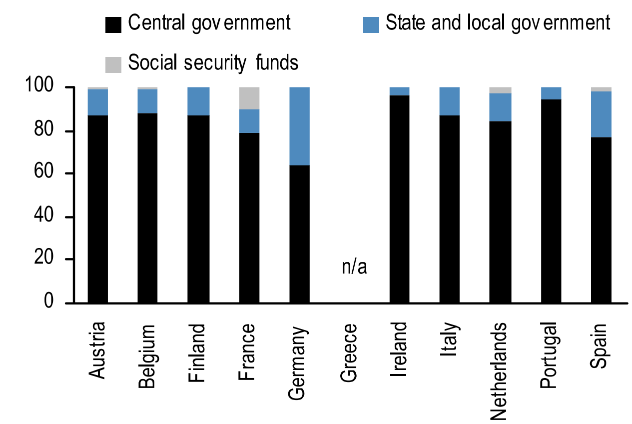
A primer on Euro area government debt markets

- **We discuss various aspects of the Euro area government debt market, including…**
- **… size, composition, governing law, type of instruments, average maturity, supply pressure**
- **We provide an overview of various securities issued by Euro area sovereigns: conventional bonds, T-bills, inflation-linked, floating-rate, zero coupon and foreign-currency bonds**
- **On supply, we look at: *1)* historical issuance size; *2)* seasonality of issuance; *3)* maturity split of the bonds issued; and *4)* the split between the formats of issuance**
- **We discuss our favourite statistics to gauge the outcome of an auction: *1)* bid-to-maximum amount offered, and the ratio between the amount issued and the maximum amount offered, *2)* auction tails (when available), *3)* performance of the bond to be issued before the auction; *4)* auction allocation levels vs. secondary market at the auction cut off time**
- **We analyse the composition of the investor base for government securities and highlight the declining appetite for peripheral debt by non-domestic investors**
- **We provide details on auction and syndication procedures**

Overview of Euro area government debt

Euro area debt, as defined by the Maastricht Treaty[1] was estimated around €8.2tn, or almost 90% of GDP at the end of 2011. Despite very different levels of debt, government debt has similar characteristics across countries: *1)* **the debt is overwhelmingly issued by the central government** (**Exhibit 1**), with the important exception of Germany; despite all the noise around regional debt in Spain the debt from *comunitades autonomas* is just 13% of GDP, *2)* most of the debt consists of securities (bonds and T-bills), with loans accounting for just 18% of the total, *3)* the debt is predominantly denominated in euros, *4)* securities are typically regulated by domestic law with the exception of Greece (**Exhibit 2**), which exchanged old domestic-law

Exhibit 1: Most government debt is issued by a central authority…
Split between central, state and local government, and social security funds debt; as of 2010; % of total



Source: The Eurostat 2010 government debt structure survey

Exhibit 2: …and is written largely under local law, with the exception of Greece post PSI
% of outstanding bond debt which is governed by domestic/foreign law

	% of Bonds by governing law	
	Domestic	Foreign
Germany	100%	0%
France	100%	0%
Italy	98%	2%
Spain	99%	1%
Netherlands	100%	0%
Belgium	100%	0%
Austria	94%	6%
Greece	44%	56%
Finland	93%	7%
Portugal	96%	4%
Ireland	100%	0%

Note: Based on a sampling of prospectuses available on Bloomberg. Broadly, we assume that international bonds are governed by foreign law and all other bonds are governed by domestic law. Country-specific exceptions are as follows: Greece: new Greek bonds issued under the PSI (€62bn) are governed by the English law and the €49bn of Greek bonds held by ECB/NCBs are governed by domestic law. Italy: Italy has relatively good availability of prospectuses for its international bonds. In all cases sampled, international bonds issued in European currencies (EUR/CHF/CZK) are governed by Italian law, whereas international bonds issued in non-European currencies (USD/GBP) are governed by foreign law. Thus, we assume this pattern for the remainder. Note that roughly 50% of Italian international bonds, by outstanding amount, are denominated in European currencies. Spain: Very few prospectuses are available. At least one international bond, issued in French francs in 1997, is governed by Spanish law. We continue to assume that all other international bonds are governed by foreign law, as 85% of the remaining outstanding amount is denominated in non-Euro currencies (USD/GBP/JPY). See *Global Fixed Income Markets Weekly*, 3 February 2012 for details.
Source: Bloomberg, J.P. Morgan

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[1] The Maastricht definition of government debt is *1)* gross, i.e. only looks at liability side of the government balance sheet, and *2)* general on a consolidated basis, i.e. intra-holdings between the different sectors of general governments (central government, local governments and social security funds) are excluded from the calculation.

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Exhibit 3: Central governments access funding via a broad range of products, but conventional issuance forms the backbone…
Breakdown of Euro area central government securities debt outstanding by type; end of 2Q12; €bn and % of total

				Austria	Belgium	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Portugal	Spain	Euro area 11
Central govt				200	368	85	1,372	1,104	129	96	1,629	311	130	607	6,032
Central govt	€	Bonds	Conventionals	184	277	70	1,035	997	111	83	1,081	288	94	523	4,742
Central govt	€	T-bills		1	33	3	180	53	14	0	158	21	13	73	547
Central govt	€	Bonds	Inflation-linked	0	0	0	157	51	0	0	116	0	0	0	323
Central govt	€	Bonds	Floaters	0	3	0	0	0	0	0	135	0	0	7	145
Central govt	€	Bonds	Zero coupon	0	0	0	0	0	0	0	67	0	0	0	67
Central govt	Non-€			10	6	12	0	3	3	0	34	3	2	4	76
Central govt	Other: retail, EMTN, etc…			5	50	0	0	0	2	12	40	0	21	1	132
Central govt	€	Bonds	Conventionals	92%	75%	82%	75%	90%	86%	87%	66%	93%	72%	86%	79%
Central govt	€	T-bills		0%	9%	4%	13%	5%	11%	0%	10%	7%	10%	12%	9%
Central govt	€	Bonds	Inflation-linked	0%	0%	0%	11%	5%	0%	0%	7%	0%	0%	0%	5%
Central govt	€	Bonds	Floaters	0%	1%	0%	0%	0%	0%	0%	8%	0%	0%	1%	2%
Central govt	€	Bonds	Zero coupon	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	1%
Central govt	Non-€			5%	2%	14%	0%	0%	2%	0%	2%	1%	1%	1%	1%
Central govt	Other: retail, EMTN, etc…			2%	14%	0%	0%	0%	1%	13%	2%	0%	16%	0%	2%

Source: European Commission, Ministries of Finance, Debt Management Offices, Bloomberg, J.P. Morgan

bonds into a smaller amount of new international-law bonds at the PSI in March 2012.[2]

In this publication we focus on securities issued by the central government.

Central government securities are split between various products (**Exhibits 3** & **4**); however around 80% is in conventional format – that is, vanilla, fixed-rate bonds. T-bills make up the next largest component at less than 9%, and the remainder is inflation-linked, floating, zero coupon and foreign-denominated bonds. Euro area governments also tap investors with less liquid but potentially more customized products, such as private placements and EMTN programmes, but this is a relatively small portion of total issuance.

Funding strategies vary somewhat between countries. At one end of the spectrum, only 2/3 of Italy's outstanding securities are in conventional format as the Treasury has been diversifying sources of funding for years. At the other end of the spectrum, Austria and the Netherlands rely almost exclusively on conventionals. It is also worth highlighting France's higher than average reliance on inflation-linked bonds as well as Spain's higher than average T-bill programme; to the contrary, despite being able to fund at close to zero yields, Germany relies very little on T-bills. **The use of alternative funding products is largely a function of overall borrowing needs – if deficits increase suddenly, sovereigns initially tend to diversify into other funding sources to avoid large fluctuations in the volume of conventional issuance**.

The average maturity of the bond market has remained fairly stable in recent years, but with some diverging trends among countries. Data based on our EMU bond index (i.e. excluding bonds with less than 13 months to maturity) shows a decline in the average maturity for Italy and Spain and an upward trend in most core countries (**Exhibit 5**). **The decline in average maturity of Italian and Spanish debt is a byproduct of the decision to concentrate supply in shorter, more liquid maturities favoured by domestic banks**.

Finally, we highlight total supply pressures in **Exhibit 6**. For 2012, we expect approximately €732bn of conventional issuance across the Euro area, €586bn of T-bills and unconventional supply to contribute another €82bn. **On average, securities issuance in a year like 2012 is 15% of GDP, with Italy at the top of the ranking with 23% to rollover**; issuance in France, Spain and Belgium is also expected to exceed 15% of GDP.

[2] For a discussion on different features of domestic-law and international-law bonds see *Global Fixed Income Markets Weekly*, 3 February 2012.

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Exhibit 4: …with different sovereigns preferring to issue different instruments/maturities

Overview of typical instruments and maturities issued by various Euro area governments

	Conventionals												Others				
	Auctions											Syndicates		Inflation-linked		Zero coupon (>1Y)	
	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y	50Y	Off-the-runs	Buybacks & exchanges		T-bills	Inflation-linked	Floaters	Zero coupon (>1Y)	Foreign
Austria			x	x	x	x		x	x	x		x	x				x
Belgium		x	x	x	x	x	x	x		x		x	x		x		x
Finland			x		x	x		x		x		x	x				x
France	x		x		x	x		x	x	x		x	x	x			
Germany	x		x		x			x					x	x			x
Greece		x	x		x	x		x				x	x	x	x		x
Ireland		x	x		x	x				x		x	x				x
Italy		x	x		x	x		x		x	x	x	x	x	x	x	x
Netherlands		x	x		x		x	x		x		x	x				x
Portugal			x		x	x		x		x	x	x	x				x
Spain		x	x		x	x		x		x		x	x		x	x	x

* Prior to loss of market access.

Types of marketable securities

Conventional bond issuance is the backbone of Euro area government funding. Conventional bonds have no options attached to them, redeem at par and pay annual coupons, with the exception of Italy (which pays semi-annual coupons). Sovereigns issue conventional bonds out to 50Y (Exhibit 4). Almost all countries issue 10Y benchmarks on an annual basis, and 5Y benchmarks are very common. Only Germany and France access the 2Y part of the curve, as other countries prefer the 3Y point. In 2012, for the first time countries issued benchmarks in 7Y (Austria and Belgium) and 20Y (Austria and the Netherlands) part of the curve. Most issuers auction off-the-run bonds to take advantage of favourable pricing and/or improve secondary market liquidity. A few countries engage in buybacks and exchanges to smooth their redemption profiles. All countries with the exception of Germany use syndications to launch at least some new conventional lines.

Among the other sources of funding, all countries issue T-bills, including even countries such as Greece and Portugal, which are not able to issue bonds (with typical maturities ranging from 3M to 12M), whereas Ireland is expected to restart their programme soon.

Only France, Germany and Italy are frequent issuers of inflation-linked bonds, but Greece has also tapped into this market in the past, and others have expressed some interest. Inflation-linked bonds in the Euro area are all modeled on the Canadian style (the same as US TIPS). There is a deflation floor on the principal payment and real cash flows are adjusted by a daily inflation reference based on a 3M lag, interpolated from monthly inflation prints. All issuers use Eurostat Euro HICP ex-tobacco, with the exception of France, which also issues bonds indexed to INSEE French CPI ex-tobacco. Syndications are sometimes used for new lines. Italy has

Exhibit 5: The average maturity of conventional debt has declined for peripherals and increased for core countries since the start of the crisis

Average remaining maturity of conventional bonds with maturity >13M; years

	Jun-12	Dec-07	Change
Austria	8.3	8.7	-0.4
Belgium	8.6	8.2	0.4
Finland	6.8	4.9	1.9
France	8.9	8.8	0.1
Germany	8.9	8.1	0.8
Greece*	7.6	8.2	-0.6
Ireland	6.7	7.9	-1.2
Italy	8.5	9.8	-1.3
Netherlands	8.4	7.9	0.5
Portugal	5.8	7.8	-2.0
Spain	7.6	8.8	-1.3
Peripheral wtd. avg.**	8.0	9.2	-1.2
Core wtd. avg.**	8.7	8.3	0.4
EMU wtd. avg.**	8.5	8.7	-0.2
EMU wtd. standard deviation**	1.0	1.2	

* Prior to PSI.
** J.P. Morgan EMU bond index weights.
Source: J.P. Morgan EMU bond index

Exhibit 6: We estimate that total Euro area supply in 2012 will be around 15% of GDP on average, with Italy being the highest at 23%

J.P. Morgan forecast of 2012 conventional and non-conventional gross bond and T-bill issuance*; €bn and % of GDP

	Conventional bonds	T-bills	Other bonds	Total (€bn)	Total (%GDP)
Austria	22	1	0	23	7%
Belgium	32	36	0	68	18%
Finland	14	7	0	21	11%
France	183	176	14	373	18%
Germany	175	56	8	239	9%
Greece	0	10	0	10	5%
Ireland	0	5	0	5	3%
Italy	150	165	60	375	23%
Netherlands	61	25	0	86	14%
Portugal	0	11	0	11	7%
Spain	95	94	0	189	17%
Total	**732**	**586**	**82**	**1400**	**15%**

* Excluding rolling issuance, i.e. a 3M T-bill that gets rolled four times in a year is counted only once.

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Exhibit 7: Conventional bond supply remains well above pre-crisis levels

Euro area conventional bond issuance; realized and J.P. Morgan forecast; €bn

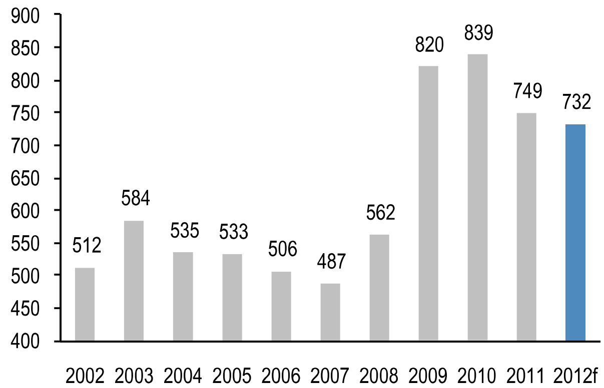
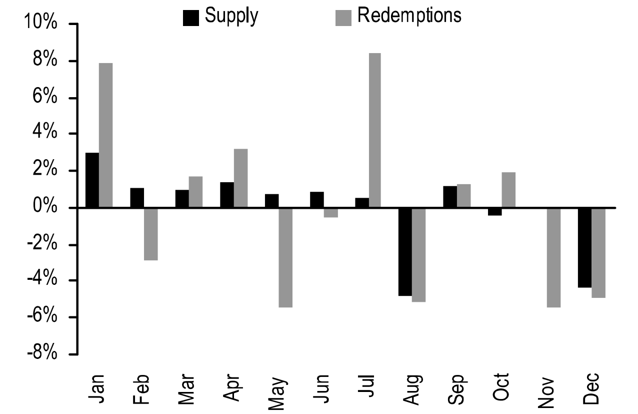


Exhibit 8: Conventional bond supply is heaviest in January and lightest in August and December; while redemptions are heaviest in January and July. Thus, gross supply is not correlated with redemptions…

% of conventional issuance and redemptions by month - 8.3% (1/12); 2007-2011 average



also started issuance of domestic CPI linked bonds for retail investors, with a slightly different structure.

Floaters are used by a small group of borrowers: only Italy has a regular issuance programme, but it recently switched from monthly to quarterly issuance, whereas other issuers, such as Belgium, are more opportunistic. Zero coupon bonds are even less frequent: once again only Italy has a regular issuance programme, although Spain's 18M Letras are comparable to 2Y Italian CTZs.

All Euro area countries have issued bonds denominated in foreign-currency, except France. Foreign-currency issuance tends to be opportunistic and mostly depends on the savings vs. €-denominated issuance that can be achieved once the foreign-currency cash flows are swapped back into euro.

Statistics on supply

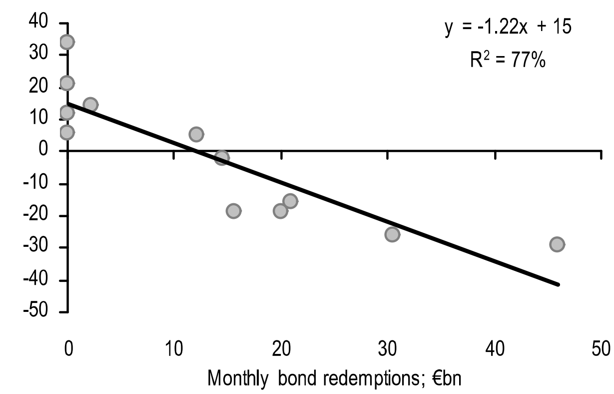
Focusing on conventional bond supply, we analyse: *1)* historical issuance; *2)* seasonality of issuance; *3)* split in maturity of bonds issued; and *4)* the split between the formats of issuance.

Conventional bond issuance is mainly a function of government deficits and redemptions, and issuance volumes are still well above pre-crisis level (**Exhibit 7**).

Most issuers tend to front-load their issuance programmes. Q1 tends to be the heaviest quarter of the year, whereas supply is very light in the holiday months of August and December (**Exhibit 8**). Redemptions are heaviest in July, but July supply is in line with average, making it by far the month with the most negative net issuance. It is important to highlight that **supply does not track redemptions closely as Treasuries use cash balances to accommodate large swings in redemptions (Exhibit 9)**.

Exhibit 9: …since cash balances are used as a buffer to accommodate large swings in redemptions

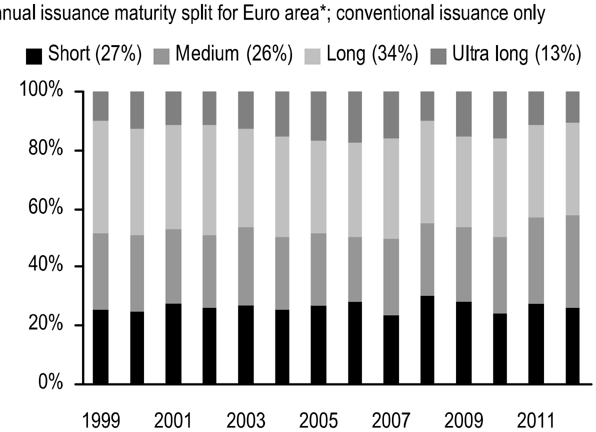
2011 monthly change in Italy's general government cash balance at the Bank of Italy regressed against monthly bond redemptions; €bn



Source: Bank of Italy; Italian Treasury

Exhibit 10: The maturity split for conventional issuance has been relatively stable over time

Annual issuance maturity split for Euro area*; conventional issuance only



* Short: 2-3Y, medium: around 5Y, long: around 10Y, ultra-long: >10Y.

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Issuance by maturity bucket has been fairly stable through the years: roughly 1/4th in short maturities (2Y and 3Y), 1/4th in the 5Y sector, 1/3rd in 10Y and the rest in the 10Y+ sector (**Exhibit 10**).

Broadly speaking supply is brought to market either directly to final investors, through syndicated deals or indirectly through auctions managed by primary dealers. **The overwhelming majority of Euro area supply comes via auction**. Syndicated deals are typically used: *1)* for new bonds rather than existing bonds; *2)* for less liquid instruments such as ultra-long bonds or inflation-linked bonds; *3)* more frequently by smaller countries compared to larger countries. We cover details on auction and syndication procedures in **Appendices 1 and 2**.

Auctions are either taps of existing issues or creation of new benchmarks. Euro area sovereigns tend to issue at regular intervals. Not surprisingly, large Euro area countries issue both more frequently and in larger size than their smaller peers. Germany currently accesses the market roughly 10 times per quarter with an average auction size of €5bn; to the contrary Finnish auctions are sporadic and small (**Exhibit 11**).

The timing and level of information provided before the auction vary by issuer. **The bonds to be auctioned and the expected size (typically ranges) are announced a few days before the auction** (**Exhibit 12**). However, most issuers publish annual strategic guidelines that contain details on overall borrowing needs, auction dates and any news in the issuance strategy. Issuers have to juggle their desire to be transparent and predictable, with their need to adapt to changing market conditions.

In general, only primary dealers (or market makers) can participate directly at the auction.[3] Market makers accept specific requirements for participation in the primary market and quoting obligations in the secondary market, acting as intermediaries between final investors and government issuers.

How to evaluate the success of an auction?

One question that has risen in prominence recently is how to evaluate the success of an auction. Media coverage tends to focus on bid-to-cover ratios, but we believe that other indicators have more informational content.

[3] As stated on the Spanish Treasury website: "*Market Makers are a group of financial companies whose ultimate purpose is to stimulate the liquidity of the secondary market in Public Debt and co-operate with the General Directorate of the Treasury and Financial Policy in the diffusion of Government Debt domestically and abroad*".

Exhibit 11: Euro area sovereigns tend to issue at regular intervals to make supply more predictable and increase market liquidity…

Conventional bond auctions: typical size (in €bn) and frequency;

	Typical auction size* (€bn)	Auctions per quarter
Austria	1.5	3
Belgium	3.0	3
Finland	1.0	0.5
France	8.0	6
Germany	5.0	10
Greece**	1.5	3
Ireland**	1.5	3
Italy	6.0	6
Netherlands	2.5	6
Portugal**	1.0	2
Spain	3.5	6
Average	**3.1**	**4**

* Sum if multi-line auctions.
** Prior to loss of market access.

Exhibit 12: …with most issuers announcing details of upcoming auctions a few business days prior to issuance

Timing of announcement about conventional bonds to be issued and auction size, B = business days prior to the auction date, D = calendar days prior to the auction date

	Bonds to be issued	Auction size
Austria	-7D	-7D
Belgium	-7D	-3D
Finland	-7D	-7D
France	-6D	-6D
Germany	quarterly calendar	quarterly calendar
Greece*	quarterly calendar	-7D
Ireland*	-7D	-2D
Italy	-3B	-3B
Netherlands	quarterly calendar	quarterly calendar
Portugal*	-6D	-6D
Spain	-6D	-3D

* Prior to loss of market access.

In our view, **gauging the outcome of an auction involves an analysis of:**

***1)* bid-to-maximum amount offered,** and the ratio between the amount issued and the maximum amount offered,

***2)* auction tails (the difference between the weighted average yield and the maximum accepted yield)**,

***3)* performance of the bond to be issued** (or closest bond by maturity in case of a new issue) **in the secondary market before the auction**;

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4) **auction allocation levels vs. secondary market at the auction cut off time**.

Why do we find the bid-to-cover ratio not particularly informative? Because:

1) On the denominator, bids entered at the auction might give a distorted representation of final demand. In most countries, participation at bond auctions have historically shown little final investor demand as auctions tend to clear at higher prices than secondary market levels due to primary dealership rules that have historically favoured overbidding. For instance, Greek auctions have shown consistently high bid-to-cover ratios even as the country was losing access to the market. However, with decreasing depth in the secondary market, the situation has changed somewhat as final investors can reserve amounts that are no longer easily transactable in secondary market, making bids more closely aligned to final investor demand than before.

2) On the denominator, most Treasuries can react to poor demand by reducing the amount they issue, thereby pushing the bid-to-cover ratio up. Given that most countries give issuance size ranges, we find it more useful to focus on the bid-to-maximum amount offered and the ratio between the amount issued and the maximum amount offered.

Bond auction in Spain in period between December 2011 and January 2012 give a good representation of the different message that bid-to-cover and bid-to-maximum amount offered can give (**Exhibit 13**). LTRO-driven demand from domestic banks allowed the Spanish Treasury to issue well in excess of the planned maximum amount, whereas the bid-to-cover ratio was modest by historical standards.

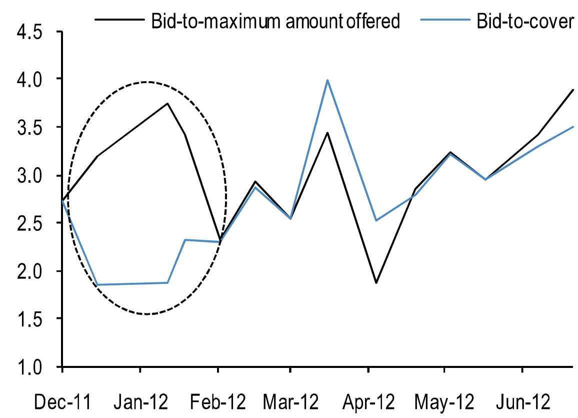
When available, **auction tails provide information on the dispersion of bids** (**Exhibit 14**); we associate more dispersion with weaker underlying demand.

Other factors that should be taken into account are bond performance in the days prior to the auction, and auction levels vs. secondary market at the time of the auction. Given pressure on primary dealers to maintain market share, concerns about the ability to sell bonds to final investors tend to translate into bond cheapening prior to the auction (**Exhibit 15**). A good auction based on the bid-to-maximum amount offered and a short auction tail is less impressive if the bond has performed poorly in the days prior to the auction or if auction allocation yields are high vs. secondary market yields at the time of the auction.

Finally, we also argue against comparing bid-to-cover ratios across countries. For instance, uncovered (fewer bids than the amount offered) German auctions are not uncommon (around 22% of the German conventional bond auctions were uncovered in 2011), whereas in other countries this is an extremely rare event. This is not due to lower appetite for German paper, but rather due to less binding rules around primary dealer participation at the auction and other technical factors such as the lack of post-auction non-comp allocation (see below for details).

Exhibit 13: Good auction or bad auction? Bid-to-maximum amount offered is more informative than bid-to-cover, as shown by the example of Spanish auctions between Dec11 and Jan12

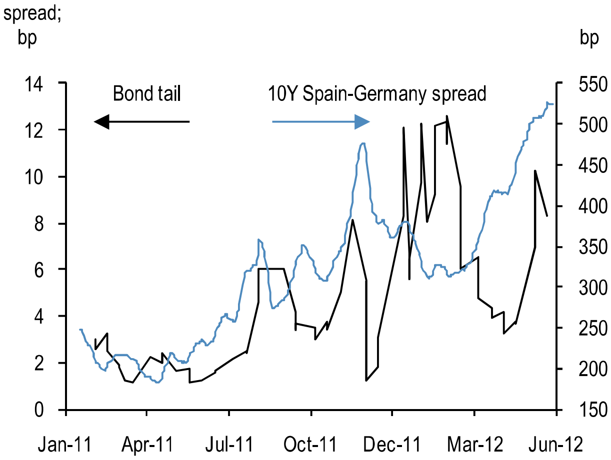
Bid-to-cover* and bid-to-maximum amount offered** at Spanish bond auctions since December 2011



* Bid-to-cover: total bids divided by total amounts issued across bonds issued.
** Bid-to-maximum amount offered: total bids divided by upper end of the size range announced by the Treasury prior to the auction.

Exhibit 14: Auction tail is a an indicator of peripheral stress

Average auction tail over last three auctions and 10D MA of 10Y Spain-Germany bond spread;



* Auction tail defined as the difference between marginal auction yield (highest accepted yield) and average auction yield.
Source: Spanish Treasury, J.P. Morgan

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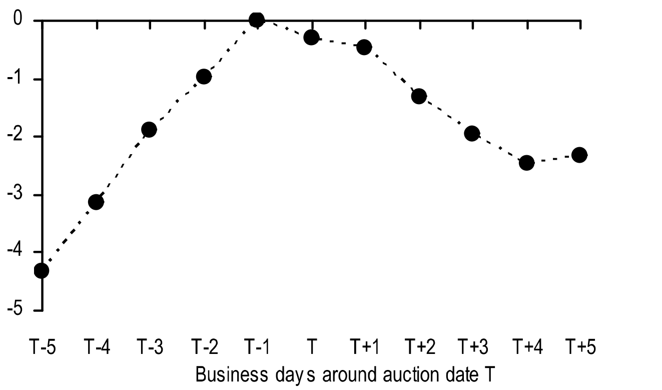
Exhibit 15: Bonds tend to cheapen into supply

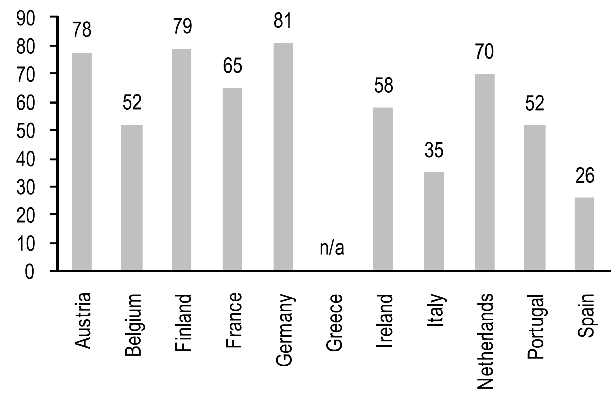
Evolution of top 11 Euro area countries' ex Germany bond spread to Germany* around supply adjusted for cross-market spreads**; 2009-2011 average; bp



* If a new bond is issued, the bond with the closest shorter maturity is used.
** (Bond yield – m/m German par yield) – Beta * weighted Euro area countries maturity matched spread to Germany in the sector of the curve (weighted by the size of their outstanding bond market). The beta between the country spread to Germany and the weighted spread to Germany is calculated as the ratio of (Bond yield – m/m German par yield) and weighted Euro area countries maturity matched spread to Germany at T-5 days.

Exhibit 16: Although non-domestic investors still account for a large percentage of European sovereign debt holdings…

% of non-domestic investors* in government securities in Euro area countries**; %



* Non-domestic holdings exclude ECB SMP holdings. We estimate that ECB holds roughly 20% of Irish, 7% of Italian, 16% of Portuguese and 6% of Spanish government bonds in the SMP.
** Estimates as of 3Q11 for Germany, Austria, Belgium, Finland and France, 4Q11 for Ireland, Netherlands and Portugal, March 2012 for Spain and April 2012 for Italy.
Source: National central banks, Debt agencies, Statistics offices; J.P. Morgan estimates.

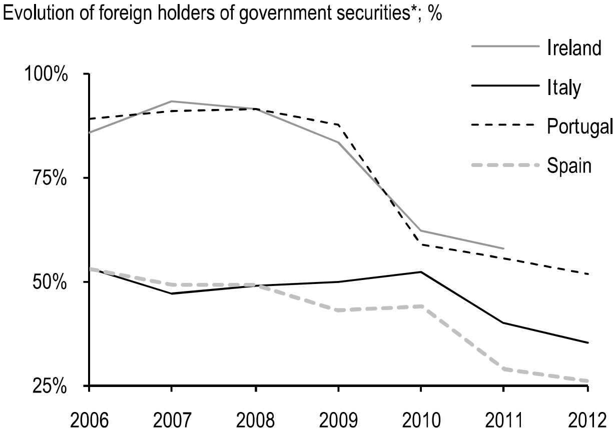
Statistics on investor base

Official data on debt holding by type of investor is published with various formats and frequency, and is not always comparable across countries. **Exhibit 16** shows our estimates of non-domestic investors' holdings excluding ECB SMP holdings in Euro area government securities. We remove ECB SMP holdings from the non-domestic share to insulate the behaviour of the non-official sector. **Countries with a higher rating tend to have a higher percentage of non-domestic investors**.

Following the creation of the euro, there has been a steady increase in the percentage of non-domestic bond holdings across the board, but in the peripheral countries this has reversed with the Euro area sovereign crisis (**Exhibit 17**). In Italy, for example, we estimate that non-domestic investors' holdings have declined by roughly €250bn from their peak holdings of €830bn in June 2011, substituted largely by domestic MFIs[4], the ECB through SMP purchases and other Italian residents. Specifically, MFIs and the ECB increased their holdings by roughly €90bn and €110bn, respectively (**Exhibit 18**). Over the same period, in Spain, non-domestic investors cut €65bn of their holdings, whereas domestic MFIs and the ECB SMP increased their holdings by around €55bn and €40bn, respectively (**Exhibit 19**).

Exhibit 17: … their participation in peripheral sovereign debt markets has been declining sharply due to the sovereign crisis

Evolution of foreign holders of government securities*; %



* Non-domestic holdings exclude ECB SMP holdings. We estimate that ECB holds roughly 20% of Irish, 7% of Italian, 16% of Portuguese and 6% of Spanish government bonds in the SMP.
** For 2012, Mar-12 data for Ireland and Spain, and Apr-12 data for Italy.
Source: National central banks, Debt agencies, Statistics offices

It is worth highlighting that despite France's relative underperformance vs. Germany over the past few years, the investor base has remained fairly stable (**Exhibit 20**). The percentage on non-domestic investors has declined only modestly from the peak reached in 2009-10.

[4] MFIs include monetary and financial institutions, mainly banks.

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Exhibit 18: In Italy, for example, non-domestic investors' holdings have declined by roughly €250bn, substituted largely by SMP purchases, domestic MFIs, and other Italian residents

Change in composition of investor base in Italian general government securities: J.P. Morgan estimate for April 2012* vs. official June 2011 data; €bn

	Apr-12	Jun-11	Chg.	Apr-12	Jun-11	Chg.
Central bank ex SMP	74	68	6	5%	4%	0%
Other MFIs	338	250	88	21%	16%	5%
Other financial institutions	275	264	12	17%	16%	0%
Other residents	260	194	66	16%	12%	4%
Non-residents ex SMP	576	827	-251	35%	52%	-16%
SMP	110	0	110	7%	0%	7%
Total	1634	1604	30	100%	100%	0%

* See *Global Fixed Income Markets Weekly*, 3 March 2012 and 24 February 2012 for details on the methodology adopted.
Source: Bank of Italy, Italian Treasury, ECB, J.P. Morgan

Exhibit 19: Spain's case is similar; non-domestic investors have reduced their holdings by €65bn, which was more than offset by purchases from domestic MFIs and the SMP program

Change in composition of investor base in Spanish central government securities: J.P. Morgan estimate for March 2012* vs. official June 2011 data; €bn

	Mar-12	Jun-11	Chg.	Mar-12	Jun-11	Chg.
Central bank ex SMP	25	21	4	4%	4%	0%
MFIs ex central bank	212	156	56	35%	28%	7%
Other financial institutions	95	85	10	16%	15%	0%
Other residents	83	79	4	14%	14%	0%
Non-residents ex SMP	158	223	-65	26%	40%	-14%
SMP	37	0	37	6%	0%	6%
Total	609	564	46	100%	100%	0%

* See *Global Fixed Income Markets Weekly*, 3 March 2012 and 24 February 2012 for details on the methodology adopted.
Source: Bank of Spain, Spanish Treasury, ECB, J.P. Morgan

Exhibit 20: The ownership of French government bonds has not declined much from the peak reached in 2009-2010

Composition of OAT (long dated bonds) ownership and % of non-resident ownership for all securities

	OATs only					All securities
	Insurance companies	MFIs	Mutual funds	Others	Non-residents	Non-residents
31-Dec-04	31	14	9	3	43	53
31-Dec-05	32	5	8	2	53	56
31-Dec-06	28	6	8	2	56	59
31-Dec-07	24	7	8	2	59	61
31-Dec-08	21	14	4	3	59	65
31-Dec-09	20	14	3	3	60	68
31-Dec-10	23	13	2	4	59	68
31-Mar-11	21	14	2	5	56	65
30-Jun-11	22	14	2	5	57	66
30-Sep-11	22	14	2	5	57	66
31-Dec-11	20	15	3	6	57	65
Change since Dec09	0	1	0	3	-3	-3

Source: Agence France Tresor

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Appendix-1: The auction process in detail

Euro area countries auction bonds with different sizes, frequency and calendar, with only France and Spain issuing bonds on the same day in a typical month. Many countries use multi-line auctions, i.e. they auction two or more lines simultaneously on any given auction date (**Exhibit A1**).

Bond auction procedures

Auction procedures vary somewhat between issuers (**Exhibit A2**). Multiple bids are allowed; auction bids from market makers are collected before a cut-off time. Once a grid of bids is available, debt offices then decide how much to allocate based on price and size considerations. Typically any bid above the threshold gets allocated in full, whereas bids at the cut-off level are allocated pro-rata. **There are four types of auction allocation:**

1) **Multiprice**: It is the most common auction allocation type in which any accepted bids are satisfied at the submitted price.

2) **Uniform price**: All accepted bids are allotted at the cut-off level.

3) **Dutch modified**: Only Spain uses a hybrid Dutch modified allocation where all accepted bids below the weighted average price are allocated at the submitted price; bids above the average price are capped at the weighted average price.

4) **Dutch tap**: The tap procedure used by the Dutch Treasury is different from the previous three; the Dutch State Treasury Agency shows prices that are adjusted real-time depending on market conditions. If a primary dealer deems the price attractive, a trade is made instantly. Once the desired amount is reached, the auction is closed. The process typically lasts a few minutes.

Bond auction results can be found on Bloomberg, Reuters and debt office websites. We show the relevant pages in **Exhibit A3**.

Non-competitive allocation

There are two types of non-competitive allocation, which are very different.

1) **In a small number of countries, non-competitive bids can be submitted at the time of the auction**. Similar to the procedure for US Treasuries, the advantage of non-competitive bidding at the auction is the higher likelihood of purchasing the bonds, given that non-competitive bids are given preferential treatment. The drawback is that the price will depend on other investors' bids since the price paid is the weighted average of the accepted bids.

2) **Most countries grant primary dealers the option to buy more bonds in a non-competitive allocation some time after the auction**. The price at which bonds can be bought is the auction price. Investors are effectively given an option: they have an incentive to exercise the option if secondary market prices are higher than the auction price when the option expires. The longer the gap between the auction and the non-competitive allocation the more valuable the option is. The longest time between auction and non-competitive allocation is five business days for Belgium's NC2, a special non-competitive allocation. In general the maximum non-

Exhibit A1: The size, frequency and calendar of bond auctions varies significantly across Euro area countries
Typical bond auctions size, frequency and auction calendar

	Conventionals				Others		
	Typical auction size*	Auctions per quarter	Auction dates	Multi-line**	IL	Floaters	Zero coupons
Austria	1.5	3	monthly, 1st or 2nd Tuesday of the month	x			
Belgium	3.0	3	monthly, 4th or 5th Monday****	x			
Finland	1.0	0.5	infrequent, on Wednesdays				
France	8.0	6	long end: first Thu of the month, short end: 3rd Thu	x	3rd Thu		
Germany	5.0	10	almost weekly, on Wednesdays		infrequent, Wed		
Greece***	1.5	3	monthly, on Tuesdays				
Ireland***	1.5	3	3rd Wed of the month	x			
Italy	6.0	6	3Y and 10Y+: mid-month, 5Y and 10Y: end of month	x	month end	quarterly	month end
Netherlands	2.5	6	twice a month, 2nd and 4th Tuesday	x			
Portugal***	1.0	2	monthly, typically 2nd Wed of the month				
Spain	3.5	6	short end: 1st Thu of the month, long end: 3rd Thu	x			infrequent

* Sum if multi-line auctions.
** In multi-line auctions several bonds are issued or tapped.
*** Prior to loss of market access.
**** Belgium also holds Optional Reverse Inquiry (ORI) auctions on every second Tuesday of the month. A maximum of two lines are tapped, typically in the ultra-long sector, for a maximum size of €0.5bn.
Source: J.P. Morgan

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Exhibit A2: Conventional bond auction procedures vary between issuers

Auction times, announcement of auction sizes, allotment procedures and non-competitive auctions for conventional bonds

	Timing: Bidding deadline / results (London time)	Auction size announcement	Auction allotment procedure *	Non comp. bid submitted at the auction?	Non comp. allocation after auction?
Austria	10:00 / 10:05	fixed, including amount retained for secondary market operations	multiprice	no	after 1 day
Belgium	11:00 / 11:15	range	multiprice	no	after 3 days (NC1) and after 7 days (NC2)
Finland	11:00 / 11:05	fixed	uniform	no	no
France	9:50 / 9:55	range	multiprice	no	after 2 days
Germany	10:30/10:35	fixed, including amount retained for secondary market operations	multiprice	yes (weighted average of accepted bids); full allocation not guaranteed	no
Greece**	10:00 / 10:10	fixed	multiprice	yes	after 2 days
Ireland**	10:00 / 10:05	fixed	multiprice	no	up to 2 days
Italy	10:00 / 10:10	range	uniform	no	after 1 day
Netherlands	9:00 / 9:15	range	tap	no	after 3 days
Portugal**	10:30 / 10:40	indication, up to 1/3 more possible	multiprice	no	in the afternoon
Spain	9:30 / 9:35	range	Dutch modified	yes	after 2 days

* Multiprice: Bids satisfied at price at which they were submitted. Uniform: Bids are filled at a single marginal price. Dutch modified: multiprice between lowest accepted price and weighted average price; uniform at weighted average price for bids above. Tap: Dutch Treasury continuously updates prices that primary dealers can accept.
** Prior to loss of market access.

competitive allocation after the auction is 30% of total for new bonds issued by Italy.

The rationale for the post-auction non-comp allocation is completely different to the non-comp allocation at the auction: issuers are happy to issue more bonds at the auction price and by giving market makers a valuable option for free, they incentivise participation at the auction.

Auctions of other instruments

T-bill auction sizes are generally €2-4bn, and 3M and 12M maturities are the most common, but they can range up to 18M (Exhibit A4). Less frequent issuers tap the market opportunistically (Austria, Finland) whereas larger countries issue once or several times a month via regular programmes. Most countries in the Euro area use multiprice auctions for T-bills, the exceptions being Greece and the Netherlands, which use uniform prices.

Exhibit A3: Auction results can be accessed via Reuters / Bloomberg

Bloomberg/Reuters screens for bond auction details and results

	Bloomberg		Reuters	
Country	Menu	Bond auction results	Menu	Bond auction results
Austria			AFFA01	
Belgium	BELG	BELG2	BELG/MENU	BELG/OLO
Finland	STF	STF10	SUVA	SUVQ
France	TREX	TREX1 (OAT)	TRESORMENU	ADJUOAT
		TREX2 (BTAN)		ADJUBTAN
Germany	BUND	BUND4	ESZB/BBK	
Greece	PDMA	PDMA5	GR/PDMA01	GR/PDMA05
Ireland	NTMA	NTMA2	NTMA	
		MDUA		
		MDUA6, MDUA7...		
Italy	MDTE	(BTPs)	TESOROIT01	TBTP3A, TBTP5A,..
Netherlands	DSTA	DSTA2	DSTAMENU	DSTA03
Portugal	IGCP	IGCP8	IGCP01	IGCP09
Spain	TESO	TESO5	TESORO	TESORESP07

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Exhibit A4: Most countries in the Euro area use multiprice auctions for T-bills, with an average auction size of €2-3bn

T-bill auction characteristics: auction calendar, announcement, typical size, maturities issued and allotment procedures

	Auction dates	Auction announcements	Typical auction size (€bn)	variable	3M	6M	9M	12M	18M	Taps	Auction allotment price*
Austria	opportunistic	n/a		x							ad-hoc**
Belgium	1st and 3rd*** Tue	Fri before the auction	2-4		x	x		x		x	multiprice
Finland	opportunistic	n/a		x							ad-hoc**
France	weekly, Mon	Fri before the auction	7-9		x	x		x		x	multiprice
Germany	generally 2nd and 4th Mon	quarterly	3-4			x		x			multiprice mod.
Greece	2nd and 3rd Tuesday	Fri before the auction	0.5-1.5		x	x					uniform
Ireland****	used to be 2nd Thu of the month	Tue before the auction	1		x			x			multiprice
Italy	3M, 12M: mid month; 6M: month end	3 bus. days before the auction	8-12	x	x	x		x			multiprice
Netherlands	1st and 3rd Mon of the month	Wed before the auction	2-4		x	x	x	x			uniform
Portugal	1st Wed of the month	quarterly	1.25-1.50			x		x	x		multiprice
Spain	3rd and 4th Tue of the month	Mon before the auction	3-6		x	x		x	x	x	Dutch modified

* Multiprice: Bids satisfied at price at which they were submitted. Uniform: Bids are filled at a single marginal price. Multiprice mod.: Bids satisfied at price which they were submitted. Dealer can also submit bid for the average price.
** Austria and Finland do not issue T-bills regularly, but are opportunistic.
*** The settlement date of the first monthly auction corresponds with the first Thursday of the month and the settlement date of the second monthly auction corresponds with the maturity date of a TC-line, the latter being chosen around the middle of the month.
**** Prior to loss of market access.

Exhibit A5: Auction procedures in inflation-linked product are similar across various issuers

Inflation-linked auction characteristics: auction calendar, announcement, typical size, maturities issued and allotment procedures

	Auction dates	Auction announcements	Timing: Bidding deadline / results (London time)	Multi-line*	Typical auction size (€bn)**	Auction allocation price***	Non comp. bid submitted at auction?	Non comp. allocation after auction?
France	3rd Thu	Fri before	10:50/11:00	x	1-3	multiprice	no	yes
Germany	infrequent, Wed	a few days before	10:00/10:10		1-3	multiprice	yes	no
Italy	-3 bus. days before month end	-2 bus. days	10:00/10:10	x	0.5-2	uniform	no	yes

* In multi-line auctions several bonds are issued or tapped.
** Sum if multi-line auctions.
*** Multiprice: Bids satisfied at price at which they were submitted. Uniform: Bids are filled at a single marginal price.

For inflation-linked bonds, there are some differences in auction mechanics and procedures between the main issuers, but generally they issue €1-3bn per auction (**Exhibit A5**).

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Appendix-2: The syndication process

Some Euro area sovereigns choose to issue via syndication when launching the first tranche of a new line. **Typically syndicated deals are used in less liquid markets, such as unltralong conventional maturities, non-conventional bonds and foreign-denominated bonds**. In general there is some negative correlation between the % of debt issued via syndication and GDP (**Exhibit A6**), with Germany not using syndications for any conventional bond maturity.

In a syndicated deal a group of banks called bookrunners market the transaction to final investors. The syndicate group of banks announces the details of the transaction (maturity, expected size) and releases a price guidance, typically based on preliminary conversations with investors. The price guidance is typically a yield spread range vs. an existing bond from the same issuer, from another issuer, or vs. swaps. The bookrunners collect the orders, with reference to size and minimum spread. This bookbuilding process can last from a few hours to a couple of days. Once the size of the book is deemed satisfactory, the book closes and the issuer decides with the input of the deal leads about the size of the deal, its pricing and the allocation; the first two are publicly announced, and investors are notified privately of their allocation. Typically, Treasuries provide details with a short lag about the syndication allocation, with total orders and split of allocated orders by type of investor and origin.

Syndicated deals tend to occur more often at the beginning of the year or in September, when institutional investors are cash rich following holiday periods, and they are usually announced at short notice when market conditions are favourable. The role of syndications has grown since the onset of the crisis, with peripherals in particular using them to access markets for large sizes in times of high volatility.

As shown in **Exhibit A7**, **the average syndicate size is €4-5bn, and peripheral countries in particular can do as many as 3 conventional syndicate deals per year**.

Dutch Direct Auction

The Netherlands use a slightly different syndication procedure known as **Dutch Direct Auction** (DDA); in line with a syndicated deal, a spread range is announced prior to the auction, and a clearing level is set once the intended size has been filled. Investors are divided in two categories: *1)* "real money": central banks, insurance companies, and pension funds and *2)* "other" (short term) such as banks and hedge funds. Bids from 'real money' clients are allocated first.

Exhibit A6: Smaller countries issue a higher percentage of their debt via syndication

% of syndicate conventional issuance over 2009-11 vs. 2011 nominal GDP; % and €tn, respectively

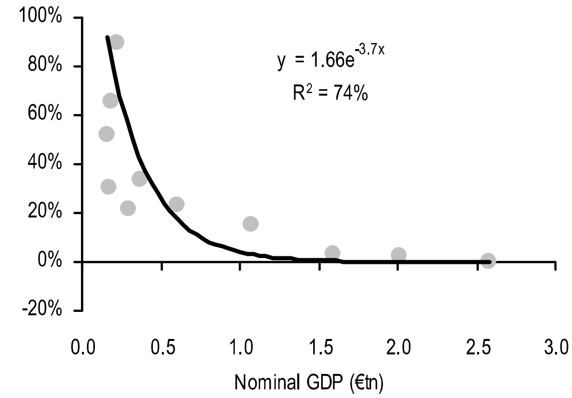

Exhibit A7: The average syndicated deal size is €4-5bn, and peripheral countries in particular can do 2-3 syndicated deals per year

Syndicated issuance: sectors of the curve, instruments, frequency and size in €bn

	Conventional									Others	
	# syndicates per year	Average size	Maturity 2-3Y	5Y	7Y	10Y	15Y	20Y	15Y+	IL	Foreign
Austria	2	4		x	x	x	x		x		x
Belgium	2-3	4		x	x	x	x	x	x		x
Finland	2	5		x		x	x		x		x
France	0-1	5							x	x***	
Germany	0	-								x***	x
Greece*	3	5	x	x		x	x		x	x	x
Ireland*	2	5	x	x		x	x				x
Italy	1-2	5					x		x	x	x
Netherlands**	2	5		x		x		x	x		x
Portugal*	2	3		x		x	x		x		x
Spain	2-3	5				x	x		x		x

* Prior to loss of access.
** Dutch Direct Auction.
*** Only for long-dated bonds.

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