the growth prospects of countries.¹³

1.2. Evolution of budget deficits, sovereign borrowing and debt

The general government deficit for the OECD area as a whole is estimated to reach 5.5% of GDP in 2012 (the equivalent of approximately USD 2.6 trillion), with a projected decrease to nearly 4.6% of GDP in 2013 (the equivalent of around USD 2.3 trillion) – see Figure 1.1 and Table 1.1.

Net borrowing requirements are estimated to fall in 2013

However, in spite of these (projected) improvements,¹⁴ deficits are still standing at near historical record levels.¹⁵ Central government marketable net borrowing requirements are estimated to fall from nearly USD 2.3 trillion in 2012 to around USD 2.0 trillion in 2013 (Figure 1.1). This amounts to a decrease from around 4.8% of GDP in 2012 to 4.1% in 2013.

Government liabilities were initially driven largely by the recessionary impact of the unprecedented 2007-2008 global liquidity and credit crisis, including government expenditures due to fiscal stimulus programmes and later by the influence of recession-induced negative growth dynamics. Because of this, and despite falling interest rates during 2008-2012, general and central government gross debt-to-GDP ratios for the OECD as a whole are expected to continue to increase.

Overall government debt ratios to increase further

For the OECD area as a whole, the outstanding central government marketable debt is expected to increase from USD 36.4 trillion (75.9% of GDP) in 2012, to around USD 38.4 trillion at the end of 2013 in OECD countries (77.9% of GDP). General government debt-to-GDP is projected to reach 111.4% in 2013. However, a closer look at groups of countries shows a more differentiated picture (see Chapter 3, Section 3.3.2 for details).

Table 1.1. **Central government gross borrowing and debt in the OECD area**

	Trillion USD						
	2007	2008	2009	2010	2011	2012	2013
Central government marketable GBR (with cash)	7.1	8.7	11.2	11.3	10.8	11.2	11.3
Central government marketable GBR (w/o cash)	6.7	8.2	10.8	10.9	10.3	10.8	10.9
Central government marketable debt (w/o cash)	22.9	25.3	28.5	31.8	34.3	36.4	38.4
Central government marketable NBR (w/o cash)	0.7	2.2	3.3	3.2	2.2	2.3	2.0
General government deficit	0.5	1.4	3.5	3.4	3.0	2.6	2.3

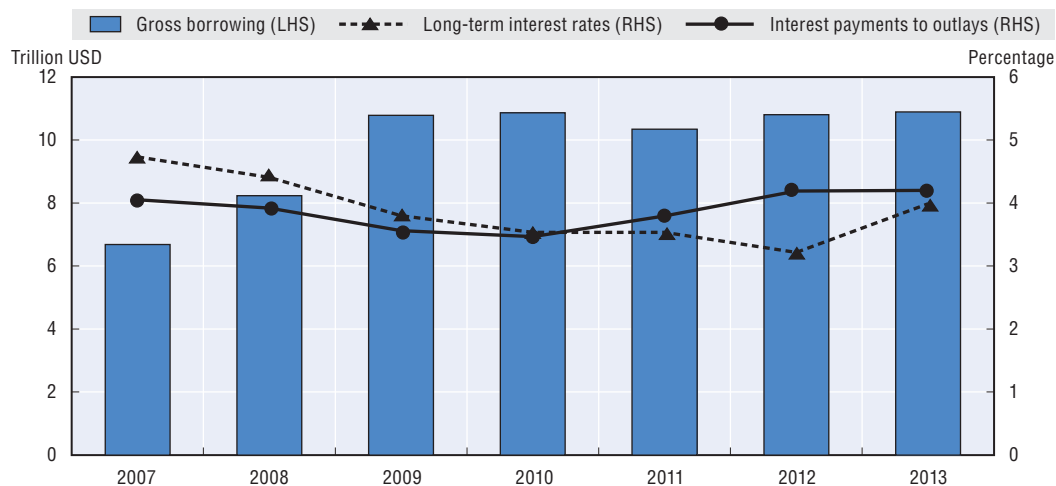
Note: Figures are calculated using the exchange rates as of 1st December 2009.

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management, OECD Economic Outlook 92 Database, and OECD staff estimates.

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The OECD average long-term interest rate is expected to rise in 2013

Of great importance for government funding operations and the projection of future borrowing needs, is the anticipated change in the direction of longer-term interest rates (Figure 1.2). Long rates dropped since the peak of the global financial crisis in 2008. The OECD average long-term interest rate is expected to rise to around 4.0% in 2013, up from 3.8% in 2009. The projections assume that when government indebtedness passes a threshold of 75% of GDP, long-term interest rates increase by 10 basis points¹⁶ for every additional percentage point increase in the debt-to-GDP ratio.¹⁷

Figure 1.2. **Central government gross borrowing, interest payments and long-term interest rates**

Note: GDP – weighted average long-term interest rate.

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database, and OECD staff estimates.

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1.3. Summary overview of the borrowing outlook for OECD country groupings¹⁸

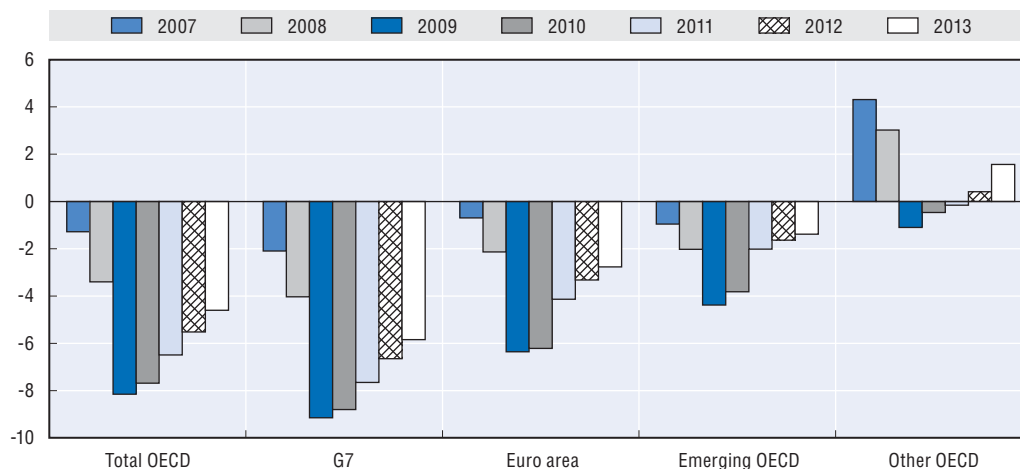
All OECD country groupings show an improvement in government balances

The unprecedented global liquidity and credit crisis that started in August 2007 was at first associated with dysfunctional and collapsing financial institutions and markets. The response to this crisis set the stage for the second phase: the surge in government deficits and government (contingent) liabilities, further amplified by the fiscal response to concerns about the threat of a depression-size economic impact of the global financial crisis.¹⁹ In all OECD country groupings considered here, general government financial balances improved. For the OECD as a whole (Figure 1.1 and Table 1.1) and the various groupings (Figure 1.3), deficits peaked in 2009. Furthermore, “Other OECD” included countries with a fiscal surplus in the period 2006-2008. In the period 2009-2011, also the general government balance of this group of countries turned into a deficit, but returning to a surplus in 2012 and with an increase in surplus projected for 2013. In comparison with total OECD, G7 and the OECD countries of the euro area, the performance of “Emerging OECD” was (and is) relatively good.²⁰

Gross borrowing remains elevated but net borrowing is projected to decrease in 2013

Gross marketable borrowing requirements remain elevated. However, the decrease in estimated net marketable borrowing in 2013 is striking (Figure 1.1), reflecting relatively high redemptions. Figure 1.4 shows estimates and projections of central government marketable gross borrowing requirements as a percentage of GDP for the various country groupings. Although G7 gross borrowing requirements of the central government as a percentage of GDP continues to decline (by a projected 2.0% in 2013), after having peaked in 2009, borrowing needs remain at elevated levels in comparison to pre-crisis levels (Figure 1.4). In contrast, borrowing needs are expected to fall in 2012 to below pre-crisis

Figure 1.3. **General government financial balance to GDP ratios in OECD countries**
Percentage of GDP



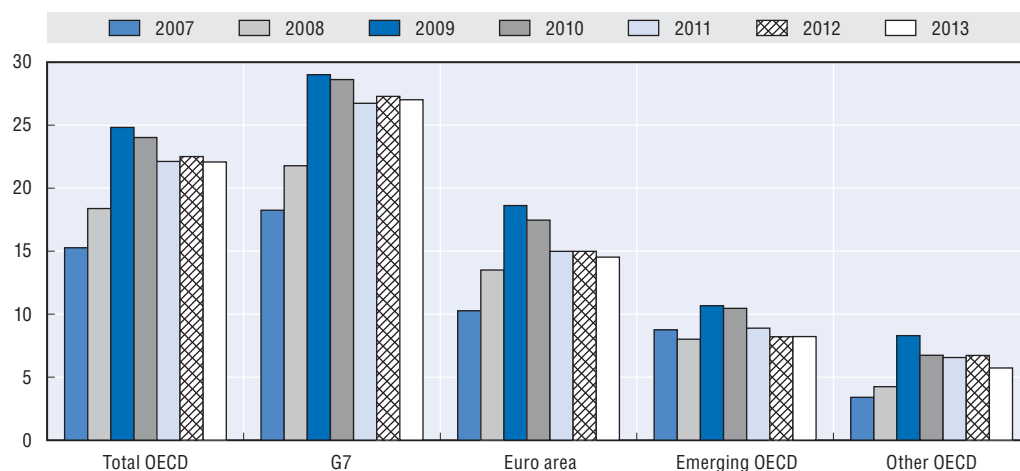
Note: General government financial balances are on SNA basis.

Source: OECD Economic Outlook 92 Database; and OECD staff estimates.

StatLink <http://dx.doi.org/10.1787/888932778860>

levels in “Emerging OECD”. Of particular interest is that the average gross borrowing ratio to GDP of the OECD countries in the *euro area*, after having peaked in 2009 (reaching 18.6 as a percentage of the GDP), strongly declined since then (by an estimated 4.1%), and is projected to fall to around 15% in 2012 and approximately 14.5% in 2013.

Figure 1.4. **Central government marketable gross borrowing in OECD countries**
Percentage of GDP



Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database; and OECD staff estimates.

StatLink <http://dx.doi.org/10.1787/888932778879>

1.4. The challenge of raising large volumes of funds with acceptable roll-over risk

For countries facing historically high spreads, issuance conditions were quite challenging this year (in particular in the *euro area* during the first half of this year). More generally, the backdrop of increasing debt levels and high deficits added significantly to the

difficulties faced by several countries in raising funds. As noted, these difficulties were sometimes compounded by very rapid (perceived) increases in sovereign risk without (important) changes in fundamentals. Financial markets often react in a non-linear fashion to delayed or postponed fiscal adjustments as well as to sudden mood swings, thereby creating the risk of cliff effects where markets suddenly lose confidence in yesterday's safe sovereign assets.²¹

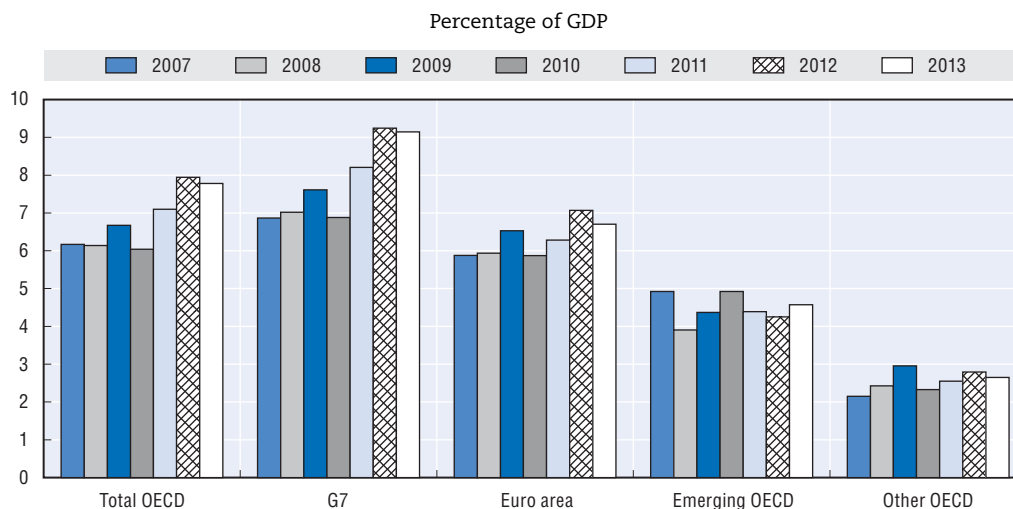
Mood swings are amplified by rating changes

The mood swings of financial markets between periods of “euphoria” and “depression” are amplified at times by the actions of credit rating agencies (CRAs).²² Clearly, mood swings associated with changes in perceptions of sovereign risk are a major complicating factor for sovereign issuers as bond market pressures have the potential to trigger ultra-high funding costs by demanding compensation for (perceptions of) higher sovereign risks.²³

Challenging redemption profiles in 2012 and 2013

The redemption profile of medium- and long-term central government debt in the OECD area is fairly challenging with large projected payment flows for the G7 and euro area for 2012 and 2013 (Figure 1.5).

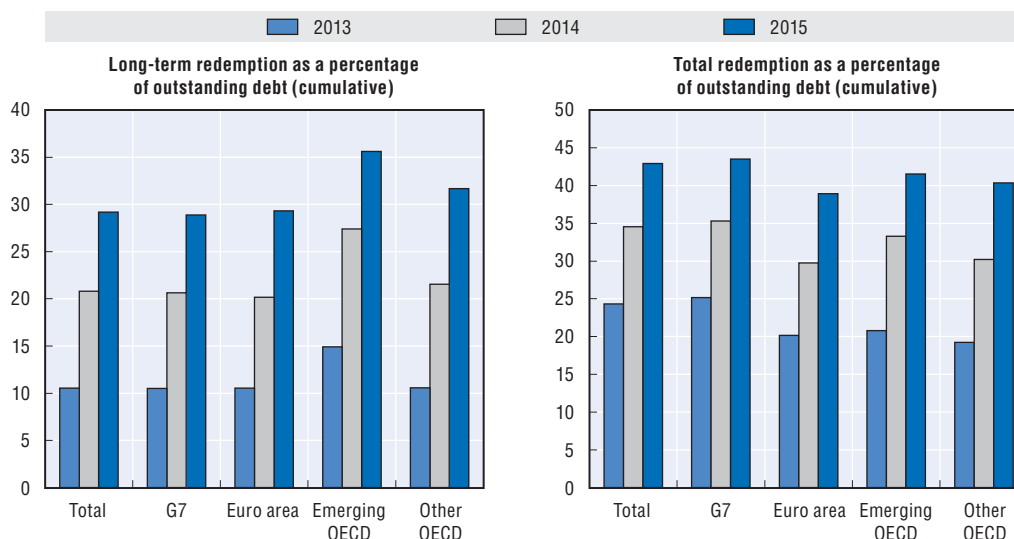
Figure 1.5. **Medium- and long-term redemptions of central government debt in OECD countries**



Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database; and OECD staff estimates.

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Higher rollover risk is reflected in the following challenging redemption profiles for the coming three years (Figure 1.6). For the OECD area as a whole, governments will need to refinance around 30% of its outstanding *long-term* debt in the next 3 years. Of particular interest is that emerging OECD countries have the highest long-term refinancing requirements in the next 3 years (Figure 1.6). Challenging redemption profiles combined with high deficits imply greater refinancing risk. Sovereigns that are facing spikes in interest rates need to address an additional complication as they are forced to refinance at (much) higher borrowing rates. Clearly, “flight to safety” countries are facing the opposite borrowing situation of ultra-low (sometimes negative) yields.

Figure 1.6. **Percentage of debt maturing in next 12, 24 and 36 months**

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; National authorities' data; and OECD staff estimates.

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Challenge in raising funds at low cost with acceptable roll-over risk has increased

Episodes with serious financial market turmoil since 2008 have highlighted the importance of managing debt maturities in order to address rollover risk. The results of an OECD questionnaire on debt portfolio management confirmed that financial crises did render the funding task of most debt managers more difficult.²⁴ Overall, about a third of countries indicated that the crisis impact on funding activities did affect their ability to achieve their various risk metric targets. In general, raising large volumes of funds at the lowest cost with acceptable refinancing and roll-over risk remains a great challenge for quite a few countries. The sovereign debt crisis has greatly complicated the task of DMOs in maintaining stable access to markets and in raising funds at low costs and acceptable risk levels, in particular by some sovereigns within the euro area.

Average maturity common indicator for rollover risk

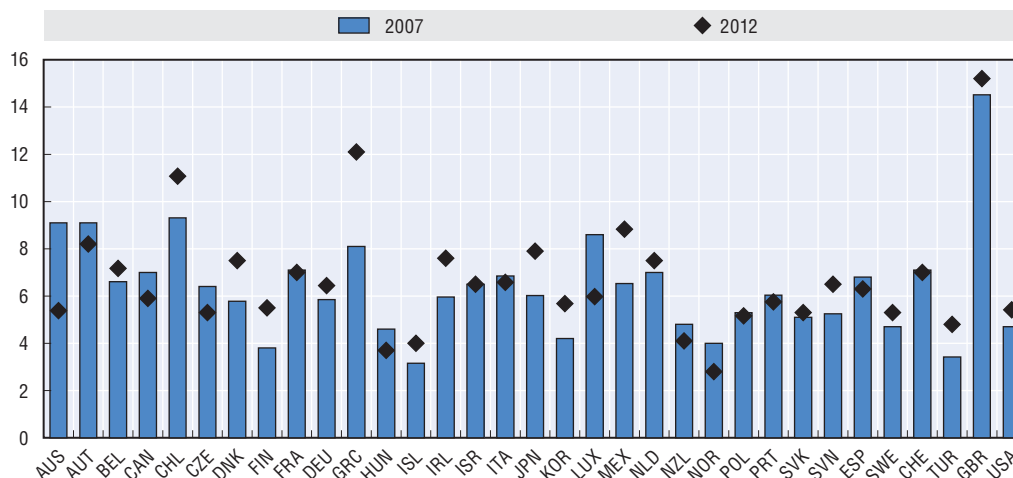
Average maturity is a common indicator to assess rollover risk. A country with a higher average maturity is expected to be affected less by a rise in interest rate movements.

Accordingly, most sovereigns seek to keep their average maturity at (better than) pre-crisis levels (Figure 1.7) in order to mitigate rollover risk. Of particular interest is that several sovereigns have a higher maturity than before the crisis. The UK and Chile have the highest average term to maturity (Figure 1.7). This reflects to an important degree the importance of their private pension sectors. Some sovereigns with better fiscal fundamentals shortened the maturities to take advantage of lower short-term rates. For example, Australia and Norway have significantly decreased their average term to maturity.

Debt managers aim to rebalance towards long-term instruments

Against this backdrop, many OECD debt managers continue to rebalance the profile of their debt portfolios by issuing more long-term instruments and moderating bill issuance. These debt management considerations are in many markets taken against the backdrop of

Figure 1.7. **Average term to maturity**
Years



Notes: Data for Canada, Denmark, Mexico, New Zealand, Poland, Portugal and Slovak Republic as of 2011.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

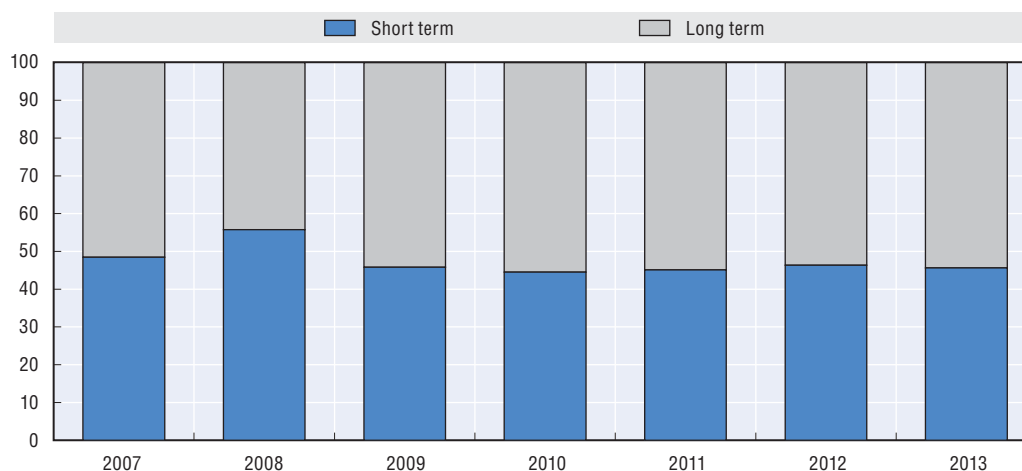
Source: OECD Central Government Debt Statistical Yearbook Database and National authorities' data.

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elevated debt to GDP ratios and fiscal consolidation. Many governments aim to enhance *fiscal resilience* by seeking to mitigate refinancing and rollover risk (by spreading out the redemption profile along the maturity spectrum).²⁵ Buybacks and switches have been used as successful and important liability tools for reducing rollover peaks and thus lowering refinancing risk.²⁶

For the OECD area as whole, the share of short-term issuance to total gross issuance reached 55.7% during the height of the financial crisis in 2008 (Figure 1.8). The following two years, the share of short-term instruments dropped below the 2007 share, i.e. to around 45%. For 2012-13, the share of short-term issuance for the OECD area as whole is estimated to remain lower than the 2007 share.

Figure 1.8. **Maturity structure of gross-borrowing needs for OECD area**
Percentage



Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; and OECD staff estimates.

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1.5. Funding strategy during periods of fiscal dominance and fiscal consolidation

Table 1.2 reflects the funding structure in terms of types of instruments and maturity.²⁷ Issuance of long-term instruments is dominated by fixed rate, local currency bonds. Also of interest is that in 2009 (that is, in the wake of the 2008 peak of the global financial crisis) somewhat more foreign currency debt was issued, while the issuance of price-indexed instruments (linkers) declined. Since then, this funding pattern was reversed with lower issuance of foreign currency instruments and stronger issuance of linkers. It is estimated that the issuance of long-term, fixed-rate instruments will slightly decrease in 2012-2013, while the issuance of price-indexed bonds²⁸ is projected to return to near pre-crisis levels.

The funding strategy is informed by cost versus risk considerations.²⁹ In this context also the government's preference to enhance fiscal resilience plays an important role. Fiscal resilience encourages the maintenance of a diversity of nominal and price-indexed instruments along the maturity spectrum. This emphasis on fiscal resilience reflects debt management considerations during periods of fiscal consolidation in response to a situation of fiscal dominance in many OECD countries. *Fiscal dominance* is a situation shaped by serious fiscal vulnerabilities, worsening perceptions of sovereign risk and considerable uncertainty about future interest rates, which are likely to last for a considerable amount of time.³⁰ Serious fiscal vulnerabilities arising from many years of high government debt has created new and more complex interactions between the funding strategy and monetary policy, in particular the use of non-conventional monetary policy measures.³¹ Although their formal mandates have not changed, recent balance sheet policies of many central banks (CBs) have tended to blur the separation of their policies from fiscal policy (see Chapter 3 on “Debt management in the macro spotlight”, Section 3.1.1). The mandates of debt management offices (DMOs) have usually had a microeconomic focus (viz, keeping government debt markets liquid, limiting refunding risks, etc.). Such mandates have usually eschewed any macroeconomic policy dimension.³² For these reasons, all clashes in policy mandate between CBs and DMOs have been latent and not overt.

Table 1.2. **Funding strategy based on marketable gross borrowing needs in OECD area**

	Percentage						
	2007	2008	2009	2010	2011	2012	2013
Short-term (T-bills)	48.5	55.7	45.8	44.5	45.1	46.3	45.6
Long-term	51.5	44.3	54.2	55.5	54.9	53.7	54.4
Fixed rate	43.1	39.8	50.3	51.8	50.3	49.5	50.0
Index linked	3.1	2.5	1.8	2.3	2.8	2.7	2.9
Variable rate	1.8	1.1	1.0	0.8	0.7	0.3	0.5
Other	3.6	0.9	1.1	0.6	1.1	1.1	1.0
<i>Of which:</i>							
Local currency	51.1	43.8	53.5	55.1	54.4	53.1	53.8
Foreign currency	0.4	0.4	0.8	0.5	0.5	0.6	0.6

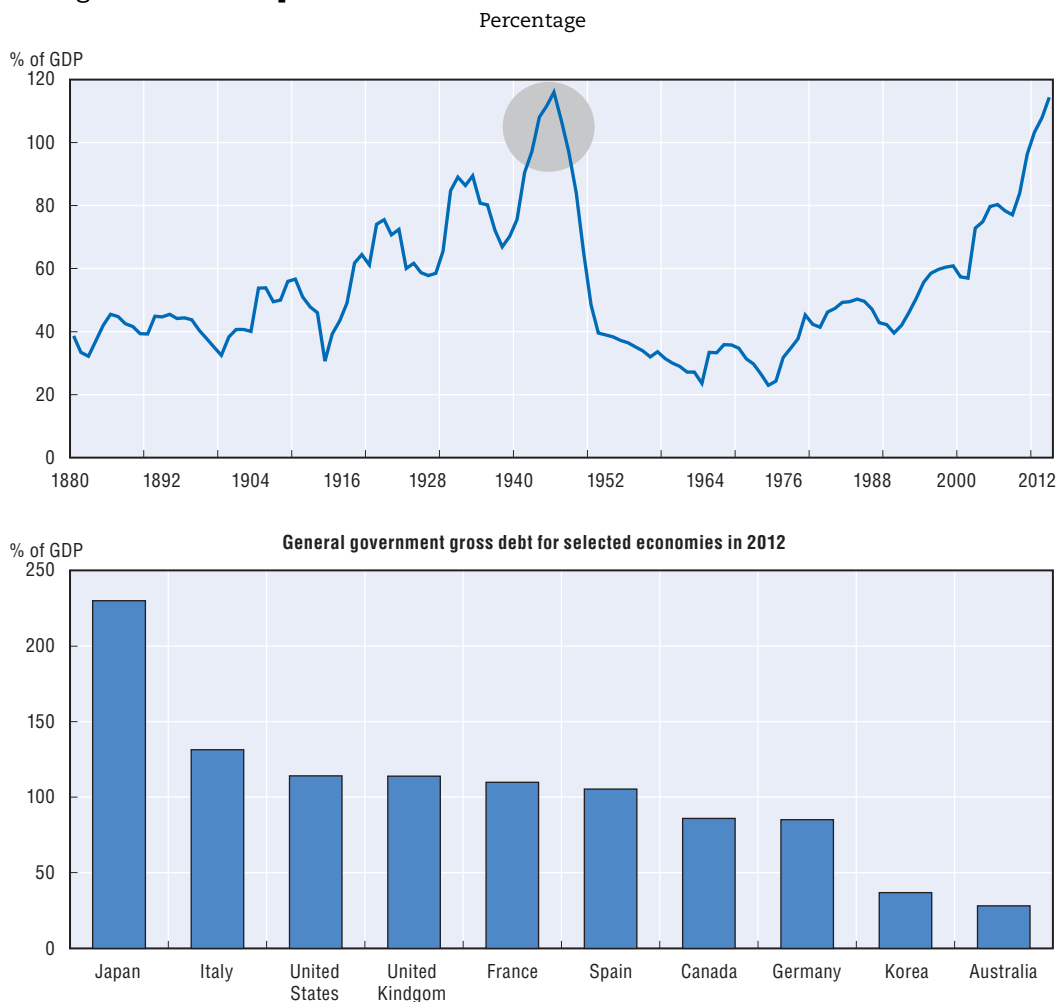
Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party Debt Management; and OECD staff estimates.

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1.6. Central government debt at a glance

Fiscal accounts deteriorated sharply in the wake of the global financial crisis. In fact, the direct fallout of this crisis explains roughly two-thirds of the rise in the debt ratio among the advanced economies markets.³³ As a result, government debt levels in many OECD countries increased to close to the historical peak in the 1940s. Figure 1.9 gives the development of gross public debt since 1880 for selected OECD economies. The peak of general government debt as a percentage of GDP for these countries is linked to World War II (1941-45), the latter event taking the GDP PPP-weighted average debt ratio to around 116% of GDP.³⁴ The fall-out of the 2007-2009 global financial crisis (the most serious financial crisis on record) has put such pressure on the increase in government debt ratios in the OECD area that the WW II peak is being nearly scaled.

Figure 1.9. **Gross public debt of selected¹ advanced economies: 1880-2012**



Notes: Historical debt levels, GDP-weighted average.

1. Includes Australia, Canada, France, Germany, Italy, Japan, Korea, Spain, United Kingdom and United States.

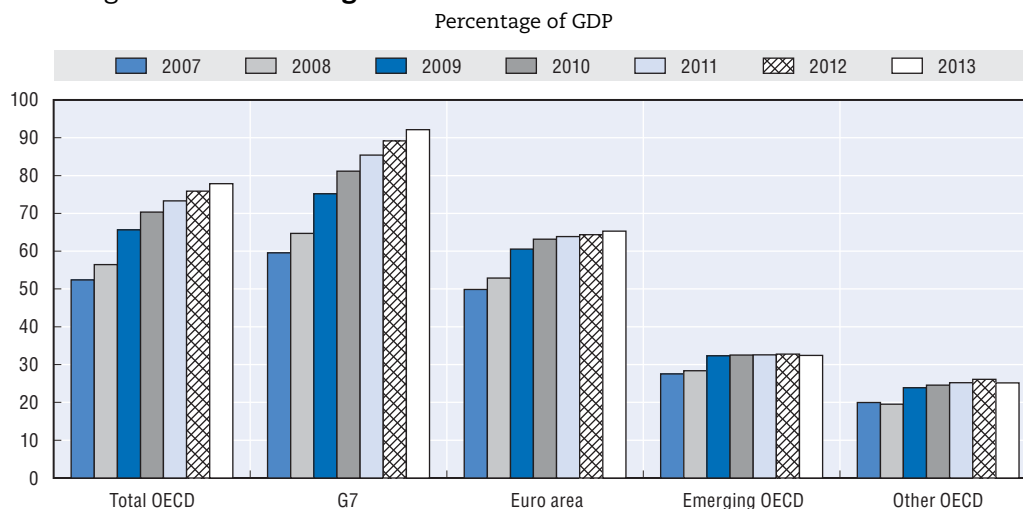
Source: IMF Historical Public Debt Database, OECD Economic Outlook 92 Database, and OECD staff calculations.

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The 2007-2009 global financial crisis as the most serious crisis on record set the stage for a surge in government deficits and liabilities caused by the decisive actions of governments to avert a total collapse of the private financial intermediary system. However, the global financial crisis led to a serious collapse of confidence. “A near-seizure of the international financial system after the collapse of Lehman Brothers administered a particularly large adverse shock to animal spirits.”³⁵ This shock initiated a period of weak activity, although a much more serious collapse in demand was avoided by governments supporting major banks and other financial institutions. In addition, the rapid acceleration in sovereign borrowing needs was further boosted by the massive fiscal response to concerns about the possibility of a severe economic slump. However, a prolonged period of subdued activity is difficult to avoid, because the process of balance sheet repair by financial institutions, businesses and households inevitably takes considerable time.³⁶ Moreover, the mutation from an imminent Great Crash of the private financial intermediary system into market concerns about imminent or actual local sovereign debt crises, added to a further decline in confidence among investors, financial intermediaries and households thereby putting downward pressure on economic growth.

Weak economic activity, in turn, is putting pressure on government balances and a further increase in government debt. Ratios of government gross debt-to-GDP are expected to increase further in 2013. Figure 1.10 shows that the ratios of *central government marketable debt-to-GDP* of all country groupings considered there have increased since 2007. The G7 central government marketable debt-to-GDP ratio is projected to reach nearly 92.1% in 2013. By comparison, the debt ratio of total OECD is expected to reach 77.9% in 2013. For euro area countries, this ratio is estimated to be slightly higher than 65%. For *Other OECD* (includes a number of OECD countries³⁷ with a fiscal surplus), this ratio is expected to be almost 25% in 2013, while for *Emerging OECD* this is expected to be around 32%. It is of interest to observe that *Emerging OECD* has far lower central government marketable debt ratios than both the G7 and the OECD countries of the euro area.

Figure 1.10. **Central government marketable debt in OECD countries**



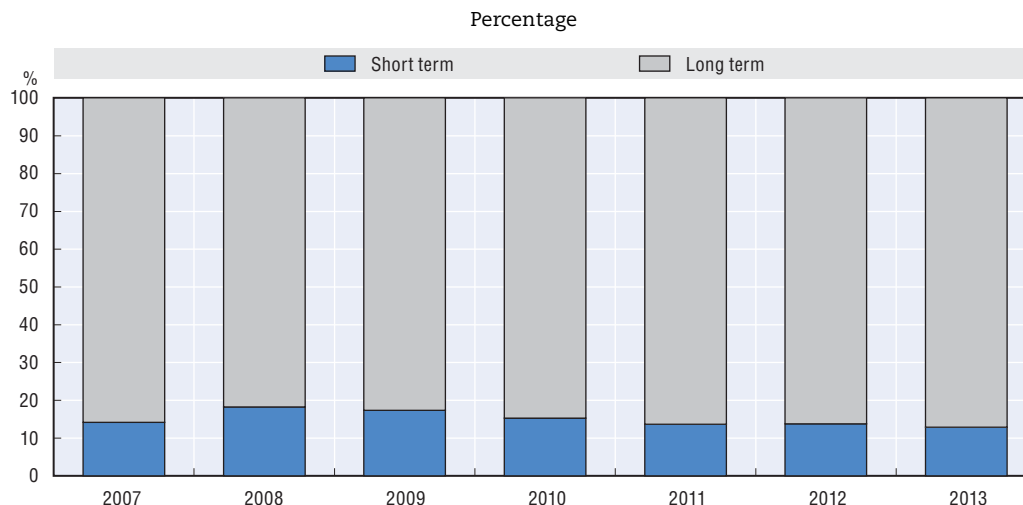
Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92; and OECD staff estimates.

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Projected increase in central government debt ratios in 2013

Figure 1.11 provides information about the maturity structure of the outstanding stock of central government marketable debt. At the height of the financial crisis in 2008, there was a sharp drop of almost 4% in the share of long-term liabilities in total marketable central government debt. The share of long-term debt is estimated to reach around 86% in 2012. For 2013, the long-term share is projected to reach approximately 87%.

Figure 1.11. **Maturity structure of central government marketable debt for OECD area**



Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; and OECD staff estimates.

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Notes

- Figures are calculated using the exchange rates as of 1 December 2009.
- OECD Economic Outlook 92, November 2012.
- See Chapter 2 on “Outlook for Sovereign Stress”.
- On 2 October 2012, bond market volatility in the euro area stood at levels close to those prevailing just before the default of Lehman Brothers. On that same date, US implied volatility stood at round 200 basis points below levels just before the default of Lehman Brothers, while volatility in Japan remained broadly unchanged (ECB, *Monthly Bulletin*, October 2012). In November, bond market volatility decreased further in November (ECB, *Monthly Bulletin*, November, 2012).
- Paul Fisher (2012), Developments in financial markets, monetary and macroprudential policy, Speech at Richmond University, London, 25 September 2012.
- Jaime Caruana (2012), Assessing global liquidity from a financial stability perspective, 48th SEACEN Governors’ Conference and High-Level Seminar, Ulaanbaatar, 22-24 November 2012.
- See Chapter 2 on “Outlook for Sovereign Stress”.
- John M Keynes, *The General Theory of Employment, Interest and Money*, London: Macmillan, 1936, pp. 161-162. “Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than mathematical expectations, whether moral or hedonistic or economic. Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of *animal spirits* – a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.”

9. Using an economically meaningful methodology is important because of complications in providing meaningful estimates of gross short-term borrowing requirements that may yield quite different (usually inflated) outcomes that cannot easily be compared across different OECD markets. For example, daily cash management operations need to be excluded. For example, estimate for OECD short-term gross borrowing in 2012 using a standardised method is around USD 5.0 trillion against USD 15.2 trillion using a non-standardised methodology. See for details Annex A.
10. See Chapter 4 on “Challenges in Primary Markets”.
11. See Annex A for the definitions of total OECD, G7, OECD euro area, emerging OECD and other OECD used in this outlook.
12. *OECD Economic Outlook* 92, November 2012.
13. Intervention by H.J. Blommestein at the OECD Financial Roundtable: “Sovereign debt challenges for banking systems and bond markets”, 7 October 2010. Background to this intervention can be found in Blommestein et al. (2010). See also Chapter 2 on the “Outlook for Sovereign Stress”.
14. *OECD Economic Outlook* 92, November 2012.
15. For example, the US federal budget deficit for the 2012 fiscal year fell to USD 1 089 trillion, USD 207 billion less than last fiscal year’s deficit (30 September). As a percentage of GDP, the deficit fell to 7.0% down from 8.7% in fiscal year 2011. See “Joint Statement of Timothy Geithner, Secretary of Treasury, and Jeffrey Zients, Deputy Director for Management of the Office of Management and Budget, on Budget results for Fiscal Year 2012”.
16. “Typically, a one percentage point increase in the public-debt-to-GDP ratio is estimated to raise nominal long-term interest rates by up to 10 basis points. Then, if market sentiment turns, interest rates may rise sharply, putting public-debt sustainability in danger, long-term rates may react to an increase in the gross general government debt-to-GDP ratio...” (*OECD Economic Outlook* 88, November 2010, p. 231, and *OECD Economic Surveys: France*, 2011, p. 50).
17. Japan is an exception in the sense that significant increases in indebtedness did not have much impact on interest rates. For that reason, it is assumed that the responsiveness of rates to debt is only one quarter that for other countries. See *OECD Economic Outlook* 88, November 2010 for more background information.
18. See Annex A for the definition of country groupings used in this outlook.
19. See for details Blommestein, H.J. (2010), “Public Debt Management and Sovereign Risk during the Worst Financial Crisis on Record: Experiences and Lessons from the OECD Area”, In: Carlos A. Primo Braga and Gallina A. Vincelette (eds.) “Sovereign Debt and the Financial Crisis Will This Time Be Different?”, World Bank.
20. See Annex A for the definitions of total OECD, G7, OECD euro area, emerging OECD and other OECD used in this outlook.
21. See for details Chapter 2 on the “Outlook for Sovereign Stress”.
22. See Chapter 2 on the “Outlook for Sovereign Stress”.
23. See for details Chapter 2 on the “Outlook for Sovereign Stress”.
24. This OECD questionnaire on debt-portfolio management was discussed at the annual meeting of the *OECD Working Party* on “Public Debt Management” held on 4-5 October 2010.
25. See Annex A, “Principles and Trade-offs When Making Issuance Choices in the UK”, in *OECD Borrowing Outlook* 2012.
26. See Chapter 6 on “Buybacks and exchanges”.
27. As noted, the funding strategy entails decisions on how gross-borrowing needs are going to be financed using different instruments (e.g. long-term, short-term, nominal, indexed, etc.).
28. See Chapter 4 on “Challenges in Primary Markets”.
29. See Annex A, “Principles and Trade-offs When Making Issuance Choices in the UK”, in *OECD Borrowing Outlook* 2012.
30. Blommestein, H.J. and T. Philip (2011), Interactions between sovereign debt management and monetary policy under fiscal dominance and financial instability. Paper presented at the ECB’s *Public Finance Workshop* on “Challenges for Sovereign Debt Management in the EU”, held on 7 October 2011 in Frankfurt, Germany. www.ecb.europa.eu/events/conferences/html/ws_pubfinance4.en.html

and at the BIS/OECD Workshop on “Policy Interactions between Fiscal Policy, Monetary policy and Government Debt Management after the Financial Crisis”, held on 2 December 2011 in Basel, Switzerland. A revised version of this paper was published in Blommestein, H.J. and T. Philip (2012), (eds.), *Threat of Fiscal Dominance?*, BIS Papers No. 65, BIS-OECD Publishing.

31. See for details Chapter 3 on “Debt management in the macro spotlight”.
32. The formal mandates of some DMOs include a reference to macroeconomic policy in their debt management objective. For example, the objective of UK’s DMO requires consistency with the aims of monetary policy. Other debt managers do not include macroeconomic objectives. The US Treasury Borrowing Advisory Committee has argued that debt maturity decisions should be taken “regardless of monetary policy”.
33. Christine Lagarde, Banque de France Financial Stability Review on Public Debt – Special Address to Panel Discussion, IMF, Washington, DC, April 21, 2012.
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36. Charles Bean (2012), Central banking in boom and slump, JSG Wilson Lecture in Economics, University of Hull, Hull, 31 October 2012.
37. OECD *Economic Outlook* projections show a positive fiscal balance in 2012 for Korea, Norway, and Switzerland. Moreover, Australia, Korea, Norway, Sweden, and Switzerland are expected to run a surplus in 2013.

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Chapter 2

Outlook for sovereign stress*

This chapter deals with the complications for issuers generated by the pressures of perceptions of an increase in sovereign stress, in particular whereby “the market” suddenly perceives the debt of some sovereigns as “risky”. The borrowing environment for governments has become even more difficult than before due to the complications generated by sudden shifts in sentiment and perceptions of risk associated with certain sovereigns: the so-called swings in the “risk-on” and “risk-off” trades.

A lack of consensus on how to measure and price “sovereign risk” is an important obstacle in assessing sovereign stress. This also complicates assessing changes in the supply of safe public assets. Since the track-record of “sovereign risk pricing” is not very impressive, suggested market measures of this risk (including ratings) should be treated with great caution. One should, therefore, be very cautious in concluding that the sovereign debt of an OECD country has indeed lost its “risk-free” or “ultra-safe” status. Moreover, rating downgrades for several OECD sovereigns and changes in borrowing rates give conflicting signals. This also means that downgrades and their implications for the supply of “safe sovereign assets” should not be taken at face value but more carefully scrutinised.

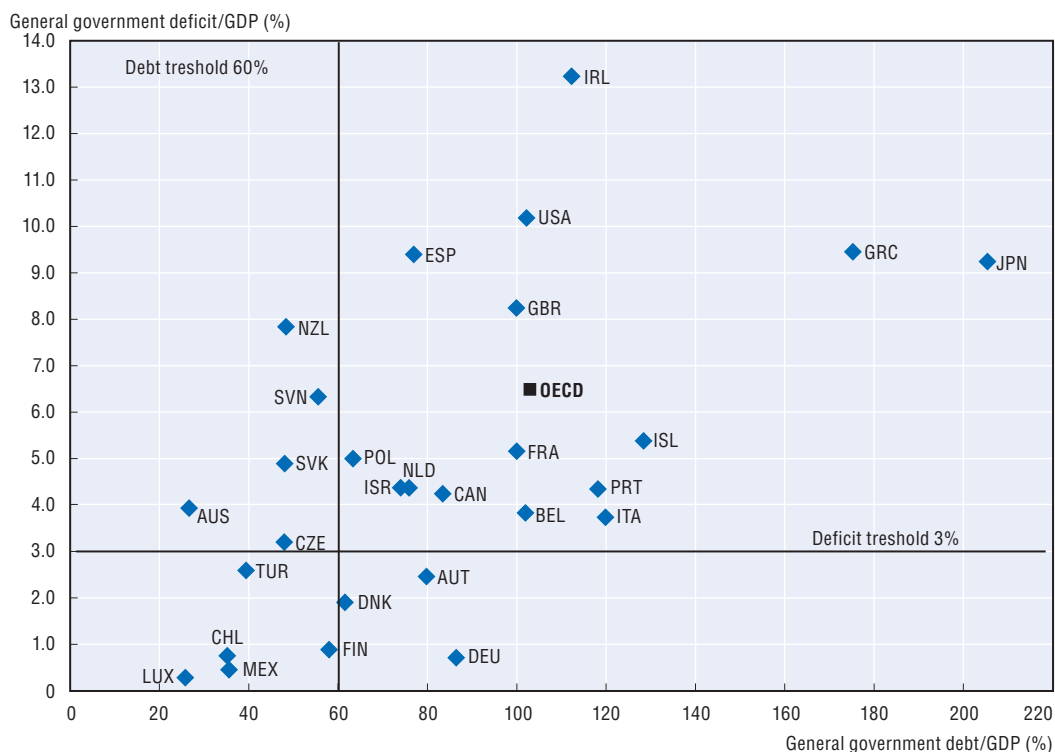
Concerns over a possible euro area breakup resulted in fragmentation between sovereign funding markets. However, stresses in European sovereign debt markets have been reduced, in part due to important recent policy initiatives such as the announcement by the European Central Bank of its Outright Monetary Transactions (OMTs) programme. As a result, convertibility risk (redenomination risk) associated with fears of a possible euro breakup was diminished.

* The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

2.1. Concerns about sovereign stress continue to create major challenges for government borrowing operations

Ever since markets became nervous about perceived higher “sovereign risk” levels, also policy makers shifted their attention to government debt and deficit figures (Figure 2.1 and Figure 2.2).¹ The greater focus by markets and rating agencies on sovereign risk has also amplified their (potential) adverse impact on borrowing operations, including (ultra) high borrowing rates and auction failures. Roll-over risk has emerged as a key policy concern for debt managers, in particular in countries with (perceived) debt sustainability problems (see Chapter 3, Section 3.3.2 on fiscal consolidation and public debt management).

Figure 2.1. **OECD General government gross debt and deficits, 2011**
Percentage of GDP



Notes: Estonia, Hungary, Korea, Norway, Sweden and Switzerland are not included because they show a positive fiscal balance. General government gross debt and deficits are on SNA basis.

Data for Chile, Mexico and Turkey are based on national definitions.

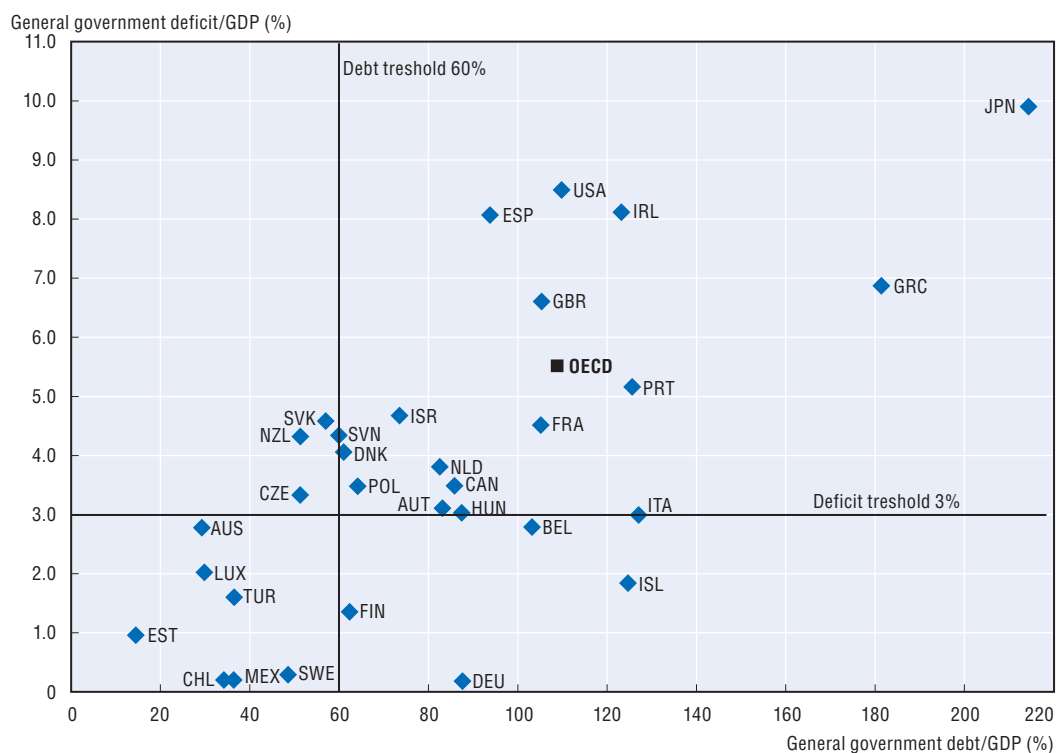
The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD Economic Outlook 92 Database; Chile, Mexico and Turkey national data sources; and OECD staff estimates.

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The slow recovery in OECD countries is making fiscal adjustment more challenging (in particular within the euro area). Nonetheless, as shown in more detail in Chapter 3,² there has been progress in strengthening OECD fiscal balances during the past two years. For the OECD area as a whole, deficits fell by around 1% of GDP in 2011 and 2012 (standing at 6.5% in 2011 while they are estimated to reach 5.5% in 2012; compare Figures 2.1 and 2.2),³ and are projected to reach 4.6% of GDP in 2013. However, deficits and gross borrowing needs are in many countries not declining enough to stop the rise in public debt (including in relation to GDP). As a result, general government gross debt increased by 5.8% of GDP in 2012 (in 2011 the debt-to GDP ratio was 102.9% and is estimated to reach 108.7% in 2012; compare Figures 2.1 and 2.2).⁴ However these averages for the OECD area as a whole conceal important details linked with the relative progress made by individual countries in terms of deficits, gross borrowing requirements, government debt and average maturity of the outstanding debt.⁵

Figure 2.2. **OECD General government gross debt and deficits, 2012**
Percentage of GDP



Notes: Korea, Norway and Switzerland are not included because they show a positive fiscal balance. General government gross debt and deficits are on SNA basis.

Data for Chile, Mexico and Turkey are based on national definitions.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD Economic Outlook 92 Database; Chile, Mexico and Turkey national data sources; and OECD staff estimates.

StatLink <http://dx.doi.org/10.1787/888932779050>

In 2014, general government debt as a percentage of GDP is projected to reach 112.5%, up from 111.4% in 2013. The good news is that debt ratios are increasing at a significantly slower pace than in the past, declining from an increase of 11.5% in 2008-2009 to a projected 1.1% in 2013-2014 (see Chapter 3 for additional details).

2.2. Safe assets, the risk-free rate and sovereign risk

The “sovereign debt crisis” has triggered a debate among rating agencies, policy makers (including public debt managers, bank regulators, fiscal authorities and central bankers) as well as academics that is at times quite confusing and complex. The main source of confusion seems to be a lack of a consensus on what exactly sovereign risk is, while the complexity of this policy debate is increased by the question to what extent and how key concepts such as the risk free rate, safe assets and sovereign risk are related.

Against this backdrop we shall explore the possible implications for borrowing strategies of 1) the debate on the definition and assessment of sovereign risk, 2) the implications of the (perceived) loss of the risk-free rate for debt managers, and 3) the associated changes in the demand for and supply of so-called safe assets. This section seeks to reduce this confusion related to the policy use of (related) key concepts such as the risk-free rate, safe assets and sovereign risk. To that end, various definitions and measures, and suggestions how they are related, will be analysed. We shall start with a discussion of the use of the concept of safe assets in policy discussions.

2.2.1. What is a safe asset?

No asset is absolutely risk free. Assets can only be *relatively* safe. The safety of financial assets can be defined in terms of (the absence of) one or more risk dimensions. Relatively safe (or high grade) assets function as so-called “information-insensitive” instruments (they serve as “money” with associated basic functions of money such as collateral and backing of checkable deposits of commercial banks and money market funds). The most common and simplest approach is to define relatively safe sovereign assets as being virtually default-free in nominal terms (that is, credit risk is absent). A more complex (but more realistic) approach would be to allow additional risk dimensions:

1. relatively low credit risk;
2. relatively low market risk;
3. high liquidity;
4. low inflation;
5. relatively low currency or exchange rate risk;
6. very limited idiosyncratic risks (including tail risks).

Since 2010 the focal point in the euro area is on 1) sovereign credit risk and 2) exchange rate risk (also referred to as redenomination risk or convertibility risk).⁶ Also outside the euro area credit risk has become subject of policy debate and market attention. The focus on risk dimensions may shift over time. For example, a rapid increase in inflation would shift the focus to inflation risk.

The focal point of risk is also dependent on the type of investor whereby different investors attach a different weight to the various risk dimensions. For example, pension funds will normally attach a lower weight to liquidity than banks and have a higher preference for longer asset maturities.

Changing emotions may have a large impact leading to a situation where perceptions dominate fundamentals. Overshooting and undershooting of prices, whereby “animal spirits” (threaten to) push government securities markets into self-fulfilling bad equilibria, can often be observed. The euro area crisis provides examples where emotions, such as fears about a possible euro breakup, had a decisive influence on the pricing of sovereign

assets. For example, research for the euro area has shown that animal spirits are playing an important role in explaining sovereign credit default swap (CDS) spreads.⁷

2.2.2. Empirical proxies for the risk-free rate

The risk-free interest rate is the theoretical *rate of return* of an investment with no risk of financial loss. The *Capital Asset Pricing Model* (CAPM) interprets the risk free rate as the compensation that would be demanded by a representative investor holding a representative market portfolio (comprising all the assets in the economy). The risk free rate is then the compensation for systemic risk which cannot be eliminated by holding a diversified portfolio.

In practice, we need to find a proper empirical proxy for the theoretical construct of a risk-free interest rate. The return on relatively safe sovereign assets is the (relatively) risk free rate. Many analysts take as proxy *short-dated government securities* issued by larger OECD countries such as the US and Germany since they are virtually default free in nominal terms and, since they have short maturities, they have also low interest rate – and inflation risk. Moreover, these larger OECD markets for short-term government securities have also low liquidity risk.

2.2.3. How to define sovereign risk?

Relatively safe sovereign assets, which are virtually default-free in nominal terms, are part of the universe of safe assets with relatively risk-free rates. They are considered to have low (virtually zero) sovereign risk. The universe with safe assets ranges from absolutely safe Arrow-Debreu securities to relatively safe sovereign assets that have (very) low risk in terms of one or more risk dimensions. The most simplistic definition of sovereign risk can then be stated as follows. Sovereign risk is associated with sovereigns that issue assets that are not (any longer) assessed as being virtually default-free in nominal terms. These sovereign issuers do not possess (or have lost) the risk free rate status.

2.2.4. How to measure sovereign risk?

More complex versions of sovereign risk can be defined in terms of the aforementioned risk dimensions. In fact, recent discussions highlight a range of (suggested) indicators that attempt to capture sovereign risk – from macroeconomic to financial to credit ratings.⁸ Participants to the debate generally seem to indicate that, while all measures had some strengths and weaknesses, no one indicator was entirely satisfactory. In particular, users needed to understand what each indicator was actually capturing as not all are intended to measure the same thing and some indicators would be influenced by factors outside the scope of others.⁹ For example, while credit ratings, CDS spreads and yield spreads claim to reflect the expected risk of default, there has been episodes when these indicators gave conflicting messages (see Chapter 2, Section 2.2.4.3).

2.2.4.1. Should one opt for a broad definition of sovereign risk?

Opting for a broad or very wide definition of sovereign risk implies that all kinds of risks related to sovereign balance sheets, or even countries as a whole, are taken into account. For example, one could focus on the complex, adverse feedbacks between banks (or the financial sector as a whole¹⁰) and sovereign balance sheets. One could also introduce sovereign risk measures and inter-linkages associated with fiscal sustainability

and/or political risks.¹¹ In doing so, all sorts of objective and subjective probabilities¹² associated with these risks can then be constructed. One could then define and interpret these risks as components of an overall sovereign risk measure. This in turn would require that these components (and their weights) are integrated in a consistent way into one's favourite aggregate measure of sovereign risk.

Using wide or broad definitions of sovereign risk can easily lead to highly complex situations that increase the potential for multiple interpretations and whereby transparency of the underlying calculations is very limited.¹³ Even when one would stick to the relatively straightforward risk dimensions of risky assets (credit-, market-, liquidity-, inflation-, currency- and idiosyncratic risks), sovereign risk measures with multiple components and weights would quickly become highly complex.

2.2.4.2. *Should one stick to a narrow definition of sovereign risk?*

Should one therefore drop the idea of using wide or broad definitions and, instead, stick to a narrow definition such as “probability of default of the sovereign” in terms of nominal debt? Consequently, this approach would focus only on the credit risk dimension of a risky sovereign asset. However, this simplification does not solve much (if at all) in practice. Assessing sovereign credit risk is inherently a very difficult exercise. (Much more difficult than evaluating the credit risk of private companies such as banks.) In a monetary union, such as the euro area, this assessment is even more complex because of the inherent vulnerability of the currency union to liquidity crises (and their possible mutation into deeper, solvency crises¹⁴). This vulnerability means that the debate on sovereign risk is not only focused on longer-term debt sustainability but also whether governments could readily finance themselves without paying a high risk premium associated with fears about an euro area break-up.¹⁵ In that context concerns were expressed that, in highly volatile markets, multiple equilibria could exist and uninformed and/or fearful investors could move the market to an alternative, more detrimental, equilibrium where yields become so high that this would effectively lead to a self-fulfilling negative outcome.

Should one interpret the “probability of default” of a sovereign as being equivalent to “not being able to pay back”? In the OECD area at least, this simple solvency-based approach may not be a very useful or operational concept. A country's fundamental ability to pay is, by definition, a function of future income and liability streams. The risk that future liabilities might exceed in reality the capacity to pay is for most (if not all) OECD countries not a realistic scenario. They have the power and ability to increase taxes to increase sufficiently income, even when major shocks (such as banking crises) may cause a strong and sudden increase in government debt. In extreme cases, sovereigns under stress can raise income by selling financial and other assets to reduce the debt level. Governments might also have at their disposal reserve funds to pay for earmarked expenditures such as pensions.¹⁶

Sound sovereign liability management is important to contribute to containing liquidity problems via an optimal maturity structure of the outstanding stock of debt. Moreover, in most countries the fiscal authority can count on the monetary authority to help addressing liquidity problems and (technical) solvency problems. Countries within the euro area (issuing government debt in a currency they do not directly control) can count less on the central bank to provide the cash to pay out bond holders¹⁷ (thereby avoiding a default in nominal terms). However, the recently announced OMT programme involves unlimited interventions in (dysfunctional) government debt markets with serious

liquidity problems.¹⁸ Together with the conditional support from the European Stability Mechanism (ESM) in primary markets, the capacity to contain excessively high sovereign yields in markets with liquidity stress has been strengthened.

An alternative (perhaps more realistic) approach in the OECD area would be to emphasise an evaluation of “*unwillingness to pay back*”, instead of “*inability to pay back*”. However, both notions could be linked to, and translated into, the conventional debt sustainability framework. This framework is focused on the feasibility of paying government debts over an indefinite future.¹⁹ However, evaluating this feasibility is in practice quite complex, as it involves both economic- and political considerations. Hence, it covers judgements about the capacity (and ability) as well as the determination (or political willingness) of a government to attain and maintain a primary budget surplus required to stabilise the debt-to-GDP ratio.²⁰

Another source of complexity stems from the fact that the traditional debt sustainability framework conceals important structural or institutional differences among countries. These differences may have an important, sometimes non-linear, impact on the sustainability of government debt such as growth potential, the degree of domestic institutional savings, home bias of investors, fiscal capacity, political cohesion, the degree of financial repression, the structure of the sovereign liability portfolio, etc. In addition, the framework does not say anything about *the timing* of the required fiscal consolidation. In principle, the adjustment can take place in the near or distant future, and, as noted, is likely to reflect political preferences and considerations. However, although no exact guidance is given about the time-related critical mass for maintaining or reclaiming the confidence of bond investors, longer-term fiscal credibility requires that high deficit/debt countries need to implement serious fiscal adjustment plans today.²¹

2.2.4.3. *How useful are suggested market measures of sovereign risk?*

Clearly, these difficulties complicate the use of reliable indicators and methods that are sufficiently comprehensive yet simple enough to measure and price sovereign risk in a reliable and accurate fashion. Indeed, the debate about which measures to use highlighted at times a range of (suggested) indicators that attempt to capture sovereign risk – from macroeconomic to financial to credit ratings. However, as noted, participants to the debate generally seem to indicate that no one indicator was entirely satisfactory.

In particular, users needed to understand what each indicator was actually capturing as not all are intended to measure the same thing and some indicators would be influenced by factors outside the scope of others.²² For example, while both credit ratings and credit default swap (CDS) spreads claim to reflect the expected risk of default, the fact that CDS spreads are influenced not just by “economic” fundamentals but also by (at times elusive) “market factors of demand and supply” such as global risk aversion means that there may be times (perhaps quite frequently) when these indicators give conflicting messages. Moreover, research shows that so-called “animal spirits” dominate fundamentals in explaining CDS spreads, especially during crisis episodes (Blommestein, et al., 2012²³).

Ratings issued by credit rating agencies (CRAs) claim that they represent “fundamental” measures of underlying sovereign credit risk. Several empirical studies have in this context documented that so-called market measures of risk such as credit default swaps or swap spreads start to move as credit quality deteriorates or improves well ahead of a sovereign rating action. This implies that the market often leads decisions by

rating agencies and calls into question the information value of credit ratings (see OECD *Sovereign Borrowing Outlook 2012* and Chapter 2, Section 2.5 on the demand and supply of safe public assets). This has led to suggestions that, rather than relying on credit rating agencies, debt managers, investors, and policymakers should focus on market measures of sovereign risk.

These market measures of sovereign risk, however, should also be dealt with great caution. For example, *sovereign interest rate spreads* have been judged as *unreliable*. A study on the link between sovereign bond yield spreads and the risk of debt restructuring supports this point-of-view, in particular by its main conclusion that “markets sounded false alarms in the vast majority of episodes”.²⁴

Since CDS spreads should in theory be closely related to bond yield spreads, CDS spreads are potentially also unreliable predictors of defaults leading to a sovereign debt restructuring. In fact, research shows that the theoretical relationship between CDS spreads and bond yield spreads holds fairly well for corporate reference entities.²⁵ Empirical studies also demonstrate that the link between sovereign CDS spreads and sovereign bond yield spreads is fairly tight.²⁶ This means that, like sovereign bond yield spreads, *sovereign CDS spreads* have to be considered as *unreliable predictors* of (potential) defaults in sovereign debt markets.

Yet, sovereign CDS prices are widely interpreted as probabilities of default.²⁷ However, these spreads, just as any other asset price, depend on the global level of risk aversion in addition to the actual probability of default of the sovereign.²⁸ Risk aversion (and other global macroeconomic and financial market risks) changes all the time. Hence, it is very likely that over the past few years, risk adverse investors may have revised the price they were willing to pay for receiving income in such uncertain and challenging times. Clearly, this development has influenced the price of sovereign protection, without implying any relation to higher default probabilities.

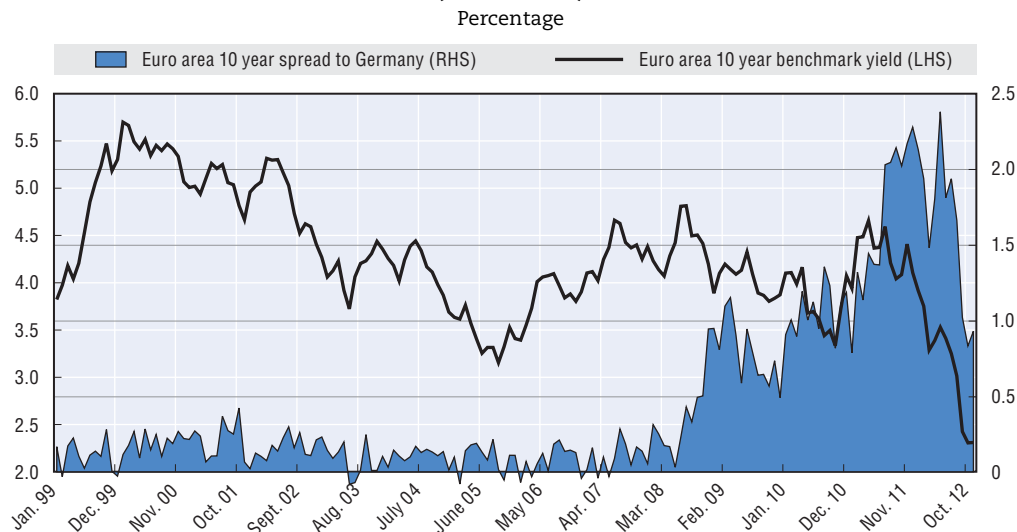
2.3. Mispricing of sovereign risk?

Another (related) reason why suggested market measures of sovereign risk should be treated with great caution is that the track-record of sovereign risk pricing is not very impressive. Long periods of complacency (or optimism) during which risk premia and risk perceptions are unusually low while – in reality – risks are building up. A prolonged period of risk underpricing, reflected in excessively compressed spreads, is followed by a sudden widening of spreads reflecting systematic overpricing of sovereign risk²⁹ (Figure 2.3 and Figure 2.4). *One should, therefore, be very cautious in concluding that the sovereign debt of an OECD country has indeed lost its “risk-free” status.*

The mispricing of sovereign “risk” is linked to various sources i) disagreements (and uncertainty) on how to define and measure the concept of sovereign risk but also ii) (as a separate factor) to periods with dysfunctional debt markets, characterised by high uncertainty (see Figure 2.4 and Figure 2.5) and great instability³⁰ iii) A third reason for the systematic mispricing of sovereign risk is related to the sudden mood swings with optimism and pessimism (aka “animal spirits”) leading to sustained periods of under- and over-pricing of sovereign risk.³¹ As a result, market discipline does not operate consistently but spasmodically.³²

Also abrupt changes in the supply and demand for safe public assets (Chapter 2, Section 2.5) are a (related) source of sovereign mispricing. Sharp changes in relative

Figure 2.3. **Euro area 10-year government bond yield and spread to Bund (1999-2012)**

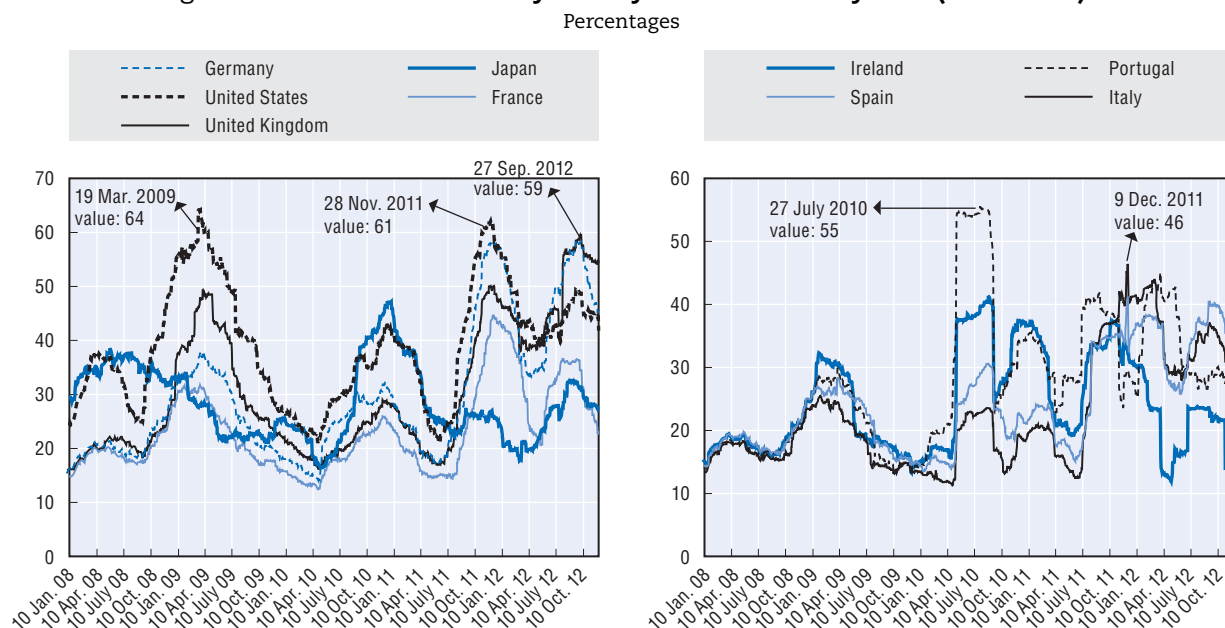


Note: Cut-off date is 1 December 2012.

Source: ECB, Datastream and OECD staff calculations.

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Figure 2.4. **Historical volatility of 10-year benchmark yields (2008-2012)**

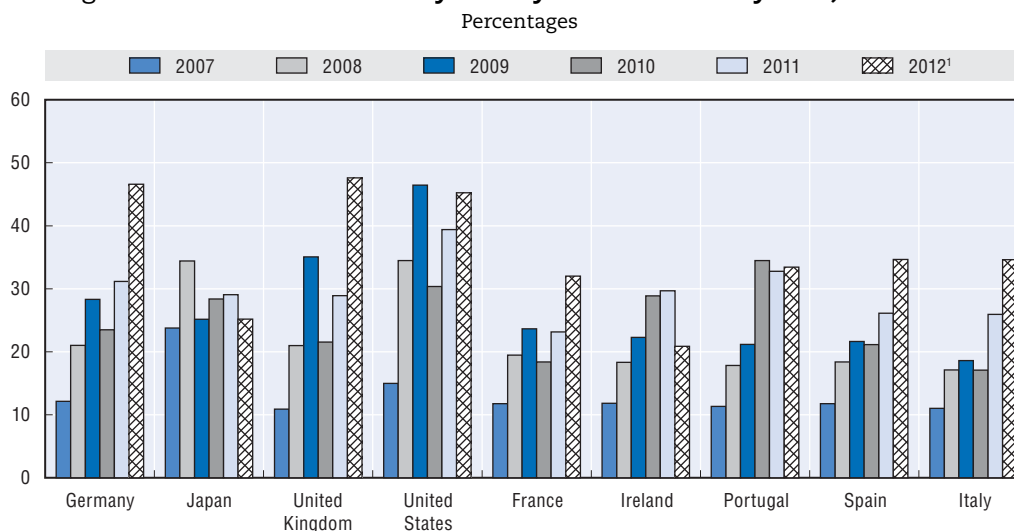


Note: Historical volatility is the annualised standard deviation of the change in daily yields of 10-year benchmark government bonds. Calculation uses 90 day moving standard deviation.

Yield volatility is an indicator of risk arising from movements in interest rates. High volatility suggests less predictability of daily movements in bond yields. A number near zero indicates that daily bond yields are clustered around the average yield.

Source: Datastream and OECD staff calculations.

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Figure 2.5. **Historical volatility of 10-year benchmark yields, 2007-2012**

Note: Average of the historical volatility. Calculation of historical volatility uses 90 day moving standard deviation (annualised) of the change in daily yields of 10-year benchmark government bonds.

Yield volatility is an indicator of risk arising from movements in interest rates. High volatility suggests less predictability of daily movements in bond yields. A number near zero indicates that daily bond yields are clustered around the average yield.

1. Average as of 30 November 2012.

Source: Datastream and OECD staff calculations.

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demand and the perceived shortage of safe assets could have an adverse impact on market functioning. Uncertainty³³ over the safety of assets and the related uncertainty over the correct pricing of a notional “risk-free” asset (Chapter 2, Section 2.2.2), could lead to important market distortions and misalignments in the pricing of sovereign risk.

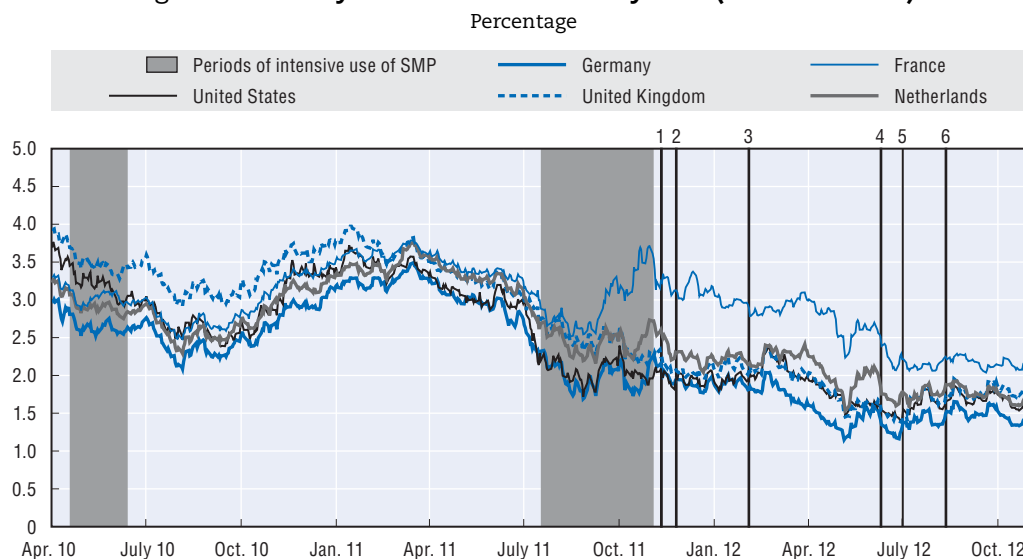
2.4. European sovereign debt markets under stress

2.4.1. Developments in 2011 and 2012

During the summer of 2011, bond yields for several Euro-zone bond markets increased significantly (see Figure 2.6 and Figure 2.7). The spread-widening on Monday 11 July 2011 in euro area bond markets marked the largest single day move in nearly all government bonds, with the unprecedented drop in Italian government bonds likened (by European traders) to a “Black Monday” event. An index of Italian government bonds lost 2.4% with the largest move in 10-year bond yields (+8%, +56 bps) in relative terms, based on daily data back to 1993. Until that day, Italian bonds had not traded at such deep discounts to par since the September 1992 ERM crisis.

French government bond yields reached peaks in the later part of 2011 (Figure 2.6), while significantly underperforming bunds with the French-German 10-year spread reaching euro era highs. There was also selling pressure on EFSF bonds and EU bonds as well as flows out of Spanish and Italian covered and sovereign bonds (see Chapter 2, Section 2.4.4).

Developments in sovereign bond markets during the summer of 2011 reflected financial contagion³⁴ as several euro area countries seem to have been affected by market turmoil, including a re-pricing of counter-party risk among financial intermediaries. The

Figure 2.6. **Ten-year benchmark bond yields (core countries)**

1. ECB's LTRO announcement (8 December 2011).
2. First LTRO (21 December 2011).
3. Second LTRO (29 February 2012).
4. ECB set interest rate on the deposit facility zero percent (5 July 2012).
5. Draghi's pledge to do "whatever it takes to preserve the euro..." (26 July 2012).
6. ECB's OMT announcement (6 September 2012).

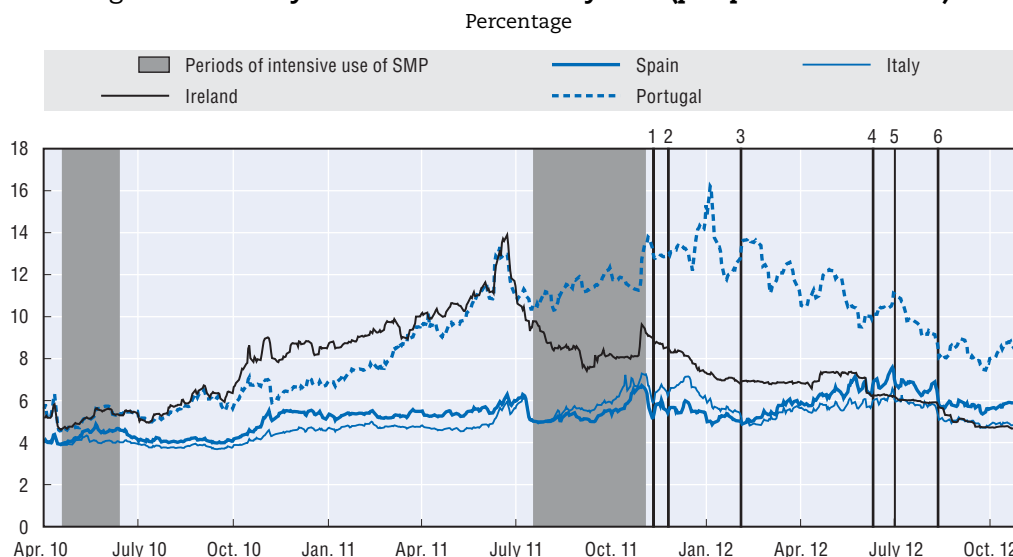
Source: Datastream.

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increasing stress among sovereign and banks was reflected in upward pressure on funding costs and roll-over risk as well as in higher levels of market volatility. In response, the ECB made available three-year LTROs (longer-term refinancing operations); the first one in December 2011, and the second one in February 2012. This policy measure eased significantly bank funding strains.³⁵ The LTROs may also have helped to contain spill-overs from the sovereign debt crisis to broader financial markets.

However, the LTROs afforded only a brief pause from the direct funding stress of periphery banks and sovereigns. Renewed deleveraging pressures amid an economic downturn worsened funding conditions for both banks and sovereigns.³⁶ During the summer of 2012, strong upward pressure on the yields of Italian bonds, but especially Spanish bonds, returned (Figure 2.7 and Chapter 2, Section 2.4.4). Also financial fragmentation strongly increased with increasing fears of a possible euro breakup. In response, on 6 September 2012, the ECB announced its new OMT programme, involving unlimited interventions in (dysfunctional) government debt markets with serious liquidity problems.³⁷ As a result, convertibility risk (redenomination risk) associated with fears of a possible euro breakup was diminished, while bond yields in most periphery government debt markets fell (Figure 2.7).

Together with the conditional financial support from the ESM in primary markets,³⁸ the capacity to contain excessively high sovereign yields in dysfunctional government bond markets with liquidity stress has been strengthened.

Figure 2.7. **Ten-year benchmark bond yields (peripheral countries)**

1. ECB's LTRO announcement (8 December 2011).
2. First LTRO (21 December 2011).
3. Second LTRO (29 February 2012).
4. ECB set interest rate on the deposit facility zero percent (5 July 2012).
5. Draghi's pledge to do "whatever it takes to preserve the euro..." (26 July 2012).
6. ECB's OMT announcement (6 September 2012).

Source: Datastream.

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2.4.2. Sovereign debt restructuring in Greece

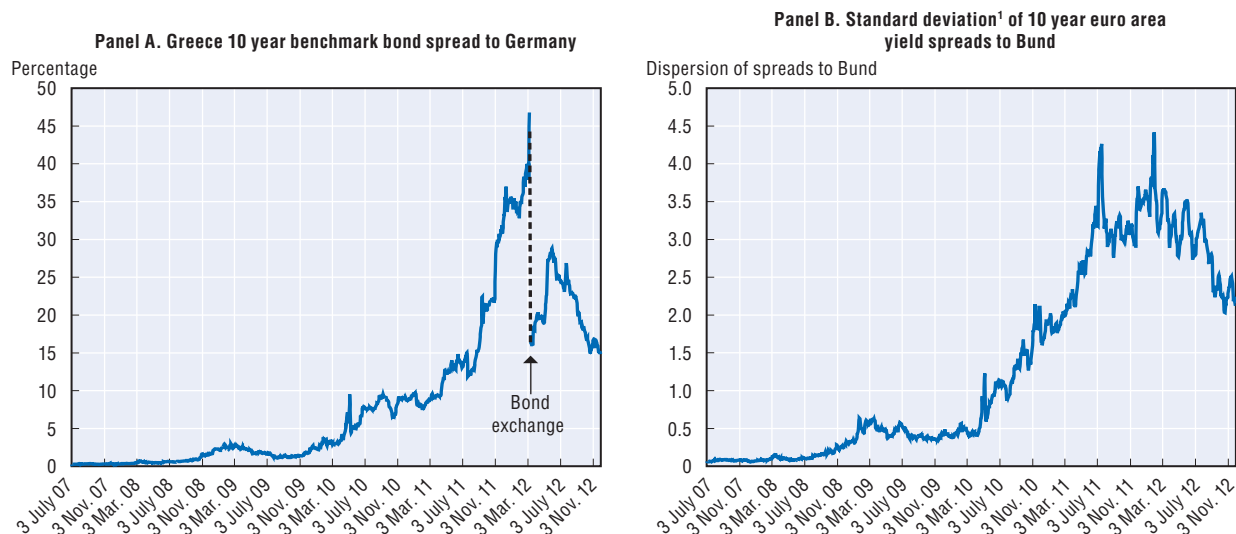
The first Greek Economic Adjustment Programme (EAP) covered the period May 2010–June 2013 for a total amount of EUR 110 billion. Following the signing of the EAP, and supported by ECB's Securities Markets Programme (SMP³⁹), Greek 10 year government bond spreads, which had risen to almost 10% in April 2010, narrowed significantly in the first few months. However, with worsening fundamentals, followed by the *announcement in June 2011* of a restructuring of its sovereign debt, Greek bond spreads jumped to unprecedented levels (Figure 2.8, Panel A) amid high uncertainty (Figure 2.8, Panel B). During this period, credit rating agencies downgraded Greece to the lowest possible rating levels (see Annex B).

Uncertainty about the details of the Greek PSI strategy continued during the rest of 2011, resulting in increasingly volatile spreads (Figure 2.8, Panel B). After many months of discussions between the Greek authorities and creditor groups, an agreement on a voluntary version of the PSI strategy was reached, with Greece making an exchange offer on 21 February 2012. The exchange offer was successfully closed on 8 March 2012. This was the largest write-down recorded for a pre-default sovereign debt restructuring (see Annex B for details).

After the successful completion of the swap, Greece signed the 2nd Economic Adjustment Programme, covering the period 2012–2014. The EFSF and the IMF have committed the undisbursed amounts of the first programme plus an additional EUR 130 billion.

On **27 November 2012**,⁴⁰ the Eurogroup (Ministers of Finance from the euro area) met with the IMF and the ECB about measures to bring Greek government debt on a sustainable path, including a debt buyback (see Annex B for details).

Figure 2.8. **Greece 10-year benchmark bond spread and volatility in euro area 10-year yield spreads**



1. Daily standard deviation across the spreads between 10-year government bond yields of Austria, Belgium, Spain, Finland, France, Ireland, Italy, the Netherlands, Portugal and the 10-year Bund.

Source: Datastream and OECD staff calculations.

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The economic adjustment programmes and the December 2012 debt buyback are aimed at creating the conditions for a sustainable debt profile so that Greece can eventually return to the longer term funding market. For the time being, the primary source of financing for Greece is official support, although the government can also issue short-term debt (Annex B).

2.4.3. From EFSF to ESM

The European Financial Stability Facility (EFSF) was created in May 2010 to provide financial support to euro area countries in “financial difficulties”. Greece, Ireland and Portugal are currently supported by EFSF resources (see Table 2.1). The EFSF funds itself by issuing bonds, supported by guarantees from other euro area countries. EFSF is currently guaranteed by 17 euro area countries and has a EUR 440 bn effective lending capacity.

The EFSF has been created as a *temporary* institution and will be liquidated as soon as possible after **30 June 2013**. After that date, the EFSF will not enter into any new programme.⁴¹

Currently, the EFSF issues bonds and short-term bill on the capital market in order to fund loans to member countries.⁴² During 2011 and 2012 the EFSF⁴³ was an important bond issuer in the supranational debt market. EFSF’s long-term outstanding debt is about EUR 115.7 billion and around EUR 46.2 billion in outstanding bills.⁴⁴ According to its long-term funding programme, EUR 40.5 billion in bonds will be issued by the EFSF in 2013. An additional EUR 12 billion will be raised through the bill programme⁴⁵ (Table 2.1).

The *European Stabilisation Mechanism* (ESM) is an intergovernmental institution established under public international law (in contrast, the EFSF is a private company under Luxembourg law). The ESM, a new *permanent* rescue mechanism for the euro area, will provide funds to any member state whose debt problems would threaten the euro area. The ESM treaty entered into force on 27 September 2012 and the ESM was inaugurated on 8 October 2012.

Table 2.1. **EFSF commitments for Ireland, Portugal, Greece and Spain**

Billion euro	Financial assistance programme by country		EFSF preliminary funding programme ¹			
	EFSF commitments	Disbursement amount	2011	2012	2013	2014
Greece ²	144.6	73.9	-	25.00	20.30	29.00
Ireland	17.7	12.0	7.52	4.55	5.70	-
Spain ³	100.0	0.0	-	-	-	-
Portugal	26.0	17.4	6.89	11.35	4.45	3.45
Total⁴	288.3	103.3	14.41	40.90	30.45	32.45
<i>Long-term funding programme</i>			16.00	41.48	40.50	33.20
<i>Outstanding bill programme (end of quarter)</i>			2.00	15.80	12.0	12.0

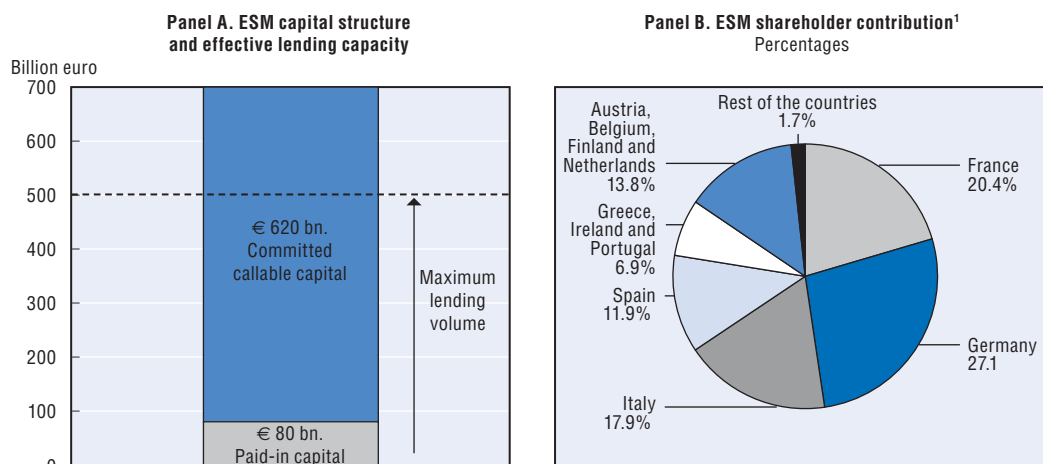
1. It refers to the total lending requirements as of December 2012 and it is subject to market conditions and requests by programme countries.
2. The disbursement amount for Greece does not include the EFSF temporary provision to the Eurosystem with bonds amounting to EUR 35 billion as collateral during Greece's selective default period due to the PSI operation. These bonds were returned to the EFSF on 25 July 2012 and were cancelled on 3 August 2012.
3. The financial assistance for the recapitalisation of the Spanish banking sector will be transferred to the ESM.
4. As of December 2012, the programmes for Ireland, Portugal and Greece correspond to EUR 192 billion (including EUR 3.7 bn of cash buffers) in commitments from the EFSF. The EFSF has therefore (without Spain) EUR 248 billion in remaining lending capacity.

Source: EFSF.

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The ESM is fully operational and has taken over all the features of the (amended) EFSF. On 5 December 2012, the ESM provided its first financial assistance by issuing securities for a total amount of close to EUR 39.5 billion for the recapitalisation of the Spanish banking sector.⁴⁶

The current effective lending capacity of the ESM is EUR 500 billion, based on EUR 80 billion paid-in capital and EUR 620 billion committed callable capital from euro area countries (see Figure 2.9, Panel A and B). The paid-in capital feature makes the ESM less vulnerable to country downgrades (than the EFSF).

Figure 2.9. **ESM capital structure and effective lending capacity**

1. The four largest countries contribute about 77.4% of the ESM total subscribed capital of EUR 700 bn comprising paid-in capital of EUR 80 bn and committed callable capital of EUR 620 bn.

Source: EFSF.

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The paid-in capital will be invested in high quality liquid assets (in accordance with ESM investment guidelines). It will serve strictly as loss absorbing capital. Hence, paid-in capital will not be used to purchase sovereign bonds under ESM primary or secondary market interventions.⁴⁷

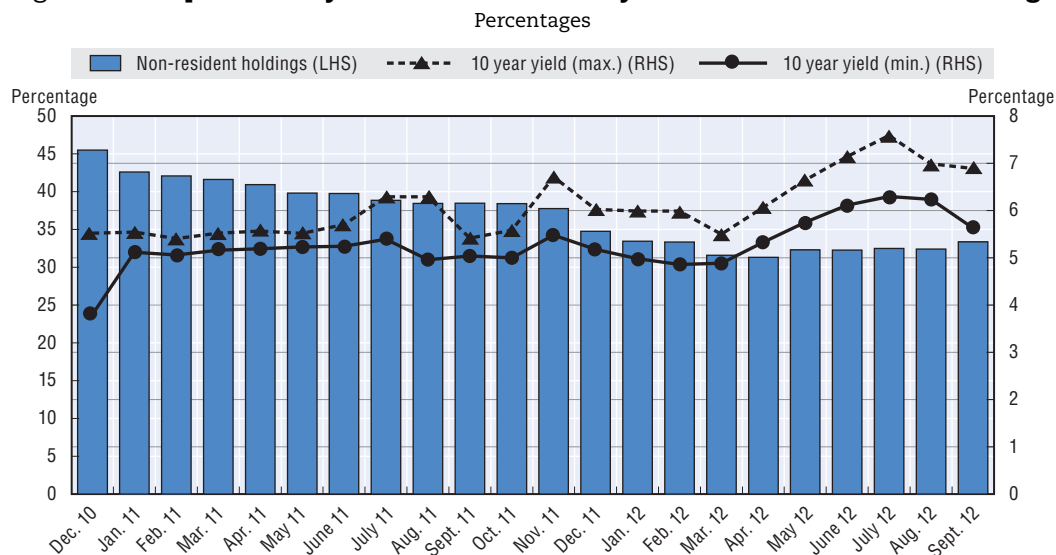
The ESM will adhere to IMF policies regarding private sector involvement, including standardised collective action clauses (CACs) in the terms and conditions of new sovereign bonds from January 2013 onward. The ESM will claim preferred creditor status⁴⁸ (except for countries under a European financial assistance programme at the time of the signing of the ESM Treaty).

On the 30th of November 2012, Moody's Investors Service has downgraded the long-term issuer rating of the ESM from Aaa to Aa1. Also the long-term rating for the temporary issuance programme of the EFSF was downgraded from Aaa to Aa1. Moody's decision was driven by the recent downgrade of France (from Aaa to Aa1) and the resulting weakening of "the certainty that the sovereign (France) will fulfill its financial obligations" related to EFSF and ESM.⁴⁹

2.4.4. Market spotlight on Spain and Italy

As noted in Chapter 2, Section 2.4.1, Spanish and Italian government securities markets have been under strong pressures in 2011 and 2012, although with varying degrees of intensity over time (Figure 2.7). For example, 10-year Italian bond yields peaked at 7.28% in November 2011, while 10 year Spanish bond yields peaked at 7.6% in July 2012 (Figures 2.10 and 2.11). During these stressful periods, both markets experienced significant sales of sovereign debt by foreign investors (Figures 2.10 and 2.11).

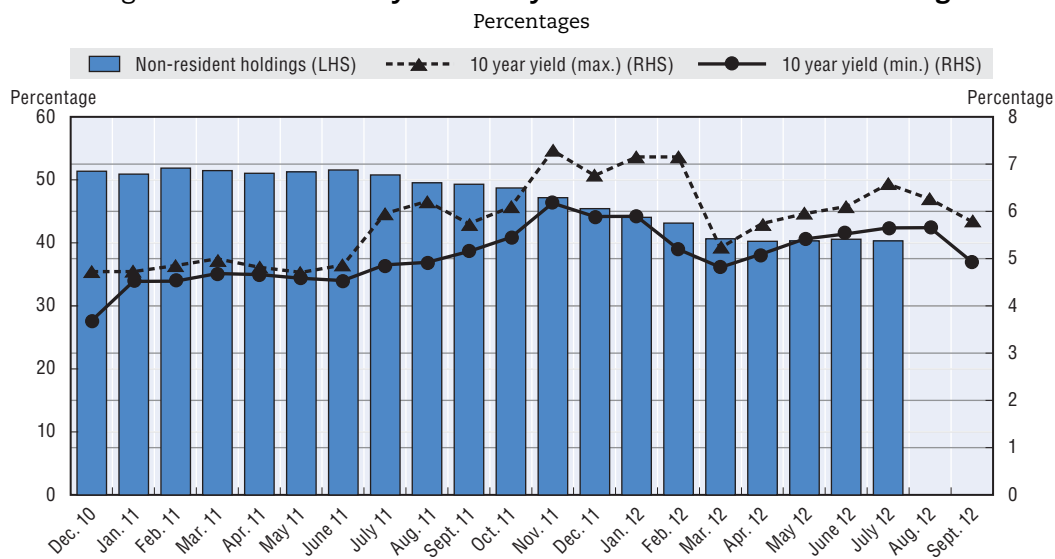
Figure 2.10. **Spanish 10-year benchmark bond yields and non-resident holdings**



Source: Datastream, Spanish Public Treasury; and OECD staff calculations.

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At the same time, the home bias increased in these two markets, with domestic financial institutions (mainly domestic banks) buying more domestic sovereign bonds. In order to decrease the tension in euro area financial markets and to improve the functioning of at times dysfunctional sovereign debt markets, important steps were taken i) to reverse fears regarding

Figure 2.11. **Italian 10-year bond yields and non-resident holdings**

Source: Datastream, Ministry of Economy and Finance of Italy, Department of Treasury; and OECD calculations.

StatLink  <http://dx.doi.org/10.1787/888932779221>

a possible breakup of the euro area, ii) to reduce up-ward pressure on government borrowing costs and bank funding rates, iii) to reverse the fragmentation of euro area financial markets, and in general, iv) to strengthen the architecture underpinning the Economic and Monetary Union. Key measures directly focused on improving the functioning of financial markets and lowering government borrowing costs include:

- Two LTROs relieved the funding strains of banks during highly volatile market conditions.
- In July 2012, the Eurogroup granted financial assistance to Spain's banking sector.
- Adoption of OMT programme in September 2012.
- Inauguration of ESM on 8th October 2012.

These measures improved significantly the market conditions for both Spain and Italy (Figures 2.10, 2.10 and 2.11). A credible OMT programme for secondary markets, with potential back-up from the ESM in primary markets, should assist anchoring sovereign yields, encourage banks to buy longer-term sovereign debt, and reduce volatility (Figure 2.8, Panel B). The combined OMT/ESM backstop should make potential self-fulfilling bad equilibria in government securities markets less likely, reducing some of upward pressure on bond yields. Yields on 10 year benchmark bonds dropped to below 5.25% for Spain (on 3 December 2012) and 4.5% for Italy on 4 December 2012 (Figures 2.10 and 2.11). The decrease in yields at the short-end of the yield curve was even more pronounced due to the potential intervention impact of the OMT backstop focused on shorter maturities. This led to a significantly steepening of the government bond yield curves in these two markets (Figure 2.12, Panel A and Panel B). Moreover, there are reports that foreign investors are beginning to return.⁵⁰

At the beginning of the global financial crisis, Italian and Spanish sovereign debt had a similar average maturity. However, since the onset of this crisis in 2008, there is a downward trend in the average maturity of Spanish government debt. This downward trend was interrupted by a small increase but continued in 2011 and even more in 2012. The average maturity of Italian government debt initially increased but in late 2010 it began to fall (Figure 2.13).

Figure 2.12. Italian and Spanish yield curves

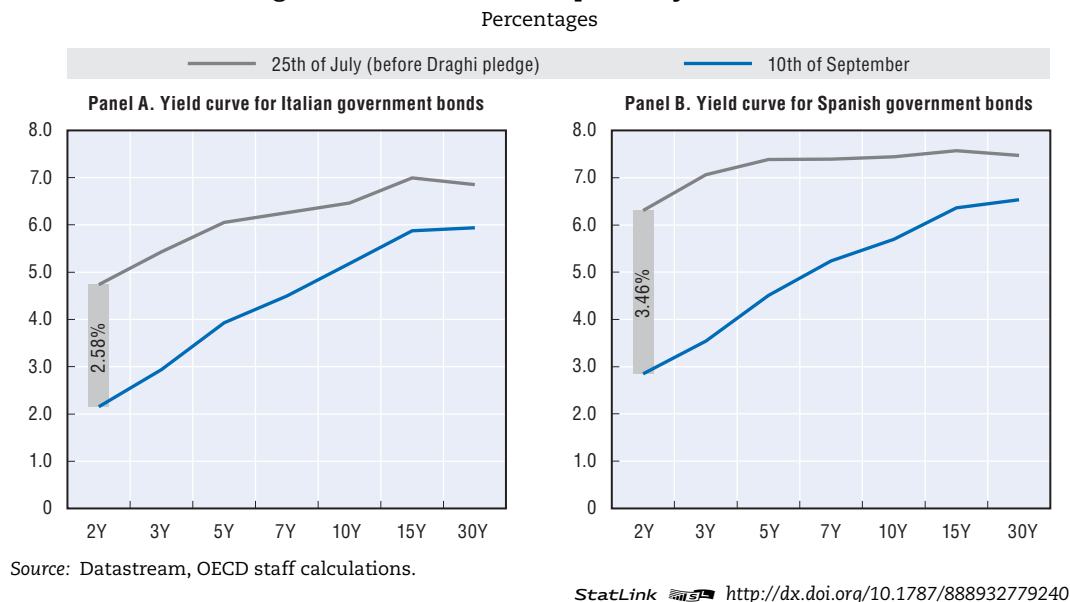
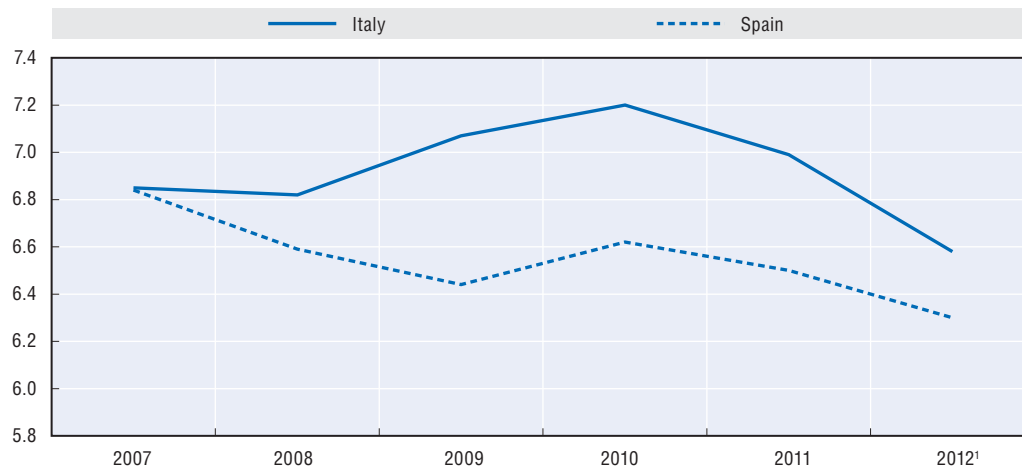


Figure 2.13. Average maturity of sovereign debt in Italy and Spain (in years)

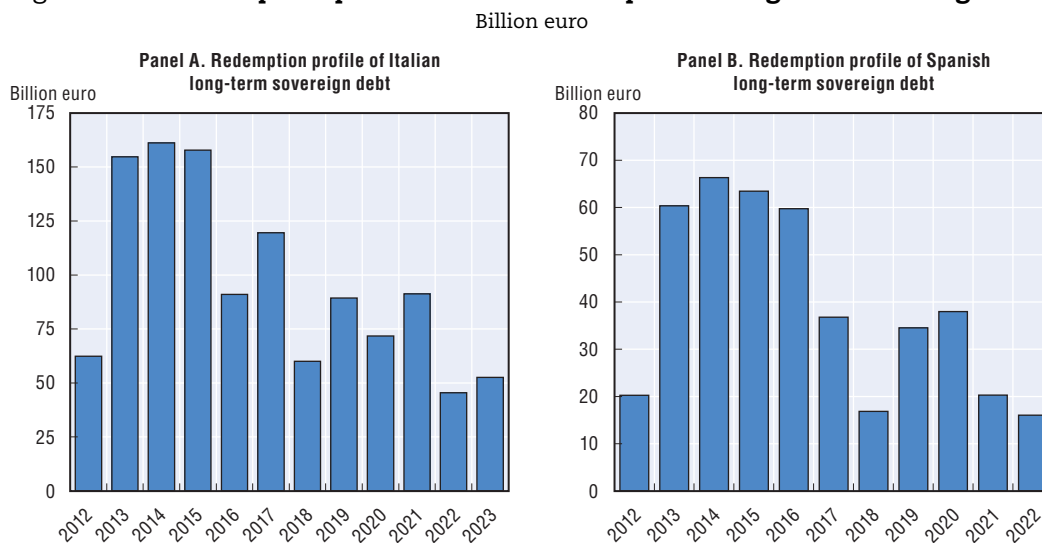


The redemption profile of both Spain and Italy is quite challenging for the coming few years (Figure 2.14, Panel A and Panel B). However, a broader and more robust assessment would need to include additional structural and policy features of the two markets. For example, the structure of the investor base (foreign versus domestic; wholesale versus retail; etc.). Italy has deep-pocketed retail investors, as shown by the success of the recent issuance of an inflation-linked bond. In general, domestic investors are less likely to sell positions than foreign bond holders. However, remaining positions of Italian and Spanish bonds held by foreign investors should be relatively sticky, thereby facilitating rolling over maturing holdings.

Italy has by definition higher (absolute) issuance needs due to its higher stock of debt. However, maturing *longer-term* Italian sovereign debt is expected to fall from over EUR 299 billion in 2012 to around EUR 160 billion in 2013, while in Spain it is estimated to increase from EUR 50 billion in 2012 to EUR 60 bn in 2013. Moreover, thanks to Italy's relatively more favourable fiscal balance, net issuance for the next years looks quite manageable. In addition, it is also important to take into account indicators of additional differences in debt portfolio structure such as redemptions as a percentage of GDP, redemptions as a percentage of outstanding sovereign debt; total central government debt in relation to GDP; the share of foreign currency debt; etc.

Decreasing average maturity together with relatively high redemption peaks in the coming years constitute a challenge in terms of refinancing risk (Figure 2.14, Panel A and Panel B). However, although the redemption profiles of the two countries are fairly challenging, roll-over risk should be manageable under relatively “normal” market access conditions in both markets. The OMT backstop is in this context important because it is aimed at removing the distorting impact of redenomination risk from government bond markets.

Figure 2.14. **Redemption profile of Italian and Spanish long-term sovereign debt**



Note: The Chart is a snapshot and does not incorporate expected future borrowing operations. It does not include T-Bills and commercial papers. Cut-off date is 30 October 2012.

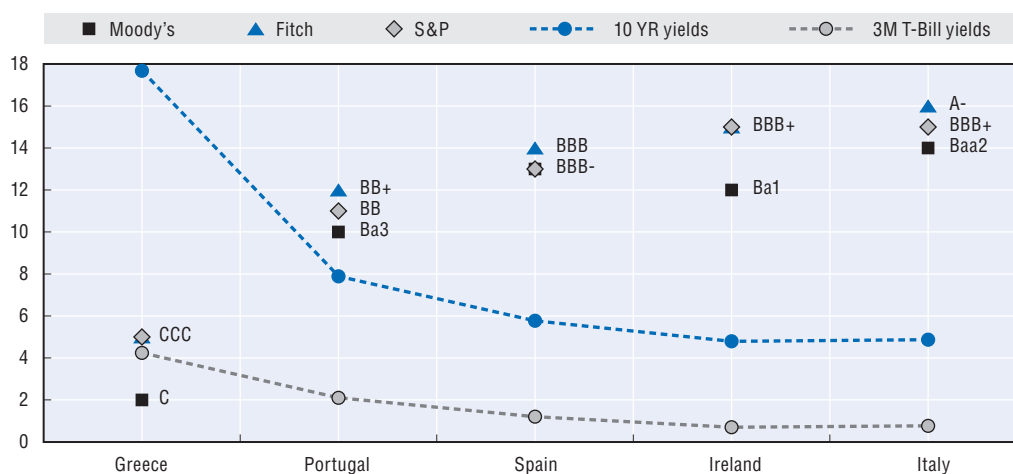
Source: Ministry of Finance of Spain and Bloomberg.

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2.5. Demand for and supply of safe sovereign assets

The demand for safe sovereign⁵¹ assets has increased due to regulatory changes,⁵² non-conventional balance sheet policies by central banks (Chapter 3), heightened risk aversion (leading to the use of high grade collateral to support funding and other transactions), and a build-up of foreign exchange reserves in several countries.

At the same time, it has been argued that the supply of perceived safe sovereign assets has fallen. In the wake of the Euro area sovereign debt crisis that began in May 2010, the three major credit rating agencies (CRAs) began to downgrade sovereigns. Downgrades for the so-called peripheral countries of the Euro area are shown in Figure 2.15. This figure also shows that lower sovereign credit ratings are broadly associated with higher borrowing costs.⁵³

Figure 2.15. **Changes in credit ratings and yields**

Note: 3 month T-bill rates are based on the latest issuance operations as of 17 October 2012.

Source: Datastream, credit ratings from Moody's, Fitch and Standard & Poor's and OECD staff estimations.

StatLink <http://dx.doi.org/10.1787/888932779297>

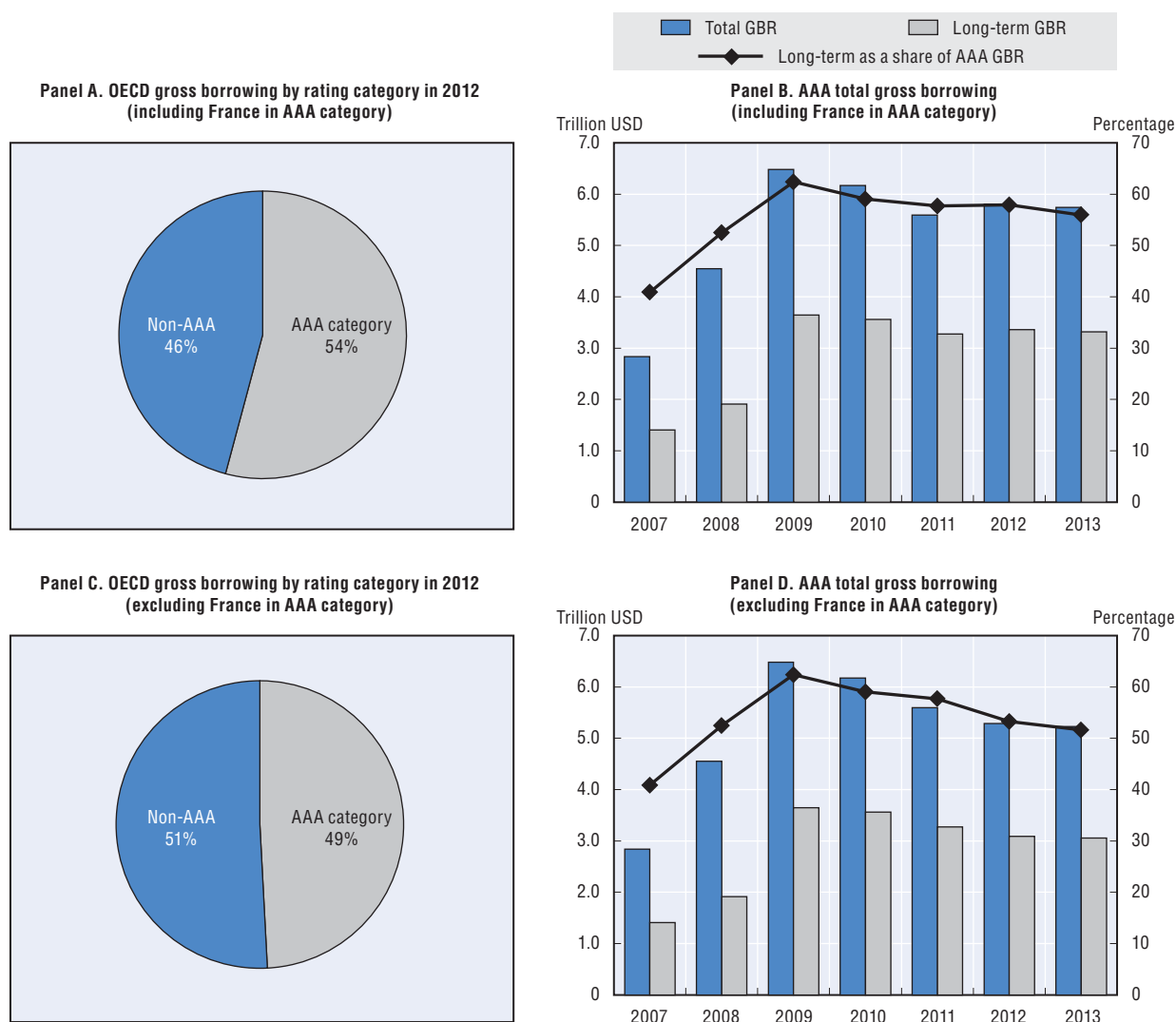
The big three CRAs use similar rating scales, with the highest quality issuers receiving a triple-A grade. On the basis of these rating scales, we have calculated average ratings as measures of safety (riskiness) of sovereign assets. Next, it is presumed that an AAA sovereign rating is a reliable measure of the “safest” sovereign assets. For our calculations we further use as a rule that a sovereign issuer is classified as “AAA” when 2 out of 3 big CRAs assign a triple-A rating. According to this rule, the recent downgrade of France by two of the three main CRAs, reduces the triple-A part of total marketable gross issuance by OECD central governments from almost USD 5.8 trillion in 2012⁵⁴ to USD 5.3 trillion in 2012.⁵⁵

Figure 2.16 (Panels A and B) provides information on the funding structure of total OECD triple-A sovereign issuance activities in terms of maturity. The Figure shows that long-term issuance by OECD central governments (as a share of total triple-A gross issuance with France included) peaked at 62.4% in 2009, dropping to around 57.9% in 2012 (and to 53.3% when the recent French downgrade is taken into account; Figure 2.16 (Panels C and D).

Recently, OECD governments were affected by important rating changes. The following countries were downgraded at the end of 2011 and during 2012 by two out of the three main CRAs.

- France to AA from AAA (on 19 November 2012 by Moody's and on 13 January 2012 by S&P).
- Spain to BBB from AA (on 13 June 2012 by Moody's, on 26 April 2012 by S&P, and 7 June 2012 by Fitch).
- Italy to BBB from A (on 13 July 2012 by Moody's and on 13 January 2012 by S&P).
- Hungary to non-investment grade (BB) from BBB (on 6 January 2012 by Fitch and 21 December 2011 by S&P).
- Portugal to non-investment grade (BB) from BBB (on 13 January 2012 by S&P and on 24 November 2011 by Fitch).
- Slovenia to A from AA (on 13 January 2012 by S&P and 27 January 2012 by Fitch).

Korea was the only OECD country upgraded in 2012 from A to AA (on 27 August 2012 by Moody's and on 6 September 2012 by Fitch).

Figure 2.16. **Gross borrowing in OECD countries by rating category**

Note: The data used for the credit rating country groupings are from the three main credit rating agencies: Moody's, Fitch and Standard & Poor's. The classification of an issuer as AAA is based on two of three best rating grades, that is, if an sovereign issuer has been attributed triple-A by two rating agencies, the country is classified as triple-A. See for details the table with sovereign ratings in Annex A on "Methods and Sources". Credit ratings and other data as of 30 November 2012.

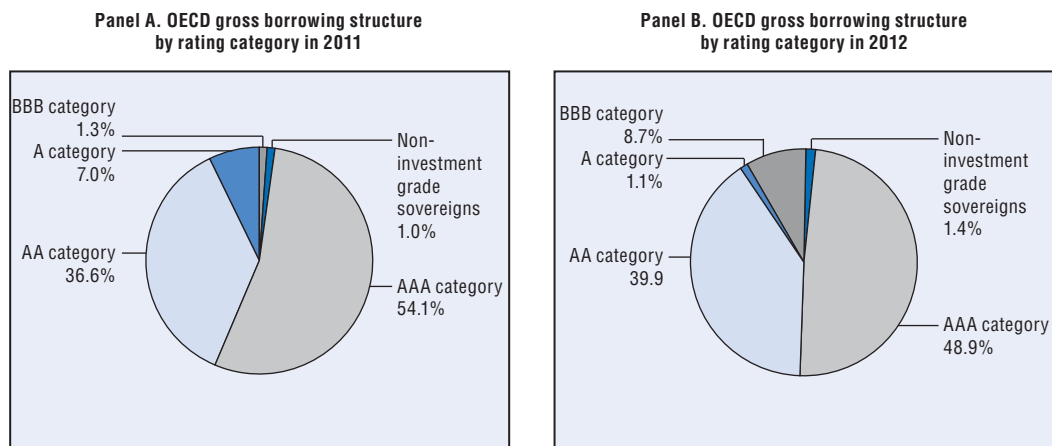
Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; credit ratings from Moody's, Fitch and Standard & Poor's and OECD staff estimations.

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As a result, during 2012, the gross borrowing structure by rating category has been changed significantly (compare Figure 2.17 Panels A [situation in 2011] and B [new situation in 2012]).

However, the market reaction to (many of) these rating downgrades is quite extraordinary: increase of long-term borrowing costs (using 10-year benchmark bond yields). In fact, many sovereigns experienced lower bond yields in the wake of the downgrade. Figure 2.18 shows the evolution in response to sovereign rating downgrades. Naturally, these

Figure 2.17. **Structure of gross borrowing by rating category**
Percentages



Note: The data used for the credit rating country groupings are from the three main credit rating agencies: Moody's, Fitch and Standard & Poor's. The classification of an issuer as AAA is based on two of three best rating grades, that is, if a sovereign issuer has been attributed triple-A by two rating agencies, the country is classified as triple-A. See for details the table with sovereign ratings in Annex A on "Methods and Sources". Credit ratings and other data as of 30 November 2012.

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; credit ratings from Moody's, Fitch and Standard & Poor's and OECD staff estimations.

StatLink  <http://dx.doi.org/10.1787/888932779335>

conflicting signals are raising fundamental questions about the information value of sovereign credit risk ratings.

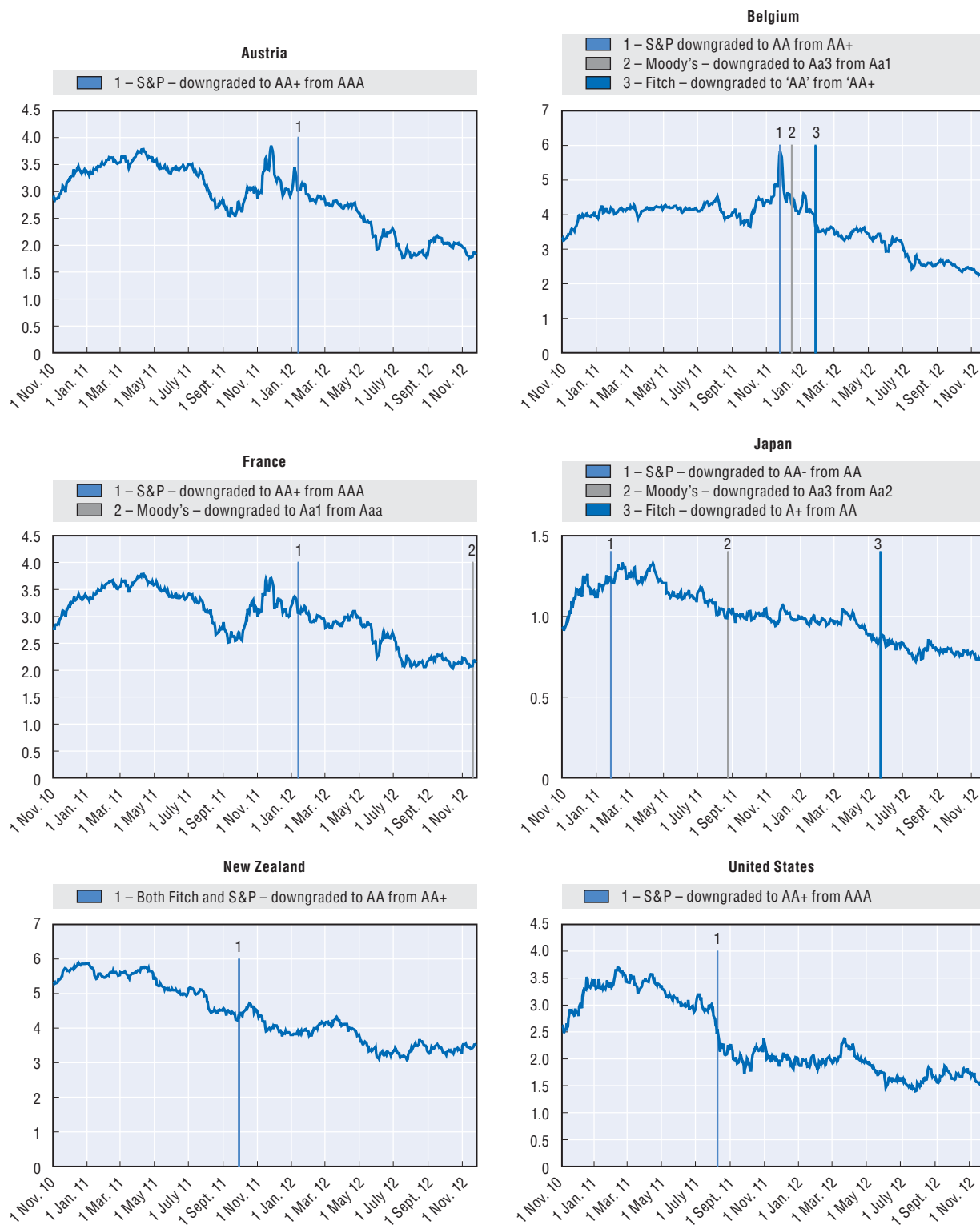
How to reconcile these conflicting price signals? A recent report by a rating agency gives some insight how CRAs themselves assess the usefulness of market indicators in relation to credit ratings:

*"Market indicators useful but imperfect: While Fitch Ratings bases its ratings principally on underlying fundamentals, it also tracks market indicators to provide additional context as to markets' perception of risk and as an indication of future funding costs. However, market indicators need to be viewed cautiously given the markets' tendency at times to overshoot and undershoot to levels that, in retrospect, may prove to be fundamentally unjustifiable."*⁵⁶

In other words, this rating agency tracks market indicators to "provide additional context as to markets' perception of risk" but also (quite crucially) "as an indication of future funding costs". This means that market information is judged as important (although, presumably, not as important as ratings). At the same time, market information "may prove to be fundamentally unjustifiable." It remains therefore unclear how rating agencies can integrate into a single consistent framework both "underlying fundamentals" (to justify ratings) and important market indicators (that may prove to be fundamentally unjustifiable).

Against this backdrop (and the earlier discussion in Chapter 2, Section 2.2), can (or should) we then fully rely on the triple-A standard to reliably measure the safety of sovereign assets? In view of the conflicting signals by CRAs and market indicators we have re-calculated the change in the supply of safe sovereign assets by relaxing our 2 out of 3 rule. The new calculation rule is as follows: *If a sovereign is rated by one of the major agencies as AAA or AA, then the asset is considered as "safe".*

Figure 2.18. **10-year benchmark bond yields and credit events for selected OECD sovereigns**
Percentages

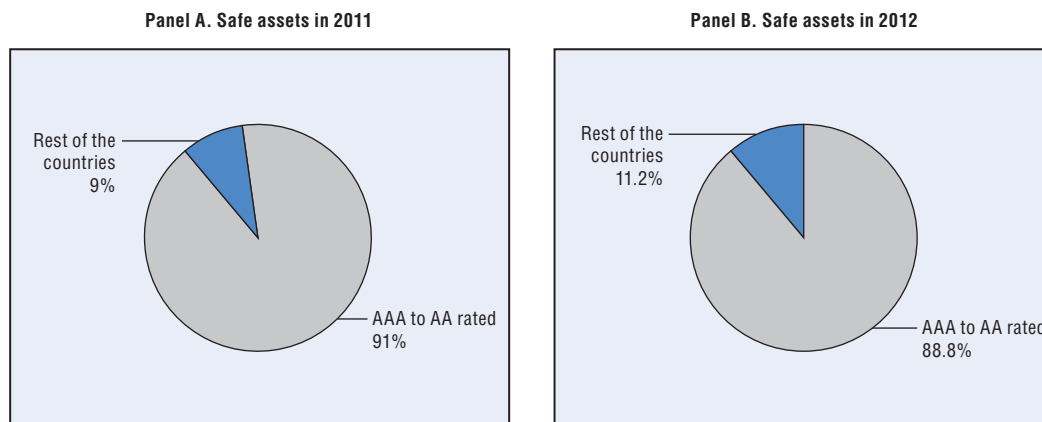


Source: Datastream and credit ratings from Moody's, Fitch and Standard & Poor's.

StatLink <http://dx.doi.org/10.1787/888932779354>

Using this new rule gives the following results. It is estimated that combined AAA- and AA-rated OECD gross borrowing amounts are estimated to reach 9.6 trillion USD at the end of 2012 or 88.8% of the total issuance by OECD governments, down from 91% in 2011 (see Panels A and B of Figure 2.19 on OECD gross borrowing by rating). In 2013, the combined triple-A and double-A borrowing amounts are projected to remain roughly the same (i.e. USD 9.66 trillion).

Figure 2.19. **OECD gross borrowing by rating**
Percentages



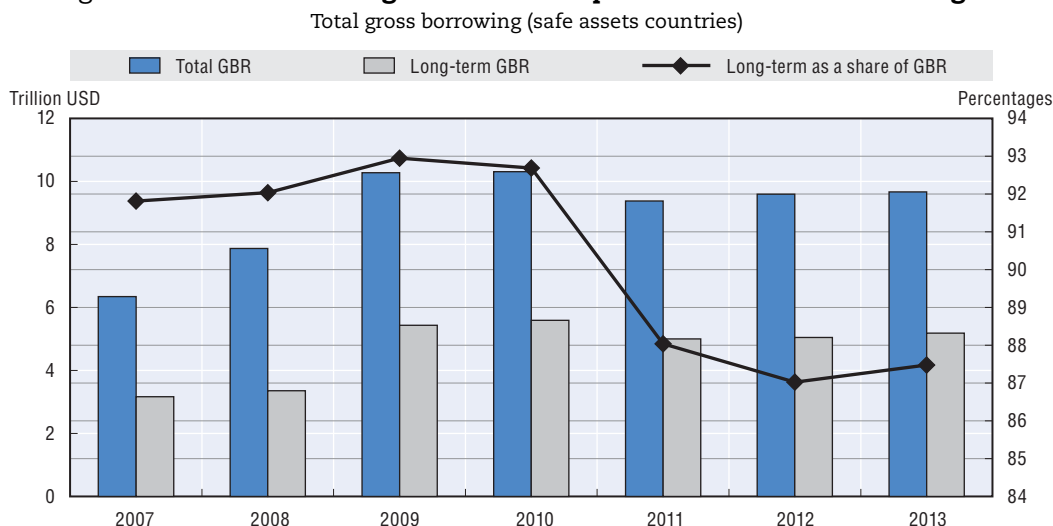
Note: The data used for the credit rating country groupings are from the three main credit rating agencies: Moody's, Fitch and Standard & Poor's. If a sovereign is rated by one of the major agencies as AAA or AA, then the asset is considered as "safe". See for details the table with sovereign ratings in Annex A on "Methods and Sources". Credit ratings and other data as of 30 November 2012.

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; credit ratings from Moody's, Fitch and Standard & Poor's and OECD staff estimations.

StatLink  <http://dx.doi.org/10.1787/888932779373>

Figure 2.20 provides information on the *funding* structure of total OECD triple- and double-A sovereign issuance activities in terms of maturity. The Figure shows that long-term issuance by OECD central governments (as a share of total combined triple-A and double-A gross issuance) peaked at almost 93% in 2009, dropping to around 87% in 2012 (down from 88% in 2011).

The outstanding stock of triple-A and double-A-rated OECD government debt is estimated to reach USD 31.2 trillion at the end of 2012 (or 85.7% of total OECD marketable debt). The outstanding stock of A- to BBB-rated OECD government debt is estimated to reach USD 4.4 trillion (or 12.2% of total marketable debt).

Figure 2.20. **OECD funding structure of triple-A and double-A sovereigns**

Note: The data used for the credit rating country groupings are from the three main credit rating agencies: Moody's, Fitch and Standard & Poor's. If a sovereign is rated by one of the major agencies as AAA or AA, then the asset is considered as "safe". See for details the table with sovereign ratings in Annex A on "Methods and Sources". Credit ratings and other data as of 30 November 2012.

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; credit ratings from Moody's, Fitch and Standard & Poor's and OECD staff estimations.

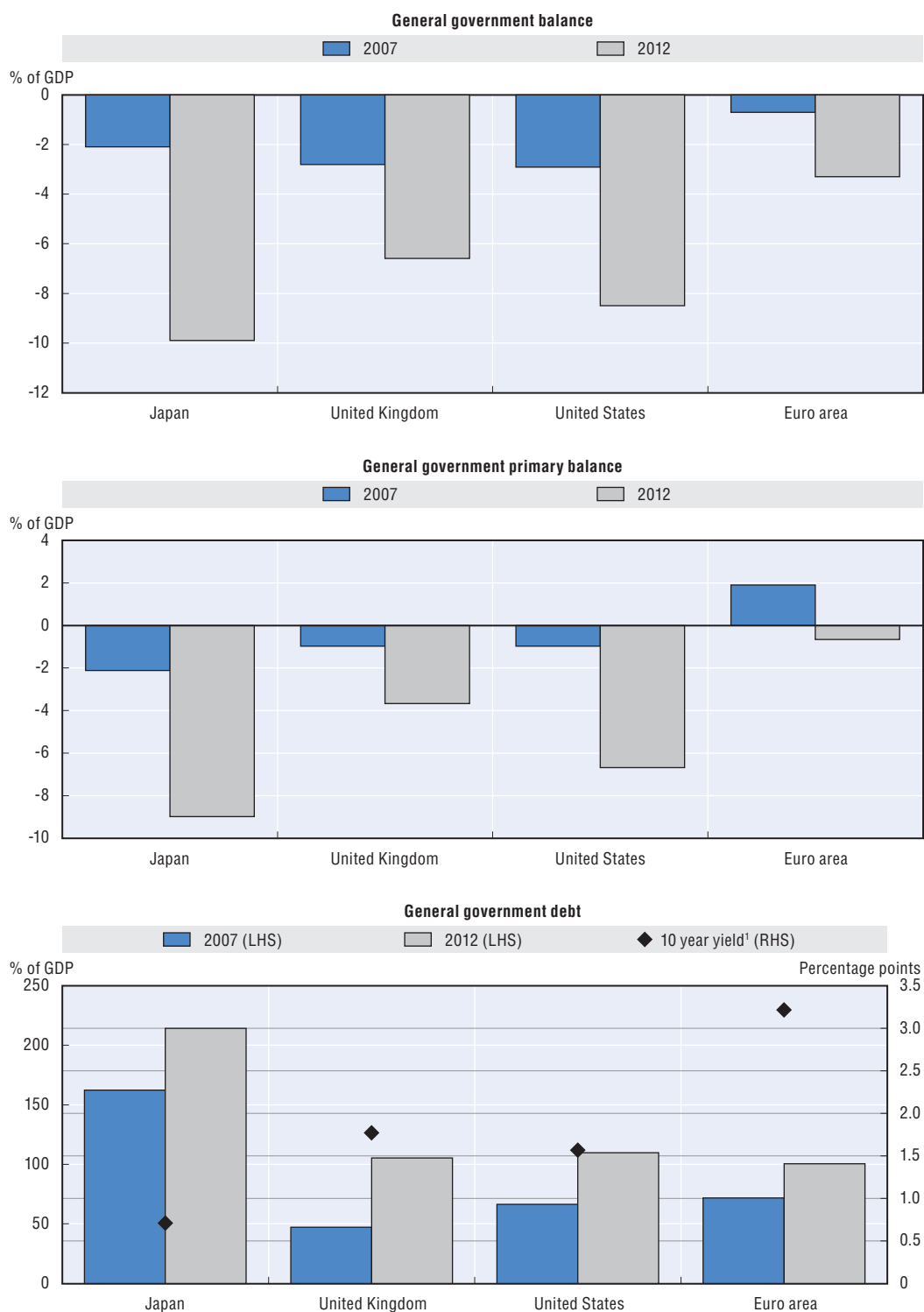
StatLink <http://dx.doi.org/10.1787/888932779392>

2.6. Destabilising dynamics of government securities markets: Fundamentals versus mood shifts?

Episodes with a sudden strong increases in borrowing costs have raised questions about the impact of sudden mood swings of markets that seem to be unrelated to economic fundamentals ("animal spirits"). For example, there was no (significant) change in fundamentals in Italy (and Spain) that would justify the major mood swings in markets in the period July 11 (Black Monday) – end-of-November 2011.

The occasional destabilising dynamics of government securities markets are creating huge policy problems. Highly volatile markets without a clear anchor or compass are likely to generate short-term selling pressures and higher borrowing costs. For example, Euro area investors (banks, pension funds and asset managers) were at times large sellers of long-dated Italian and Spanish government bonds. This kind of panicky market reactions may generate self-fulfilling prophecies. As noted, overshooting and undershooting of prices can be observed whereby "animal spirits" (threaten to) push government securities markets into self-fulfilling bad equilibria. For example, a recent study shows that animal spirits are playing an important role in explaining sovereign CDS spreads for euro area bond markets, especially during highly stressful episodes.⁵⁷

These events seem to reflect situations whereby "animal spirits" dominate market dynamics,⁵⁸ thereby pushing up borrowing rates. Governor Mersch noted in this context that "[t]oday, markets seem to be irrationally pessimistic. Even wealthy states with relatively sound economic fundamentals are in trouble to refinance themselves at reasonable conditions."⁵⁹ In this context it is striking that the average 10 year yield in the Euro area is much higher in spite of, on average, relatively sound fiscal and sovereign debt fundamentals (see Figure 2.21).

Figure 2.21. **General government fiscal balance and sovereign debt**

1. Cut-off date for GDP-weighted average 10 year government bond yield for Euro area: 30 November 2012. General government gross debt and fiscal balances are on SNA basis.

Source: Datastream, OECD Economic Outlook 92 Database; and OECD staff calculations.

StatLink <http://dx.doi.org/10.1787/888932779411>

Notes

1. OECD *Economic Outlook* 92, November 2012.
2. See for more details Chapter 3 on “Debt management in the macro spotlight”.
3. OECD *Economic Outlook* 92, November 2012.
4. OECD *Economic Outlook* 92, November 2012.
5. See for more details Chapter 3, Section 3.3.2 on fiscal consolidation and public debt management, in particular Figure 3.6 on general government deficits, gross borrowing, gross debt and average term to maturity (Figure 3.7) in three groups of OECD countries.
6. This risk has an idiosyncratic feature since it concerns the specific case of a monetary union with a shared currency.
7. Blommestein, H.J., S.C.W. Eijffinger and Z. Qian (2012), *Animal spirits in the euro area sovereign CDS market*, CEPR Discussion Paper, No. DP9092, August 2012, www.cepr.org/pubs/dps/DP9092.asp.
8. Blommestein, H.J., V. Guzzo and A. Holland (2010); “Debt Markets in the Post-Crisis Landscape”, *OECD Journal: Financial Market Trends*, Volume 2010 – Issue 1.
9. Blommestein, H.J., V. Guzzo and A. Holland (2010); “Debt Markets in the Post-Crisis Landscape”, *OECD Journal: Financial Market Trends*, Volume 2010 – Issue 1.
10. The 2008-2009 global financial crises showed that in addition to banks also other financial sector institutions such as insurance companies were bailed-out (leading to an increase in government debt) or supported by guarantees (leading to an increase in contingent government debt). Also financial markets were rescued by the authorities. Governments and central banks became in effect market makers of last resort.
11. For example, the IMF (2010) presents 9 vulnerability indicators to analyse sovereign risk. These vulnerability indicators in sovereign markets cover fiscal and debt fundamentals, sovereign financing needs, external sovereign funding, banking system linkages, and sovereign credit rating and outlook. See Table 1.1 in “Global Financial Stability Report”, Chapter 1 on “Economic Uncertainty, Sovereign Risk, and Financial Fragilities”, October 2010, IMF.
12. These probabilities could then be used as weights of the different components.
13. In this context there is a certain parallel with the complexity and non-transparency of calculating risk-weighted assets (RWAs) for banks under Basel II, especially the formula of the so-called Advanced IRB version. As a result, variations in RWAs across banks due to credit risk are very significant [Vanessa Le Lesle and Sofiya Avramova (2012), “Revisiting Risk-Weighted Assets”, IMF Working Paper, WP/12/90]. Andy Haldane of the Bank of England puts the complexity point as follows (2011): “[the] number of risk buckets has increased from around seven under Basel I to, on a conservative estimate, over 200 000 under Basel II. To determine the regulatory capital ratio of [a] bank, the number of calculations has risen from single figures to over 200 million. [Andrew Haldane, (2011), Capital Discipline, Remarks given at the American Economic Association, Denver, 9 January]. A similar situation could then arise when one would opt for very wide and complex definitions of sovereign risk. In fact, conceptually, the different components of sovereign risk could be even more complex, more opaque and open to more interpretations than RWAs for banks.
14. De Grauwe, P. (2011), *Managing a Fragile Eurozone*, CESifo Forum 2/2011; De Grauwe, P. (2011), “The Governance of a Fragile Eurozone”, *CEPS Working Document*, No. 346.
15. However, liquidity risk and fears about a break-up of the euro area have been reduced by recent policy measures, notably the OMTs programme of the ECB. In the words of Christian Noyer: The OMT represents “... a massive and effective backstop to the unjustifiable increase in sovereign yields and will allow us to counter the fragmentation of the euro area’s markets...”. Christian Noyer (2012), the euro area is moving in the right direction, speech at the Paris Europlace Financial Forum, Tokyo, 3 December 2012.
16. For example, the Spanish government has recently withdrawn EUR 3 bn out of the Social Security Reserve Fund for paying pensions. [INVERCO dismisses use of Spanish reserve fund for regional debt www.ipe.com/news/inverco-dismisses-use-of-spanish-reserve-fund-for-regional-debt_47740.php]
17. De Grauwe, P. (2011), “Managing a Fragile Eurozone”, CESifo Forum 2/2011.
18. Interventions are at the short-end (1 to 3 years) of government debt markets and are subject to conditionality.

19. Sturzenegger, F. and J. Zettelmeyer (2006), "Debt Defaults and Lessons from a Decade of Crises", The MIT Press.
20. Smaghi, L.B. (2011), Policy rules and institutions in times of crisis, Speech delivered at the "Forum for EU-US Legal-Economic Affairs" organised by the Mentor Group, Rome, 15 September 2011.
21. Blommestein, H.J. (2010), "Animal spirits' need to be anchored", *Financial Times*, 11 October.
22. Blommestein, H.J., Vincenzo Guzzo and Allison Holland (2010), "Debt Markets in the Post-Crisis Landscape", *OECD Journal: Financial Market Trends*, Volume 2010 – Issue 1.
23. Blommestein, H.J., S.C.W. Eijffinger and Z. Qian (2012), "Animal spirits in the euro area sovereign CDS market", *CEPR Discussion Paper No. DP9092*, August 2012, www.cepr.org/pubs/dps/DP9092.asp.
24. Cottarelli, C.L., Forni, J. Gottschalk and P. Mauro (2010), "Defaults in To-day's Economies: Unnecessary, Undesirable, and Unlikely", *IMF Staff Position Note*, 1 September, SPN/10/12.
25. John Hull, Mirela Predescu and Alan White (2004), "The Relationship Between Credit Default Swap Spreads, Bond Yields, and Credit Rating Announcements"?, *Journal of Banking & Finance*, Vol. 28, No. 11 (November 2004), pp. 2789-2811.
26. See the estimates using various econometric methodologies in Hans J. Blommestein and Perla Ibarlucea Flores, Definition, Measurement and Pricing of Sovereign Risk, *Forthcoming*.
27. By simply dividing the level of the swap spread by its recovery rate.
28. The interpretation of what CDS spreads actually convey as information is further complicated by suggestions that there are different potential common sources of global or systemic macroeconomic and financial market risks (i.e. global market factors, investment flows, global risk premia) in addition to sovereign-specific fundamentals [see Vilmunen, J. (2011), "Editorial: Sovereign credit risk and global macroeconomic forces", *Bank of Finland Research Newsletter* 2; www.suomenpankki.fi/en/julkaisut/selvitykset_ja_raportit/tutkimustiedote/Documents/ttied112en.pdf and Longstaff, F.A., J. Pan, L.H. Pedersen and K.J. Singleton (2011), "How sovereign is Sovereign Credit Risk?", *American Economic Journal: Macroeconomics* (3(2), 75-103.]. Ang, A. and F.A. Longstaff (2011) find that US and European systemic sovereign risk is strongly related to financial market variables (rather than in macroeconomic fundamentals) [www.anderson.ucla.edu/documents/areas/fac/finance/longstaff_sovereign_credit.pdf, draft April 2011].
29. Hannoun, H. (2011), "Sovereign risk in bank regulation and supervision: Where do we stand?", Presentation at the High-Level Meeting of the Financial Stability Institute, Abu Dhabi, UAE, 26 October.
30. Smaghi, L.B. (2011), "Policy rules and institutions in times of crisis", Speech at "Forum for EU-US Legal-Economic Affairs", Mentor Group, Rome, 15 September.
31. De Grauwe, P. and Y. Ji (2012) found evidence that a large part of the surge in the spreads of the peripheral euro area countries during 2010-2011 was disconnected from underlying changes in fundamentals (i.e. debt-to-GDP ratios). Instead, the increase in spreads "was the result of negative market sentiments..." [De Grauwe, P. and Y. Ji (2012), "Mispricing of sovereign risk and multiple equilibria in the Eurozone", *CEPS Working Document*, No. 361, January 2012].
32. Hannoun, H. (2011), Sovereign risk in bank regulation and supervision: Where do we stand? Presentation at the High-Level Meeting of the Financial Stability Institute, Abu Dhabi, UAE, 26 October. This also implies that one cannot rely on markets to exert proper policy discipline. For example, market discipline "cannot be relied upon to foster fiscal rectitude" [Hannoun, H. (2011), *ibid.*, page 2].
33. This is *Knightian uncertainty* as it reflects a situation where it is not possible to assign (objective) probabilities to measure risk.
34. See *OECD Borrowing Outlook 2012* (Chapter 3).
35. On 21 December 2011, the ECB provided EUR 489.2 billion to 523 credit institutions, while the second operation on 29 February 2012 saw an allotment of EUR 529.5 billion to 800 credit institutions [ECB (2012), *Monthly Bulletin*, March 2012].
36. IMF (2012), *Global Financial Stability Assessment*, October 2012.
37. Interventions are at the short-end (1 to 3 years) of government debt markets and are subject to conditionality.
38. The ESM was formally inaugurated on 8 October 2012.
39. The SMP was announced on 10 May 2010.

40. Eurogroup statement on Greece, 27 November 2012 (www.consilium.europa.eu).
41. However, the EFSF will continue the management and repayment of any outstanding debt and will close down once all outstanding debt has been repaid.
42. Initially, the EFSF used a simple back-to-back funding strategy. In November 2011, a diversified funding strategy was adopted using a liquidity buffer as a key component. As part of this strategy, EFSF has introduced a short-term bill programme and since the end of last year, EFSF held regular auctions of 3-month and 6-month bills. One consequence of the EFSF issuance strategy is that funds raised are no longer attributed to a particular country. The funds are pooled and then disbursed to programme countries at the same unique cost.
43. In addition, under the European Financial Stabilisation Mechanism (EFSM), the European Union has provided since 2011 EUR 43.8 bn in loans to Ireland and Portugal.
44. EFSF transactions as of 6 December 2012.
45. EFSF funding programme as of December 2012.
46. ESM Press release No. 03/2012, European Stability Mechanism (ESM), issues bonds for the recapitalisation of the Spanish banking sector, dated 5 December 2012.
47. EFSF, FAQ Report, page 29. As of 27 November 2012.
48. In contrast, the EFSF has not a preferred creditor status. Unlike the IMF, the EFSF has the same standing as any other sovereign claim on the country (*pari passu*).
49. Press release Moody's Investor Service, 30 November 2012.
50. Reuters, Italy's Treasury sees foreign investor comeback on long-dated bonds, 27 September 2012.
51. Since the focus is on public assets, the analysis does not take into account so-called safe *private* assets such as securitised assets and corporate bonds with very high credit quality.
52. For example, by changing risk weights, liquidity buffers for banks, regulatory pressures to hold high grade collateral, greater use of central counterparties (CCPs) in OTC derivatives markets.
53. OECD staff calculations using different econometric methodologies confirm this broad association.
54. This amount represents about 54% of total marketable gross borrowing (see Figure 2.16 Panels A and B).
55. Or 49% of total marketable gross borrowing by central OECD governments (see Figure 2.16 Panels C and D).
56. FitchRatings (2012) Eurozone Trading Action – Perception versus reality. Special Report, 24 September.
57. Blommestein, H.J., S.C.W. Eijffinger and Z. Qian (2012), “Animal spirits in the euro area sovereign CDS market”, *CEPR Discussion Paper*, No. DP9092, August 2012, www.cepr.org/pubs/dps/DP9092.asp.
58. Blommestein, H.J. (2010), “Animal spirits need to be anchored”, *Financial Times*, 11 October.
59. Yves Mersch (2011), “Optimal Currency Area Revisited”, Pierre Werner Lecture, at the European Institute, Florence, 26 October.

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Chapter 3

Debt management in the macro spotlight

Serious fiscal vulnerabilities, perceptions of higher sovereign risk and considerable uncertainty about future interest rates have created the conditions for fiscal dominance with new and complex interactions between public debt management (PDM) and monetary policy. This is putting public debt management and the functioning of sovereign debt markets in a macro spotlight.

Although PDM alone cannot solve macroeconomic imbalances or address structural financial sector problems, PDM is a key component of a balanced structural policy mix supporting both the proper functioning of government securities markets and, more broadly, the objectives of the macroeconomic framework.

The challenges of using unconventional monetary policy instruments for debt management are highlighted. With a further increase of central bank holdings of government securities, a smooth exit from accommodative asset purchase programmes at the appropriate time might become more challenging.

The chapter also discusses debt management considerations during periods of fiscal consolidation and fiscal dominance.

3.1. Complex interactions between sovereign debt management, fiscal policy and monetary policy under fiscal dominance and financial instability¹

Serious fiscal vulnerabilities, perceptions of higher sovereign risk and considerable uncertainty about future interest rates have created new and complex interactions between public debt management (PDM) and monetary policy (MP). As Blommestein and Turner (2012b) argue, this set of conditions has created the threat of fiscal dominance. This has put public debt management and the functioning of sovereign debt markets in a macro spotlight.

3.1.1. The blurring of lines between public debt management, monetary policy and fiscal policy

Although generally the formal mandates of central banks (CBs) have not changed, balance sheet policies during the last couple of years have tended to blur the separation of their operations from fiscal policy (FP).

The mandates of debt management offices (DMOs) have usually had a microeconomic focus (viz, keeping government debt markets liquid, limiting refunding risks, etc.). Such mandates have usually eschewed any macroeconomic policy dimension.² For these reasons, all clashes in policy mandate between CBs and DMOs have been latent and not overt.

Under “normal” circumstances, these distinct mandates have worked well. CBs and DMOs, as independent institutions with different objectives, responsibilities and functions, have usually enjoyed clear working relationships that functioned (often in the same markets) without policy conflicts. Both CBs and DMOs could serve the general interest best by executing their separate, specific mandates.

However, the financial and economic crisis has also led to some blurring of lines between public debt management (PDM) and monetary policy (MP). DMOs have operated more extensively at the short end of yield curve, and CBs have been increasingly active in the same long government bond markets as DMOs.

In sum, mandates have become entangled to some degree during recent crisis episodes, while the different mandates appeared sometimes to be in conflict. For example, it has been noted that the conventional, microeconomic-focused PDM approach may conflict with wider, macroeconomic considerations (see Chapter 3, Section 3.2).

Nevertheless, caution is warranted in drawing any implications for altering the current functional responsibilities of debt managers (DMs), central bankers (CBs) and fiscal authorities (FAs). A full debate about this would have to take account of not only the economics, but also political or institutional constraints. Appropriate governance mechanisms are important. There are practical advantages in arrangements that in practice serve to forestall short-sighted policies and hold specific institutions accountable for their mandates. Yet, policymakers need to come to grips with a wide range of major new complexities and challenges. We need therefore a new policy framework for all official actions that affect the maturity structure of government debt for macroeconomic objectives. This in turn requires a possible re-think about the monetary policy dimension of PDM.

3.1.2. Rethinking public debt management

The financial crisis has led to some radical rethinking about central banking, with more emphasis on financial stability objectives (notably those with a systemic dimension) having gained ground.³ For debt managers it is of importance that actual central bank operations in many segments of financial markets beyond short-term money markets have become more prominent (see Chapter 3, Section 3.2).

This re-thinking of the role of the central bank makes necessary a similar re-thinking about government debt management. The recent crisis has brought to the surface the fact that the *macroeconomic* dimension of government debt management has not had the attention it deserves. This, however, is a difficult and contentious subject.⁴ Careful analysis and debate is therefore needed before suggesting changes in policy frameworks that have worked well. Imprudent changes – or even smaller wrong-headed modifications – would be very risky. It is the quality of the debate among relevant policymakers and the weight of the evidence that should in the end determine whether or not structural changes in existing arrangements of an institutional nature should be contemplated.

After all, it is the long-term track record and high quality of the current institutional set-up that created policy credibility in financial markets over many years. More specifically, the quality of modern public debt management and a strong, credible (independent) central bank are both of great importance for policy confidence and the proper functioning of financial markets in a broader sense.

3.2. Challenges of unconventional monetary policy for public debt management

The string of unprecedented policy challenges produced by the global financial and economic crisis triggered unconventional policy responses by both governments and central banks. Unconventional fiscal interventions in the form of massive purchases of financial sector assets, bank recapitalisations and the issuance of guarantees set the stage for a huge increase in the issuance of T-Bills and T-Bonds.⁵ On the back of these fiscal interventions the monetary authorities began implementing on a large scale unconventional monetary policy programmes. Asset purchases by CBs can create complications for both the operations of debt managers and CBs.⁶ There is also the need to take into account the possible effects of (further) asset purchases on various aspects of the functioning of government securities markets.⁷ A final issue considered in this section is the challenges for DMOs of the exit from government bond holdings by CBs.

3.2.1. Unconventional monetary policy measures and the impact on government securities markets

Initially, in 2007 and 2008, the US FED and other central banks responded via strong traditional liquidity actions. In spite of these extraordinary, “conventional” liquidity measures, the economies remained in very bad shape. These traditional measures, although quite radical, were followed in the latter part of 2008 and early 2009 by new, extraordinary steps by central banks to provide liquidity and support the functioning of credit markets. Since the space for further cuts in policy rates was increasingly limited [Central banks began to operate in a (near) zero-lower-bound region], the FED and other central banks turned to non-standard monetary policy measures.

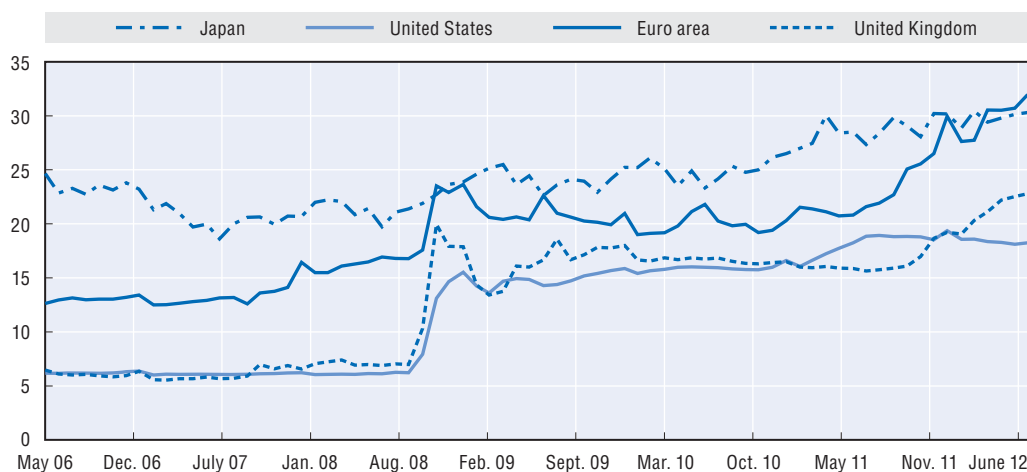
For example, in late 2008, the FED initiated a series of LSAPs.⁸ This programme was expanded in March 2009 and completed in early 2010. In November 2010, the FED

announced a further expansion ending in mid-2011. During the summer of 2011, the FED introduced a maturity expansion programme (MEP) initially ending in June 2012. This programme was extended and will now be terminated at the end of December 2012. The US Federal Reserve announced on 12 December 2012 that it will take unprecedented steps to bolster the economy. The Fed says it will begin purchasing longer-term Treasury securities, starting in January 2013, to the tune of USD 45 billion a month (on top of USD 40 billion a month it is already buying in mortgage bonds).

Unconventional monetary policy measures led to a massive expansion of central bank's balance sheets (see Figure 3.1).

Figure 3.1. **Central bank balance sheets**

Percentage of GDP



Note: Cut-off date is June 2012.

Source: Datastream and IMF.

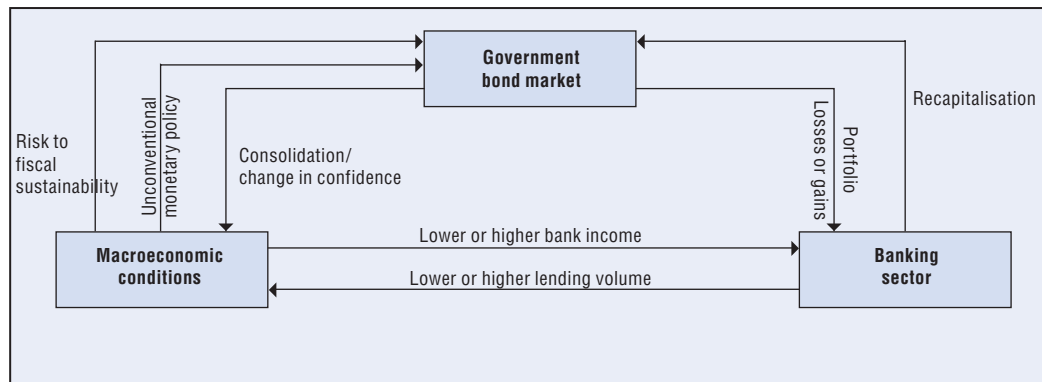
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Quantitative easing' (QE or LSAP⁹), "Operation Twist" (or MEP)¹⁰ and the ECB's Outright Monetary Transactions (OMT) facility are examples of operations by CBs that can have a (direct) impact on the functioning of government securities markets.¹¹ For this fundamental reason unconventional monetary policy operations are of *prima facie* concern or interest for debt managers.

Figure 3.2 illustrates the various key links or interactions between macroeconomic conditions, banking sector and government bond markets.¹² Here we focus on the interaction or channel where monetary policy actions are triggered in response to changes in macroeconomic conditions, including situations where unconventional monetary policy is used in response to a deteriorating macroeconomic environment, leading to lower government bond yields (by affecting changes at the longer end of the yield curve).

For example, under its maturity extension program (MEP; more often referred to as operation Twist), the US Federal Reserve indicated its intention to sell or redeem a total of USD 667 billion of shorter-term Treasury securities by the end of 2012¹³ and use the proceeds to buy longer-term Treasury securities. This will extend the average maturity of the securities in the Federal Reserve's portfolio (while reducing the average maturity of the securities held by the public). By reducing the supply of longer-term Treasury securities in the market, this action should put downward pressure on longer-term interest rates,

Figure 3.2. **Main linkages between macroeconomic conditions, the banking sector and government bond markets**



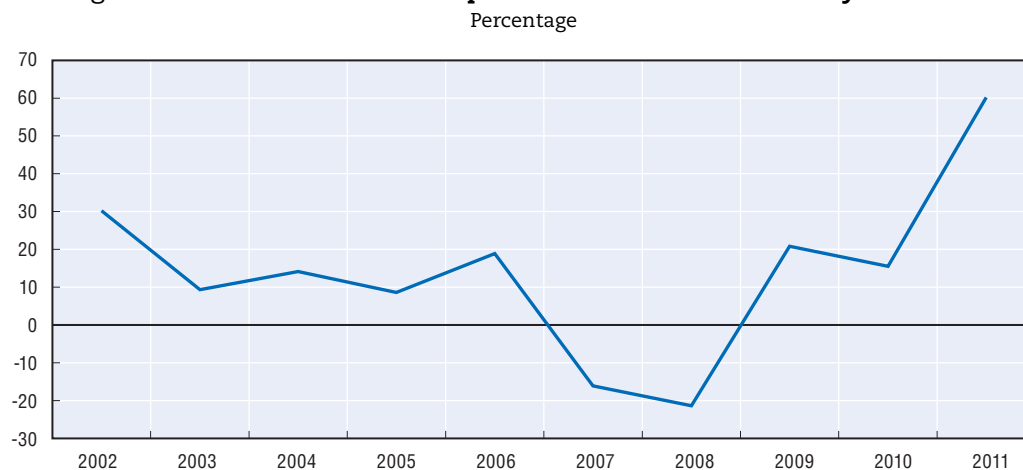
Note: Arrows indicate the channel through which changing conditions in one area affect the other two areas.

Source: ECB Monthly Bulletin, August 2012 and Blommestein 2012 [see: Blommestein, H.J. (2012), Challenges for Debt Managers during the Entry and Exit of Standard and Non-Standard Monetary Policy, Lecture at the seminar on Government Debt Management: New Trends and Challenges, held on 11-14 September 2012, at Christ's College, Cambridge University, United Kingdom, and organised by Central Banking Publications.]

including rates on financial assets that investors consider to be close substitutes for longer-term Treasury securities.

Since 2008, purchases of government securities by central banks had a major direct impact on government securities markets. For example, in 2011, the US FED purchased 60.2% of the total net Treasury issuance (up from very small amounts prior to 2008 (Figure 3.3). As of 30 August 2012, total FED Treasury holdings stood at USD 1.63 trillion or 16% of total marketable US Treasuries (Figure 3.4), including also private assets such as MBS and distressed assets, while total FED holdings amounted to USD 2.58 trillion or 18% of GDP.

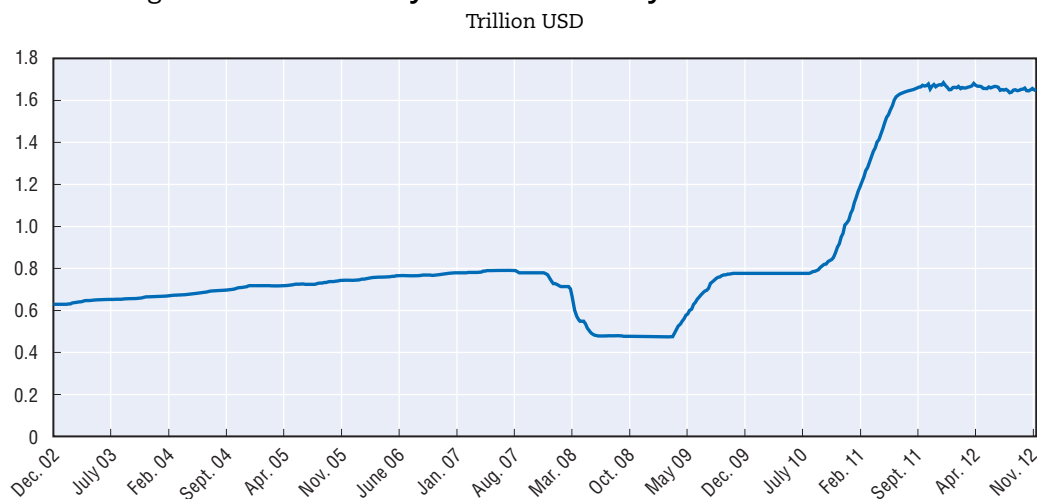
Figure 3.3. **US Federal Reserve purchase of total net Treasury issuance**



Note: Cut-off date is December 2011.

Source: Federal Reserve System (Flow of Funds Accounts of the United States) and OECD staff calculations.

StatLink <http://dx.doi.org/10.1787/888932779449>

Figure 3.4. **US Treasury securities held by the Federal Reserve**

Note: Cut-off date is 28 November 2012.

Source: Board of Governors of the Federal Reserve System and OECD staff calculations.

StatLink  <http://dx.doi.org/10.1787/888932779468>

The new MEP, announced on 21 September 2011, seeks to increase the average maturity of the FED portfolio of Treasury securities by 25 months to about 100 months by the end of 2012. As noted, the FED intends to buy USD 667 billion in Treasury securities with remaining maturities of 72 to 360 months and to sell an equal amount of Treasuries with remaining maturities of 3 to 36 months. Unlike QE, the MEP (or operation Twist) aims to extend the average maturity without expanding the FED's balance sheet.¹⁴

3.2.2. Possible conflicts between unconventional monetary policy, sovereign issuance and proper functioning of government securities market

Research shows that the total impact of both QE and MEP is considerable. Studies for both the US and the UK conclude that the financial and macroeconomic effects of QE programmes are quantitatively similar and, indeed, economically meaningful. For example, a recent BIS-OECD publication¹⁵ reports that the impact of LSAP programmes implied a reduction of 27 to 130 basis points on longer term yields. Bernanke (2012) notes that the cumulative influence of *all* the FED's asset purchases combined (including those made under the MEP) is between 80 and 120 basis points on the 10-year Treasury yield. The BIS-OECD study also found that the estimated impact on government yields of the recent operation Twist is comparable to that of the asset purchase programmes.

However, there are potential conflicts of policy interest in implementing QE or MEP on the one hand, and the sovereign issuance strategy, on the other. Research indicates that the FED's asset purchase programmes was *countervailed* by the US Treasury's public debt management strategy.¹⁶ In fact, the US Treasury's extension of the average maturity of outstanding debt during the Large-Scale Asset Purchase (LSAP) programmes pushed the 10-year government bond yield up by 27 basis points during the first stage of the programme (LSAP1) and by 14 basis points during the second stage (LSAP2).¹⁷ In other words, the effectiveness of QE and Twist operations are constrained or limited by the public debt management strategy.

Central banks and DMOs have different policy goals that sometimes may conflict. Blommestein and Turner (2012)¹⁸ show that in the past there has been quite a strong empirical link between actual debt management choices and two simple measures of both fiscal policy and monetary policy. They provide *prima facie* evidence that debt management choices (in the US at least) have been endogenous with respect to macroeconomic policy. Hoogduin et al. (2010, 2011) also found that, in the euro area, a steepening in the yield curve leads national debt managers to shorten the duration of their issuance.¹⁹

From this we derive the key policy point that debt management choices seem not in *practice* have been independent of monetary policy.²⁰ This point may in particular be relevant for non-standard monetary policy such as QE, MEP and the new ECB bond-buying programme – Outright Monetary Transactions (OMT). Indeed, non-standard monetary policy measures have undermined to some degree the “separation” between PDM and MP. Before the 2008 crisis, policymakers in the OECD area (and in an increasing number of emerging public debt markets), had adopted the reasoning that potential policy conflicts between monetary policy and sovereign debt management could be (largely) avoided by following two “separability principles”:

- Central banks should not operate in the markets for long-dated government debt, but should limit their operations to the bills market.
- Government debt managers should be guided by a micro portfolio approach based on cost-minimisation mandates, while keeping the issuance of short-dated debt to a prudent level.

But recent central bank activism in debt markets as a response to the crisis has inevitably undermined these two “separability” principles. A key problem is that QE operations decided by the central bank could easily be contradicted by Treasury financing decisions. Put differently, non-standard monetary policies may induce the opposite reaction of the debt manager (the endogeneity point argued above). For example, the US Treasury has been lengthening the average maturity of its outstanding debt during recent years. This is (by itself) difficult to square with the rationale of QE, which aims to shorten the maturity of bonds held by the public. It is therefore essential to examine QE in conjunction with debt management policies.²¹

In general, a change to the yield curve induced by central bank action may even lead the debt manager to alter its issuance policy to take advantage of what it might view as a temporary interest rate “distortion”. Or it may find it can move quickly to attain a maturity-extending objective thanks to favourable market conditions created by the central bank. Either way, it could respond *endogenously* to the repricing of debt caused by the central bank. This endogeneity is likely to be complex, time-variant and opaque.

The policy tensions between the US Treasury and the Federal Reserve have been clear in the recent minutes of the quarterly meeting of the Treasury Borrowing Advisory Committee. On 2 November 2010, for instance, the Committee noted:

“Overall, the Committee was comfortable with continuing to extend the average maturity of the debt ... The question arose regarding whether the Fed and the Treasury were working at cross purposes... It was pointed out by members of the Committee that the Fed and the Treasury are independent institutions, with two different mandates that might sometimes appear to be in conflict. Members agreed that Treasury should adhere to its mandate of assuring the lowest cost of borrowing over time, regardless of the Fed’s monetary policy. A couple of members noted that the Fed

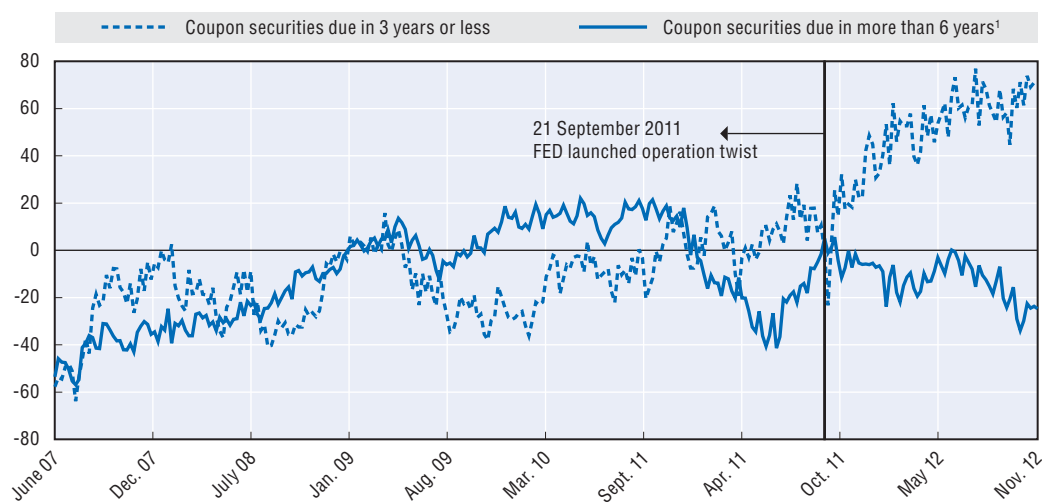
was essentially a ‘large investor’ in Treasuries and that the Fed’s behaviour was probably transitory. As a result, Treasury should not modify its regular and predictable issuance paradigm to accommodate a single large investor.”

The announcement in September 2011 of a new Operation Twist was significant in that it involved the purchase by the Federal Reserve of longer maturity debt than under QE2 – and longer than current US Treasury issuance.

Other considerations that may temper the benefits of QE or Twist operation are worries that the FED (and other central banks) will affect the efficient functioning of markets. At some (unknown) threshold additional FED purchases of Treasuries may disrupt market functioning by lower liquidity. The President of the FED Reserve Bank of Cleveland said recently in a speech²² “that, at some point, the Federal Reserve’s presence in certain securities markets would become so large that it would distort market functioning. It would be helpful to have a better understanding of how large the FED’s participation would have to be to cause a meaningful deterioration in securities market functioning.”

In this context traders have expressed concerns that the latest Operation Twist may reduce liquidity in the short-term funding market. Since Operation Twist was launched on 21 September 2011, primary dealer holdings of Treasury paper have increased significantly; most of it with a short maturity (3 years and lower). Figure 3.5 shows the upward trend especially since the first week of October 2011 till the end of July 2012; in that same period, short-term holdings as a % of total primary dealer holdings increased from 76% on 5 October 2011 to around 93% on 29 August 2012.

Figure 3.5. **Primary dealer net outright position in government coupon securities**
Billion USD



1. But less than or equal to 11 years. Cut-off date is 28 November 2012.

Source: Federal Reserve Bank of New York (FRBNY) and OECD calculations.

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Operation Twist means that the central bank will no longer buy newly issued government bonds at US Treasury auctions. The implication is that these on-the-run issues could trade at a premium in the repo market, thereby posing a challenge to market liquidity. A second implication of Twist for market liquidity is that after the operation ends (at the end of 2012), the FED will hold few short-dated Treasury securities that mature

through to January 2016 in its System Open Market Account (SOMA). Without SOMA as a backstop in the repo market, the repo market may become more volatile. Moreover, the FED will be hampered in its function of rolling over any maturing securities into (new) on-the-runs. Hence, Twist reduces the FED's role in helping alleviate liquidity pressures for off-the-run (older) Treasury securities.

A third implication of Operation Twist is that the US Treasury must now sell an estimated USD 667 billion of additional debt to the public over the next four years.²³ In response, the Treasury plans to issue a new instrument, floating-rate notes (FRNs).²⁴ FRNs will assist in giving the Treasury additional flexibility in its increased debt offerings. Investors comment that these new notes would be attractive once the FED will exit from its ultra-low-interest-rate policy.

3.2.3. What are the challenges of the exit from accommodative asset purchase programmes for PDM?

A looming challenge for DMOs is the risk that when the recovery gains traction and risk aversion falls further, yields will start to rise. Market stress may be further aggravated by the exit implications of monetary policy shifts, creating additional complications for the debt management strategy. Exit measures, via unwinding of unconventional monetary policy measures, reverse repos, or raising official rates, must therefore be carried out with great prudence. Especially the selling of public assets in a situation where continued strong government debt issuance can be expected (i.e. especially at the start of the recovery and/or when fiscal exit strategies are postponed or take more time than expected to execute them²⁵) might raise complications for the debt management strategy. The termination of central bank purchase programmes, and selling assets acquired by central banks during quantitative easing programmes, means that continued strong government issuance is to take place without market support by the central bank, leading to a possible upward pressure on market rates (which may of course be desirable from a monetary policy point-of-view). What happens with borrowing rates in individual countries is dependent on underlying fundamentals and market psychology. For example, a recovery and associated return to (more) normal market circumstances would probably mean that prevailing ultra-low rates in so-called flight-to-safety countries will increase.

However, the exit could also rock (government) securities markets by pushing-up longer-term rates on government bonds more strongly than desirable. This quite complex situation requires a clear understanding by the monetary authorities of the market impact of the different exit programmes, a proper communication strategy by both the CB (and DMO), and an effective two-way exchange of information between the government issuer and central bank. With proper planning, good communications, and a transparent issuance strategy, asset sales do not need to be disruptive.

In the context of additional securities purchases Bernanke (2010) noted that "substantial further expansions of the [Fed's] balance sheet could reduce public confidence in the Fed's ability to execute a smooth exit from its accommodative policies at the appropriate time."²⁶ For this reason the FED has developed a suite of tools to ensure a smooth exit, while providing maximum clarity about how and when these exit methods will be used. Likewise, the Bank of England has communicated to markets the timing, the pace, but also the sequencing of measures, in reversing the unusually accommodative monetary policy stance. On this question of sequencing Miles (2012) has noted that it is beneficial to begin the exit strategy by raising the official rate first and then, only when the

recovery process proves to be well established, the CB should start selling its portfolio of government securities.²⁷ His argument is based on the reasoning that a possible pre-mature tightening can be more easily reversed when rates would have been raised as a first move. In contrast, the reversal of a pre-mature tightening in the case that government securities were sold as a first exit step, would create unnecessary volatility in the market for government securities (especially if the policy rate is still close to zero).

To some extent, also the DMOs themselves may need to exit from policies and procedures introduced during crisis periods. In response to liquidity pressures, rapidly rising borrowing requirements and strongly risk-averse investor behaviour debt managers were forced to modify their fund raising strategies.²⁸ Most notably, many DMOs have become more flexible and opportunistic. This shift, while understandable, creates risks. Issuance programmes became less predictable, which is not desirable in the long-term. The exit strategies for DMOs need therefore to include a return to a less opportunistic issuance strategy. A transparent debt management framework and a strong communication policy are instrumental in reducing the type of market noise that can unnecessarily lift borrowing costs.²⁹

Although a clever debt management strategy could potentially reduce turbulence in markets during the exit, thereby also moderating the potential rise in government borrowing costs, sound public debt management is under no circumstances a substitute for a sound fiscal policy. Over time, a return to a prudent medium-term fiscal strategy would be an essential element of any credible exit strategy to bring or keep debt service costs under control. Having said this, DMOs have a keen interest to be informed about both unconventional monetary policy measures (including their exit path) and the fiscal policy strategy (including fiscal exits). At the same time, PDM is a key component of a balanced structural policy mix supporting the proper functioning of government securities markets and the general objectives of the macroeconomic framework.

3.3. Debt management considerations during periods of fiscal dominance and fiscal consolidation

3.3.1. Fiscal dominance and PDM

The macroeconomic framework is to an important degree shaped by the conditions of fiscal dominance. As noted in Chapter 3, Section 3.1, this framework includes new and complex interactions between public debt management, financial stability and monetary policy. Regarding PDM and monetary policy, Blommestein and Turner (2012)³⁰ conclude that a policy framework for all official actions that affect the maturity structure of government debt for macroeconomic objectives is needed. Without such a framework, even rational policies that economic theory suggests will work may just deepen uncertainty. Markets need to understand what governments (including DMOs) or CBs are trying to do.

Market participants also need to understand the implications of, and interactions between, monetary policy actions, fiscal policy and debt management under fiscal dominance. The case for CB transactions in long-term debt markets is stronger whenever there is increased investor uncertainty about the path of future short-term rates. Large government debt increases uncertainty about future inflation. If uncertainty were only about inflation and nominal interest rates, then one answer would be to increase issuance of inflation-linked debt. But the difficult fiscal situation in many countries (see next section

and Chapter 2 on “Outlook for sovereign stress”) is likely to entail increased uncertainty about real interest rates also. This will reduce the substitutability between short-dated and long-dated paper.

3.3.2. Fiscal consolidation and PDM

Clearly, the challenging fiscal situation in many countries shapes the content and timing of fiscal consolidation programmes and the associated consequences for public debt management notably the borrowing and funding strategy. Chapter 1, Section 1.5³¹ explains in this context that the government’s preference to enhance fiscal resilience plays an important role in informing the debt management strategy. This emphasis on fiscal resilience reflects debt management considerations during periods of fiscal consolidation in response to a situation of fiscal dominance in many OECD countries.

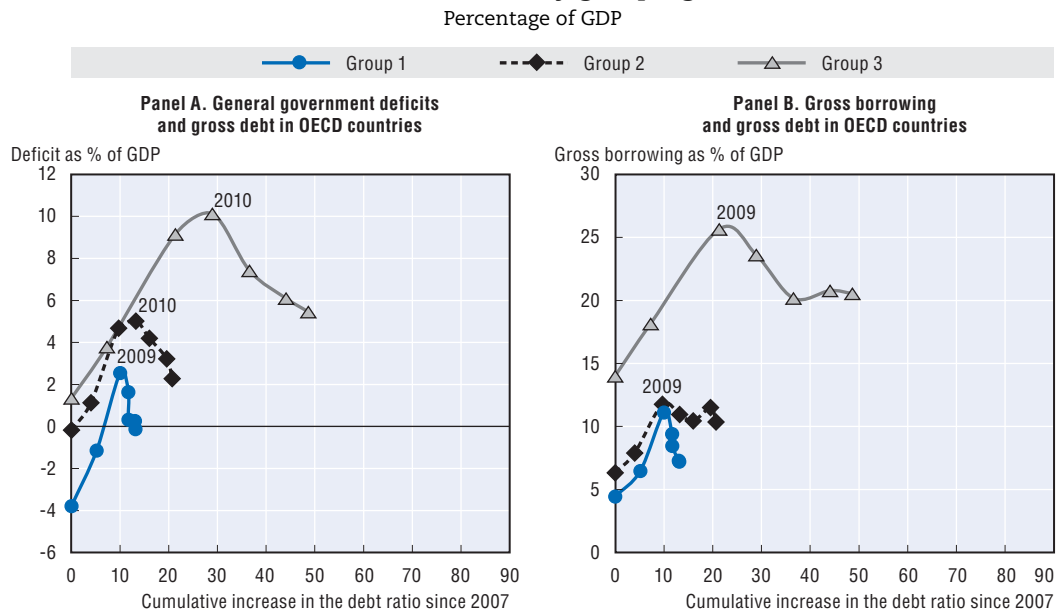
The relatively slow recovery in the OECD area is making fiscal adjustment harder. This in turn means that in many OECD countries government borrowing needs will decrease more slowly than expected. As noted in Chapter 1, Section 1.1,³² in 2013, the borrowing needs of OECD sovereigns are projected to increase slightly to around USD 10.9 trillion, while general and central government debt ratios for the OECD as a whole are expected to grow or remain at high levels. In many OECD countries, DMOs are facing the prospect that the fiscal authorities will need to persist for many years with consolidation efforts if debt ratios are to be brought down to pre-crisis levels.

Nonetheless, there has already been significant progress in strengthening OECD fiscal balances during the past two years. For the OECD area as a whole, deficits for general government fell by around 1% of GDP in 2011 and 2012, and are projected to fall by almost the same in 2013.³³ However, deficits and gross borrowing needs are not declining enough to stop the rise in public debt (including in relation to GDP). In 2014, general government debt as a percentage of GDP is projected to reach 112.5%, up from 111.4% in 2013.³⁴ The good news is that general government debt ratios are rising at a significantly slower pace than in the past, declining from an increase of 11.5% in 2008-2009 to a projected 1.1% in 2013-2014.³⁵

These averages obscure quite interesting details. Additional insights in the progress made by individual countries can be obtained by dividing the set of countries into three groups. *Group 1* includes those countries with stable or declining debt-to-GDP ratios.³⁶ *Group 2* consists of countries where the debt ratio has not yet started to decrease (but is about to do so), while deficits and gross borrowing needs are falling. In *Group 3* the fiscal imbalances are larger than in the other two groups.

The relative progress made by the countries in the three groups since 2007 in terms of deficits, gross borrowing requirements, government debt and average maturity of the outstanding sovereign debt, is shown in the Figures below. Figure 3.6 Panel A shows the evolution of the average level of the deficit since 2007 (on the vertical axis) and the cumulative increase in the gross debt ratio since 2007 (on the horizontal axis) for the three groups. Figure 3.6 Panel B shows the evolution of the average gross borrowing needs (on the vertical axis) and the cumulative increase in the gross debt ratio.

The average deficit of *Group 1* countries initially increased (peaking in 2009), while the debt ratio continued to climb. Also gross borrowing needs peaked in 2009. Later, in 2012-13, the debt ratio of *Group 1* starts to catch-up with the falling deficit and borrowing needs and starts to decrease as well.

Figure 3.6. **Evolution of deficits, gross borrowing and debt in OECD country groupings**

Note: The vertical axis represents the level of the deficit starting in 2007, and the horizontal axis shows the cumulative increase in the gross debt ratio since 2007.

Group 1 includes: Czech Republic, Denmark, Finland, Germany, Iceland, Korea, Sweden, Switzerland, Chile, Estonia, Israel, Luxembourg, Norway and Turkey.

Group 2 includes: Australia, Austria, Canada, Netherlands, New Zealand, Slovak Republic, Mexico and Poland.

Group 3 includes: Belgium, France, Ireland, Italy, Japan, Portugal, Slovenia, Spain, United Kingdom and United States. General government gross debt and deficits are on SNA basis. Gross borrowing refers to central government.

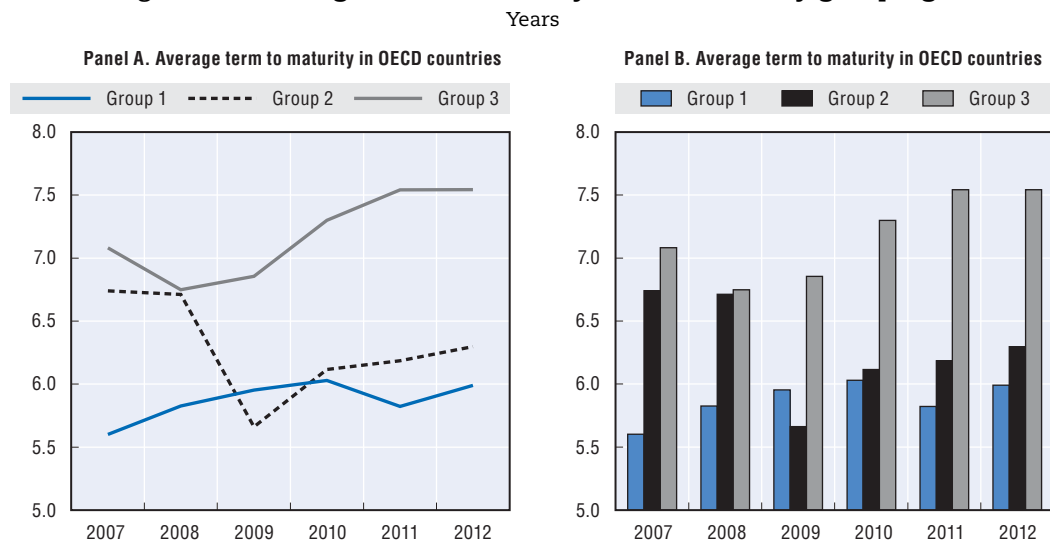
Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database; Chile, Mexico and Turkey national data sources; and OECD staff estimates.

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The average deficit of *Group 2* countries began to fall in 2011, while borrowing needs began to decrease in 2010. Over time, the cumulative increase in the debt ratio of *Group 2* is slowing down and finally coming to a (near) stand-still.

Although the average deficit of most *Group 3* countries have started to decline (peaking in 2010), the average gross borrowing needs stabilised since 2011 at a fairly elevated level. Moreover, the debt ratios of many countries from this group are still rising and/or at a high level.

Countries also made uneven progress in increasing the maturity of their debt. Figure 3.7, Panel A and Panel B show for *Group 3* countries that after an initial decrease, the average maturity of their sovereign debt increased steadily, while remaining at a relatively high level. The average maturity of *Group 2* countries dropped significantly in the period 2007-2009, before rebounding (but remaining at a lower level than at the start of the global crisis). The average maturity of *Group 1* countries increased steadily in the period 2007-2010 (although starting from a relatively low level), dropping slightly in 2011, before rebounding.

Figure 3.7. **Average term to maturity in OECD country groupings**

Note: Data refers to average term to maturity on central government marketable debt.

Group 1 includes: Czech Republic, Denmark, Finland, Germany, Iceland, Korea, Sweden, Switzerland, Chile, Estonia, Israel, Luxembourg, Norway and Turkey.

Group 2 includes: Australia, Austria, Canada, Netherlands, New Zealand, Slovak Republic, Mexico and Poland.

Group 3 includes: Belgium, France, Ireland, Italy, Japan, Portugal, Slovenia, Spain, United Kingdom and United States.
Source: OECD Central Government Debt Statistical Yearbook Database; countries' national data sources and OECD staff calculations.

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Notes

1. This section is based on: Blommestein, H.J. and P. Turner (2012a), "Interactions Between Sovereign Debt Management and Monetary Policy Under Fiscal Dominance and Financial Instability", *OECD Working Papers on Sovereign Borrowing and Public Debt Management*, No. 3, OECD Publishing; and Blommestein, H.J. and P. Turner (2012b), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, May 2012, Joint BIS and OECD Publishing.
2. The formal mandates of some DMOs include a reference to macroeconomic policy in their debt management objective. For example, the objective of UK's DMO requires consistency with the aims of monetary policy. Other debt managers do not consider macroeconomic objectives. For example, the US Treasury Borrowing Advisory Committee has argued that debt maturity decisions should be taken "regardless of monetary policy": See Chapter 3, Section 3.2.2.
3. Some analysts argue that financial stability objectives should include the (potential) spillover effects of central bank policies on other countries (Eichengreen and Rajan [2011]).
4. Blommestein, H.J. and A. Hubig (2012), "Is the micro portfolio approach to government debt management still appropriate?" In: Blommestein, H.J. and P. Turner (2012b), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, May 2012, Joint BIS and OECD Publishing; Blommestein, H.J. and Anja Hubig (2012), "A Critical analysis of the Technical Assumptions of the Standard Micro Portfolio Approach to Sovereign Debt Management", *OECD Working Papers on Sovereign Borrowing and Public Debt Management*, No. 4, OECD Publishing.
5. As noted in Chapter 1 on "Sovereign borrowing overview", Section 1.6 on "Central government debt at a glance", the second surge in outstanding sovereign debt was triggered by the conventional but significant fiscal response to concerns about the possibility of a severe economic slump. For example, in 2009, the US enacted the largest stimulus programme in history [W.C. Dudley (2012). The recovery and monetary policy, Remarks at the National Association for Business Economics Annual Meeting, New York City, 15 October 2012].
6. Blommestein, H.J. and P. Turner (2012b), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, May 2012, Joint BIS and OECD Publishing.

7. Stein, J.C. (2012), "Evaluating large-scale asset purchases", Speech at the Brookings Institution, 11 October 2012.
8. Large-Scale Asset Purchase (LSAP) Programme.
9. The FED refers to QE as the Large-Scale Asset Purchase (LSAP) Programme.
10. Also referred to by the FED as the Maturity Extension Program (MEP).
11. The final goal of LSAP and MEP is to influence the broader economy by the reduction in longer-term interest rates. This is expected to contribute to a broad easing in financial market conditions that will provide additional stimulus to support the economic recovery. (Source: Website of The Board of Governors of the Federal Reserve System: Maturity Extension Program and Reinvestment Policy [accessed on 1 August 2012].) ECB's OMT programme functions as a backstop to address severe distortions in government securities markets thereby countering the tail risk that the euro area may break up (B. Coeure [2012], "Completing Europe's Economic and Monetary Union", Speech at the Palestinian Public Finance Institute, Ramallah, 23 September 2012; C. Noyer [2012], Remaining challenges facing the euro area, Speech at the Foreign Correspondents Club of Japan, 10 October 2012).
12. For instance, deteriorating macroeconomic conditions reduce bank's income (e.g. from less lending activity), while (potentially) increasing the risk to fiscal sustainability (e.g. as government budget deficits increase), which is likely to be reflected in higher government bond yields. Also the link between banks (and their occasional but urgent need for recapitalisations) and sovereigns are covered in Figure 3.2.
13. USD 400 billion over the period ending in June 2011 and a USD 267 billion extension through the end of 2012.
14. Meaning, J. and F. Zhu (2012), "The impact of Federal Reserve asset purchase programmes: another twist", *BIS Quarterly Review*, March 2012.
15. Ehlers, T. (2012), "The effectiveness of the Federal Reserve's Maturity Extension Program – Operation Twist 2: the portfolio rebalancing channel and public debt management", in: Blommestein, H.J. and P. Turner (2012), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, BIS/OECD Publishing.
16. Ehlers, T. (2012), "The effectiveness of the Federal Reserve's Maturity Extension Program – Operation Twist 2: the portfolio rebalancing channel and public debt management", in: Blommestein, H.J. and P. Turner (2012), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, BIS/OECD Publishing.
17. Jack Meaning and Feng Zhu (2012), "The impact of Federal Reserve asset purchase programmes: Another twist", *BIS Quarterly Review*, March 2012.
18. Blommestein, H.J. and P. Turner (2012), "Interactions Between Sovereign Debt Management and Monetary Policy Under Fiscal Dominance and Financial Instability", in: Blommestein, H.J. and P. Turner (2012), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, BIS/OECD Publishing.
19. Hoogduin, L., B. Öztürk and P. Wierds (2010, 2011): "Public debt managers' behaviour: Interactions with macro policies", Banque de France and BETA Workshop New Challenges for Public Debt in Advanced Economies, Strasbourg, 16-17 September 2010; 20th OECD Global Forum on Public Debt Management, 20-21 January, 2011, Paris (reprinted as *DNB Working Paper*, No. 273).
20. PDM is by definition not functionally independent of fiscal policy.
21. Blommestein, H.J. and P. Turner (2012), "Interactions Between Sovereign Debt Management and Monetary Policy Under Fiscal Dominance and Financial Instability", in: Blommestein, H.J. and P. Turner (2012), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, BIS/OECD Publishing.
22. Pianalto, S. (2012), "Monetary policy in Challenging Times", Speech given by the President of the Federal Reserve Bank of Cleveland, on 17 July, at the Economic Research Institute of Erie (ERIE), Pennsylvania State University-Erie, Erie, Pennsylvania.
23. Report to the Secretary of the Treasury from the Treasury Borrowing Advisory Committee of the Securities Industry and Financial Markets Association, 31 July 2012.
24. Robb, G. (2012), "Treasury to sell floating rate notes", *The Wall Street Journal*, Market Watch, 1st August.
25. Vito Tanzi discusses compelling reasons why a reversal of stimulative fiscal policies may be more difficult than often assumed. [Comments on Recent Fiscal Developments and Exit Strategies, *CESifo Forum* 2/2010].

26. Bernanke, B.S. (2010), "The economic outlook and monetary policy", Speech at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, Wyoming, 27 August 2010.
27. Miles, D. (2012), "Winding and unwinding extraordinary monetary policy", RBS Scottish Economic Society Annual Lecture, Edinburgh, 11 September 2012.
28. OECD *Sovereign Borrowing Outlook 2012*, OECD Publishing.
29. It is against this backdrop that a Task Force of the OECD Working Party on Debt Management is discussing suggestions for making key parts of the public debt and issuance strategy (and related operations) more transparent.
30. Blommestein, H.J. and P. Turner (2012), eds., "Threat of fiscal dominance?", *BIS Papers*, No. 65, BIS/OECD Publishing.
31. See for details Chapter 1 on "Sovereign borrowing overview", Section 1.5 on "Funding strategy during periods of fiscal dominance and fiscal consolidation".
32. See for details Chapter 1 on "Sovereign borrowing overview", Section 1.1 on "A highly uncertain issuance environment with low levels of confidence but mixed signals on volatility".
33. OECD *Economic Outlook 92*, November 2012 (Preliminary Version).
34. OECD *Economic Outlook 92*, November 2012 (Preliminary Version). Debt ratios are in part increasing because GDP growth is low: real GDP is projected to grow 1.4% in 2012 and 2013, and increasing to a modest 2.3% in 2014.
35. OECD *Economic outlook 92*, November 2012 (Preliminary Version).
36. Carlo Cottarelli of the IMF undertakes a similar exercise for illustrating progress made in terms of debt ratios and deficits by defining three groups of countries in terms of progress made for deficits and debt. (Carlo Cottarelli [2012], "Taking Stock: Public Finances Now Stronger in Many Countries", posted on his IMF blog on 9 October 2012 by IMF direct.). Our figures include additional OECD countries while supplementary information and figures are given for (cumulative) changes since 2007 on average maturity and gross borrowing needs in relation to GDP.

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Chapter 4

Challenges in primary markets*

Issuance conditions vary among countries. For one group of issuers, the challenge was how to deal with (ultra-)high yields, lower bid-to-cover ratios and greater auction tails reflecting relatively unsuccessful auctions. The second group experienced very strong (“flight-to-safety”) demand at auctions resulting in negative yields. A third group has no full market access, although different degrees of access can be distinguished when returning to markets. A fourth group had more or less unchanged issuance conditions.

The first part of the chapter provides an overview of changes made in issuance procedures and techniques, against the backdrop of changing trends in the composition of the investor base.

In response to a more challenging issuance environment, many debt management offices adjusted their issuance procedures (such as more flexible auction calendars, increasing the size of non-competitive subscriptions and greater reliance on syndications) and introduced new types of instruments (like linkers and floaters). Moreover, with the greater role of central banks (foreign and domestic) in government bond markets, maintaining a diversified investor base has become more difficult than before.

The second part of the chapter analyses how a more challenging issuance environment has affected both primary dealer systems and the ability of debt managers to distribute their debt to end-investors. This analysis is informed by responses to a survey on the “Functioning and Future of Primary Dealer Systems” among OECD debt managers. The survey highlights that issuers have introduced wide range of measures to manage the stresses in their markets.

* The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

4.1. Changes in issuance procedures, techniques and instruments

4.1.1. The need to adjust issuance procedures and techniques in different groups of countries¹

The push for highly integrated global financial markets and the move to market-based financing of government deficits since the 1980s have been important catalysts in the standardisation of the structure and types of instruments as well as the convergence of general issuance procedures and policies. Over time, an increasingly integrated global financial landscape, and the resulting increase in competitive conditions to achieve the cheapest funding, had encouraged the use of *broadly similar* issuance procedures and policies with a high degree of transparency and predictability that facilitate or encourage liquid markets.² Broad and deep primary and secondary markets, in turn, are instrumental in lowering the cost of borrowing for the government.³ The standards embedded in OECD issuance policies, procedures and markets, represent truly *global standards*.

The global financial and economic crisis had, and is having, an important impact on sovereign debt markets and borrowing activities and has led to changes in (the use of) issuance procedures and techniques (Section 4.1.3). As shown in Chapter 1, OECD debt managers are facing ongoing funding challenges in meeting elevated borrowing needs, including a strong increase in longer-term redemptions in 2012 and 2013. However, since issuance conditions vary among countries, the overall policy response and/or (changes in) the use of issuance techniques may differ. For the first group of issuers, the challenge was how to deal with (ultra-)high yields, sometimes lower bid-to-cover ratios and greater auction tails reflecting relatively unsuccessful auctions. A second group has lost full market access, although different degrees of access can be distinguished when returning to markets. The third group experienced very strong (“flight-to-safety”) demand at auctions resulting sometimes in negative yields. A fourth group had more or less unchanged issuance conditions.

Group 1 issuers include peripheral sovereigns from the euro area. Fears about the reversibility of the Euro expressed themselves in exceptionally high risk premia on government borrowing rates and financial market fragmentation.⁴

Group 2 issuers include three euro area countries that had lost access to borrowing in longer-term instruments in 2010 and 2011, among them only Ireland regaining full market access in 2012. Portugal has made a significant progress during 2012 but has not yet complete access. Finally, Greece has been locked-out of markets since May 2010.

Group 3 issuers cover countries that experienced in 2012 very strong (“flight-to-safety”) demand at auctions resulting sometimes in negative yields. In order to meet this strong demand some of the countries adjusted their auction systems to accommodate negative bids and some others are in the process of building the operational capabilities to allow for negative rate bidding.

Many OECD debt managers are facing challenging gross borrowing needs. However, different issuance conditions may induce a different borrowing and funding strategy. Those DMOs that were facing rapidly increasing yields had the greatest incentives to adjust their issuance procedures and funding strategy. The first part of this Chapter focuses on a) results of an OECD survey of the general characteristics of issuance techniques currently in use in the OECD area; b) responses by DMOs to tougher issuance conditions; and c) losing and regaining (partial) market access.

The second part of this Chapter analyses how a more challenging issuance environment has affected then functioning of primary dealer systems and, more specifically, the ability of primary dealers (PDs) to distribute sovereign debt to end-investors and to make markets. This analysis is informed by responses to a survey on the “Functioning and Future of Primary Dealer Systems” among OECD debt managers. The survey highlights how issuers have introduced a wide range of measures so that PDs can better cope with stresses in both primary and secondary markets. The last section focuses on the impact of forthcoming or new regulations on the future of primary dealer systems.

4.1.2. Results from an OECD survey on the current use of issuance procedures and policies

The principal issuing procedure in use is auctions. The responses show that 28 OECD countries (63%) use auctions for issuing both long-term and short-term debt (Table 4.2). Also syndication is a very common issuance procedure, used for i) international bond issues, ii) the first-time issuance of new instruments such as linkers or ultra-long bonds and/or the sale of first tranches of benchmark issues, and iii) targeting and directly placing securities among specific investor groups.

The 2012 survey results show that 17 out of 23 OECD governments do not report any change in their use of syndication during the last couple of years (Table 4.1). Two issuers answered that during the last couple of years they have decreased (or discontinued) their use of syndications, mentioning adverse market conditions. Syndication enables achieving very rapidly a high initial momentum of sold securities, thereby boosting liquidity and achieving greater placing certainty. However, syndication has also potential downsides such as a more limited reach among potential buyers, lack of transparency, and higher intermediation costs.

Four issuers report an increase in the use of syndications mentioning one or more of the following (specific) reasons:

- To cover increasing funding needs.
- To diversify funding sources.
- To enable greater issuance of long dated and price index-linked securities.
- To meet the increasing demand coming from foreign investors.

Tap issues are less frequently used, with nine OECD DMOs using taps for issuing short-term debt and 13 for issuing long-term debt. In addition, a few countries use other techniques including private placement and direct sale. According to the 2012 survey results, three countries (Belgium, Portugal and Slovak Republic) increased their use of private placement. Private placements allow debt managers to tailor securities to the specific needs of investors.

Table 4.1. **The use of syndication by OECD DMOs**

Use of syndication (63%)			Do not use (37%)
No change (72%)	More use (18%)	Less use (10%)	
Austria	Australia	Italy	Chile
Belgium	Finland	Spain	Greece
Canada	Slovak Republic		Ireland
Czech Republic	United Kingdom		Israel
Denmark			Japan
France			Netherlands
Germany			Norway
Hungary			Portugal
Iceland			Switzerland
Korea			United States
Luxembourg			
Mexico			
New Zealand			
Poland			
Slovenia			
Sweden			
Turkey			

Source: Responses to the 2012 survey of the OECD Working Party on Debt Management.

Some countries have changed auction type (Table 4.2). A number of issuers noted that they have switched to single-price auctions (Table 4.4). Greece, Iceland and Poland noted crisis conditions as reason, while Australia began to use uniform price auctions for inflation-linked bond issuances. However, the preferred auction type seems to be the multiple-price format,⁵ although single-price⁶ auctions run a very close second. Moreover, 10 OECD countries use both single and multiple prices usually depending on the maturity or type of debt instruments. For example, some countries issue index-linked bonds using single price auctions, while the nominal bonds are issued via multiple price.

Although issuance procedures in OECD countries are broadly similar, they vary greatly in operational details. As a result of the crisis, many countries have changed one or more features of their issuance procedures (Table 4.4). In addition, several issuers have introduced supplementary or new types of funding instruments (Table 4.3).

4.1.3. Responses by DMOs to tougher issuance conditions

As noted, many OECD debt managers had to face (and continue to face) serious funding challenges amid volatile market conditions. Increased sovereign debt ratios, perceptions that sovereign risk has increased, concerns about the loss of the risk free status of sovereign debt in some jurisdictions (Chapter 2), financial sector adjustments to a new regulatory environment (Section 4.2.4), and the refinancing needs of the financial sector (notably banks), have led to increased competition and greater complexities in raising funds. Some issuers also report lower liquidity in secondary markets, in part due to sell-offs by foreign investors of sovereign bonds previously considered safe.⁷ Issuance conditions have therefore become tougher with sometimes weak demand at auctions (lower cover ratios) and greater auction tails reflecting relatively unsuccessful auction results. Several OECD countries experienced difficulties in their auctions due to relatively low demand which on occasion triggered sell-offs and a strong increase in yields. However,

Table 4.2. **Overview of issuing procedures in the OECD**

	Auctions		Auction type		Tap issues		Syndication
	Long-term	Short-term	Single-price	Multiple-price	Long-term	Short-term	
Australia	x	x	x	x			x
Austria	x			x	x		x
Belgium	x	x		x	x	x	x
Canada	x	x	x	x			x
Chile	x	x	x				
Czech Republic	x	x	x	x	x		x
Denmark	x	x	x		x		x
Finland	x		x		x	x	x
France	x	x		x			x
Germany	x	x		x	x	x	x
Greece		x	x				
Hungary	x	x		x	x	x	x
Iceland	x	x	x				x
Ireland ¹							
Italy	x	x	x	x			x
Israel	x	x		x	x	x	
Japan	x	x	x	x			
Korea	x		x	x			x
Luxembourg							x
Mexico	x	x	x	x	x	x	x
Netherlands	x	x	x	x	x		
New Zealand	x	x		x			x
Norway	x	x	x				
Poland	x	x	x	x			x
Portugal		x		x			
Slovak Rep.	x	x	x	x	x	x	x
Slovenia		x	x		x		x
Spain	x	x		x			x
Sweden	x	x		x		x	x
Switzerland	x	x					
Turkey	x	x		x			x
United Kingdom	x	x	x	x	x	x	x
United States	x	x	x				
Total	28	28	19	22	13	9	23

Notes:

Australia:	Recommended issuance of linkers. Syndication used for first issue of new linkers and long bond. Subsequent offering via single-price auctions. Nominal debt is sold via multiple-price auctions.
Austria:	Syndication for portion of each issue. Existing issues are regularly tapped via scheduled auctions.
Belgium:	New benchmarks are launched through syndicated issues and increased in size through auctions.
Canada:	Syndication used for foreign currency debt issuance (for foreign exchange reserve funding purposes only). A single price auction format is used for issuance of inflation-linked bonds.
Czech Republic:	Syndication used for "Eurobonds", single-price for T-bills, fixed price for buy-backs, multiple-price for bonds and Tap sales.
Denmark:	Syndication used for long-term foreign currency debt issuance (for foreign exchange reserve funding purposes only). Primary dealer obligations do not require primary dealers to participate in auctions for a specified amount. Commercial Paper (CP) programmes are used for short-term foreign issuances.
France:	Syndication is usually used once a year, essentially for the first issuance of a new line.
Germany:	Syndication for the first issuance of a linker and its first re-opening. Syndication is used for USD bonds.
Greece:	Introduction of syndications for all types of bonds and re-openings. Switch to single price auctions for T-bills. Switch to monthly auctions for T-bills instead of quarterly. Since May 2011, Greece is under an EU/IMF support programme issuing only T-bills.

Table 4.2. **Overview of issuing procedures in the OECD (cont.)**

Notes:	
Hungary:	Some T-bills and bonds are sold via tap sales or via subscription for retail investors. Syndication is used for foreign exchange debt issuances.
Iceland:	Syndication or private placement is used for bonds in foreign currency; Dutch Direct Auction for long-term bonds and T-Bills.
Israel:	Issuance of T-bills, nominal bonds and CPI linked bonds. Also use switch auctions (redemption of short-term bond and issuance of long-term bond according to a conversion ratio) and buy-back auctions. Introduction of PD in the CPI linked bonds. More emphasis on investor relations, particularly on strategic investors from Asia. A 30 year fixed rate bond issued for the first time in the beginning of 2012.
Italy:	Syndication for first tranche of long-term bonds and for Global bonds. Private placement used for external debt.
Korea:	Syndication for first issuance of inflation-linked bonds and foreign exchange stabilisation bonds. Switch form single single-price to multiple price auctions. Buy-back auctions in multiple-price format.
Mexico:	Foreign currency debt is issued via investment banks. In 2010, the Federal Government introduced the Debt Syndication. Scheme as a new complementary mechanism to place debt in the primary domestic market. In July 2011, the scheme was changed from a book building mechanism to a syndication auction mechanism.
Netherlands:	Dutch Direct Auction is used for longer dated bonds.
New Zealand:	Primary funding source is through issue of domestic bonds and bills via multi-price weekly tenders. Tap-sales tenders are used sparingly for exceptionally strong demand for domestic bonds (both long- and short-term) that builds between weekly bond tenders. Syndication has been adopted for a proposed linker issue although the use of multi-price tenders for linker issuance has not been discounted. Foreign bond issuance would be considered if a cost-effective borrowing option. Issued a small amount of foreign ECP via dealer panel to complement treasury bill programme but only on cost effective basis.
Poland:	Syndication is used for external debt. Use of retail agents for domestic securities. Single-price auction is used in T-bills and T-bonds sale and supplementary auctions.
Portugal:	In 2010, IGCP added the option of auctioning two bonds simultaneously (long- and short-term). In May 2011, Portugal asked for IMF and EU financial support and therefore stopped the long-term bonds issuance keeping only the T-Bills Programme.
Slovak Republic:	Syndication is used for tranche of each issue.
Slovenia:	Syndication method has been used for new issues of Government Bonds since 2007. Uniform price auctions are used for T-Bills. Tap issues of 12 month T-bills were introduced in the beginning of 2012. Tap issues of bonds are approved as an alternative funding instrument, but have not been used up to date.
Spain:	Syndication for new long benchmarks and foreign currency debt. The auction type is a mixture of single and multiple price.
Sweden:	Syndication for foreign currency debt and occasionally for domestic currency bonds.
Turkey:	Eurobond issuances are syndicated offerings arranged by book runners on a best-efforts basis. Direct sale to institutional investors and public offers to retail investors.
United Kingdom:	Taps for market management are reserved for exceptional circumstances only. Taps are distinct from mini-tenders, which were introduced in October 2008 as one of the supplementary methods for distributing gilts. Use of single-price auctions (index-linked bonds) and bid-price auctions (nominal bond and T-Bills).

1. Ireland was in a financial assistance programme during 2011 and all funding was provided by the EU/IMF.

Source: Responses to the 2012 survey of the OECD Working Party on Debt Management.

issuance conditions in euro zone government securities markets have improved since September 2012, with several sovereigns benefitting from ECB's announcement of the new Outright Monetary Transactions (OMT) facility on 6 September 2012 (see for details Chapter 2, Section 2.4).

High funding needs together with unfavourable market conditions raise important policy issues such as:

- Dealing with low(er) cover ratios and greater auction tails.

- Decreasing liquidity in secondary markets (with sometimes decoupling of secondary market prices from sovereign funding costs).
- Ultra-high funding cost in some countries.
- Extreme volatility in sovereign debt markets.
- Concerns about the (alleged) loss of risk free status of some sovereigns (while the demand for AAA sovereign assets is rising; see for details Chapter 2, Section 2.5⁸).

Against this backdrop, many DMOs have adopted changes in issuance procedures so as to address the consequences of increased competition in raising funds and potential market absorption problems.

Delegates from the OECD Working Party on Public Debt Management confirmed the following trends and developments:

- Changes in issuance methods and procedures, including more flexible auction calendars (weekly or monthly instead of quarterly/annual), an increase in the number of instruments issued at each auction date, an increase in the size of existing non-competitive subscriptions (see Table 4.6), and using other distribution methods than “regular” auctions including mini-tenders, syndication, Dutch Direct Auction (DDA) procedures and private placement (see Table 4.4 for a country-by-country overview).
- Changes in optimal sovereign portfolios.
- Using buyback and exchange auctions in order to mitigate rollover risk and to enhance liquidity (see Chapter 6 for details).
- Introduction/re-introduction of new maturities.
- Introduction of new funding instruments such as (higher) linker issuance, variable rate notes, and ultra-long instruments (Table 4.3 and Figure 4.1).

4.1.3.1. New funding instruments and a more diverse investor base

Several OECD issuers have introduced (or are planning to introduce) new funding instruments (see Table 4.3).

Table 4.3. **Introduction or announcement of new types of funding instruments**

Inflation linked bonds	Variable rate notes	Longer dated securities
Australia	Hungary	United Kingdom ¹
Czech Republic	Italy ²	
Denmark	United States ³	
France		
Italy ⁴		
Japan		
New Zealand		
Spain		

1. This new instrument has not (yet) been introduced but a consultation report has been circulated (“Super- long and Perpetual Gilts: A Consultation Document” can be found at www.dmo.gov.uk).

2. In 2010, Italy launched another floater named CCT-eu with a new indexation to 6-month Euribor.

3. This new instrument has been announced but not yet introduced.

4. Italy is already a benchmark issuer in inflation linked bonds however a new type of linker (a retail product named “BTPs Italia”) has been launched during 2012.

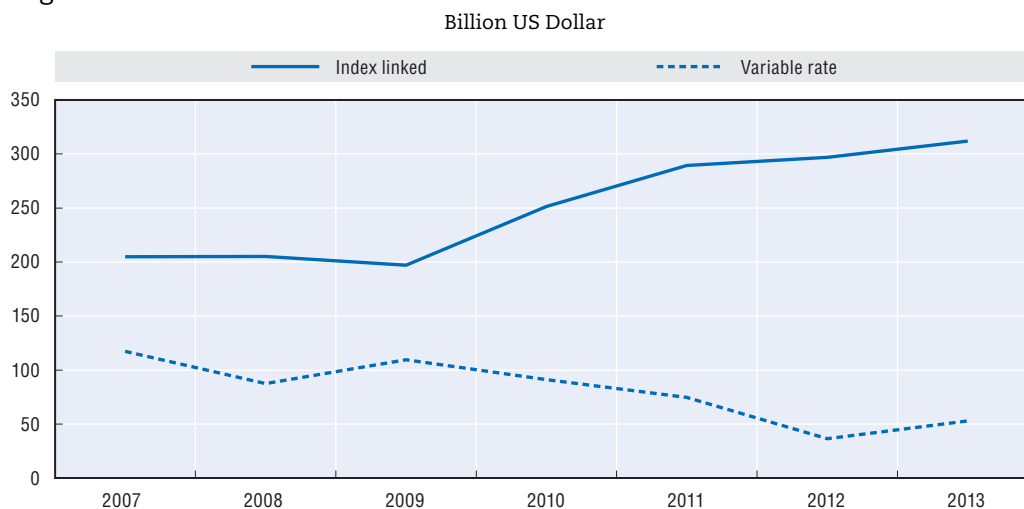
Source: Responses to the 2012 survey of the OECD Working Party on Debt Management.

Other new funding instruments include:

- The Belgium Debt Agency (BDA) have introduced new funding instruments such as hedged foreign currency issuance and/or structured products issued under the Euro Medium Term Note (EMTN) programme and other funding instruments, in particular the *Schuldschein*.⁹
- Ireland issued a new type of bond called the “Irish amortising bond” in order to meet the needs of the local pensions industry. This move is part of the process of diversification of Irish funding needs. The DMO is also planning to create and issue an index-linked bond in response to investor appetite.

In sum, higher borrowing needs have led to a diversification in funding instruments. In particular the greater use of inflation-linked bond issuances have broadened and deepened the investor base (Table 4.3 and Figure 4.1).

Figure 4.1. **Issuance of linkers and variable rate instruments in the OECD area**



Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database; and OECD staff estimates.

StatLink  <http://dx.doi.org/10.1787/888932779544>

Continued funding challenges have led to a situation where a broad and diverse investor base is more essential than before. This means that it is more important than before to take into account the preferences of both foreign and domestic investors when making changes in issuance procedures and introducing new instruments. In this regard, most countries mention that they give a higher priority to maintaining good investor relationships (see Chapter 5 for details).

4.1.3.2. Changes in issuance procedures and techniques in OECD primary markets

Table 4.4 provides a country-by-country overview of important changes made in issuance procedures and techniques. Against this backdrop, the following can be noted.

In response to uncertainty and volatility, auction calendars have become more flexible in most jurisdictions, auctions were held more frequently and multiple series per auction were introduced. Some countries kept the frequency of their auctions unchanged but they increased the offer amounts.¹⁰ Other countries like Australia, Mexico and Netherlands

Table 4.4. **Overview of changes in issuing procedures and techniques in OECD countries**

Australia	More flexible auction calendars. Issuance of inflation indexed bonds recommenced in second quarter of 2009 in order to broaden investor base. Issuance of new inflation-indexed bonds via syndicated offerings. Re-openings of inflation indexed bonds via single-price auctions. Lengthened yield curve from 12 to 15 years: Issuance of new 15-year bond via syndicated offering. More emphasis on investor relations. Auctions for all nominal debt are via the multiple-price format.
Austria	In addition to parallel auctions (launched in 2009), dual tranche syndications have been introduced including a new 50 year tenor Austrian government bonds (RAGB). More emphasis on investor relations.
Belgium	As from 2009, as a result of the financial crisis, the issuance strategy was adapted to offer more flexibility in combination with predictability and transparency. The number of auctions increased from 6 to 11, switching from bi-monthly to monthly auctions. More frequent auctions offer more flexibility as to the size per auction and maturities offered. If sufficient market demand is identified, off-the-runs can be reopened at regular auctions. As from 2012, The Treasury provides more flexibility by adding two new issuance techniques: Syndicated Taps on longer term Obligations linéaires ordinaires (OLO) benchmarks and Optional Reverse Inquiry Auctions of off-the-run OLOs at predetermined dates. These additional issuances will only be organised to meet "genuine" market demand at times that market liquidity is not able to meet that demand. OLO issuance will be supplemented by alternative financing instruments: hedged foreign currency issuance and/or structured products issued under the EMTN program, possibly including inflation linked notes, or other funding instruments, in particular the "Schuldscheine".
Canada	To help smooth the cash flow profile of upcoming maturities over the medium term, the maturity dates of the 2-, 3-, 5- and 30-year nominal bonds have been changed. Benchmark target range sizes in the 2-, 3- and 5-year sectors have been increased to facilitate the transition to the adjusted maturity dates in those sectors. For 2011-12, buyback operations on a cash basis will be reintroduced for longer-dated bonds. In addition, weekly cash management buybacks are being held to reduce peak maturities. Discontinued cash buybacks in 10Y sector as part of broader goal of increasing net longer-term issuance. Discontinued 2Y switch buybacks, which had been used to transition to new benchmark dates in this sector.
Chile	<i>Local market:</i> From 2007 annually preannounced calendars with fixed amount with 20% of flexibility to diminish or, alternatively no allocation) and dates; uniform price auctions (single price/Dutch auctions). From 2003, nominal and inflation indexed bonds are on offer. <i>International market:</i> In 2010 first global issuance of local currency securities and USD denominated bond. During 2011 there was another issuance of USD denominated bond and the re-opening of global issuance of the local currency bond.
Czech Republic	More flexible auction calendars (monthly) and increased coordination with PDs (regular meetings). Increased number of PDs. Launch of double-bond auctions scheme, extended volume range and extended non-competitive part of auction. Buybacks for short-term debt and tap sales. Improved conditions for private placements. Monitoring foreign markets for finding attractive foreign borrowing opportunities.
Denmark	T-bill programme re-opened in 2010. Auctions used as the primary issuance method supplemented by tap sales. Auctions are held more frequently. Normally two auctions are held each month. Multiple series per auction were introduced in Q4 2010 and auctions are held without a maximum amount sale. Inflation linked bond introduced in May 2012.
Finland	Diversification of funding sources. More emphasis on investor relations. More co-ordination with PD's. Active use of demand-supply windows.
France	Allow for negative bids for T-bills. Volume of to be auctioned T-bills announced as a volume range.
Germany	a) Introduction of a third line in the 10Y and the 5Y segments; b) Re-openings in the short-term segment (Bubills); c) More regular issuance activities in the linker segment (quarterly announcements of volume range).
Greece	Since August 2010, change in the frequency of T-bill auctions, from quarterly to monthly. Since May 2010 when Greece entered EU/IMF support mechanism, long-term funding is provided via bilateral intergovernmental loans and supranational organisations (EFSF, EIB).
Hungary	More flexible auction calendar (bi-weekly bond auctions with dates but without tenors in calendars). More flexibility in the amounts offered. Introduction of top-up auctions (non-competitive subscription) and auction fees. More frequent use of re-openings of off-the-run bonds and buyback auctions. Introduction of regular (monthly) bond exchange auctions. Introduction of direct, regular meetings with institutional investors.
Iceland	Greater emphasis on investor relations. Co-ordination with PD's increased. Extended T-bills programme. Frequency of bond auctions increased. Introduction of new long-term bonds. All auctions are single-price.
Ireland	Ireland plans to regain full and sustainable market access. During 2012, in addition to programme funding from the EU/IMF, Ireland has used taps and switches and re-entered the T-bill market with the first of a planned regular series of auctions. Ireland has issued a new amortising bond type to meet the needs of the local pensions industry as part of the process of diversification of its funding needs and plans to create an index-linked bond in response to investor appetite. In addition, Ireland will look to the syndication and EMTN market.
Israel	Issuance of off-the-run bonds via switch auctions. Introducing PDs for CPI linked bonds. More emphasis on investor relations. Extended T-bill programme.
Italy	Since the end of 2011, CTZs auctions are based on the model of discretionary fixing by the issuer for the amount placed within a range previously communicated as part of the announcement. In addition, from the second quarter of 2012, there is a 5% extension of re-openings reserved for Government bond specialists. The previous dual communication for medium and long-term bonds has been substituted by a single announcement (including both which bonds to be auctioned and their amount). Moreover, T-bills, auctioned on the basis of yield, are no longer offered together with CTZs; that are auctioned on the basis of price (the latter are offered together with BTP is). As regards the retail segment, in March and June 2012, the Italian Treasury has issued the first Italian government security indexed to the Italian inflation rate (BTP Italia), with semi-annual coupons and a maturity of four years.
Korea	Since September 2009, the single price format of auctions was changed to a multiple price format. Introduction of conversion offers. Issuance of inflation indexed bond (KTBi) with 10-year maturity was re-started in June 2010. (KTBi was first issued in March 2007 but its issuance was halted in August 2008.)
Luxembourg	Luxembourg has only issued syndicated bonds in the last couple of years and for the moment there are no plans to change this.
Mexico	Tap issues of both short and long-term bonds. The use of syndications as a funding tool began in 2010. In July 2011, the scheme was changed from book building syndication to a syndication auction mechanism.

Table 4.4. **Overview of changes in issuing procedures and techniques in OECD countries (cont.)**

Netherlands	Introduction of a new long-term bond and a new facility of “reverse tap tender”. Monitoring of foreign markets for finding attractive foreign borrowing opportunities. In 2012, a USD denominated bond was introduced and a Dutch State Loan (DSL) with a maturity of 20 years was issued for the first time. On the money market, the Dutch state introduced issuance of commercial paper denominated in Norwegian Kroner. Since Dutch Treasury Certificates’s (DTC) were auctioned at negative yields, DTC auctions were based on prices rather than yields.
New Zealand	Since the last OECD update in July 2011, we continued our flexible approach to issuance, varying both the maturities of bonds that we would offer at our weekly tenders and the volume offered, in line with market demand. However we have changed this approach during 2012 with the consultation with investors. Starting from July 2012 we moved from weekly T-bill tenders to fortnightly tenders. We also announced that we will offer a fixed amount of USD 250 million of bonds at each weekly bond tender through until September when we will undertake a review. The reduction of T-Bills outstanding and issuance of inflation-indexed bonds will provide us with longer-term floating rate liabilities whilst the fixed amount of bond issuance will provide us with more reliability around our bond issuance activities. We have also increased the tranche size of all bonds to USD 12 billion although for the first time, as part of our Budget announcement, we provided the market with our issuance assumptions for each bond which matures within the forecast period ending 30 June 2016.
Norway	Instead of both auction types, only single price auctions are now being used.
Poland	Modification of auction rules. From the beginning of 1 January 2012, the model for conducting auctions has changed. All T-bond and T-bill sales are carried out using the uniform or single price model instead of the previously used multiple price model. The change applies only to Treasury auctions. Switching and buy-back auctions will continue to be based on the multiple price model. 1 January 2012 saw also the introduction of non-competitive bids for T-bond and T-bill auctions. The share of non-competitive bids in the total sales value of a given auction cannot exceed 5%. Supplementary auctions are open for all auction participants.
Portugal	In the aftermath of the sovereign debt crisis, Portugal has resorted to more flexible issuance procedures including a more flexible auction calendar and the option of auctioning two bonds simultaneously. In order to stimulate increased demand by banks during the auction of T-Bills, the amount of non-competitive bids has been increased. Domestic investors substantially increased their holdings.
Slovak Republic	No changes in 2011. Fixed bond auction calendar for whole year. In 2012, the number of auction days decreased from 23 (fortnightly) to 12 (monthly), while also the possibility to tap more issues has been reduced. Bonds are auctioned after communicating with investors. More T-Bill lines were opened.
Slovenia	Syndication used for bond issues, while auctions have been used for T-Bills. Tap issues of 12 month T-Bills were introduced at the beginning of 2012. Tap issues of bonds and other instruments may be used depending on market conditions. Additional flexibility with respect to the timing and size of issues via the use of a mandate for prefunding of government debt repayments maturing in the following two budget years. The maximum size of a single government bond issue is set at EUR 1.5 billion in order to manage better the concentration of repayments and refinancing risk. The group of primary dealers was enlarged and the number of the Lead Managers of individual transactions was increased. Additional attention to managing investor relations.
Spain	More flexible auction calendar. Announcements of bonds to be auctioned are made monthly instead of quarterly. Up to three references per auction (formerly 1 and then 2 references). Target volume per line increased to EUR 16.5 billion for longer lines. Off-the-run bonds are auctioned more frequently.
Sweden	Following increasing borrowing needs in 2009, DMO took advantage of both the structural and strong demand for long-dated bonds as well as of tapping the international capital market in euro. In both cases we used syndications that were relatively large in size. At the same time, auctions in bond of roughly the same size as before were continued, thereby meeting our goal in having a consistent presence in the SGB market.
Switzerland	Recently, the window (subscription time) for auctioning T-Bonds was standardised (by shortening it by 1 hour), making it identical to the window for T-Bills. Auction participants have now the same window to submit bids (from 9.30 am till 11.00 am). The response to this change has been very favorable. Since August 2011 bids with prices above 100% have been allowed. The financial market crisis and the resulting flight to safety saw tender prices regularly rising above par, enabling the Swiss government to raise money with negative yields.
Turkey	The domestic borrowing strategy, previously announced monthly, is now announced via rolling three-month periods starting from January, 2010. In addition, 10 year Turkish Lira (TL) denominated fixed coupon bonds and 10 year CPI-indexed bonds have been added as new instruments in 2010. Since December 2011, 2 year TL denominated fixed coupon bonds have been issued every month and have been set as a benchmark instead of the 22-month zero coupon bonds. In addition, 5 and 10 year benchmark bonds are issued during periods with relatively high redemption levels.
United Kingdom	Auctions are the primary method of gilt issuance. Mini-tenders were introduced with effect from October 2008 as a more flexible supplementary distribution method alongside with the core auctions programme. A programme of syndications was introduced in the 2009-10 financial year to supplement the core auction programme; this was extended into 2010-11 and 2011-12. A post auction option facility was introduced with effect from June 2009.
United States	More frequent (monthly) issuance of Treasury Inflation-Protected Securities (TIPS). US Treasury is also planning to issue Floating Rate Notes.

Source: Responses to the 2012 Survey of the OECD Working Party on Public Debt Management.

have increased both the size and the frequency of their auctions. Spain and Portugal have increased the number of instruments issued in each auction.

These changes, while understandable, are creating some risks. As debt managers become more opportunistic, issuance programmes are inevitable becoming less predictable. That may not be desirable in the longer term. DMOs emphasise therefore that they will continue to operate a transparent debt management framework supported by a strong communication policy. Transparency and predictability are instrumental in reducing the type of market noise that may unnecessarily increase borrowing costs.

Several issuers are confronted with so-called very strong “flight-to-safety” demand at their auctions pushing down yields to historic lows. In response, DMOs have adjusted their auction systems to allow *negative rate bidding*. For example, the Netherlands changed its auction system from bidding on yields to bidding on prices in December 2011. The European Financial Stability Facility (EFSF) made a similar change in its bidding system in February 2012. Switzerland allows bids with prices above 100% in T-Bill auctions since August 2011. Also France adjusted its auction mechanism to allow for negative bids in the T-bill market. The US Treasury is in the process of implementing the operational capabilities to allow for negative bids in T-bill auctions.

In order to smooth the redemption profile during a period with higher financing needs, countries (re)introduced new maturities. Some countries also issue more frequently off-the-run bonds in order to provide liquidity and smooth redemption flows. More emphasis is given to buy-back and exchange operations in order to increase secondary market liquidity and mitigate roll-over risk (see Chapter 6 for details).

Other changes in issuance strategies include a stronger emphasis on retail issuance so as to broaden and making more stable the investor base. Increased use of electronic systems has made it easier to reach retail investors directly. However, a possible downside concerns a lack of cost-effectiveness, although the greater use of electronic means has improved the scope to reduce distribution costs.

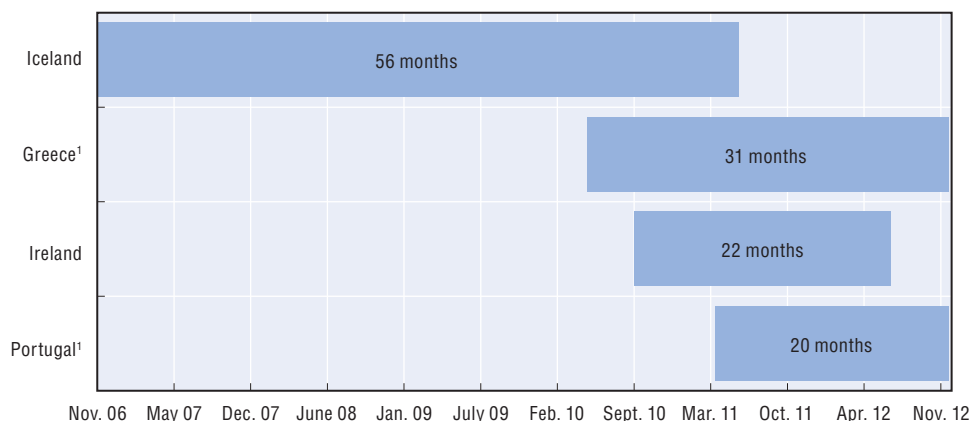
4.1.4. Loss of market access and return to (international) longer-term markets

The global financial and economic crisis mutated into a sovereign debt crisis in a number of countries, leading to the loss of market access for some sovereign borrowers. Four OECD countries lost access to the longer-term (international/domestic) funding market. Iceland, Ireland and Portugal regained (partial) access. The re-entry of Iceland in the international capital markets was in June 2011 (after approximately 56 months of absence), while Ireland regained access to borrowing in longer-term instruments in July 2012 (after approximately 22 months of absence). Portugal has made significant progress during 2012, but, as of November 2012, has not managed to regain complete market access. Greece has been frozen out of the longer term funding market since May 2010. However, several countries kept (for most of the time at least) access to short-term funding markets.

4.1.4.1. Iceland

Iceland experienced in 2008 a major financial and economic crisis. The banking system collapsed on 8 October 2008, followed by a major devaluation of the currency (with the Krona losing half of its value). Iceland lost access to international capital markets, while its sovereign rating dropped from A (just a few days before the collapse of the banks) to non-investment grade (one notch over junk). In order to stabilise the exchange rate, the authorities imposed capital controls. As a result, foreign investors were locked-in, inducing them to invest in short-term government securities. Due to the adverse consequences in the bond market, several auctions of Treasury notes were suspended in 2008.¹¹ An agreement with the IMF was reached on 24 October 2008 covering Iceland’s (foreign) financing needs over the next 3 years. There is a legislative deadline to unwind capital controls at the end of 2013.

On 9 June 2011, Iceland returned to the international bond markets with a successful syndicated issuance of a 5 year, USD denominated, fixed rate bond with a 4.99% yield. The

Figure 4.2. **Loss of market access and return to long-term markets**

1. As of 30 November 2012, Greece and Portugal had no access to long-term funding markets.

Source: OECD staff calculations.

StatLink  <http://dx.doi.org/10.1787/888932779563>

issue was over-subscribed, with a bid-to-cover ratio of two. According to the Central Bank of Iceland, "... most of the buyers were institutional investors from the US and Europe".

On 26 August 2011, Iceland completed its three-year IMF programme. On 4 May 2012, the Icelandic government returned to the international market by selling 10 year, USD denominated, fixed rate bond with a 6.0% yield, again via syndication. Also this offer was well received by global investors and this time the order book was 4 times oversubscribed. The bonds were again predominantly placed with US and European accounts. This second successful issuance in international capital markets underlined Iceland's successful return to the longer-term international funding market. The progress by Iceland in overcoming the crisis was also reflected in a recent upgrade. For example, earlier in 2012, Fitch upgraded Iceland's sovereign ratings from BB+ to BBB-.

4.1.4.2. Ireland

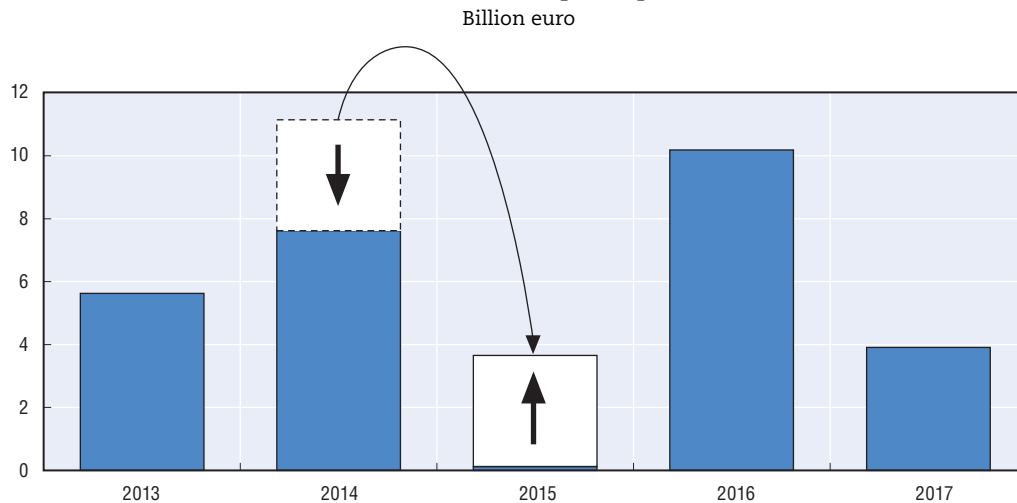
The last time Ireland raised funds from the market with a regular bond auction was in September 2010, two months before the country was forced to seek a bailout. With the worsening of the financial crisis at the end of 2010, Ireland was cut off from short-term and long-term funding markets and had to ask EU-IMF financial assistance in November 2010. Ireland's planned exit from an international financial assistance programme is November 2013.

The National Treasury Management Agency (NTMA) began to implement a well-designed strategy to regain full market access during 2012. An active investor relations programme played an important role in the success of this strategy.

The return strategy consists of several steps. During the first step, the Agency conducted a switch operation in January 2012, thereby smoothing the redemption profile by switching EUR 3.5 billion, 4%, 2014 bonds for new 4.5% bonds maturing in February 2015 (Figure 4.3). Technically, it was a successful operation, although the lack of international investor demand was perceived as a negative signal.

On 5 July 2012, Ireland auctioned EUR 500 million worth of Treasury bills at a yield of 1.8%, the first auction held since September 2010. It was a well-subscribed auction with a

Figure 4.3. **The effect of the January 2012 switch operation on the Irish redemption profile**



Notes: Redemption profile (as of November 2012) does not include T-bill and financial assistance programme payments.

Source: NTMA, OECD staff calculations.

StatLink  <http://dx.doi.org/10.1787/888932779582>

bid to cover ratio of 2.8. This time demand from international investors was strong, marking an important step towards a normalisation of access to funding markets.

Later in the month (26th of July), the NTMA conducted another exchange operation but this time together with outright sales of a (new) 5 year bond and a(n) (existing) 8 year bond. Overall, it was a very successful operation with the Agency raising EUR 5.23 billion. Investors committed EUR 4.19 billion of new money to the first long-term issuance since September 2010. A further EUR 1.04 billion was committed for the exchange of the shorter-dated 2013 and 2014 bonds into 2017 and 2020 bonds. These operations marked Ireland's successful return to the long-term funding market.¹²

In sum, the two switch operations resulted in a reduction in funding requirements for 2013 and 2014 by around EUR 4.5 billion (as of October 2012, approximately 35% of total bond redemptions of 2013-2014). These exchanges gave the government more room to repay its debt, while at the same time easing the challenging redemption profile.

Finally, in August 2012, the NTMA launched the first sovereign issue of amortising bonds.¹³ This issue was meant to meet the needs of the local pension industry as well as to diversify the government's funding sources. The Agency issued EUR 1 billion of bonds via tap sale with maturities of 15, 20, 25, 30 and 35 years. The average yield on the total amount issued was 5.91%.

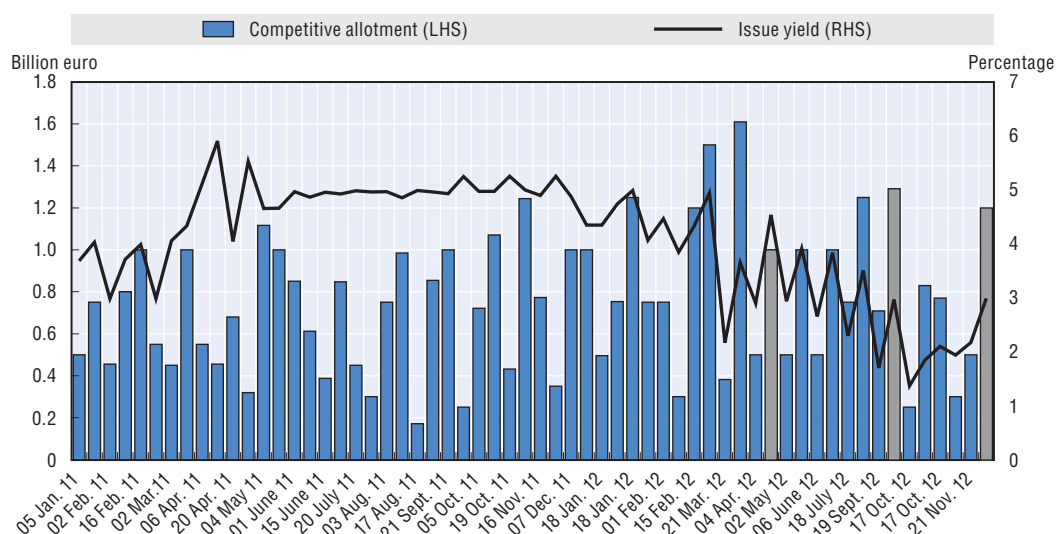
4.1.4.3. Portugal

The last longer-term sovereign bond was auctioned in April 2011. Since then, Portugal has lost access to the longer-term funding market. Portugal is the third euro area country that had to apply for EU-IMF financial assistance. However, Portugal kept access to the T-bill market. In fact, during 2012, Portugal increased both the volume and the maturity of its shorter term issuance programme. The expiration date of the international financial assistance programme is May 2014. This means that Portugal will need to return to long-

term funding markets before that date (or apply for another financial support programme). In fact, Portugal needs to raise around EUR 10 billion by September 2013 from the market in order to cover a bond redemption without relying on the rescue programme.¹⁴

In order to regain full access to the longer term funding market, Portugal has taken a number of important steps. First, the Portuguese Treasury and Debt Management Agency (IGCP) began to issue longer dated securities. On 4 April 2012, Portugal sold EUR 1 billion of 18 months Treasury notes (Figure 4.4). It was the longest maturity issuance since Portugal signed a financial assistance program. The average yield on the new security was 4.5%, compared with 5.8% on the last security (15-month maturity) auctioned in April 2011, before Portugal withdrew from the bond market.

Figure 4.4. **2011-2012 Portugal Treasury note programme**



Note: The grey bars indicate the T-note issuances with maturities of 18 months.

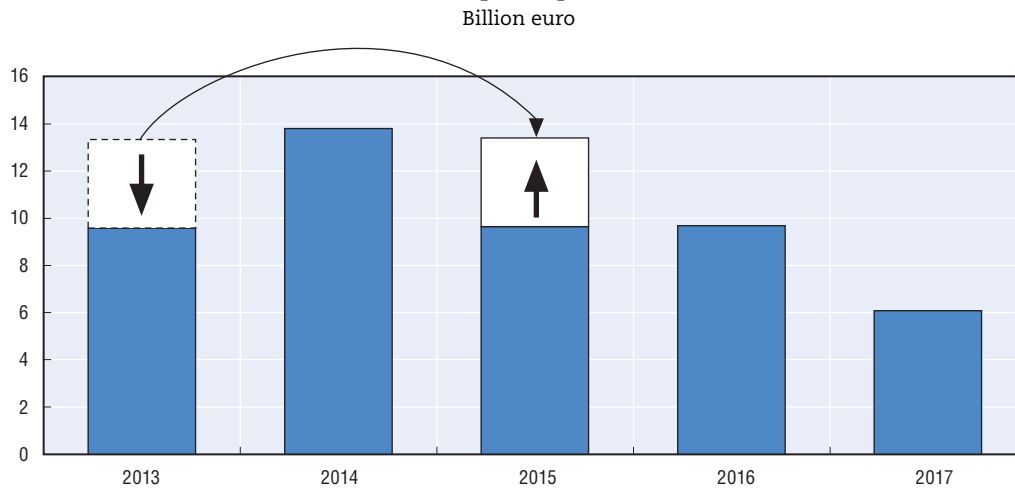
Source: Portuguese Treasury and Debt Management Agency.

StatLink  <http://dx.doi.org/10.1787/888932779601>

On 19 September 2012, Portugal sold another 18 month T-note (EUR 1.29 billion). This time the yield was 2.97%, considerably lower than the previous auction with the same maturity (Figure 4.4).

On 3 October, IGCP conducted an exchange operation (Figure 4.5). The Agency accepted EUR 3.76 billion of bonds due in September 2013 with a yield to maturity of 3.1% and delivered EUR 3.76 billion of bonds due in October 2015 with a yield to maturity of 5.12%. This operation reduced the amount to be redeemed in September 2013 by about 40%. According to the Agency, “this operation marks a first step for Portugal to regain access to medium- and long-term debt markets”.

Figure 4.5. **The effect of the October 2012 switch operation on the Portuguese redemption profile**



Notes: Redemption profile (as of 3 October 2012) does not include T-bill and financial assistance programme payments.

Source: IGCP, OECD staff calculations.

StatLink  <http://dx.doi.org/10.1787/888932779620>

4.2. Primary dealer models under stress?

In the wake of the 2008-2009 global financial crisis and, later, in response to extreme pressures in several euro area sovereign debt markets, questions have been raised about the functioning and future of primary dealer systems (PDs). More specifically, the discussion focused on the impact of regulatory changes on PDs' ability/willingness to provide liquidity in sovereign bond markets, reduced capital allocations and risk budgets for PD activities, increased general risk aversion and reduced profitability from government bond market-making. Reports about balance sheet weaknesses of primary dealer banks are of great concern for DMOs, as they may be linked to a lesser ability or willingness of PDs to be active in funding ongoing huge borrowing programmes. Perceptions of higher sovereign risk may further aggravate this situation (Chapter 2).

Sovereigns are faced with new challenges to ensure that appropriate incentives are in place for PDs to continue to participate actively in both primary and secondary markets and to make sure that they can access successfully a wide range of markets. Also effective issuance techniques (as discussed above) are in this context of great importance.

In response to these challenges, several debt managers have made changes to the balance of PD obligations and privileges (as reported in the 2012 OECD survey on the *Functioning and future of primary dealer systems*), often in combination with the overall issuance architecture (as described in Section 4.1.3.2 with additional details provided below).

4.2.1. OECD survey results on the "Functioning and Future of Primary Dealer Systems in OECD Countries"

All 34 OECD countries replied to the survey. Among them just 8 countries (Australia, Chile, Estonia, Germany, Luxembourg, New Zealand, Slovak Republic and Switzerland) do not use a formal primary dealer system (PDS). However, among these "PDS-less" countries,

Australia, Germany and New Zealand have a “special” relationship with their dealers, although details differ per country.

Australia has “Registered Bidders” and they are the only party together with dealers in the Yieldbroker DEBTS System that can submit bids for Commonwealth Inscribed Stock offered for sale via the Tender System. Each registered bidder signs a “Registered Bidder Agreement” with the Australian Office of Financial Management (AOFM) and has to comply with its terms.

Germany has a “Bund Issuance Auction Group”. Only credit institutions domiciled in a member state of the European Union can be members of this group. A member of this group must subscribe to at least 0.05% of the total issuance allotted at the auctions in a calendar year weighted according to maturity. Members who do not reach the required minimum allotment drop out of the Auction Group Bund Issues. There are no other requirements placed on the members of the Auction Group.

New Zealand has “Registered Tender Counterparties” which have the right, but not the obligation, to bid directly in tenders. No other parties have this right in New Zealand. In order to buy bonds from, or sell bonds to, the Crown via a tender, “Tender Counterparties” must be registered for this purpose with the New Zealand Debt Management Office (NZDMO).

The OECD survey is organised in the following way. The first part deals with the “functioning of PD systems in the primary market”, the second part examines the “functioning of PD systems in the secondary market”, and the last focuses on the “future of primary dealer systems and potential impact of forthcoming regulations”.

4.2.2. Functioning of PD systems in primary markets

The key function of PDs is to bid in primary markets. It is expected that they perform this function especially during highly volatile and stressful market conditions. In order to address problems in the functioning of PD systems, the 2012 survey results indicate that almost 40% of DMOs chose to improve the privileges of PDs in order to give them more incentive to undertake their (unchanged) obligations (just 3 DMOs reduced obligations) (Table 4.5). Accordingly, nine (9) out of 23 countries have improved the privileges of PDs in order to motivate them to be more active in government bond markets; notably non-competitive subscriptions have been increased (Table 4.6) while in some cases also the access period was extended. Some countries opted to pay PDs (higher) annual commission fees. Finally, 5 countries have changed the selection criteria for PDs by giving more weight to the PDs’ performance in both primary and secondary markets.

Non-competitive subscriptions have been increased. According to the 2012 Survey results (Table 4.6) only 4 countries do not use non-competitive subscriptions in their primary market (Denmark, Ireland, Mexico and Norway). Eight (8) countries have increased the size of their existing non-competitive subscription, while the Czech Republic, Hungary and Spain also extended the PDs’ access period for non-competitive subscriptions. Fourteen (14) countries did not introduce any change in their existing non-competitive subscription system (Table 4.6).

In Mexico, non-competitive subscriptions are only allowed for the retail program (Cetesdirecto). And in Austria, PDs can increase their non-competitive bids by increasing their performance in the secondary market.

Table 4.5. **What kind of measures did you introduce to improve the functioning of PD systems in your primary market?**

	Change in the selection criteria of PDs?		Improve the privileges for PDs?		Ease or reduce the obligations of PDs and decrease the risks for PDs?	
	YES (22%)	NO (78%)	YES (39%)	NO (61%)	YES (13%)	NO (87%)
Austria		x	x			x
Belgium		x		x		x
Canada		x		x	x	
Czech Republic	x		x			x
Denmark		x		x		x
Finland		x		x		x
France		x		x		x
Greece		x		x		x
Hungary		x	x			x
Iceland		x	x			x
Israel		x	x			x
Japan		x		x		x
Korea		x		x		x
Mexico	x		x			x
Netherlands		x		x		x
Norway		x		x		x
Poland	x			x	x	
Portugal		x	x			x
Spain		x	x			x
Sweden		x		x		x
Turkey	x			x		x
United Kingdom		x	x		x	
United States	x			x		x
Total	5	18	9	14	3	20

Source: Responses to the 2012 OECD Survey on “Functioning and future of primary dealer systems in OECD countries”.

Table 4.6. **Increase in the size of existing non-competitive subscriptions**

YES (32%)	NO (68%)
Czech Republic	Australia
France	Austria
Greece	Belgium
Hungary	Canada
Israel	Finland
Poland	Japan
Portugal	Korea
Spain	Mexico
	Netherlands
	Sweden
	Switzerland
	Turkey
	United Kingdom
	United States

Source: Responses to the 2012 survey of the OECD Working Party on Debt Management.

4. CHALLENGES IN PRIMARY MARKETS

4.2.3. Functioning of PD systems in secondary market

PDs execute their obligations in secondary markets by standing ready to give two way quotations (prices) in certain (designated) government securities, thereby contributing to liquid markets. However, in times of high volatility and uncertainty, together with rapidly widening bid-ask spreads and increasing yields, market making may at times become very challenging.

In response, countries introduced measures to improve the deteriorated balance between obligations and privileges (Table 4.7). The 2012 survey indicated that out of 23 responses, 12 DMOs eased PDs' market quoting obligations. Belgium, Denmark and France recently modified their quoting obligation systems with the dual objectives of easing quoting obligations but also to increase flexibility (so as to better adapt to changing market conditions). Two (2) responding countries (Austria and Japan) do not have quoting obligations. According to the survey results, governments may (temporarily) opt to drastically decrease (or even completely suspend) quoting obligations during extreme crisis episodes.

Table 4.7. What kind of measures did you introduce to improve the functioning of PD systems in your secondary market?

	Did you modify the performance evaluation procedure for PDs?		Did you ease quoting obligations?		Did you make any adjustments to the securities lending facility?	
	YES (43%)	NO (57%)	YES (57%)	NO (43%)	YES (56%)	NO (44%)
Austria	x				x	
Belgium		x	x		x	
Canada		x		x		x
Czech Republic	x			x	x	
Denmark	x		x			x
Finland		x		x		
France		x	x			x
Greece		x	x			x
Hungary		x	x		x	
Iceland		x	x		x	
Israel		x	x		x	
Japan		x				
Korea		x		x		
Mexico	x			x		x
Netherlands	x		x		x	
Norway		x	x		x	
Poland	x		x			
Portugal	x		x			x
Spain	x		x			
Sweden		x		x	x	
Turkey		x		x		x
United Kingdom	x			x	x	
United States	x			x		x
Total	10	13	12	9	10	8

Source: Responses to the 2012 Survey on "Functioning and future of primary dealer systems in OECD countries".

Ten (10) countries modified their performance evaluation procedures for PDs (Table 4.7). Survey results indicate that more emphasis has been given to the secondary market activities of PDs in order to motivate them to be more active in the secondary market. Also the transparency of the performance evaluation of PDs has been improved.

Moreover, 18 out of 23 governments (78%) use a securities lending facility, while 10 of them made adjustments to this facility (Table 4.7). A securities lending facility is an important tool to improve the liquidity in secondary markets. It contributes to the smooth functioning of markets by avoiding (or reducing) the possibility of delivery failures. As a result, PDs can be more confident in the successful conclusion of their transactions. The 2012 survey results show that increasing the amount available for the repo facility was the most widely used adjustment measure.

4.2.4. Potential impact of forthcoming regulations and the future of primary dealer systems¹⁵

The health of PD systems appears to be tied closely to the forthcoming set of regulatory reforms, which could change the overall balance of incentives for primary dealers to participate actively in sovereign bond markets.

For example, regulatory changes could reduce the profitability (and thus the attractiveness) of being a primary dealer in sovereign bond markets or reduce the ability of PDs to participate actively in primary issuance or maintain sufficient inventories in government bonds (and thus provide liquidity in individual sovereign bond markets).

The survey responses show that Basel III (CRD IV) and the Volcker rule are expected to have the biggest potential impact on the willingness and ability of PDs to provide liquidity in government bond markets (Table 4.8), although countries have varying views on the severity of the impact of these regulations on their markets. On the one hand there are countries such as Chile and the Czech Republic that foresee a moderate impact of these new regulations. On the other hand, Australia, Israel, the Netherlands and Norway do not expect any impact or a very low one.

Table 4.8. Regulations that would have the biggest potential impact on PD models

Basel III (CRD IV)	Volcker rule	Tax on financial transactions	Shorting restrictions	MiFID II
Belgium	Belgium	Belgium	Denmark	Denmark
Denmark	Canada	Sweden	Finland	Sweden
France	Hungary	United Kingdom	Spain	
Greece	Japan			
Hungary	Mexico			
New Zealand	Poland			
Poland	Portugal			
Portugal	Sweden			
Spain	United Kingdom			
Sweden				
Switzerland				

Source: Responses to the 2012 Survey on "Functioning and future of primary dealer systems in OECD countries".

4. CHALLENGES IN PRIMARY MARKETS

The Survey and debate by the OECD Working Party on Public Debt Management about the impact of (envisaged) regulatory changes indicate that these new regulations will most likely contribute to shifts in business models of banks that, in turn, will change the way in which PDs operate in the longer-term. Six (6) countries out of 21 are of the opinion that the current PD model is under (immediate) threat (Table 4.9). However, the Survey results show that the drivers of this threat vary across countries. In addition, as noted above, views on the severity of the impact of these drivers may differ as well.

In addition, the Survey identified the following factors that are likely to have an influence on banks' business models:

- Very high levels of volatility and historically low yields in government bond markets have made conditions more challenging for primary dealers.
- Banks are seriously restricted in their ability to warehouse bonds post auctions, thereby diminishing liquidity in secondary markets.
- The failure of the monetary policy transmission mechanism in distributing liquidity according to actual credit risk.
- Increasing use of electronic bond trading platforms (owned by large banks).

Table 4.9. **Are conventional or existing PD-models under threat?**

No (57%)	Yes (29%)	Unsure (14%)
Austria	Denmark	Belgium
Czech Republic	Norway	Canada
Finland	Poland	United Kingdom
France	Spain	
Greece	Sweden	
Hungary	United States	
Israel		
Japan		
Mexico		
Netherlands		
Portugal		
Turkey		

Source: Responses to the 2012 OECD Survey on "Functioning and future of primary dealer systems in OECD countries".

Notes

1. The Policy information in this section is based on a Survey among OECD DMOs as well as the October 2012 proceedings of the OECD Working Party on Public Debt Management (WPDM).
2. It is widely recognised that issuers, investors, dealers and tax payers have benefited from transparent, efficient, robust and reliable issuance procedures for government debt [Hans J. Blommestein (2002), editor, *Debt Management and Government Securities Markets in the 21 Century*, OECD].
3. Supporting domestic capital markets is therefore an indirect debt management objective. It is an indirect one as it is a means to achieving the direct objective of minimising borrowing costs subject to the preferred level of risk.
4. See (Chapter 2, Section 2.4) for details.
5. At a multiple-price auction, bonds are sold at the actual bid price of successful bidders.

6. At a single-price (uniform-price or Dutch) auction, all bonds are sold at the same lowest accepted price.
7. Vause, N. and G. von Peter (2011), Euro area sovereign crisis drives global financial markets, *BIS Quarterly Review*, December.
8. "The universe of trusted paper ... seemed to shrink just as the demand for safe assets was rising..." (Vause, N. and G. von Peter (2011), Euro area sovereign crisis drives global financial markets, *BIS Quarterly Review*, December, p. 6).
9. A "Schuldschein" is a loan agreement, not a security, by which a borrower undertakes to reimburse the lender a specific sum on a set date, in return for a specific remuneration (www.debtagency.be).
10. For example United Kingdom has increased the size of its auctions in response to the large financing needs.
11. For example, auctions of Treasury notes were suspended on 23 October 2008 and 20 November 2008.
12. On 8th January 2013, the NTMA raised EUR 2.5 billion through a syndicated bond sale of its Treasury Bond maturing in October 2017. This transaction is Ireland's first market transaction since January 2010.
Investors' response was strong with total bids amounting to some EUR 7 billion at a yield of 3.316%. Of the amount issued 13% was taken up by domestic investors and 87% by foreign investors. This bond sale is equal to 25% of NTMA's total funding target of EUR 10 billion for 2013. This transaction constitutes therefore considerable progress in Ireland's phased return to the markets.
Moreover, on 17 January 2013, Ireland auctioned EUR 500 million of 3-month Treasury Bills. It was the fifth auction since the NTMA resumed auctions in July 2012. The bills were auctioned at a yield of 0.2% (compared with 1.8% during the first T-bill auction in July 2012). This successful auction had a bid to cover ratio of 3.8.
13. Irish Amortizing Bonds (IABs) involve making equal payments over their lifetime. Each such annual payment includes a partial principal repayment and a payment of interest, as set out in the offering circular for each IAB (www.ntma.ie).
14. On 8th January 2013, Banco Espírito Santo announced that it had priced successfully a senior bond issue of EUR 500 million with a 5-year maturity and a 4.75% annual coupon. Furthermore, on 11th January 2013, the state-owned Caixa Geral (BBB) successfully issued a EUR 750 million covered bond (5-year maturity and 3.835% yield), with a spread lower than on Portuguese sovereign debt for the same maturity.
Analysts argue that continued positive market sentiment will pave the way for the Portuguese state to issue government debt later in 2013.
15. This topic was discussed at the 15-16 October meeting of the OECD Working Party on Public Debt Management and benefitted from the interventions from delegates. The session was moderated by the UK DMO.

References

- Blommestein, H.J. (ed.) (2002), *Debt Management and Government Securities Markets in the 21 Century*, OECD.
- Vause N. and G. von Peter (2011), "Euro area sovereign crisis drives global financial markets", *BIS Quarterly Review*, December.
- Central Bank of Iceland, Press Releases on 20 October 2008 and 19 November 2008.

Chapter 5

Structural changes in the investor base for government securities

The investor base for government securities has been undergoing important changes, some of them structural. Investment strategies and environments have been changing over the past several years, as global investors have adjusted to crisis related challenges and policies such as quantitative easing, changes in the relative attractiveness or riskiness of developed and emerging market assets, and greater emphasis on individual country risk instead of asset classes. New and demanding challenges were added since 2010 by the unfolding crisis in the Euro area. Moreover, regulatory changes, new or anticipated, with direct and indirect impacts on investment strategies are also having an influence on the investor base for government securities.

OECD sovereign issuers attach a greater importance to Investor Relations and the Communication Strategy, citing a variety of reasons, ranging from the need to ensure demand as funding requirements increased and/or circumstances changed, to the need for diversification of the investor base.

5.1. Why is the investor base changing?

The investor base for government securities has been undergoing important changes, some of them structural. Investment strategies and structures have been changing over the past several years, as global investors have adjusted to crisis-related challenges and policies such as quantitative easing, changes in the relative attractiveness or riskiness of developed and emerging market assets, and greater emphasis on individual country risk instead of asset classes. New and demanding challenges were added since 2010 by the unfolding crisis in the Euro area. Moreover, regulatory changes, new or anticipated, with direct and indirect impacts on investment strategies are also having an influence on the investor base for government securities. See for details Table 5.1 on *Structural changes in the composition of the investor base for OECD government securities*.

The 2007-2009 global financial and economic crisis triggered a strong surge in government borrowing needs in most OECD countries thereby putting the spotlight not only on challenges regarding issuance methods¹ but also on changes in the composition and preferences of the investor base.² Also many sovereigns from emerging markets increased their borrowing operations. This resulted in an increase in competition for funds among sovereigns all over the world. This put the spotlight on (changing) priorities for DMOs (and primary dealers) in how best to deal with investors. For example, a recent OECD Survey³ among OECD DMOs observed a greater emphasis on Investor Relations and the Communication Strategy during the last couple of years, citing a variety of reasons, ranging from the need to ensure demand as funding requirements increased and/or circumstances changed, to the need for diversification of the investor base.

5.2. Higher degree of home bias?

Increased home bias (also referred to as re-nationalisation or re-domestication) is part of a pattern of retrenchment and risk-reduction that is typical during and in the aftermath of crises. Accordingly, during and immediately after the 2007-2009 financial crisis, and later, during stressful episodes in sovereign debt markets, many governments were forced to borrow more domestically (leading to an increase in “home bias”).

Fears about a possible euro area breakup have led to extreme fragmentation between funding markets in the core and the periphery. As noted in Section 2.4, in crisis-hit peripheral countries in the euro area, government bond yields went up significantly, accompanied by a shift in composition of their investor base from non-resident investors to domestic investors. Buyers of government debt in peripheral markets are increasingly local investors (notably domestic banks) as foreign investors return to their home markets. In some countries the holdings of domestic government debt by local banks may become so significant that (future) increases in bond yields may lead to mark-to-market losses that in some cases may pose a threat to financial stability.⁴ In contrast, several core euro area countries saw an increase in non-resident holdings. Figure 5.1 shows the change in non-resident holdings between 2007 and 2012.

Table 5.1. **Structural changes in the composition of the investor base for OECD government securities**

Australia	Non-resident holdings of Australian Government bonds have steadily increased and reached up to 76.1% as of June 2012. The Australian Office of Financial Management (AOFM) believes that foreign central banks have increased their holdings of Australian Government debt.
Austria	Over the past 12 months, the Austrian Debt Management Office has not detected major changes to the Austrian government debt investor base. However, there has been increasing demand from Austrian investors in the past years. Furthermore there was strong demand from German insurance companies and pensions funds for very long dated Austrian paper. Recently, there was also a strong demand from Asia. The very high demand for T-Bills and shorter dated bonds resulted in Austria issuing at negative yields (for tenors up to 2 years at comparable yield levels as in Germany).
Belgium	The fallout of the global financial crisis and, later, the added tensions in the euro area, resulted in reduced holdings of government bonds by foreign euro area investors (with domestic investors picking up the slack). However, the holdings of government bonds by investors from outside the euro area remained quite stable. The composition of the investor base for bills remained more or less the same with stable and large holdings by investors. In terms of type of investors, euro area countries have not benefited from the demand associated with QE operations. Although the two LTRO's from the ECB resulted in an increase in Belgian bank holdings of government debt, this effect was less strong than in other euro area countries. Belgian bank holdings increased from EUR 56 billion at the end of 2010 to EUR 61.2 billion at the end of first quarter of 2012. This weaker demand effect was partly due to the fact that Belgian credit institutions are afraid of a negative perception of their credit status, making them reluctant to take advantage of this ECB facility. However, insurance companies have materially increased their holdings of Belgian debt from EUR 40 billion at the end of 2010 to EUR 65.9 billion at the end of first quarter of 2012. Also pension funds increased their holdings. These increases may be partially due to the fact that issuance by the Belgium Debt Agency has been geared towards longer maturities. Finally, a significant change in the investor base was in the form of a strong increase in Belgian retail investors' holdings of Belgian debt securities as a result of a EUR 5.7 billion issue of State Notes in December 2011.
Canada	Renewed foreign investor interest in Canada has resulted in an increase of non-resident holdings (though the level remains low compared to other sovereigns; 21% in 2010). In terms of participation at auction – Canada has seen increased interest in recent years from both domestic and international customers (who bid through Government Securities Distributors at auction). The Bank of Canada increased the amount it purchases at bond and bill auctions (non-competitive basis) starting in October 2011, to accommodate the planned increase in government deposits held at the Bank of Canada (associated with the Government of Canada's plan to increase its prudential liquidity over the next three fiscal years).
Czech Republic	No significant change in the investor base.
Denmark	The Danish central bank has not performed any operations in domestic government bonds. We do not know how much Danish government bonds are held in portfolio by foreign central banks, but we have knowledge about a greater number of foreign central banks investing in DKK denominated government bonds. The share of total foreign investors has increased from 35% in 2008 to 40% in 2011.
Finland	There is no material change in the investor base, but when we issue longer dated debt (like we have done in 2012) the share of foreign central banks usually decreases.
France	The composition of the French investor base proved to be stable in 2012 compared to previous years. There was a sustained demand for French government bonds from foreign investors: foreign holdings of French government bonds was 63% by the end of Q2:2012, a slight decrease compared to the peak in Q2:2010 but a 3.8% increase compared to 2007. The role of the French central bank was not notably different in comparison to "normal" times (French sovereign bonds were not bought under SMP or QE programmes). Foreign central banks remained among the top buyers of French government debt and proved to be very stable investors throughout 2011 and 2012. The share of French sovereign bonds held by domestic banks stayed well below the historical average. LTROs did not lead to any increase in French bonds holdings by domestic banks.
Hungary	In Hungary the central bank is not active in domestic government securities markets. In fact, its government bond portfolio decreased in 2011. Until now, demand for domestic securities is strong particularly from non-resident investors.
Iceland	There has been no significant change in our investor base in recent years apart from foreign investors because of capital controls through which their ISK assets are locked in. As a result, non-resident investors have become significant players especially on the short end of the yield curve.
Italy	The investor base in Italian government bonds has widened and has become more international over time. The resulting diversification benefits contribute to making debt placements more smooth and efficient. Since 2003 and until the beginning of 2011, the investor base was split almost equally between domestic and non-domestic holders. From July 2011 onward, the share of domestic holdings has started to increase from around 50% to slightly above 55% in 2012.
Japan	In Japan, about 70% of Japanese Government Bonds (JGBs) are held by domestic financial institutions. The share of JGBs held by foreign investors is increasing in recent years, in particular via growing demand from Asian central banks and Sovereign Wealth Funds. The crisis in the euro area is a contributing factor.
Luxembourg	No major change in the structure of the investor base.
Mexico	Foreign investors have increased their participation in the local (currency) bond market supported by both Mexican macroeconomic stability and Mexico's inclusion in the WGBI (World Government Bond Index) in 2010. The main interest by non-resident investors is in T-Bills (Cetes) and nominal fixed T-Bonds (Bonos). Recently, foreign investors have shown a strong interest in participating directly in syndications. For example, the foreign share in syndications was 27% of the whole amount issued in 2012.
Netherlands	We only collect information about the investor composition for our initial offering/opening of a bond, and not for tap auctions or re-openings. After the initial opening of a bond, the DSTA publishes a break-down of issuance in terms of investor type and geographic location. Comparing the 5- and 10-year issues opened in 2011 with those opened in 2012, no large differences can be detected. The take-up of bonds by domestic investors was roughly equal in 2011 and 2012 for the 10-year bond segment, while for the 5-year segment it was significantly higher in 2011 in comparison to 2012 (23% versus 13%). Hence, on this basis an increase in home bias <i>cannot</i> be observed. Regarding investor type, central banks have accounted for a considerably larger share of the allocation in both the 5- and 10-year bond in 2012 compared with 2011 (34% versus 12% for the 5-year; 16% versus 8% for the 10-year). Banks and trusts have also increased their share, while pension funds and insurers saw lower uptakes.

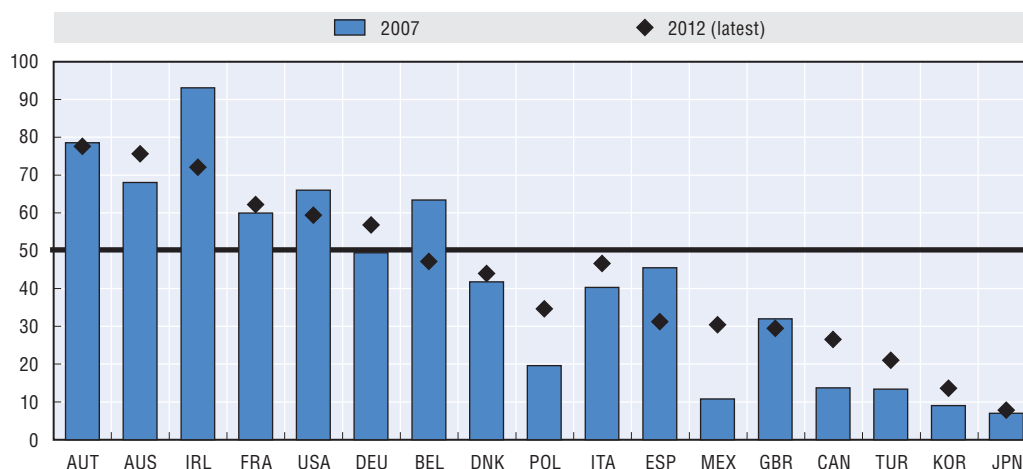
Table 5.1. **Structural changes in the composition of the investor base for OECD government securities (cont.)**

New Zealand	From August 2007 to October 2009, non-resident holdings of government bonds ranged from 71%-78%. Since then, non-resident holdings have fallen to 62% of total bonds in the market whilst total bond holdings have risen to USD 35 billion of USD 56 billion in the market. There are a number of reasons why the percentage of bonds held by non-resident holders has been falling: a) Simply they have not been keeping pace with the increase in issuance. Interestingly, as issuance has increased, the appetite of domestic banks to hold our bonds on balance sheet has increased dramatically due to changes to the Reserve Bank of New Zealand's (RBNZ) requirement for domestic banks to hold greater amounts of liquid securities. b) The spread between government bonds and swaps has also been more attractive for investment by domestic fund managers and foreign investors who undertake asset-swapping activities. c) In recent years, New Zealand has seen some sectors of its investor base move out of NZ dollars and into higher-yielding currencies such as Brazilian Real and South African Rand as New Zealand interest rates fell. There was a noticeable drop off in investors from Japan at this time and it was also noticeable that investors which would normally invest in New Zealand by-passed Kiwi when Australian interest rates were higher.
Norway	No significant changes in the investor base.
Poland	Poland's constitution explicitly prohibits financing the State budget deficit via the central bank. Accordingly, the Polish central bank has no Treasury securities in portfolio. In recent years, the dominant trend in changes of the investor base for domestic government debt (which accounts for about 70% of total sovereign debt) was the substantial increase in the share of non-residents. Domestic government debt held by non-residents, after an initial fall in 2008 (from 19.6% to 13.3%), has been increasing ever since. At the end of April 2012 this share was 30.7%. The larger part of this non-resident share constitutes non-bank financial institutions. Data on holdings by foreign central banks is not available. The largest and most stable group of holders of domestic debt is domestic non-bank investors. These investors hold around 50% of domestic debt, mostly pension funds, insurance companies and mutual funds.
Slovak Republic	The Slovak domestic investor base is fairly weak. The larger part of Slovak sovereign debt is in the hands of foreign banks. The Slovak Republic benefitted from investors searching for higher yield.
Slovenia	The share of domestic investors in government bonds issued between 2009 and 2011 varied between 8% and 31% of the amount issued.
Spain	Domestic credit institutions' holdings of sovereign debt increased in 2012, with non-resident holdings falling to around 32% in July 2012.
Sweden	Around 50% of government bonds (nominal and inflation-linked) are owned by foreign investors, up from 35% in 2007. The Kingdom of Sweden's investor base consists of a core of approximately 25 domestic investors, while the non-resident share comprises investors in the euro area, UK, Asia and the US.
Switzerland	The Swiss National Bank (SNB) is the organiser of the auction process and does not participate as a bidder for its own account. Banks participating in auctions of Swiss government securities are known, but it is not known which bids are submitted on behalf of clients. Foreign central banks have the possibility to submit their bids via commercial banks or through the SNB and, as a result, accurate and reliable data about holdings by foreign central banks of T-bonds and T-bills is not available. Currently it is estimated that the share of foreign holders of T-Bonds stands at around 25% (up from an estimated 20% in 2010). The law stipulates that the Swiss Government is not allowed to get indebted with the SNB.
Turkey	From the beginning of 2010, an inflow from non-resident investors into ten year fixed and CPI indexed bonds was observed, while the share of retail investors dropped significantly. The share of the Central Bank of Turkey (CBRT) as investor in domestic sovereign debt decreased during the recent crisis. Since the CBRT is by law not allowed to buy in the primary market, the secondary market is used for monetary policy operations.
United Kingdom	Demand for gilts is well diversified among major investor groups: domestic pension funds and insurance companies, overseas investors and UK banks and other financial institutions. The Bank of England's Asset Purchase Facility (APF) has also been a substantial buyer of gilts in the secondary market since 2009. To date the Bank of England has purchased a total of GBP 325 bn of gilts. In July 2012 the Bank of England's Monetary Policy Committee voted to increase the size of asset purchases by the APF by GBP 50 billion to GBP 375 billion. Demand from international investors has remained strong over the last few years, particularly for short and medium conventional gilts, reportedly¹ reflecting developments in other sovereign debt markets (in particular within the euro area), the Government's commitment to fiscal consolidation and changes to the size and composition of overseas central bank reserves. Demand from overseas investors is expected to remain strong in 2012-13. There has also been ongoing demand from domestic banks and building societies for shorter-dated conventional gilts to meet expected regulatory requirements for high quality liquid assets. Demand for gilts from domestic financial institutions in 2012-13 continues, although feedback from market participants suggests that this sector's rate of gilt purchases could slow as institutions reach their required levels of liquid asset holdings. Pension funds and insurance companies also continued to purchase gilts as they sought to match their long-term liabilities with long-term assets. They continue to represent a major source of gilt demand in 2012-13.
United States	FED's holdings of treasury securities have gone up as a result of QE1/QE2. Operation twist does not increase their holdings since it's a switch of short-dated treasuries for long-dated ones. Foreign central bank holdings of treasuries has gone down as a percentage of outstanding, while the take-up by domestic buyers – banks, investment funds – has increased.

1. Based on the views expressed by Gilt-edged Market Makers (GEMMs) and end-investors and their representative organisations at the Government's annual consultation meeting with gilt market participants in January 2012.

Source: Responses to the 2012 Survey of the OECD Working Party on Public Debt Management.

Figure 5.1. **Non-resident holdings of government securities (2007 vs. 2012)**
Percentages

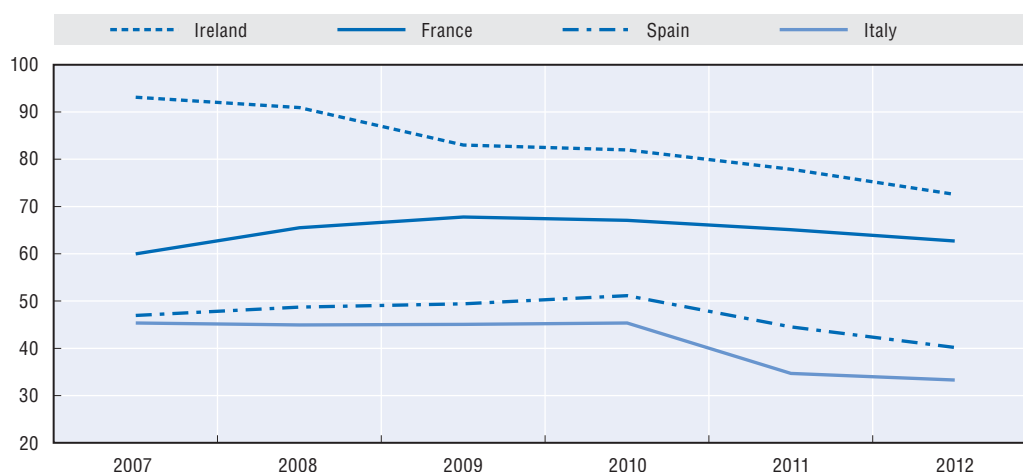


Source: Responses to the “2012 Survey of the OECD Working Party on Public Debt Management”, Reserve Bank of Australia, The Central Bank of Ireland, *Agence France Trésor*, US Department of the Treasury: Financial Management Service, Bundesbank, Bank of Italy, The Spanish Treasury, Bank of England and Office for National Statistics, Central Bank of Turkey, Ministry of Finance Japan, Ministry of Finance Poland; and OECD staff calculations.

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Figure 5.2 shows a reduction in demand by non-resident investors in Ireland, Italy, Spain and France. However, it should be noted that in some countries foreign holdings had reached very high levels before the crisis (for example in Ireland). Although foreign ownership of French sovereign debt trended somewhat lower, it is still higher than before the start of the global financial crisis.

Figure 5.2. **Non-resident holdings of government securities in Ireland, Italy, Spain, and France**
Percentages



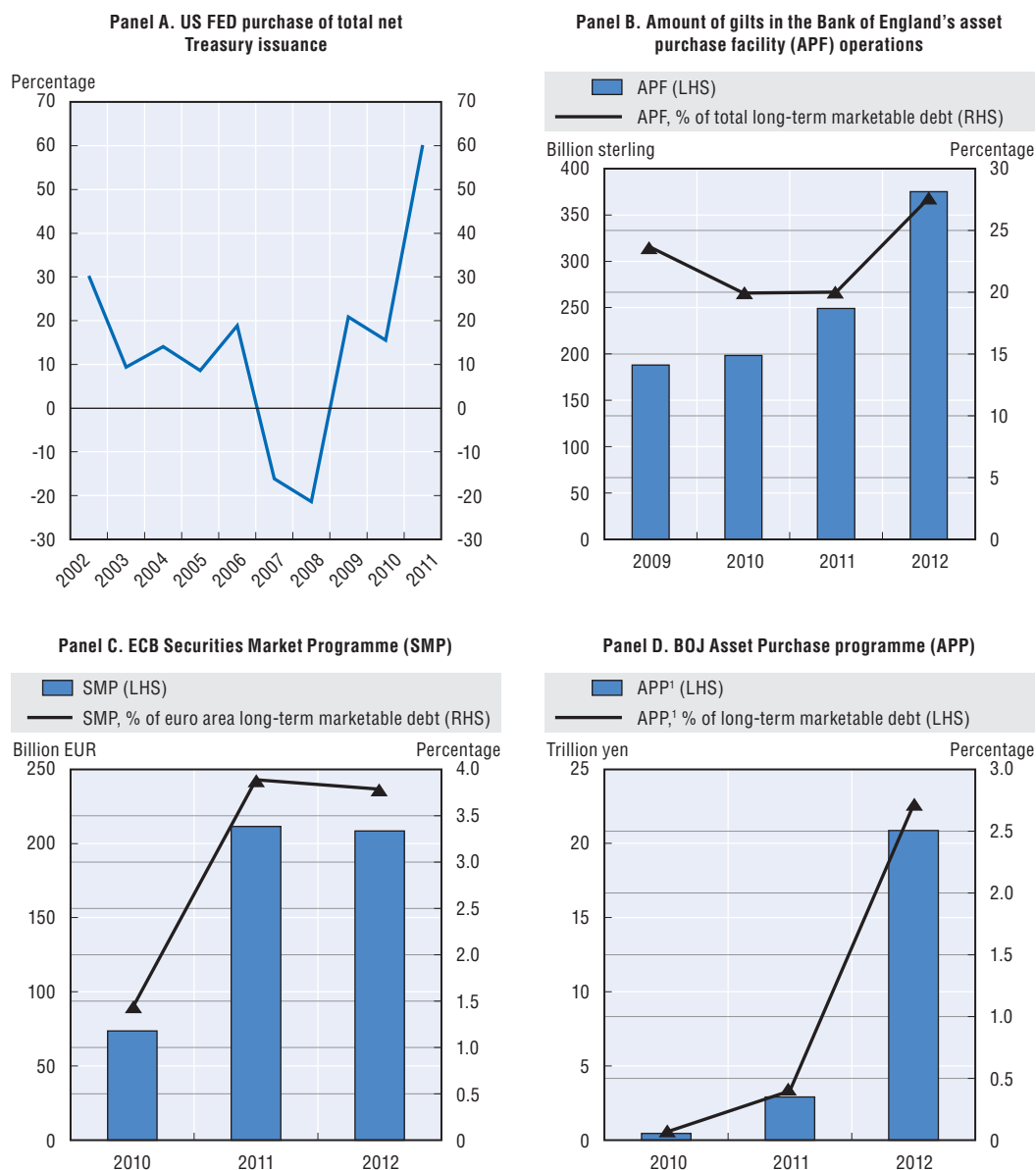
Source: Bank of Italy, Central Bank of Ireland, Reserve Bank of Australia, *Agence France Trésor*, Bank of England; and OECD staff estimates.

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5.3. How important is the role of central banks as investor?

Starting with the global financial crisis in 2008-2009, central banks are playing a major role as buyers of government securities (and other financial assets) via their non-standard monetary policy programmes (see Chapter 3 on “Debt management in the macro spotlight” for additional details). In effect, the US Federal Reserve (FED), Bank of England (BOE), Bank of Japan (BOJ) and the European Central Bank (ECB) responded aggressively to the crisis via different unconventional monetary operations such as QE, Operation Twist and Securities Market Programme (see Figure 5.3, Panels A, B, C and D). See also Table 5.1 for additional country detail.

Figure 5.3. **Major central banks’ non-standard monetary policy programmes**



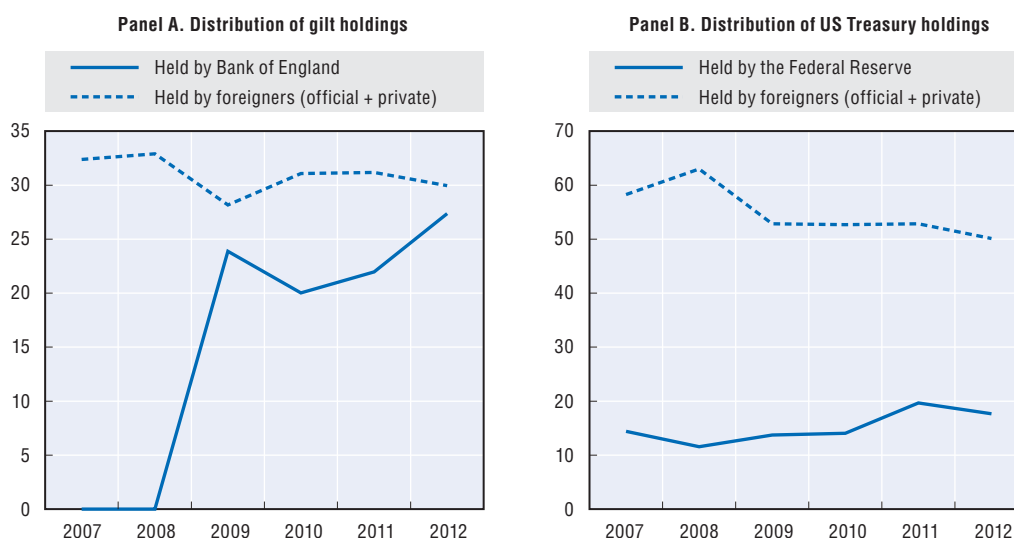
1. Japan APP figures cover only purchase of Japan Government Bonds (JGBs).

Source: Federal Reserve System (Flow of Funds Accounts of the United States), Bank of England, UK Office of National Statistics, 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management, ECB, Bank of Japan; and OECD staff estimates. [StatLink !\[\]\(a93bf37afdf4544daa04db88f7795fc2_img.jpg\) http://dx.doi.org/10.1787/888932779677](http://dx.doi.org/10.1787/888932779677)

Government security holdings of US and UK central banks represented nearly 20% and 27% of the total long-term marketable debt, respectively (see Figure 5.4, Panel A and Panel B). This huge demand coming from (domestic) central banks is raising questions about its impact on other major holders of government securities. For example, can one detect a *crowding-out effect* in a similar way as the high share of foreign investors in some countries? In effect, FX reserve accumulation works like central banks' balance sheet expansion driven by asset purchase programmes such as QE (see Section 5.4). The US Treasury has observed that foreign holdings of US government securities have trended (much) higher.⁵ As a result, the US is now heavily reliant on foreign ownership of Treasury debt (standing at around 50%; Figure 5.4, Panel B), crowding out the major domestic holders.⁶

Figure 5.4. **Government security holdings of US and UK central banks**

As a percentage of total long-term marketable debt



Source: Bank of England, UK Office of National Statistics, Flow of Funds Accounts of the United States, Board of Governors of the Federal Reserve System, 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; and OECD staff estimates.

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5.4. Asset allocations of foreign exchange reserves and impact on government debt markets

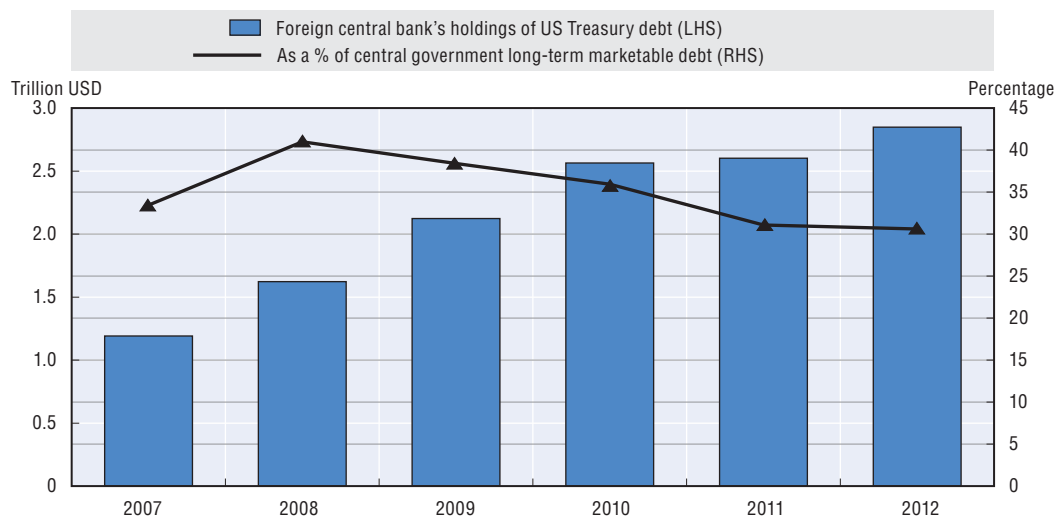
As noted, non-standard monetary policy operations such as QE have led to a rapid and massive expansion of central banks' balance sheets (see Figure 3.1 on central bank balance sheets in Chapter 3). The main component of this balance sheet expansion is purchases of government securities (from private financial institutions). As a result, central banks play a much more prominent role in government securities markets (Chapter 3 on "Debt management in the macro spotlight").

However, also the strong increase in asset allocations of foreign exchange reserves in the past decade is exerting a key influence on the functioning of government bond markets. In fact, the scale of the purchases of government securities by some central banks has become a major driver of government bond markets.

Over the past decade there has been a steady accumulation of FX reserves by central banks. To prevent (too rapid of) an appreciation, these central banks have routinely bought

USD against their domestic currencies. Between 50-75% of the intervention proceeds have been added to the FX reserves portfolio and have been invested in US government bonds, while the remainder was invested in government bonds from selected, other OECD countries (primarily within the euro area). A significant share of global foreign exchange reserves are invested in US Treasury securities (36% as of June 2010). Foreign official holdings of US Treasuries increased from USD 400 billion in January 1994 to around USD 2.85 trillion as of November 2012, see Figure 5.5.

Figure 5.5. **Foreign central banks' holdings of US Treasury debt**



Source: Federal Reserve System (Flow of Funds Accounts of the United States), 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; and OECD staff estimates.

StatLink <http://dx.doi.org/10.1787/888932779715>

Some central banks are mopping up capital inflows, while they use the increase in foreign exchange reserves to buy foreign government bonds that are considered “safe”. For example, the Swiss National Bank recently⁷ announced that around 48% of its currency investments were in euro-denominated assets and 28% in USD. At the end of September 2012, the SNB foreign exchange reserves totalled CHF 430 billion, including CHF 206 billion in euros. Of the total, CHF 357 billion was invested in foreign sovereign debt.

In particular countries that are considered *safe havens* were recording huge net inflows through government bond markets. For example, foreign reserve accumulation has been a key source of demand in the US government securities market, which has helped push US bonds to all-time lows.

5.5. Conclusions

A recent OECD Forum⁸ concluded that although changes in the investor landscape are gradual, many of them are irrevocable with challenges for both issuers from the OECD area

and from emerging markets. Main policy lessons from structural changes in the investor base include the following:

- Sound domestic macroeconomic fundamentals are essential and will become differentiating criteria blurring the current distinction between advanced and emerging markets.
- Reinforcing market accessibility, diversification and increased supply of offered assets are important challenges for many emerging markets, albeit in different degrees. Improved secondary market liquidity is also a major policy issue.
- The changing profile of the investor base is having a major impact on the functioning of sovereign debt markets. In many jurisdictions pension funds and sovereign wealth funds are major players, while in other markets these institutional investors are expected to become important buyers of bonds in the coming 5-10 years. Moreover, the structure of the domestic and foreign investor base will determine to a greater extent the types of products offered by the issuer.
- A reliable and broad investor base is critical for issuers in both OECD markets and emerging markets. It is likely to be less captive than in the past. It will also be affected by greater participation of foreigners in domestic bond markets with the risk of domestic investors being crowded out. But foreign investors are of great importance for developing or maintaining liquid local bond markets. At the same time, especially when foreigners are a very large share of the total investor base, proper attention needs to be paid to the associated risks. Sovereign issuers who are heavily reliant on foreign ownership of their debt may need to diversify their investor base (for example, by supplying new products that are additive to demand).
- Issuers in both OECD markets and emerging markets will need to confront the challenge of maintaining a stable foreign investor base.⁹
- Policy issues faced by DMOs inside and outside the OECD area will become more similar with sovereigns facing similar challenges in dealing with more demanding investors and a more volatile investor landscape. Issuers in both OECD markets and emerging markets would need to reinforce their investor monitoring capabilities as well as their investor relations programmes.
- For countries with highly concentrated Treasury holdings, the challenge is to diversify the investor base in order to be prepared for a potential structural change in the ownership of government securities due to the exit of central banks or decline in foreign investors' demand (with demand often driven by foreign central banks trying to prevent too rapid of an appreciation of their currency).

Notes

1. See Chapter 4 on "Challenges in Primary Markets".
2. Investors include large asset managers, pension funds, insurance companies, domestic and foreign central banks, foreign versus domestic investors, etc. They may differ in terms of preferences and investment strategies.
3. Practices on Investor Relations and Communication Strategy: An Overview of Leading Practices in the OECD Area, *OECD Working Papers on "Sovereign Borrowing and Public Debt Management"*, forthcoming.

4. IMF (2012), *Global Financial Stability Report* (Restoring Confidence and Progressing on Reforms), October 2012. In this context this report also warns against the rising concentration of government bond risk in the Japanese banking system.
5. US Treasury (2011), Presentation to the Treasury Borrowing Advisory Committee, 1 February 2011.
6. US Treasury (2011), Presentation to the Treasury Borrowing Advisory Committee, 1 February 2011.
7. Swiss National Bank (SNB) balance sheet items, end of October 2012.
8. 21st OECD Global Forum on Public Debt Management, held under the aegis of the OECD Working Party on Public Debt Management, was held on 19-20 January, 2012.
9. This topic will be discussed at the 22nd OECD Global Forum on Public Debt Management, to be held on 24-25 January 2013 at OECD Headquarters.

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Chapter 6

Buybacks and exchanges*

This chapter reports on the results from a survey among OECD government debt managers on the use of bond buybacks and exchange operations. The survey shows that government debt managers use extensively bond buybacks and exchanges (often referred to as “switches”) as liability management tools.

Switches and buybacks serve two main purposes. First, by reducing the outstanding amounts of bonds close to maturity, exchanges and buybacks help in reducing roll-over peaks and thus lowering refinancing risk. Second, exchanges and buybacks allow debt managers to increase the issuance of on-the-run securities above and beyond what would otherwise have been possible.

The resulting more rapid build-up of new bonds enhances market liquidity of these securities. This in turn should eventually be reflected in higher bond prices. Hence, bond exchanges and buybacks are aimed at lowering refinancing risk. In addition these liability operations may also contribute to lower funding costs for governments.

* This chapter is based on Blommestein, H.J., M. Elmadag and J.W. Ejsing (2012), “Buyback and Exchange Operations: Policies, Procedures and Practices among OECD Public Debt Managers”, OECD Working Papers on Sovereign Borrowing and Public Debt Management, No. 5, OECD Publishing. <http://dx.doi.org/10.1787/5k92v18rh80v-en>; the statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

6.1. Introduction on buyback and exchange operations

This chapter reports on a survey carried out among OECD government debt managers on the use of bond buybacks and exchange operations. The survey shows that government debt managers use extensively bond buybacks and exchanges (often referred to as “switches”) as liability management tools.

Before discussing the details of the survey results, this introductory section provides background on the reasons for conducting these operations. It also discusses the practical challenges in using these important liability management tools.

6.1.1. Main reasons for using bond exchanges and buybacks

Bond exchanges and buyback operations serve two main purposes. First, by reducing the outstanding amounts of bonds close to maturity, exchanges and buybacks help in reducing roll-over peaks and thus lowering refinancing risk.

Second, exchanges and buybacks allow debt managers to increase the issuance of on-the-run securities above and beyond what would otherwise have been possible. The resulting more rapid build-up of new bonds enhances market liquidity of these securities. This in turn should eventually be reflected in higher bond prices. Hence, bond exchanges and buybacks are aimed at lowering refinancing risk. In addition these operations may also contribute to lower funding costs for governments.

6.1.2. Other reasons for conducting bond exchanges and buybacks

Other reasons for conducting buyback and exchange operations include the use of surplus cash¹ to buy back outstanding debt.

These operations can also be used to smooth the redemption profile. For instance, a country that financed large borrowing needs in the past may have a large stock of outstanding medium-term maturities. By addressing such large stocks (“bullets”) in a timely fashion, debt managers can limit the need for more aggressive buybacks (possibly in challenging market conditions) later on.

Buybacks and exchanges may also be used to correct instances of perceived “mispricing” along the yield curve. When, for example, a bond trades “too cheaply” and therefore is out of line with the rest of the curve, buybacks in that security can contribute to normalising the yield curve. This operation is somewhat analogous to debt managers counteracting squeezes by making a repo facility available for dealers. However, this issue is not without controversy.²

6.2. Survey results on debt buybacks and exchange practices

Bond exchanges and buyback operations have been used by debt managers for a long time. Earlier surveys among OECD countries by the Working Party on Public Debt Management (WPDM) reported the following findings:

- A 1996 survey led by the Italian WPDM delegation focused on bond buyback practices and their impact on public debt management. Of the 22 responding countries, 14 used buybacks.
- A 2001 questionnaire among EU countries showed that of the 13 responding countries, 10 used both bond exchanges and buybacks.
- A 2006 survey was led by the Hungarian and Italian WPDM delegations. Of the 23 responding countries, 17 countries had either a bond exchange or a buyback programme in place.

The survey reported in this paper was circulated among OECD countries in 2011. The results show that the use of these operations has significantly increased in the last couple of years. Most OECD members now conduct either bond exchange or bond buyback operations. Among the 33 respondents, only 4 countries reported not to carry out any such operations (Table 6.1).

Table 6.1. **Use of exchanges and buybacks in OECD countries**

	Bond exchange	Bond buyback		Bond exchange	Bond buyback
1 Australia	X	X	18 Japan		X
2 Austria	X	X	19 Korea	..	..
3 Belgium		X	20 Luxembourg		
4 Canada	X	X	21 Mexico	X	X
5 Chile			22 Netherlands		X
6 Czech Republic		X	23 New Zealand		X
7 Denmark	X	X	24 Norway	X	X
8 Estonia			25 Poland	X	X
9 Finland			26 Portugal		X
10 France	X	X	27 Slovak Republic		X
11 Germany	X	X	28 Slovenia	X	X
12 Greece		X	29 Spain	X	X
13 Hungary	X	X	30 Sweden		
14 Iceland	X	X	31 Switzerland		X
15 Ireland	X	X	32 Turkey	X	X
16 Israel	X		33 United Kingdom		X
17 Italy	X	X	34 United States		X

.. Not available.

Source: 2012 Survey on Buyback and Exchanges by OECD WPDM.

6.2.1. Debt buybacks

Buyback operations are more frequently used than exchanges, with 28 DMOs out of 33 respondents reporting the use of bond buyback operations. Nine countries conduct buyback operations on a regular basis. (Most DMOs execute these operations on an ad hoc basis; Table 6.2.) Some DMOs, like in France, Germany and United Kingdom, conduct buyback operations on a daily basis via the secondary market (in close co-operation with primary dealers). Other DMOs, like in Belgium, Canada and Hungary, conduct buyback operations on the basis of a pre-determined schedule (calendar). Australia, Finland, Spain and USA have used buybacks in the past, but are currently not carrying out such operations. The Netherlands conducted a buyback operation only once (in 2005).

Table 6.2. **Regularity of the use of buybacks in OECD countries**

Do you conduct debt buybacks?			Do you conduct debt buybacks on a regular basis?		
Yes, 85%		No, 15%	Yes, 32%	No, 68%	
1. Australia	15. Japan	1. Chile	1. Belgium	1. Australia	11. New Zealand
2. Austria	16. Mexico	2. Estonia	2. Canada	2. Austria	12. Poland
3. Belgium	17. Netherlands	3. Finland	3. Denmark	3. Czech Republic	13. Portugal
4. Canada	18. New Zealand	4. Luxembourg	4. France	4. Germany	14. Slovak Republic
5. Czech Republic	19. Norway	5. Sweden	5. Hungary	5. Greece	15. Slovenia
6. Denmark	20. Poland		6. Israel	6. Iceland	16. Spain
7. France	21. Portugal		7. Japan	7. Ireland	17. Switzerland
8. Germany	22. Slovak Republic		8. Norway	8. Italy	18. Turkey
9. Greece	23. Slovenia		9. United Kingdom	9. Mexico	19. United States
10. Hungary	24. Spain			10. Netherlands	
11. Iceland	25. Switzerland				
12. Ireland	26. Turkey				
13. Israel	27. United Kingdom				
14. Italy	28. United States				

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

6.2.1.1. Countries that regularly conduct buyback operations

Nine DMOs conduct buybacks on a regular basis. This subsection provides more details on the different approaches to (regular) buyback operations.

In Belgium, buybacks are executed on a continuous basis targeted at OLOs (Obligations linéaires ordinaires) with a remaining maturity of one year or less. “The Primary Dealers and the Recognised Dealers have the exclusive right to participate in the buyback operations organised by the Treasury.”³ Buybacks can be transacted through the electronic platform of MTS Belgium or over the telephone. As a result of the buybacks conducted in 2011, the outstanding amount of bonds maturing in 2012 decreased (Table 6.3). “Treasury plans to buy back 2013 maturities for an amount of EUR 3.36 billion in 2012.”⁴

Table 6.3. **Buyback program of Kingdom of Belgium**

	Billion euro				
	2007	2008	2009	2010	2011
Total buybacks	8.2	4.0	4.1	9.4	11.3
Maturing in current year (t)	3.4	0.8	1.1	7.6	4.2
Maturing in (t + 1)	4.8	3.2	3.0	1.7	7.1

Source: Belgian Debt Agency.

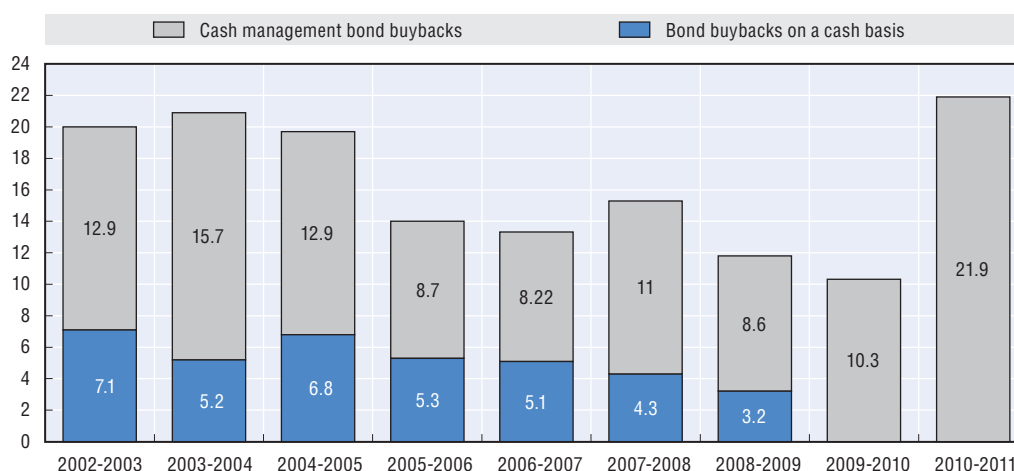
StatLink  <http://dx.doi.org/10.1787/888932779962>

The government of Canada has two distinct debt buyback programmes; “Bond Buybacks on a Cash Basis” (regular bond buyback operations) conducted since 1999 and “Cash Management Bond Buybacks” conducted since 2001. Recently, regular bond buybacks have been conducted once or twice every quarter, following 10-year and 30-year nominal bond auctions. The date of each operation is announced through the Quarterly Bond Schedule. These operations target off-the-run bonds with a remaining term to maturity of 12 months to 25 years.

Cash management bond buybacks are conducted on a weekly basis and target bonds with a maturity of less than 18 months. “The Program helps manage cash requirements by reducing the high levels of cash balances needed for key maturity payment dates. The program also helps smooth variations in treasury bill auction sizes over the year.⁵” Between 2004 and 2011, the programme reduced the size of the annual “1 June, 1 September and 1 December” bond maturities approximately by 30% (Figure 6.1).

Figure 6.1. **Canadian buyback operations**

Billion USD



Source: Department of Finance Canada.

StatLink <http://dx.doi.org/10.1787/888932779734>

In Denmark, buyback operations are conducted on an electronic platform on the basis of a regular schedule. Regular buyback auctions are held on the third last banking day of each month. Danmarks Nationalbank publishes the securities to be bought back on the preceding trade day. The middle office formulates the monthly guidelines to the front office regarding buyback transactions in accordance with agreed-upon liability management strategies. During the past decade, the Danish government has reduced the annual outstanding redemptions by around 40% on average through buybacks. “The buyback strategy in 2011 was focused on buying back securities maturing in the next few years. The buybacks reduced the funding requirements in 2012 and 2013 by DKK 17 billion and 13 billion, respectively.⁶”

In France, Agence France Trésor (AFT) started its buyback programme in 2000 using both secondary market purchases (OTC operations) and reverse auctions. More recently AFT has only used secondary market operations. The size of buyback operations increased over time (Table 6.4). During 2010 and 2011, AFT managed to avoid unexpected year-end liquidity surpluses while smoothing the maturity profile via buybacks, especially BTANs

Table 6.4. **French buyback operations between 2006 and 2011**

Billion euro

	2006	2007	2008	2009	2010	2011
Total buybacks	3.8	3.1	2.3	13.6	22.7	23.9
Maturing in current year (t)			0.3			
Maturing in (t + 1)	3.8	2.8	2.3	11	18.2	19.3
Maturing in (t + 2)				2.6	4.5	4.4
Longer maturities						0.2

Source: AFT, Monthly Bulletins.

StatLink  <http://dx.doi.org/10.1787/888932779981>

maturing in 2011 and 2012. According to the 2012 borrowing programme, AFT will continue to conduct buybacks of securities falling due in the following years.

In Germany, buyback operations are part of the daily secondary market operations. However, no announcements are made ahead of operations and no post-trading data are disclosed. Germany conducts buybacks mainly to smooth the redemption profile and to mitigate refinancing risk.

The Hungarian debt management agency (ÁKK) holds (on Wednesdays) regular bi-weekly buyback auctions for bonds with a term-to-maturity of less than 1.5 years, except in months with a maturing bond. Buyback dates are announced in the annual auction calendar, but which lines are targeted as buyback is announced only a week prior to the auction.

Israel conducts buyback operations approximately once a month in order to improve tradability and liquidity of the government bond market.

The Japanese MoF conducts buyback operations on a monthly basis. The sizes of the purchases are determined through quarterly discussions during Meetings of Japanese Government Bond (JGB) Market Special Participants and JGB Investors. Recently, the buyback programme has exclusively targeted the 10-year inflation-indexed bonds and 15-year floating rate bonds. The Lehman shock reduced markedly liquidity in these segments, and buybacks are aimed at restoring the supply-demand balance. “The total amount of buyback operations is expected to be around 3 trillion yen in FY2012.”⁷

The United Kingdom conducted reverse auctions in the late 1980s and were re-introduced by the DMO in 2000 as part of the strategy for dealing with the large financial surplus in 2000-2001. The purpose was to facilitate additional issues of benchmarks, especially in the longer maturity range. However, these reverse auctions have not been held since 2001. Currently, the DMO conducts regularly buybacks (as a secondary market operation) of close-to-maturity bonds for cash flow smoothing purposes.

6.2.1.2. Countries that hold buyback operations on an irregular or ad hoc basis

Many OECD countries carry out buyback operations on an ad hoc basis. Austria organises buybacks on a case by case basis, taking into account the overall strategy and risk-return profile. A buyback operation is executed if it is judged that there is scope for an improvement in the maturity and risk profile of the debt stock.

The Czech Republic debt management office (DMO CZ) conducts buyback operations in order to manage refinancing risk. To that end, the DMO buys back bonds with a

remaining maturity of one year. Buybacks are conducted both as primary market operations and in the secondary market.

Greece carries out buybacks on a fairly irregular basis and for relatively small amounts. The maximum amount of buybacks is approved annually and updated according to market conditions.

In the past, the Icelandic DMO conducted debt buybacks on a regular basis as part of the strategy to reduce the non-marketable portion of the debt stock. The reverse auction was the most common method. Currently, debt buybacks are carried out on an irregular basis. The initiative usually comes from the holders of the debt. Buybacks are mainly executed as secondary market operations.

Buyback operations in Italy are considered as extraordinary operations, not subject to a fixed annual calendar. Operations are funded by regular cash surpluses and funds available from the Sinking Fund⁸ for Government bonds.

Table 6.5. Italian buyback operations for easing the redemption profile

	Billion euro				
	2005	2006	2007	2010	2011
Buybacks from sinking fund	3.0	0.0	0.0	0.7	1.4
Buyback auctions	4.0	3.0	9.1	0.0	0.0
Total	7.0	3.0	9.1	0.7	1.4

Source: Dipartimento Del Tesoro.

StatLink  <http://dx.doi.org/10.1787/888932780000>

In Mexico, buybacks are subject to market conditions and used as a complementary tool for exchanges (switches). The last buyback operation was conducted in 2008 to mitigate the imbalances in the local currency bond market as a result of very high volatility in financial markets.

New Zealand bought back bonds only once (in 2009) via a reverse tap tender. However, the Reserve Bank of New Zealand (RBNZ) – after conferring with the New Zealand Debt Management Office (NZDMO) – usually buys back bonds from the secondary market when a bond is close to its maturity.

In Poland, exchange and buyback auctions are executed since 2001. During the last five years, the focus is on treasury bills on the basis of an irregular schedule.

Portuguese Treasury and Debt Management Agency (IGCP) has been conducting buyback operations as a key element of its financing strategy since January 2001. Via buybacks, the IGCP promotes liquidity in the secondary market and manages refinancing risk associated with its market-oriented financing strategy. Participation in buybacks is limited to primary dealers. Participation by non-primary dealers is limited to bilateral buybacks conducted over the phone. The main guidelines of the debt buyback programme are announced at the beginning of the year, while further details are provided on a quarterly basis.

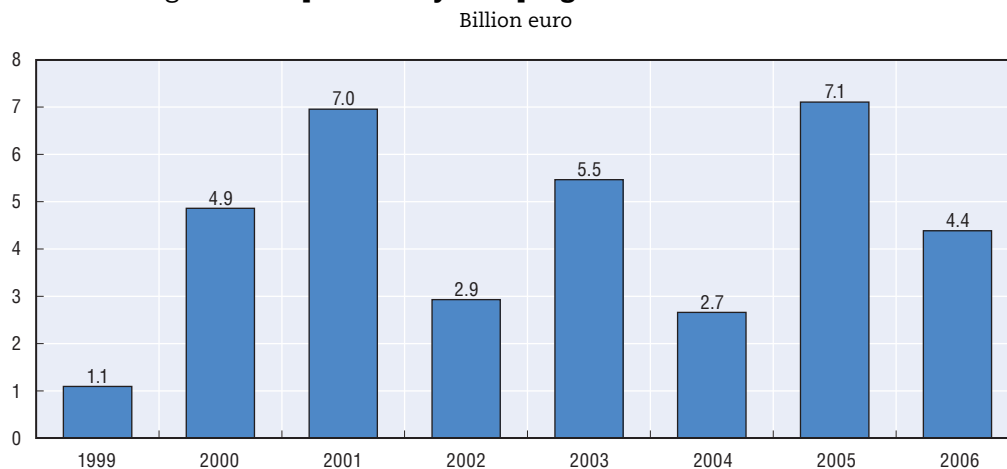
Slovenia has conducted buybacks of illiquid government bonds (with a below benchmark size) in 2007 and 2008; this refers to debt issued before the introduction of the Euro in 2007. Since 2009, buybacks are focused on benchmark bonds with a remaining maturity of less than 1.5 years, as well as on remaining outstanding pre-euro bonds. However, operations under the latter buyback programmes have not taken place

because the criteria for buybacks set by the Slovenian Public Finance Act (SPFA) were not met since 2009.

Switzerland conducts buybacks in connection with cash management operations (maturities up to 12 months). Such buybacks are only being executed if the yields resulting from these operations are expected to be favourable relative to alternative short-term investments.

In Spain, a buyback programme was in place between 1999 and 2006. The size of the programme amounted to more than EUR 35 billion (Figure 6.2). Spain's favourable cash position in that period allowed the execution of these buyback operations. The programme was discontinued to avoid a liquidity drain at the short end of the Spanish yield curve.

Figure 6.2. **Spanish buyback program between 1999-2006**



Source: Spanish Treasury Issuance Strategy 2006 and 2007.

StatLink  <http://dx.doi.org/10.1787/888932779753>

Usually Turkish buyback operations were conducted on an ad-hoc basis. However, in the period of September-December 2010, buybacks were conducted on a regular basis, while the securities to be bought back (13 buyback auctions were completed) were announced in the monthly domestic borrowing calendar. Only primary dealers can participate in buyback auctions.

The US Treasury used debt buybacks in the early 2000s to manage the maturity structure of the debt portfolio. In that period with budget surpluses, the Treasury achieved this goal by buying back long-term securities while selling shorter-term maturities via 45 reverse auctions.

6.2.1.3. Why do you conduct debt buybacks?

The dominant motive behind bond buybacks is “to smooth the redemption profile” and “to mitigate refinancing risk” (19 countries mentioned this reason; Table 6.6). “To increase liquidity” and “to offset large cash income and remove small stocks” are two other reasons mentioned by OECD DMOs. Only Italy reported to use debt buybacks also “to correct distortions in the secondary market due to central bank purchases of government securities.”

Besides these direct objectives, there are other, indirect reasons for conducting buyback operations. One of them is to support managing the cash position of the government.

Table 6.6. **Reasons for buybacks in OECD countries**

	To increase liquidity	To smooth the redemption profile, mitigate the refinancing risk	To offset large cash income and remove small stocks	To correct distortions in the secondary market due to central bank purchases of government securities
Austria		X	X	
Belgium	X	X	X	
Canada		X		
Czech Republic		X		
Denmark	X	X		
France		X		
Germany		X		
Greece	X	X	X	
Hungary		X		
Iceland	X			
Israel	X	X	X	
Italy		X		X
Japan	X			
Mexico		X		
Netherlands			X	
New Zealand	X		X	
Poland		X		
Portugal		X		
Slovak Republic		X		
Slovenia	X	X	X	
Spain		X		
Turkey		X		
United Kingdom		X	X	
United States	X		X	
Total	9	19	9	1

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

Denmark conducts buyback operations in order to invest the surplus cash obtained through the excess sale of bonds. Canada carries out weekly cash management buybacks to help meeting the government's cash requirements by 1) reducing the high levels of government cash balances needed on key redemption dates as well as 2) smoothing the variations in the issuance of treasury bills during the year. The Slovak Republic buys back bonds in order to keep the liquidity buffer within certain limits. The Hungarian DMO carries out buyback operations to smooth the end-of-the-day balance of the Treasury Single Account.

Another indirect objective concerns the management of the yield curve. Mexico and Slovenia is using buybacks to manage their yield curves. Mexico manages the short end of the yield curve with buyback operations. Slovenia contributes to the building of a yield curve of the government securities and supports an effective positioning of the central government debt in the financial market via buyback operations.

At the beginning of 2000s, France's AFT buyback programme was mainly aimed at increasing its gross issuing programme so as to ensure sufficient liquidity for the new benchmarks while contributing to the goal of reducing duration in the medium-term. However, in recent years, the motives for conducting buybacks have shifted towards smoothing the redemption profile and cost of issuance.

Israel conducts buyback operations in order to improve the tradability and liquidity of the government bond market and to upgrade the service to the organisations that operate in this market.

Norwegian buyback operations are done in response to market requirements and not because of the needs of the issuer.

6.2.1.4. Please specify the selection criteria for bond to be repurchased

Although the criteria for selecting bonds differ across countries, “the remaining maturity of the security” is the most important selection criterion for identifying buyback target bonds. Accordingly, most respondents (25 out of 27 countries) mainly target bonds that are nearing redemption (Table 6.7).

Table 6.7. **Reasons for buybacks in OECD countries**

	Nearing redemption	Off-the runs	Illiquid	High coupon
Australia	X			
Austria	X			
Belgium	X			
Canada	X	X	X	X
Czech Republic	X			
Denmark	X	X		
France	X	X		
Greece	X			X
Hungary	X	X		
Iceland			X	
Ireland	X			X
Israel	X	X	X	X
Italy	X	X		
Japan		X	X	
Mexico	X			
Netherlands	X	X	X	X
New Zealand	X			
Norway	X			
Poland	X			
Portugal	X			
Slovak Republic	X			
Slovenia	X	X	X	X
Spain	X	X	X	X
Switzerland	X			
Turkey	X			
United Kingdom	X			
United States	X		X	
Total	25	10	8	7

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

Canada buys back bonds for cash management purposes with a term to maturity of up to 18 months if the total amount of maturing bonds is greater than USD 5 billion at the date of the operation. However, for bond buybacks on a cash basis, eligibility criteria are wider and the bond buybacks target both illiquid high-coupon bonds and certain large, off-the-run issues. Issues that are currently being built as benchmarks as well as bonds with maturities greater than or equal to 25 years are excluded from the buyback program. The decision on specific bonds to be included in buyback operations takes into account the views of market participants and is announced at the Call for Tenders.

The Italian Treasury uses the following selection criteria. The first criterion is the shape of the redemption profile whereby buyback bonds are selected that show reimbursement peaks at redemption dates. The second criterion is liquidity whereby the Treasury selects off-the-runs aimed at avoiding a negative impact on secondary market liquidity. The third criterion is the (potential) impact on outstanding debt. In order to smooth the public debt redemption profile, the Italian Treasury traditionally repurchases bonds with a residual maturity up to 18 months (taking into account market conditions). However, in order to minimise the distortions observed in the secondary market due to the ECB bond-buying program (expanded in August 2011) the Italian Treasury has also taken the opportunity to buy back government securities with longer than 18 months residual maturity.

When asked by a primary dealer, the UKDMO is prepared to bid a price of its own choosing for any gilt, including any strip, which has less than six months left before its maturity. Gilts with this residual maturity function essentially as money market instruments. For this reason the bid price will be dictated by the (needs of) DMO's cash management operations at the time of request.

6.2.1.5. Please specify the methods used for buybacks

Table 6.8. **Methods for buyback operations**

	Reverse auctions	Secondary market purchases	Other methods
Australia			X
Austria		X	
Belgium	X	X	
Canada	X		
Czech Republic		X	
Denmark	X	X	
France		X	
Germany		X	
Greece		X	
Hungary	X		
Iceland	X	X	
Ireland	X		
Israel	X		
Italy	X	X	
Japan	X		
Mexico	X		
Netherlands	X		
New Zealand			X
Norway		X	
Poland	X		
Portugal	X	X	
Slovak Republic	X		
Slovenia	X	X	
Spain	X		
Switzerland			X
Turkey	X		
United Kingdom	X	X	
United States		X	
Total	18	14	3

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

Reverse auctions and secondary market purchases are the most widely used methods for buyback operations among respondent countries. 18 of the respondents are found to be conducting reverse auctions and 14 conducting secondary market purchases as the method for buyback operations. 7 of them use both methods and only 3 countries carry out neither reverse auctions nor secondary market purchases.

Austria conducts buyback operations in the secondary market usually by bilateral negotiations.

The Australian central bank has holdings of near-to-maturity bonds that it has acquired through its daily open-market operations. The central bank is prepared to sell these bonds to the government at the prevailing secondary market price.

The Belgian Treasury uses since July 2001 MTS Belgium for buybacks. This electronic platform offers liquidity, efficiency and transparent pricing. Buybacks are carried out via a screen which only the primary dealers and the Treasury can access, and on which the Treasury continuously displays the purchase prices. When an OLO line reaches a date less than 12 months prior to its final maturity, the Treasury offers it via a buyback.

In Canada, buyback operations are held 20 minutes after nominal bond auctions. Each quarterly bond issuance calendar includes the targeted amount of bonds that the government intends to repurchase during that quarter. Final details of each operation, including the maximum amount to be repurchased and the basket of eligible bonds, are released the week prior to the operation. However, bond buybacks for cash management purposes are held on an irregular basis to meet government cash management needs. These “cash management bond buyback operations” target large bonds with less than 18 months to maturity. They are held on almost each Tuesday morning after Treasury bill auctions. Details of the operations, including the maximum amount to be repurchased and the basket of eligible bonds are announced one week in advance. Both type of buyback operation are settled on a cash basis and take place via multiple yield reverse auctions. In all bond buyback operations, competitive offers are accepted in decreasing order of yield (increasing order of price) until the maximum amount to repurchase (or the maximum replacement amount) has been met.

The Czech DMO informs all primary dealers about the intention to conduct a transaction one business day prior to the date on which the transaction is to occur. The primary dealers are notified about the type of transaction, the targeted government bond, the maximum volume of the transaction, the time when bids or offers from primary dealers can be submitted via the system and the date of settlement. At the time when offers are accepted from primary dealers, the primary dealers may submit their prices and the volume to the system. Afterwards, depending on the price and the volume, the DMO will either accept or reject the offer. The submission of offers via the system is anonymous, and before each transaction the DMO will not have any information about which primary dealer is participating in the submission of offers or information about the price and volume offered by a particular primary dealer. The DMO publishes the result of the transactions on its website by the date of settlement of the transactions.

Buybacks in Italy can be conducted via a competitive (multi-price) auction or Treasury mandate. Table 6.9 describes the principal features of the two methods for buyback operations.

Table 6.9. **Auction versus Mandate for Italian buybacks**

Auction	Mandate
Large volume	Smaller-scale repurchases
Liquid bonds	Less liquid bonds
Single transaction	More than one (smaller) transaction
High transparency	Low transparency (bilateral transactions)
Less discretion in timing	Fine tuning of timing and pricing process
Relatively low use of Treasury resources	Relatively resource intensive

Source: Dipartimento Del Tesoro, 2012 Survey on Buyback and Switches by OECD WPDM.

The choice of methodology depends on the quantity to be bought back and market conditions. If the amounts are large, then the Treasury usually buys back bonds via multiple price auctions. Bilateral transactions are preferred for smaller amounts. In both cases, only Specialists in Government Bonds (primary dealers) are eligible counterparties for buybacks. Buyback operations are officially announced through a press release. A few days later another press release announces which bonds are targeted. Market conditions are the main factor behind the decision to go ahead with a buyback operation. The Italian treasury reserves the right to adjust the terms of the operation in case of a sudden change in the financial market environment. The buyback auction is held at the Bank of Italy using its electronic auction platform (it is very similar to an ordinary government bond auction).

In Slovenia, buybacks are executed by competitive bidding, using the electronic Bloomberg Auction System (BAS), on the basis of the Rules of the Republic of Slovenia Government Securities' Auctions. Buybacks are organised after an announcement addressed to bondholders on the MoF website. The invitation to primary dealers to participate in the auction is sent by e-mail and BAS, five business days before the buyback auction. The primary dealers submit the buyback bids in their own name and for their own account as well in the name and for the account of other bond holders. Bids are selected (and accepted) immediately after the closing time for submission of bids. Bids are ranked in increasing order of price until the cut-off price⁹ is reached. Bids with prices lower or equal than the cut-off price may be allotted on a pro-rata basis. The auction results are published on the MoF website, as well as through Reuters and Bloomberg. Secondary market purchases of government securities are also allowed by the Slovenian Public Finance Act. However, thus far, due to budgetary constraints, this type of buyback operation has not been executed.

In Portugal, the main guidelines of the debt buyback programme are announced at the beginning of the year with further details on a quarterly basis. The methods used for buyback operations include reverse auctions and bilateral transactions. The choice of buyback method depends importantly on the degree of illiquidity of targeted bonds. Reverse auctions are primarily used to target OTs with a less than 15 months residual maturity (which, thus far, were subject to market-making obligations in MEDIP/MTS Portugal). Reverse auctions are organised by IGCP as multi-price competitive auctions (where participants submit the amount of stock they are prepared to sell and the yield they are willing to accept), supported by the electronic Bloomberg Auction System BAS. Bilateral operations are used to target securities that are considered highly illiquid in the sense that the buyback offer must be maintained during a long period of time in order to identify (sufficient) investors willing to sell their positions in these highly illiquid bonds, including old and illiquid OTs (which were never under market making obligations on MTS Portugal),

foreign bonds, Eurobonds, loans or legacy loans. The price of the bonds being bought back in bilateral operations is set against the swap curve (demanding a “premium” over the cost of funding of the Republic on relevant maturities). Thus far, bilateral operations have been done via the phone and Bloomberg.

As noted, Turkey used buybacks in the period September-December 2010 on a regular basis. Buyback securities were announced one day prior to the auction day on the Treasury website. In that period, auctions were held on Thursdays with settlement date on Friday. Investors submitted their bids in terms of price and nominal amount until 01:30 pm. Securities were bought back through multiple price auctions. The weekly maximum buyback amount was TRY 200 million. In case the price at the auction was not judged to reflect market conditions, Treasury bought back less than the maximum amount or nothing at all.

In New Zealand, buybacks are advertised daily between 10 am-noon and 2 pm-4 pm. Banks can submit offers, although the central banks is not obliged to accept all or any bids. Buybacks in Denmark can take place via switch auction or tap. The commonly used method in Greece for buybacks is over-the-counter transactions with primary dealers. The Slovak Republic executes buybacks via bilateral negotiations. Switzerland conducts buybacks as secondary market operations.

6.2.2. Bond exchanges (switches)

Among the 33 respondents, 18 DMOs (39% of the respondents) use bond exchanges (switches) (Table 6.10). Australia, Belgium, France, and Portugal have used switches in the past. For example, Belgium conducted bond exchanges in the period 1994-2003 and Australia used bond exchange auctions in 2001 and 2002. Portugal used only once a switch (in March 2002). France’s last exchange operation was at the end of 2008. However, countries may resume them in the future. For example, the European Commission mentioned that Portugal might execute in the future a switch in order to ease bond redemptions in 2013. The latter example is the use of switches as market-friendly solutions to resume market access and to ease near-term redemption pressures. It may also be a way of issuing again in the primary market with longer maturities. Ireland (see below) executed two switches that were seen as a creative use of switches as a way of demonstrating market access and smooth out and lengthen its redemption profile.

Table 6.10. **Regularity of the use of switches (exchanges) in OECD countries**

Do you conduct switches (exchange operations)?				Do you conduct switches (exchange operations) on a regular basis?			
Yes, 55%		No, 45%		Yes, 39%	No, 61%		
1. Australia	10. Israel	1. Belgium	9. Netherlands	1. Canada	1. Australia	7. Italy	
2. Austria	11. Italy	2. Czech Rep.	10. New Zealand	2. Hungary	2. Austria	8. Ireland	
3. Canada	12. Mexico	3. Chile	11. Portugal	3. Israel	3. Denmark	9. Slovenia	
4. Denmark	13. Norway	4. Estonia	12. Slovak Rep.	4. Mexico	4. France	10. Spain	
5. France	14. Poland	5. Finland	13. Switzerland	5. Norway	5. Germany	11. Turkey	
6. Germany	15. Slovenia	6. Greece	14. UK	6. Poland	6. Iceland		
7. Hungary	16. Spain	7. Japan	15. USA	7. Sweden			
8. Iceland	17. Sweden	8. Luxembourg					
9. Ireland	18. Turkey						

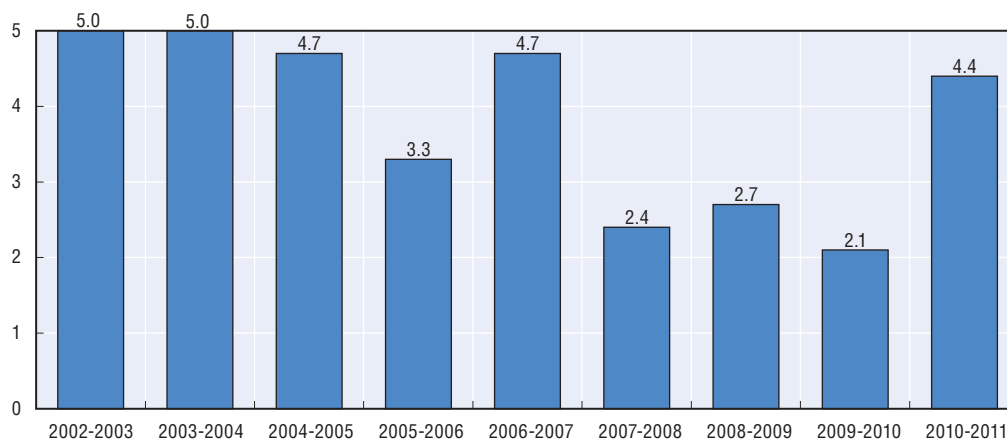
Source: 2012, Survey on Buyback and Switches by OECD WPDM.

6.2.2.1. Countries that regularly conduct exchange operations

Only seven countries (39% of the respondents; Table 6.10) are conducting regularly bond exchanges. Canada introduced switches in 2001 and conducts them on a quarterly basis in the 2-year sector (and less frequently in the 30-year sector). Operations are usually executed at 10:30 on Wednesdays or on Thursdays when appropriate Wednesdays are not feasible. In order to minimise market risk, switch programmes are carried out on a duration neutral basis.¹⁰ Figure 6.3, gives an overview of the size of switches in the period 2002-2011.

Figure 6.3. **Canadian switch operations**

Billion USD



Source: Department of Finance, Debt Management Report.

StatLink  <http://dx.doi.org/10.1787/888932779772>

The Hungarian DMO conducts once a month bond exchanges. Only primary dealers can directly submit bids in the exchange auctions (hence, others need to submit bids through a primary dealer).

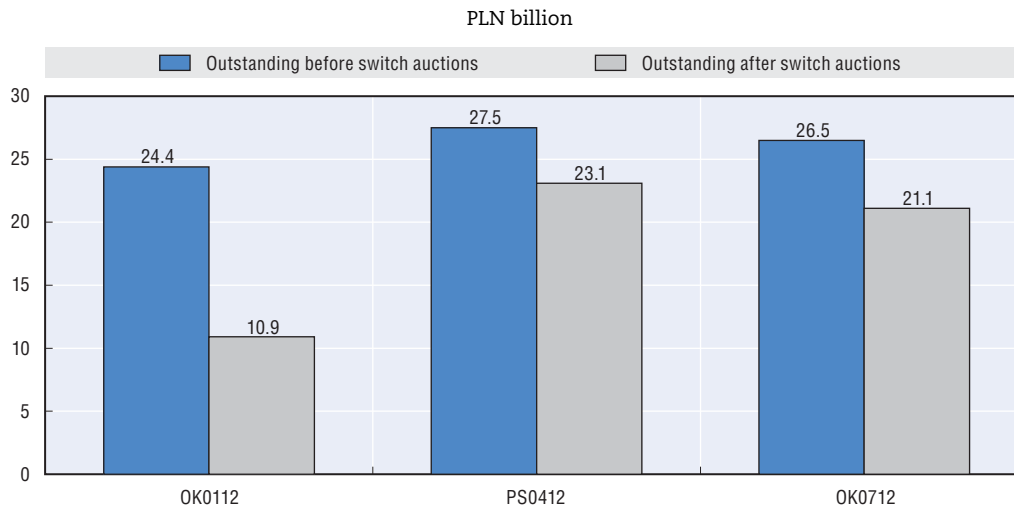
Sweden conducts regularly bond exchanges only for linkers (inflation-linked bonds). set a weekly and daily volume limit to each primary dealer and bond. The Swedish national debt office offers a switch facility with irregular schedule for other bonds.

Since 2001, the Polish MoF is conducting once a month switch operations. A list showing source and destination bonds are announced two days prior to the auction day. Switch auctions are held on Thursdays. Figure 6.4 shows the impact of a number of switch operations executed in the first part of 2012.

6.2.2.2. Countries that hold exchange operations on an ad hoc basis

A total of 11 countries (61%; Table 6.10) carry out bond exchange operations on an irregular or ad hoc basis schedule. Austria conducts bond exchanges via bilateral negotiations (based on prevailing market rates).

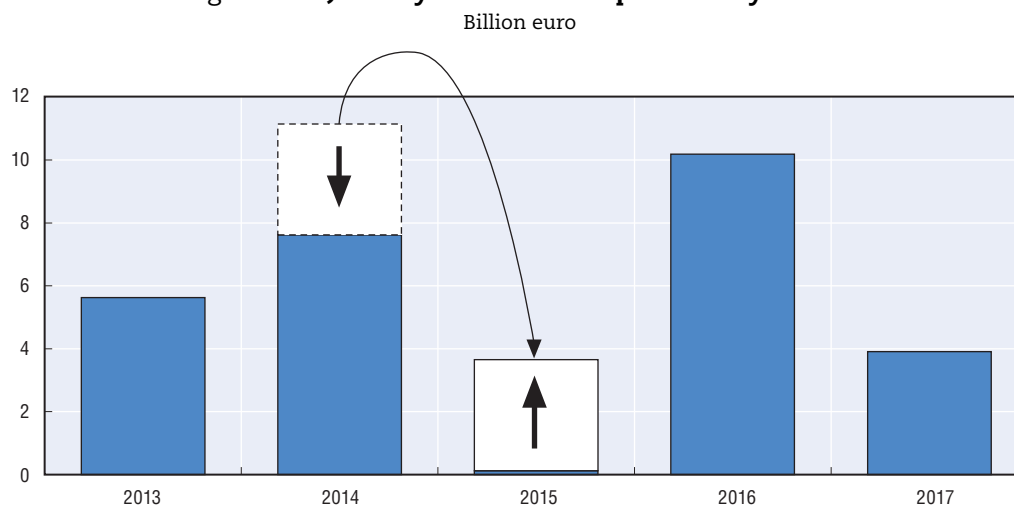
The Irish DMO (NTMA) has conducted four switches thus far (as of July 2012). One was executed in May 1999, the other in January 2002, one in January 2012, while the last switch (thus far) was executed in July 2012. Normally, the NTMA expects Primary Dealers to satisfy their switching needs via the secondary market. However, in exceptional circumstances, the NTMA may provide switching facilities to PDs. The last two switches fall in that

Figure 6.4. **Reducing Polish refinancing risk via switch auctions (as of 29 February in 2012)**

Source: MoF, Republic of Poland, *Monthly Bulletin* (March 2012).

StatLink <http://dx.doi.org/10.1787/888932779791>

category. Ireland lost market access in September 2010 but regained access in January 2012 by issuing in the primary market using a switch facility. In doing so, Ireland cut EUR 3.5 billion from its hefty 2014 borrowing requirements. The switch was widely considered a creative move as well as a show of confidence. The DMO offered holders of its 4% 2014 note a new bond maturing in February 2015 (with a coupon of 4.5%); see Figure 6.5.

Figure 6.5. **January 2012 switch operation by NTMA**

Notes: Redemption profile (as of November 2012) does not include T-bill and financial assistance programme payments.

Source: NTMA, OECD staff calculations.

StatLink <http://dx.doi.org/10.1787/888932779810>

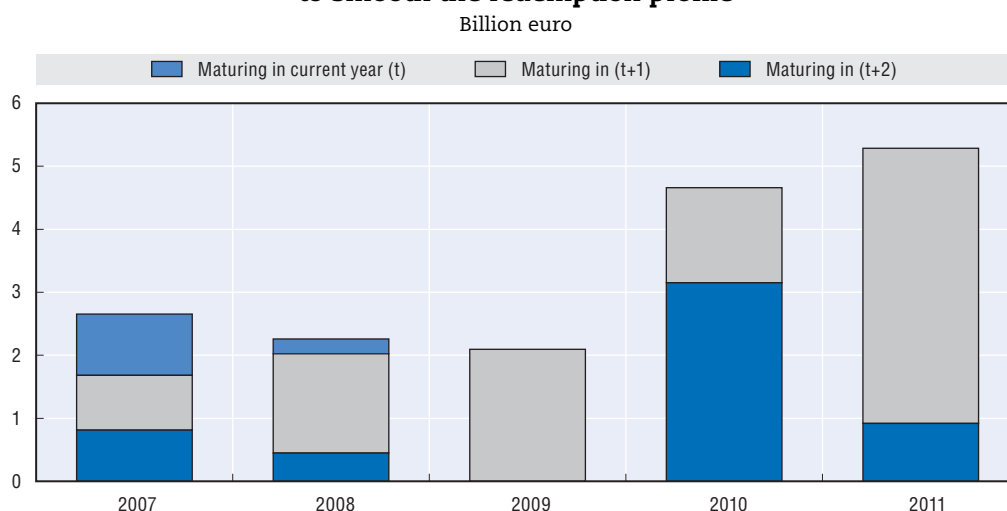
The switch of 26 July 2012 was more ambitious and can be seen as a follow-up to the switch earlier in the year. This was the first occasion since September 2010 that the NTMA offered bonds with longer-term maturities (2 years or more) and was a real test of market

confidence. Under the July 2012 Bond Switch, the DMO offered holders of existing bonds due to mature in 2013 and 2014 respectively the opportunity of switching their holdings of these bonds into a new 5-year bond maturing on 18 October 2017 (with an effective yield of 5.9%) and/or a current long-term bond that will mature on 18 October 2020 (with an effective yield of 6.1%). This exchange offer was combined with an outright sale. The operation proved to be very successful with investors committing a total of EUR 5.23 billion into longer-dated bonds maturing in 2017 and 2020. Of this, some EUR 4.19 billion was new money for the purchase of the two longer-term bonds on offer – a new 5 year bond maturing in October 2017 and an existing bond maturing in October 2020. A further EUR 1.04 billion was for the exchange of the shorter dated 2013 and 2014 bonds into the 2017 and 2020 bonds.

Italy uses exchange operations to smooth the redemption profile. From June 2010 onwards, the Ministry of Economy and Finance offered investors the possibility to exchange current CCTs with new CCTs-eu. Operations are reserved for specialists in government securities (primary dealers). The public debt management strategy for 2012 envisages making substantial use of exchange operations.

Figure 6.6 shows that the Italian switching programme targets mainly maturing bonds in $(t + 1)$ and $(t + 2)$ to smooth redemption peaks. With the help of exchange operations conducted in 2010 and 2011, Italy managed to smooth its 2012 redemption profile by around EUR 7.5 billion.

Figure 6.6. **Exchange operations in Italy between 2007 and 2011 to smooth the redemption profile**



Source: Dipartimento Del Tesoro.

StatLink  <http://dx.doi.org/10.1787/888932779829>

6.2.2.3. Objectives of bond exchanges

The principal objective why DMOs execute bond exchange operations is to “smooth the redemption profile and mitigate the financing risk”. 13 out of 14 respondents mentioned this objective (Table 6.11). The second most important objective is “to increase liquidity” in the secondary market by buying back illiquid off-the-run securities and

boosting the volume of benchmark issues (10 out of 14 respondents; Table 6.11). Three countries (Ireland, Israel and Italy) carry out exchange operations to correct distortions in the secondary market due to central bank purchases of government securities.

Table 6.11. **Main objectives of switches (exchanges) in OECD countries**

	To increase liquidity	To smooth the redemption profile, mitigate the refinancing risk	To correct distortions in the secondary market due to central bank purchases of government securities
Austria	X	X	
Canada	X	X	
Denmark	X	X	
France	X		
Hungary	X	X	
Iceland		X	
Ireland	X	X	X
Israel	X	X	X
Italy		X	X
Mexico	X	X	
Poland		X	
Slovenia	X	X	
Sweden	X	X	
Turkey		X	
Total	10	13	3

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

Countries also reported the following (complementary or specific) reasons for conducting bond exchanges:

- To accommodate investor needs (Austria, Norway).
- The consolidation existing lines into fewer larger issues (Australia).
- To correct anomalies in the secondary market (France, Italy).
- To contribute to the building of a government yield curve and to support an effective positioning of central government debt in the financial market (Slovenia).
- As a structural operation tool (transition to the euro) (Spain).
- To increase maturity of the domestic debt stock (Turkey).
- To avoid possible price distortions due to high concentration in some securities (Mexico).

6.2.2.4. Which costs are associated with exchanges?

The main costs associated with bond exchange operations are associated with price movements between the announcement of, and the close of, the operation (market risk). Eleven respondents out of thirteen consider this cost the most important one (Table 6.12). As noted, Canada conducts switch operations on a duration neutral basis so as to minimise market risk.

“Budgetary costs” and “reputational risk” are equally weighted by responded countries. Poland observes in this context that they manage their reputational risk by consulting with primary dealers about source and destination bonds.

Table 6.12. **Costs related to exchanges (switches)**

	Price movements between the announcement of and the close of the operation (market risk)	Reputational risk (e.g. the operation may be unsuccessful)	Budgetary costs
Australia	X	X	
Austria			X
Denmark		X	X
Hungary	X		
Iceland	X		X
Ireland	X	X	X
Israel	X	X	X
Italy	X		
Mexico	X		
Poland			X
Slovenia	X	X	X
Spain	X	X	
Sweden	X	X	
Turkey	X	X	X
Total	11	8	8

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

Clearly, an exchange above par has potentially a large budget impact. This is especially relevant for long bonds with high coupons. Indeed, from the Survey it appears that countries normally refrain from “locking in unattractive forward rates”.

Spain notes that during crisis periods, exchange operations might be interpreted by some market participants as a signal that the issuer expects difficulties with future redemptions. In response, “the market” could ask a premium, thereby increasing the cost of the switch operation.

6.2.2.5. Selection criteria for source bonds in switch operations

The main criterion used by respondents for selecting source bonds (bond bought back in switch operations) is the maturity profile. Almost all respondent countries (10 out of 13; Table 6.13) use “nearing redemption” as the most relevant criterion for selecting the source bond. However, in practice this criterion may have a wide meaning. For instance, in Canada, buyback operations on a switch basis involve the exchange of less-liquid bonds with a remaining term to maturity of 12 months to 25 years. Hungary exchanges bonds with a term-to-maturity of less than 2 years. Italy normally exchanges bonds with a residual maturity of 18 months or less (but when it is judged that the switch may lead to an increase in the efficiency of the market, also longer maturities can be switched).

Source bonds are usually off-the-runs and therefore fairly illiquid. Consequently, the second most important criterion for exchanging bonds is whether they are off-the-run and have lost their liquidity in secondary markets. Austria, Canada, Israel and Slovenia also mention high coupon bonds as a target for source bonds (Table 6.13). Canada specifically excludes the following bonds from switch operations: issues currently being built as benchmarks in the 2-, 3-, 5-, or 10-year sectors, the current benchmark issues in these sectors, the preceding benchmark issue in the 10-year sector, as well as bonds with maturities greater than or equal to 25 years.

Table 6.13. **Selection criteria for source bonds in switch operations**

	Nearing redemption	Off-the runs	Illiquid	High coupon
Austria	X	X	X	X
Canada		X	X	X
Denmark	X	X		
Hungary	X	X		
Iceland	X		X	
Israel	X	X	X	X
Italy	X	X		
Mexico		X	X	
Norway	X			
Poland	X			
Slovenia	X	X	X	X
Sweden		X	X	
Turkey	X			
Total	10	9	7	4

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

6.2.2.6. Methods for conducting exchange operations

Countries use two methods for conducting exchange operations. Some countries auction the destination bond, while fixing the price of the source bond, and others auction the source bond, while fixing the price of the destination bond. Besides these two (polar) options there are countries such as Turkey and Israel that use both methods.

Table 6.14. **Methods for conducting exchange operations**

	Source bond (bond bought back)	Destination bond (bond issued)
Australia		X
Canada	X	
Denmark		X
France	X	
Hungary		X
Iceland		X
Israel	X	X
Italy		X
Mexico		X
Poland		X
Slovenia	X	
Spain		X
Sweden		X
Turkey	X	X
Total	5	11

Source: 2012, Survey on Buyback and Switches by OECD WPDM.

Pricing can be quite a challenge in exchange operations, especially in volatile market conditions. In response, countries use different type of pricing mechanisms in order to avoid mispricing in executing exchange operations.

Australia announces a fixed yield for the source bond (reflecting prevailing secondary market yields) just before the beginning of the auction. Dealers then submit bids for the destination bond. Exchanges are conducted on a one-for-one face value basis.

In Canada, bidding on the source bond is taking place as a spread versus the destination bond. The valuation method supporting purchasing decisions is regularly upgraded to be consistent with best practices and to meet overall exchange programme objectives. The method incorporates an internally developed zero-coupon curve model, with references to swap and Treasury bill curves, where appropriate. Results are released on a “best efforts basis”.

The Danish DMO announces a price it will pay for the source bond as well as a so-called hedge ratio. Dealers then submit bid prices for the destination bond.

In Hungary, the price for the source bond is fixed 5 minutes before the exchange auction. PDs are requested to quote two-way prices for the source bonds. The 2 best and the 2 worst quotes are excluded from the calculation. The fixed price is the average of the remaining quotes. The exchange auction is then executed for the destination bond. Settlement is based on the delivery-versus-delivery (DVD) method.

The Italian Treasury holds exchange transaction using two procedures (Table 6.15): 1) via exchange auctions (in the primary market) and 2) through an electronic trading system (in the secondary market). The exchange auctions are organised as single price auctions (held at the Bank of Italy through its IT network), where one bond is exchanged against up to 10 bonds. The second procedure means that the Treasury directly operates in the secondary market through an electronic platform, with multi-price allotment, and where one bond is exchanged against up to 5 bonds.

Table 6.15. Switch procedures in Italy: Auction (primary market) vs. electronic trading system (secondary market)

Auction	Electronic trading system
Single-price	Competitive (multi-price)
One shot	Continuous process
Less discretion in timing and pricing	Fine tuning of timing and pricing
Liquid bonds	Less liquid bonds
Lower use of internal resources (front/back office)	More resource-intensive process

Source: Dipartimento Del Tesoro, 2012 Survey on Buyback and Switches by OECD WPDM.

In Ireland, switches can be initiated at the discretion by the NTMA at any time during official market hours. The market is informed by the NTMA via the Bloomberg message system. The initial amount of bonds available for switching and the associated price terms are communicated electronically to all the PDs at the same time. The bidding window is two minutes, during which period bids will be accepted directly from the PDs via the Bloomberg message system. The NTMA reserves the right to simultaneously issue one or more new bonds via the switching mechanism. The NTMA can also offer bond switching facilities in response to direct requests from PDs to help them in managing their positions. Switches dealt between a PD and the NTMA will be priced, in the normal course, at the current bid or offer levels, as the case may be, obtaining in the market.¹¹

In Poland, switch operations are organised as multi-price auctions. The MoF announces the price for the source bond on the last working day before the auction. Primary dealers submit then bids in terms of nominal amount of source bonds and price for the destination bond. Finally, the MoF makes a decision about the lowest accepted price (minimum or stop price) of the destination bond.

In Slovenia, a switch is executed following a public announcement with an offer, addressed to the bondholders of the bonds to be exchanged, to participate in an exchange auction of the source bond. The announcement is published on the MoF website at least four business days before the day of the auction. Before each switch auction, the PDs receive an invitation to submit bids. The exchange ratio between the source bond and the destination bond is determined based on the bid price of the source bond and the price of the destination bond.

In Portugal, bond exchanges can be conducted via two procedures: 1) exchange offers (fixed price exchanges) and 2) through reverse auctions immediately followed by regular auctions. Procedure one (an exchange offer) has been conducted by the IGCP only once. The exchange offer was based on a fixed-price exchange between the new issue and the old one. IGCP has never conducted a pure exchange auction. Instead, two separate back-to-back auctions are executed: a) a multi-price reverse auction followed one hour later by b) a multi-price regular auction. In both auctions, the exchanged (bought back) bonds and newly issued bonds are settled against cash.

The Spanish Treasury sets the price of the new bond (usually based on the secondary market price). Investors state in their bids both the nominal value and the price at which they wish to exchange. Exchanges use the competitive auction format, with the Treasury deciding the cut-off price. On the day of the auction, the Bank of Spain gives the price of the new bonds exchangeable for the old one, and participants enter their bids accordingly. Any individual or legal entity (both resident and non-resident), is eligible to participate. The results of the auction are announced immediately after the operation.¹²

The Turkish Treasury sets either the price of the source bond or the price of the destination bond. The exchange ratio between these two securities is determined via an exchange auction (both fixed price and multiple price options are available). Primary dealers have the exclusive right to participate in switch auctions.

Notes

1. For example, arising from a period with government surpluses.
2. See Blommestein, H.J., M. Elmadag and J.W. Ejsing (2012), "Buyback and Exchange Operations: Policies, Procedures and Practices among OECD Public Debt Managers", *OECD Working Papers on Sovereign Borrowing and Public Debt Management*, No. 5, OECD Publishing. <http://dx.doi.org/10.1787/5k92v18rh80v-en>.
3. Code of duties of the Primary Dealers in Belgian Government Securities, 1 January 2012.
4. Belgian Debt Agency, 2012 Outlook.
5. 2010-2011 *Debt Management Report*, Department of Finance Canada.
6. *Danish Government Borrowing and Debt* (2011), Danmarks Nationalbank.
7. Ministry of Finance Japan, JGB Issuance Plan for FY2012 (24 December 2011).
8. The Sinking Fund was set up in 1993 aimed at reducing the government debt stock by buying back bonds or repaying at maturity. The Sinking Fund's financial resources include privatisation revenues and (other) extraordinary income.
9. The cut-off price will be determined as the difference of the sum of the average annual net present values of the cash flows of all bonds eligible for buyback in the auction and the average annual net present value of the cash flow of the new benchmark issue, being equal to or higher than zero.
10. Duration neutral switches minimise market risk because interest rate changes affect both securities involved similarly. They are also attractive to investors because duration neutral

switches allow them to maintain portfolio duration (GAO-12-314).

For more information: www.bankofcanada.ca/wp-content/uploads/2010/04/convers.pdf.

11. National, Treasury Management Agency, "Ireland's Government Bond Issuance Procedures and Related Debt Management Arrangements including the Primary Dealer System", February 2010.
12. For more information: www.tesoro.es/en/deuda/mercados/mprimario/canjes.asp.

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Danish Government Borrowing and Debt (2011), Danmarks Nationalbank.

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United States Government Accountability Office (2012), "Buybacks Can Enhance Treasury's Capacity to Manage under Changing Market Conditions" (GAO-12-314).

ANNEX A

Methods and sources

1. Regional aggregates

- *Total OECD* denotes in this Outlook the following 34 countries: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.
- *The G7* includes 7 countries: Canada, France, Germany, Italy, Japan, United Kingdom and the United States.
- *The OECD euro area* includes 15 countries: Austria, Belgium, Estonia (included after 2010), Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Slovak Republic (included after 2008), Slovenia and Spain.
- *The Emerging OECD* group includes 8 countries: Chile, Czech Republic, Hungary, Mexico, Poland, Slovak Republic, Slovenia and Turkey.
- *The Other OECD* countries aggregation includes 9 countries: Australia, Denmark, Iceland, Israel, Korea, New Zealand, Norway, Sweden and Switzerland.

2. Sovereign assets groupings

The data used for the credit rating country groupings are from the three main credit rating agencies: Moody's, Fitch and Standard & Poor's. If a sovereign is rated by one of the major agencies as AAA or AA, then the asset is considered as "safe" (see for details Table A.1). Credit ratings and other data as of 30 November 2012.

- *The AAA/AA group* includes 18 countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom and the United States.
- *The group with lower-rated sovereign assets* includes 16 countries: Chile, Czech Republic, Estonia, Greece, Hungary, Iceland, Ireland, Israel, Italy, Mexico, Poland, Portugal, Slovak Republic, Slovenia, Spain and Turkey.

3. Sovereign long-term foreign currency ratings

Table A.1. Long-term foreign currency ratings by country

	S&P		Moody's		Fitch	
	Rating (outlook)	Latest rating update	Rating (outlook)	Latest rating update	Rating (outlook)	Latest rating update
Australia	AAA (stable)	16 Feb. 2003	Aaa (stable)	20 Oct. 2002	AAA (stable)	28 Nov. 2011
Austria	AA+ (negative)	13 Jan. 2012	Aaa (negative)	26 June 1977	AAA (stable)	10 Aug. 94
Belgium	AA (negative)	25 Nov. 2011	Aa3 (negative)	16 Dec. 2011	AA (negative)	27 Jan. 2012
Canada	AAA (stable)	29 July 2002	Aaa (stable)	3 May 2002	AAA (stable)	12 Aug. 2004
Chile	A+ (positive)	18 Dec. 2007	Aa3 (stable)	16 June 2010	A+ (stable)	1 Feb. 2011
Czech Republic	AA- (stable)	24 Aug. 2011	A1 (stable)	12 Nov. 2002	A+ (stable)	4 Mar. 2008
Denmark	AAA (stable)	27 Feb. 2001	Aaa (stable)	23 Aug. 1999	AAA (stable)	10 Nov. 2003
Estonia	AA- (stable)	9 Aug. 2011	A1 (stable)	12 Nov. 02	A+ (stable)	5 July 2011
Finland	AAA (negative)	1 Feb. 2002	Aaa (stable)	4 May 1998	AAA (stable)	5 Aug. 1998
France	AA+ (negative)	13 Jan. 2012	Aa1 (negative)	19 Nov. 2012	AAA (negative)	10 Aug. 1994
Germany	AAA (stable)	17 Aug. 1983	Aaa (negative)	9 Feb. 1986	AAA (stable)	10 Aug. 1994
Greece	SD	5 Dec. 2012	C	2 Mar. 2012	CCC	17 May 2012
Hungary	BB (stable)	23 Nov. 2012	Ba1 (negative)	24 Nov. 2011	BB+ (negative)	6 Jan. 2012
Iceland	BBB- (stable)	24 Nov. 2008	Baa3 (negative)	11 Nov. 2009	BBB- (stable)	17 Feb. 2012
Ireland	BBB+ (negative)	1 Apr. 2011	Ba1 (negative)	12 July 2011	BBB+ (stable)	9 Dec. 2010
Israel	A+ (stable)	9 Sept. 2011	A1 (stable)	17 Apr. 2008	A (stable)	11 Feb. 2008
Italy	BBB+ (negative)	13 Jan. 2012	Baa2 (negative)	13 July 2012	A- (negative)	27 Jan. 2012
Japan	AA- (negative)	27 Jan. 2011	Aa3 (stable)	24 Aug. 2011	A+ (negative)	22 May 2012
Korea	A+ (stable)	13 Sept. 2012	Aa3 (stable)	27 Aug. 2012	AA- (stable)	6 Sept. 2012
Luxembourg	AAA (negative)	28 Apr. 1994	Aaa (negative)	20 Sept. 1989	AAA (stable)	10 Aug. 94
Mexico	BBB (stable)	14 Dec. 2009	Baa1 (stable)	6 Jan. 2005	BBB (stable)	23 Nov. 2009
Netherlands	AAA (negative)	1 Oct. 1988	Aaa (negative)	10 Jan. 1986	AAA (stable)	10 Aug. 1994
New Zealand	AA (stable)	29 Sept. 2011	Aaa (stable)	20 Oct. 2002	AA (stable)	29 Sept. 2011
Norway	AAA (stable)	9 July 1975	Aaa (stable)	30 Sept. 1997	AAA (stable)	13 Mar. 1995
Poland	A- (stable)	29 Mar. 07	A2 (stable)	12 Nov. 2002	A- (stable)	18 Jan. 2007
Portugal	BB (negative)	13 Jan. 2012	Ba3 (negative)	13 Feb. 2012	BB+ (negative)	24 Nov. 2011
Slovak Republic	A (stable)	13 Jan. 2012	A2 (negative)	13 Feb. 2012	A+ (stable)	8 July 2008
Slovenia	A (negative)	3 Aug. 2012	Baa2 (negative)	2 Aug. 2012	A- (negative)	8 Aug. 2012
Spain	BBB- (negative)	10 Oct. 2012	Baa3 (negative)	13 June 2012	BBB (negative)	7 June 2012
Sweden	AAA (stable)	16 Feb. 2004	Aaa (stable)	4 Apr. 2002	AAA (stable)	8 Mar. 2004
Switzerland	AAA (stable)	1 Oct. 1988	Aaa (stable)	20 Jan. 1982	AAA (stable)	10 Aug. 1994
Turkey	BB (stable)	19 Feb. 2010	Ba1 (positive)	20 June 2012	BBB- (stable)	5 Nov. 2012
United Kingdom	AAA (stable)	28 Apr. 78	Aaa (negative)	31 Mar. 1978	AAA (negative)	10 Aug. 1994
United States	AA+ (negative)	5 Aug. 2011	Aaa (negative)	5 Feb. 1949	AAA (negative)	10 Aug. 1994
<i>Supranational</i>						
European Stability Mechanism (ESM) ¹	---	---	Aa1 (negative)	30 Nov. 12	AAA (stable)	08 Oct. 12
European Financial Stability Facility (EFSF)	AA- (negative)	16 Jan. 12	Aa1 (negative)	30 Nov. 12	AAA (negative)	20 Sept. 10
European Union	AAA (negative)	16 Sept. 76	Aaa (negative)	22 July 99	AAA (stable)	06 May 99

1. Standard & Poor's has not yet assigned its ratings for the ESM.
Cut-off date is 30 November 2012.

Source: Credit ratings from Moody's, Fitch and Standard & Poor's.

Table A.2. **S&P, Moody's and Fitch rating systems**

Characterisation of debt and issuer		Rating		
		S&P	Moody's	Fitch
Investment grade	Highest quality	AAA	Aaa	AAA
	High quality	AA+	Aa1	AA+
		AA	Aa2	AA
		AA-	Aa3	AA-
	Strong payment capacity	A+	A1	A+
		A	A2	A
		A-	A3	A-
	Adequate payment capacity	BBB+	Baa1	BBB+
BBB		Baa2	BBB	
BBB-		Baa3	BBB-	
Non-investment grade	Likely to fulfil obligations, ongoing uncertainty	BB+	Ba1	BB+
		BB	Ba2	BB
		BB-	Ba3	BB-
	High credit risk	B+	B1	B+
		B	B2	B
		B-	B3	B-
	Very high credit risk	CCC+	Caa1	CCC+
		CCC	Caa2	CCC
		CCC-	Caa3	CCC-
	Near default with possibility of recovery	CC	Ca	CC
				C
	Default	SD	C	DDD
		D		DD
			D	

Source: Credit ratings systems from Moody's, Fitch and Standard & Poor's and ECB (2011), "Sovereign credit ratings and financial markets linkages", *Working Paper*, No. 1347, June 2011.

3. Background on OECD Surveys used in the Outlook

- The Secretariat circulated a Borrowing Questionnaire to 34 OECD debt-management offices (DMOs) to obtain information on borrowing activities in 2012 and 2013.

4. Calculations, definitions and data sources

- GDP at market prices for total OECD and country groupings are aggregated using information from the *OECD Economic Outlook 92* preliminary database, November 2012.
- GDP at 2005 PPP USD from the *OECD Economic Outlook 92 Database*, November 2012, is used to calculate the GDP-weighted average 10-year government bond yield.
- Gross borrowing requirements (GBR), net borrowing requirements (NBR), central government marketable debt, redemptions, and debt maturing are compiled from the answers to the Borrowing Survey. The Secretariat inserted its own estimates/projections in cases of missing information for 2012 and/or 2013, using publicly available official information on redemptions and central government budget balances.
- To facilitate comparisons with previous *Outlooks*, figures are converted into US dollars using exchange rates from 1 December 2009. Source: Datastream.

5. A suggested new approach to the measurement and reporting of gross short-term borrowing operations by governments*

* This section is based on an article by Hans J. Blommestein, Ove Sten Jensen and Thomas Olofsson, (2010), "A New Method for Measuring Short-term Gross Borrowing Needs", OECD Journal: Financial Market Trends, Vol. 2010/1.

5.1. Introduction and summary

Since 2009, the OECD has published a central government borrowing outlook.¹ This gross and net borrowing outlook is based on submissions by debt management offices (DMOs) across the OECD area. The survey includes a question on estimates and projections of the gross short-term marketable borrowing needs for each OECD country (covered by issuing notes and bills with a maturity of up to one year).

The reporting on gross short-term issuance operations has raised questions concerning which method to use to reliably estimate the size of these operations, especially when the objective is to make meaningful cross-country comparisons. This policy issue was discussed at the last annual meeting of the OECD Working Party on Public Debt Management (WPDM),² held on 20-21 October 2009. To that end, the Swedish and Danish delegates submitted four methods for discussion. They also noted that all methods – except one – provide distorted measures of gross short-term borrowing needs, thereby hampering the calculation of meaningful, cross-country estimates and projections.

These distortions and complications were outlined in some detail in a supporting OECD discussion note on the measurement of gross short-term borrowing needs. More specifically, the note, circulated among WPDM Delegates, explains the various difficulties or complications in measuring the size of short-term borrowing requirements by discussing four different measurement methods. The discussion note concludes that all methods for measuring short-term borrowing needs studied here – except one (referred to as Method 2 below) – provide either significantly underestimated or substantially overestimated measures. At the end of the debate, Delegates of the OECD WPDM agreed to adopt a uniform method³ defined as follows:

Gross Short-Term⁴ Marketable Borrowing Requirements [GBR(ST) t] in calendar year t (CY = t) is equal to Net Short-Term Borrowing Requirements in CY = t [NBR(ST) t] plus the outstanding amount of the stock of T-bills and T-notes at the beginning of CY = t.

This measure yields in principle meaningful estimates and projections that are comparable across different countries.

5.2. Basic terminology on borrowing operations and funding strategy

In this note we are making a policy distinction between funding strategy and borrowing requirements. *Gross borrowing requirements* are calculated on the basis of budget deficits and redemptions (Table A.3).

Table A.3. **Definition of total gross borrowing requirement**

Revenues	T
<i>Tax revenues</i>	
<i>Other revenues</i>	
Expenditures	G
<i>General expenditures</i>	
<i>Interest payments</i>	
Budget deficit (BD)	$T - G < 0$
Budget surplus (BS)	$T - G > 0$
Total Net Borrowing Requirement (NBR) = BD = $[-(T-G)]$	
Total redemptions of:	
<i>Short-term debt</i>	TR(ST)
<i>Long-term debt</i>	TR(LT)
Total redemptions (refinancing requirement)	$TR = TR(ST) + TR(LT)$
Total gross borrowing requirement (GBR)	$GBR = TR + BD = TR + NBR$
	$GBR = TR - BS$

Source: OECD staff.

The *funding strategy* entails decisions about how the borrowing requirements or needs are going to be financed (e.g. by using long-term bonds, short-term securities, nominal or indexed bonds, etc.). Clearly, total gross borrowing requirements (Table A.3) should be the same as total expected or projected funding amounts (Table A.4).

Table A.4. **The funding strategy**

Components of cash inflows	Components of cash outflows
How to finance?	Total repayments (TR)
Marketable debt issuance	Marketable debt repayments
– <i>Short-term securities</i> <i>(money market instruments¹)</i>	– <i>Redemptions</i>
– <i>Long-term securities</i> <i>(capital market instruments)</i>	– <i>Interest/coupon repayments</i>
• <i>Domestic bonds</i>	<i>interest repayments of maturing debt</i>
• <i>International bonds</i>	<i>interest repayments of other coupon paying debt</i>
Non-marketable debt	Non-marketable debt repayments
– <i>Loans</i>	– <i>Redemptions</i>
– <i>Other</i>	– <i>Interest/coupon repayments</i>
	<i>Interest repayments of maturing debt</i>
	<i>Interest repayments of unmaturing debt</i>

1. Excluding the issuance for monetary policy purposes

Source: OECD staff.

5.3. How to measure gross short-term borrowing operations

Although applications of the standard definitions of gross and net longer-term borrowing requirements are clear cut, this is not the case for gross short-term borrowing requirements. The simple question on how to estimate gross short-term borrowing requirements on a yearly basis (say CY 2010 or CY 2011) is not straightforward. We will show via a simple example in this section (and more complicated ones in Appendix A.1) that answers can easily become meaningless. For example, if daily or monthly

(re)financing operations are aggregated within a year (or by including every single redemption of short-term paper within the year), then estimates of gross short-term borrowing requirements can become huge and essentially meaningless, especially when making comparisons across countries.

Take the following two simple examples to demonstrate why a mechanical within-year aggregation of issuance and redemption activities can easily lead to a meaningless or inflated calculation or estimate of **GBR(ST)**.

Example 1:

On 1 January 2009, the total stock of debt of *government A* consists entirely of short-term debt [**D(ST)** = EUR 100 m]. Assume that this outstanding debt will need to be redeemed at the end of August and will be refinanced by issuing a 6 month T-bill. At the beginning of each month, *government A* needs to borrow EUR 50 m by issuing short-term treasury notes with a maturity of one month (total borrowing in each month: **TB** = EUR 50 m). At the end of each month, *government A* redeems the short-term stock of debt (total redemptions at the end of each month: **TR** = EUR 50 m, except in August when **TR** = EUR 150 m). The pattern in the chart resembles largely roll-over (refinancing) operations during the calendar year 2009.

2009	January	February	March	April	May	June	July	August	September	October	November	December
TB:	50	50	50	50	50	50	50	150	50	50	50	50
TR:		50	50	50	50	50	50	150	50	50	50	50

Example 2:

On 1 January 2009, the total stock of debt of *government B* consists again entirely of short-term debt [**D(ST)** = EUR 100m]. This outstanding debt will also need to be redeemed at the end of August. The borrowing needs of *government B* are the same as those of *government A* but its credit reputation is better. The funding strategy of *government B* can therefore be based on the issuance of T-bills with a maturity of up to 12 months. The within-year issuance and redemption patterns of *government B* are therefore radically different from those of *government A*.

2009	January	February	March	April	May	June	July	August	September	October	November	December
TB:	50							100				
TR:								100				

Simply aggregating all funding/redemption operations during the calendar year 2009 would result in the following two estimates for total **GBR(ST)**. In the case of example 1, using *Method 4* (see Appendix A.1)⁵ results in an estimate for GBR of 2009: 12 * EUR 50 m + EUR 100 m = EUR 700 m, while using *Method 2* results in a more meaningful estimate of EUR 150 million.⁶ In the case of example 2, this results in an estimate of EUR 150 for both *Methods 1 and 2*.

Some countries, such as Denmark and Sweden, use the concept of **net short-term borrowing** requirements for funding horizons of less than one year. This means that the calculation of gross borrowing requirements is not inflated by simply adding all short-term

operations within the calendar year. A drawback of this approach, however, is that it clearly underestimates the calculation of **GBR(ST)** because the refinancing of the stock of T-bills and T-notes at the beginning of the calendar year is completely ignored. A cross-country analysis should not only focus on the financing of budget deficits but also include comparable refinancing operations with corrections for artificially inflated short-term roll-over operations within the year. *Method 2* constitutes, therefore, a pragmatic and sensible compromise solution by simply adding the net short-term borrowing amount to the stock of T-bills and T-notes at the beginning of the calendar year (as, by definition, they need to be refinanced within the year). This method yields, in principle, meaningful estimates that are comparable across different countries.

5.4. Four different methods for measuring gross short-term borrowing operations

To illustrate the differences in outcomes by using different approaches, we have made additional hypothetical calculations in Appendix A.1 based on four different methods for measuring gross short-term borrowing requirements,⁷ including *Method 2*. *Method 1* calculates total gross borrowing requirements by ignoring the complications associated with short-term operations by focusing on (redemptions of) long-term debt (longer than one year) only. *Method 3* takes as gross funding estimate all redemptions for bonds, the refinancing of all three-month T-bills and cash. *Method 4* calculates total gross borrowing requirements by aggregating all redemptions (as with *Method 3*) plus daily cash operations during the year.

These examples also show that three out of four methods either significantly underestimate or substantially inflate gross borrowing requirements, while *Method 2* yields an economically sensible estimate. Appendix A.2 provides a slightly more complicated numerical example of the application of the suggested new approach to the measurement and reporting of **GBR (ST)** (i.e. *Method 2*).⁸

We conclude that the proposed new measure is both a pragmatic and sensible solution.

Notes

1. For details see Blommestein and Gok (2009).
2. The WPDM consists of senior debt managers from OECD countries.
3. Referred to as *Method 2* in the discussion below.
4. All short-term estimates and projections concern borrowing operations for a borrowing horizon of less than one year.
5. *Method 4* calculates total GBR by aggregating all issuance and redemption operations for both long-term and short-term debt within a certain year, while also including daily cash operations, and correcting for roll-over or refinancing activities. When total borrowing (TB) and total redemptions (TR) are corrected by excluding roll-over refinancing operations within the year, they are referred to as follows: TB* and TR*. In both examples 1 and 2, TB* = EUR 50 m and TR* = 0.
6. *Method 2* calculates GBR by taking short-term debt stock at the beginning of the year [D(ST)] and adding the total short-term net borrowing requirement [NBR(ST)]. In other words: $GBR = D(ST) + NBR(ST) = D(ST) + TB^* = EUR\ 100\ m + EUR\ 50\ m = EUR\ 150\ million$.
7. For the sake of simplicity, the deficit (net borrowing requirement) is assumed to be zero in the calculations in Appendix A.1.
8. There are additional complications that we ignore in this note such as the statistical treatment of foreign currency borrowing (in some countries forex borrowing cannot be used to finance the budget so it needs to be matched with a change at the asset side – government account/forex

reserves); on-lending activities (changes at both the liability side and asset side via income in the form of interest payments); discussions in some countries about the treatment of the provision of T-bills by the government to the central banks (for use in special liquidity schemes); the statistical treatment of capital injections (again, there are changes at the liability and asset side of the government balance sheet), etc.

Appendix

Appendix A.1. Different methods for calculating gross borrowing requirement (GBR)

Method 1: Initial stock of debt is not taken into account [$D(.) = 0$], while all long-term redemptions are being refinanced.¹ $GBR = TR(LT)$.

	NBR	Bonds	T-bills	Cash	Total
Stock of debt 2009-01-01		150	47	3	200
Net borrowing requirement (NBR)	0				
Redemptions (refinancing) (TR)		30	0	0	
Gross borrowing requirement (GBR)	0	30	0	0	30
Stock of debt 2010-01-01		150	47	3	200
Gross borrowing requirement = EUR 30 bn					

Method 2: Refinancing of the stock of T-bills plus cash at the beginning of year plus NBR. $GBR = D(ST) + NBR(ST)$.

	NBR	Bonds	T-bills	Cash	Total
Stock of debt 2009-01-01		150	47	3	200
NBR	0				
Redemptions		30	47	3	
GBR	0	30	47	3	80
Stock of debt 2010-01-01		150	47	3	200
Gross borrowing requirement EUR 80 bn					

Method 3: Initial stock of debt is not taken into account, while all redemptions (including all three-month T-bills) and cash balance are being refinanced. $GBR = TR = TR(ST) + TR(LT) + Cash$.²

	NBR	Bonds	T-bills	Cash	Total
Stock of debt 2009-01-01		150	47	3	200
NBR	0				
Redemptions		30	188	3	
GBR	0	30	188	3	221
Stock of debt 2010-01-01		150	47	3	200
Gross borrowing requirement EUR 221 bn					

Method 4: Initial stock of debt is not taken into account, while all redemptions (including all three-month T-bills) plus daily cash positions are being refinanced. $GBR = TR = TR(ST) + TR(LT) + Cash$.

	NBR	Bonds	T-bills	Cash	Total
Stock of debt 2009-01-01		150	47	3	200
NBR	0				
Redemptions		30	188	750	
GBR	0	30	188	750	968
Stock of debt 2010-01-01		150	47	3	200
Gross borrowing requirement EUR 968 bn					

1. Assume net borrowing requirement (NBR) is zero. In other words: $NBR = 0$ together with $D(.) = 0 \rightarrow$ issuance equals total long-term redemptions $\rightarrow GBR = TR(LT)$.
2. Assume NBR is zero. T-bills have three month original duration. $NBR = 0$ together with $D(.) = 0 \rightarrow$ issuance equals total short-term and long-term redemptions $\rightarrow GBR = TR = TR(ST) + TR(LT) + Cash$

Appendix A.2. Application of Method 2 to calculate GBR

The basic procedure is to add redemptions of all debt maturing within the year + outstanding stock of T-bills (at the beginning of the year) to the net borrowing requirement.

	Total debt	T-bond	T-bills	Cash
Government debt 31-12-2008*) (in Bn EUR)	200	150	45	5
Net cash borrowing requirement (should at least approx. equal the cash budget deficit)	20			
Redemptions (debt beginning of year maturing within 12 months)	80	30	45	5
Bonds maturing during 2009		25		
T-bills on 31-12-2009 shorter than 12 months **			45	
Cash position on 31-12-2009				5
Buy back of bonds during 2009		5		
Gross borrowing requirement (GBR)	100	45	50	5
<i>Net funding in bonds</i>		15		
<i>Net funding in T-bills***)</i>			5	
<i>Net funding in cash ****)</i>				0
Government debt 31-12-2009	220	165	50	5
In Bn EUR during 2009		T-bond	T-bills	Cash
Financing plan on a yearly basis in this example:		45	50	5
* Initial stock of debt at the beginning of 2009.				
** i.e. maturing during 2009.				
*** Equals the increase in T-bill stock on yearly basis (i.e. refinancing during the year is netted out) but the excess of all issuance over all maturing T-bills is included in the net figure. Gross funding of T-bills is initial stock + net funding.				
**** Equals the change in cash position between the last day of 2008 and the last day of 2009 (i.e. the same treatment as for T-bills).				

1. **Actual total issuance operations** of T-bills and deposits (cash) will be much larger due to refinancing of short debt during the year.
2. **Net funding per instrument** is by definition equal to gross borrowing minus redemptions per instrument.
3. **Gross funding per instrument** calculated by summing redemptions per instrument with issuance per instrument from the government's funding or financing plan.

Appendix A.3. Comparison on non-standardised method and standardised methods

Fiscal and borrowing outlook in OECD countries for the period 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Methods 3 and 4, Non-standardised methods <i>Trillion USD</i>							
Central government marketable GBR (with cash)	24.4	24.9	29.3	29.0	29.3	29.3	29.4
Central government marketable GBR (w/o cash)	13.8	16.8	21.2	20.5	20.9	21.0	21.1
Central government marketable debt (w/o cash)	22.9	25.3	28.5	31.8	34.3	36.4	38.4
Central government marketable NBR (w/o cash)	0.7	2.2	3.3	3.2	2.2	2.3	2.0
General government deficit	0.5	1.4	3.5	3.4	3.0	2.6	2.3
Methods 2, Standardised method <i>Trillion USD</i>							
Central government marketable GBR (with cash)	7.1	8.7	11.2	11.3	10.8	11.2	11.3
Central government marketable GBR (w/o cash)	6.7	8.2	10.8	10.9	10.3	10.8	10.9
Central government marketable debt (w/o cash)	22.9	25.3	28.5	31.8	34.3	36.4	38.4
Central government marketable NBR (w/o cash)	0.7	2.2	3.3	3.2	2.2	2.3	2.0
General government deficit	0.5	1.4	3.5	3.4	3.0	2.6	2.3

Note: GBR = gross borrowing requirement, NBR = net borrowing requirement

Source: 2012 Survey on central government marketable debt and borrowing by OECD Working Party on Debt Management; OECD Economic Outlook 92 Database; and OECD staff estimates.

ANNEX B

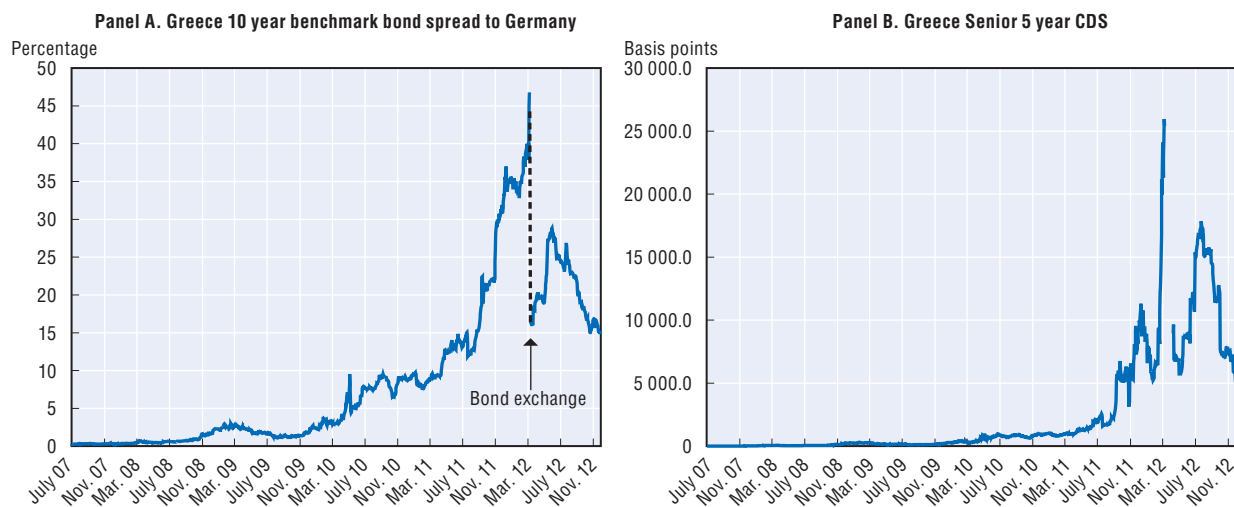
Sovereign debt restructuring in Greece

1. First Economic Adjustment Programme (EAP) and downgrades

Greece signed its first Economic Adjustment Programme (EAP) on **12 May 2010**. The Programme covers the period May 2010-June 2013. Financing comes from two sources: a) bilateral support from euro area member states (EUR 80 billion) and b) the IMF (EUR 30 billion).

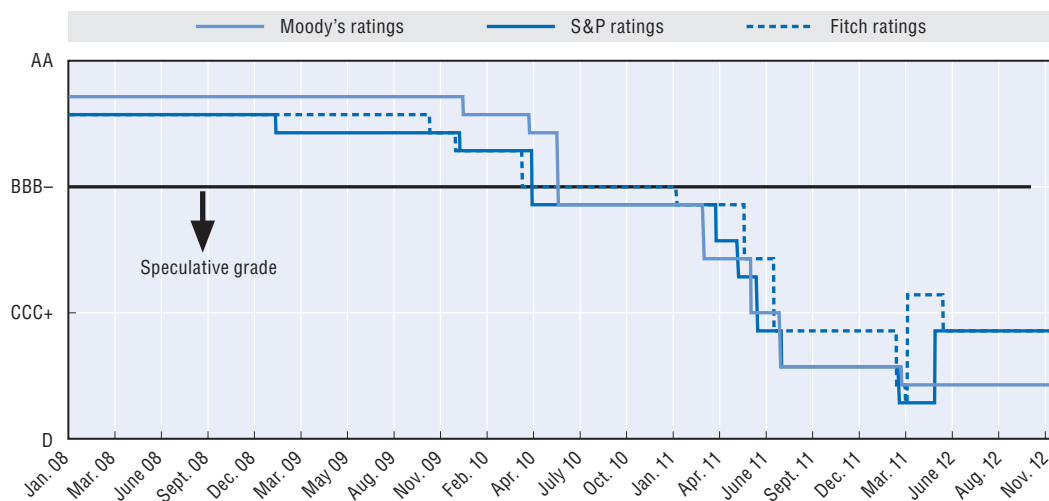
Following the signing of the EAP, and supported by ECB's Securities Markets Programme (SMP),¹ Greek 10 year government bond spreads, which had risen to almost 10 percent in April 2010, narrowed significantly in the first few months. However, with worsening fundamentals, followed by the announcement in June 2011 of a restructuring of its sovereign debt, Greek bond spreads jumped to unprecedented levels (Figures B.1). During this period, credit rating agencies first downgraded Greece to below investment grade then further down to the lowest possible rating (Figure B.2).

Figure B.1. **Greece 10-year benchmark bond spread and Greece Senior 5 year CDS**



Source: Datastream and Bloomberg.

StatLink  <http://dx.doi.org/10.1787/888932779848>

Figure B.2. **Greek recent rating history**

Note: Cut-off date is 30 November 2012.

Source: Datastream and CRA's websites.

StatLink  <http://dx.doi.org/10.1787/888932779867>

2. Private Sector Involvement (PSI) Strategy: Bond Exchange Operation

Uncertainty about the details of the Greek PSI strategy continued during the rest of 2011, resulting in increasingly volatile spreads. After many months of discussions between the Greek authorities and creditor groups, an agreement on a voluntary version of the PSI strategy was reached, with Greece making an exchange offer on **21 February 2012**. Private sector bondholders were invited to swap their bonds for i) new bonds with a face value equal to 31.5% of the face amount of the debt exchanged, iii) cash-equivalent EFSF notes maturing within 24 months for 15% of the face value of the debt exchanged and iii) detachable GDP-linked securities.

Prior to the bond swap, Greece's outstanding government debt was EUR 356 billion, of which EUR 206 billion (57%) was eligible for the exchange.² The exchange offer was successfully closed on **8 March 2012**. In NPV terms, losses ranged from 70 to 75%, while in nominal terms the haircut amounted to 53.5%. This was the largest write-down recorded for a pre-default sovereign debt restructuring. For domestic law bonds, 85.8% participated (EUR 152 billion of bonds) and opted for the exchange, while Greece decided to activate collective action clauses (CACs).³ For foreign law bonds, bonds issued by state enterprises and government guaranteed securities participation was 69% (EUR 20 billion). Additional participation was secured in the following weeks as the Greek authorities had extended the exchange offer period for foreign law bonds. "Following the final settlement, Greece restructured approximately EUR 199 billion (96.9%) of the total face amount of bonds eligible to participate in the invitations."⁴

3. Second adjustment programme and debt buyback

After the successful completion of the swap, Greece signed the 2nd Economic Adjustment Programme on **14 March 2012**, covering the period 2012-2014. The EFSF and the IMF have committed the undisbursed amounts of the first programme plus an additional EUR 130 billion.

On **27 November 2012**,⁵ the Eurogroup (Ministers of Finance from the euro area) met with the IMF and the ECB and reached an agreement on Greece's bailout programme. Several measures were unveiled to bring Greek government debt on a sustainable path:

- Introduction of a debt buyback.
- The profits of ECBs' SMP will be transferred to Greece.
- Reduction of the interest rates on the Greek Loan Facility (GLF).
- Significant extension of GLF and EFSF maturities.
- Deferral of EFSF interest rate payments.

The first step of the debt buyback was an invitation on **3 December 2012** to all eligible holders of Greek government bonds⁶ to submit offers to exchange designated bonds for six-month notes to be issued by the EFSF. The buyback was conducted through a modified Dutch auction. Depending on the designated bond maturities, the price offered varied from a minimum of 30.2-38.1% and a maximum of 32.2-40.1% of the principal amount. The expiration of the invitation was first announced as 10 December 2012 and then extended to 11 December 2012. Since the buyback operation eventually went ahead, S&P downgraded Greece to the so-called "selective default" level from CCC on 5 December 2012.

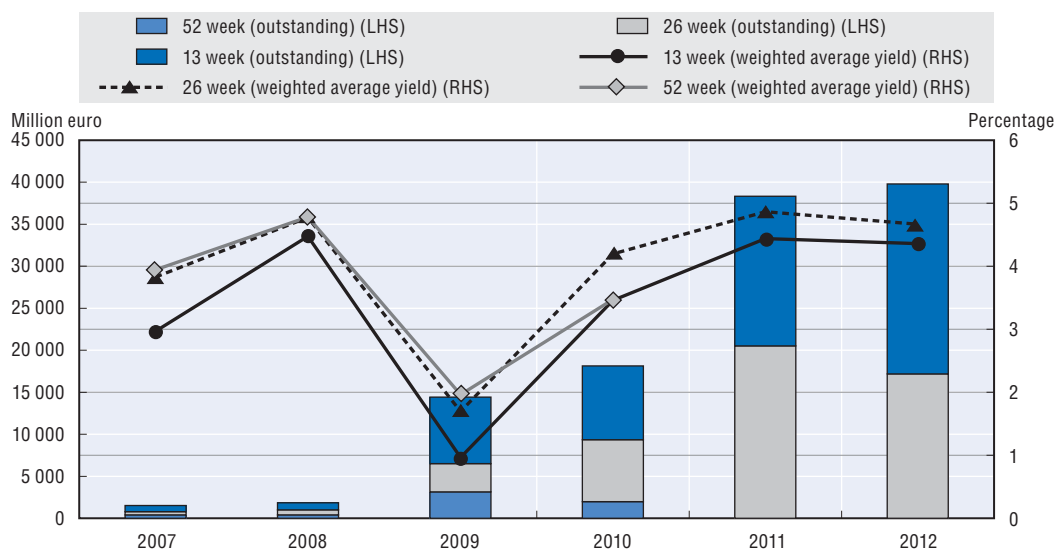
On **12 December 2012**, the Greek debt management agency (PDMA) announced⁷ the results of the debt buyback operation. According to the Agency, private bond holders agreed to sell approximately EUR 31.9 billion of the designated bonds to the Agency at approximately 33.8% of their face value. In order to complete the transaction Greece needs to receive EUR 11.29 billion of notes from EFSF.⁸ The Eurogroup welcomed the result of the buyback operation and formally approved the second disbursement under the second economic adjustment programme.⁹

The total financing gap over the next four years is to be met by increased T-bill issuance (EUR 9 bn), a smaller cash buffer build-up (EUR 3.5 bn), the deferral of interest payments on EFSF loans (EUR 3.4 bn in 2012-14 and EUR 9.5 bn in 2015-16), and the rollover of debt held by euro area national central banks in their investment portfolios (EUR 3.7 bn in 2012-14 and EUR 1.9 bn in 2015-16).

4. Official funding and issuance of short-term debt

The economic adjustment programmes and the buyback are aimed at creating the conditions for a sustainable debt profile so that Greece can eventually return to the longer term funding market. For the time being, the primary source of financing for Greece is official support. Besides official support, Greece can issue short-term debt (Figure B.3).

Figure B.3. Greece T-bill auctions and weighted average yield paid in auctions



Note: Greece could not issue 52 week T-bills during 2011 and 2012 (as of November 2012) period.

Source: Hellenic Republic, Ministry of Finance, OECD staff calculations.

StatLink  <http://dx.doi.org/10.1787/888932779886>

Notes

1. The SMP was announced on 10 May 2010.
2. T-bills, official sector loans, and ECB's holdings of Greek bonds were exempt from the swap.
3. To enhance participation, the Greek Parliament approved on **23 February 2012** a law (4050/2012) introducing collective action clause (CACs) applicable to Greek Government Bonds. These clauses entail the trigger that bond holding participants to the swap are voting automatically in favour of the exchange, while making the terms of the exchange applicable to all other bond holders. On 9 March 2012, the International Swap and Derivatives Association (ISDA) Determinations Committee decided that a credit event related to Greece took place. This in turns activated the CACs so as to force all holders to accept the exchange offer. Finally, on 19 March 2012, investors participated in a so-called credit event auction in order to determine a) the recovery value of Greek debt and b) the net payouts to be made under CDS contracts.
4. See PDMA Press Release on 25 April 2012.
5. See Eurogroup statement on 27 November 2012.
6. See PDMA Press Release on 3 December 2012.
7. See PDMA Press Release on 12 December 2012.
8. Expected settlement date of the operation is 18 December 2012.
9. See Eurogroup statement on 13 December 2012.

Glossary

Term	Definition
Central government	Defined as comprising all departments, offices, establishments and other bodies classified under general government, which are agencies or instrument of the central authority of a country, except separately organised social security funds irrespective of whether they are covered in, or financed through, ordinary or extraordinary budgets, or extra-budgetary funds. (<i>Source: OECD Economics Department Glossary</i>)
Central government gross borrowing	The gross financing requirement is compiled as the net financing requirement with the addition of redemptions on the domestic and foreign debt. (<i>Source: Denmark National Bank Glossary</i>)
Central government net borrowing	Defined as central government gross borrowing minus central government redemptions.
General government	The general government sector consists mainly of central, state, and local government units together with social security funds imposed and controlled by those units. In addition, it includes non-profit institutions engaged in non-market production that are controlled and mainly financed by governments units or social security funds. (<i>Source: OECD, Statistics Department, System of National Accounts</i> , 1993, par. 4.9)
General government financial balance	The general government financial balance corresponds to what is commonly referred to as the public surplus or deficit. In the national Accounts (SNA basis), it refers to the “net lending/net borrowing of general government”. Government net lending is general government current tax and non-tax receipts less general government total outlays. (<i>Source: OECD Economic Outlook sources and methods, OECD Statistics Department, National Accounts</i>)
General government gross financial liabilities	Debt is a commonly used concept, defined as a specific subset of liabilities identified according to the types of financial instruments included or excluded. Generally, debt is defined as all liabilities that require payment or payments of interest or principal by the debtor to the creditor at a date or dates in the future. Consequently, all debt instruments are liabilities, but some liabilities such as shares, equity, and financial derivatives are not debt. (<i>Source: OECD, Statistics Department, System of National Accounts</i> , 2008, par. 22.104)
Index-linked securities	Index-linked securities are instruments with coupon and/or principal payments which are linked to commodity prices, interest rates, stock exchange or other price indices (also known as inflation-indexed bonds or colloquially as linkers). The benefits to the issuer include a reduction in interest costs if the deal is targeted at a particular group of investors’ requirements, and/or an ability to hedge an exposed position in a particular market. Issues linked to the Retail Price Index also provide investors with protection against inflation. (<i>Source: Bank of England</i>)
Index-linked gilts (IGs)	IGs are gilts whose coupons and final redemption payment are related to movements in the Retail Prices Index. There are two fundamental designs of index-linked gilts – those with an 8-month indexation lag launched in 1981 and those with a 3-month lag launched in 2005. (<i>Source: UK Debt Management Office</i>)
Marketable debt	Securities that can be bought and sold in the secondary market.
Redemption	Principal payment (exclude interest payments).
Refinancing risk	The risk that a borrower has to finance repayments on its debt in a period with a temporary general high interest level or in a period, where the loan terms of the specific borrower are particularly unfavourable. (<i>Source: Denmark National Bank Glossary</i>)
Roll-over risk	The risk of not being able to refinance debt obligations.
Variable rate note	Variable rate notes have a floating or variable interest rate, or coupon rate. It is a long-dated debt security whose coupon is refixed periodically on a “refix date” by reference to an independent interest rate index such as LIBOR or Euribor. (<i>Source: Bank of England</i>)

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