



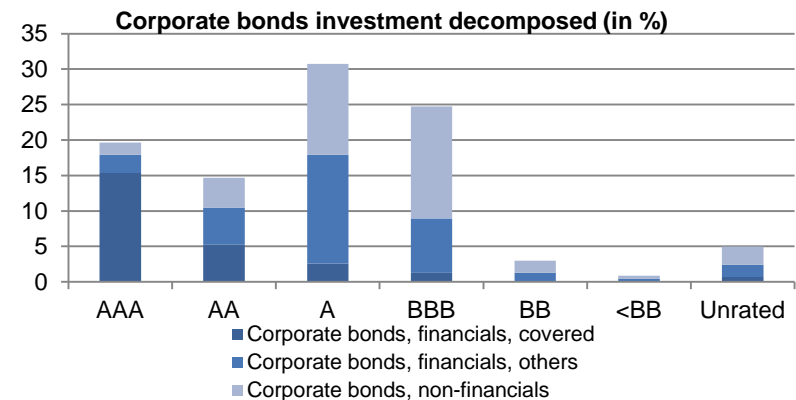
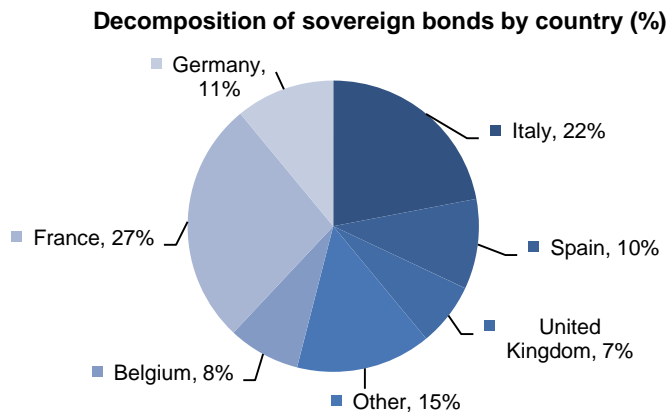
SECONDARY MARKET LIQUIDITY IN THE EUROPEAN BOND MARKETS AND THE IMPACT OF REPO LIQUIDITY

The role and function of the repo market

- ➔ Providing a market for secured lending and borrowing.
- ➔ Providing the long and short funding required to support market-making in fixed income securities, and so facilitating liquidity in secondary sovereign and corporate bond markets.
- ➔ Providing the connection between underlying securities and derivatives, so ensuring efficient hedging markets.
- ➔ Providing the primary means to source, price, and mobilize collateral through the system, which is essential for managing cash and collateral margin requirements.
- ➔ Providing the means through which central banks manage reserves and transmit monetary policy.

Use of bonds and repo by an insurance company

- ➔ Insurance company objective is to make long term investment performance, generate stable returns for their clients and protect invested capital.
- ➔ An insurance company Balance Sheet is composed mainly of bonds that will provide the core of the return
 - Bonds represent 63% of European Insurers allocation*, split between 29% govies and 34% credit



- ➔ Instead of using repo to manage their trading bond portfolio and fund their balance sheet like banks, insurers are using repo to manage ALM and liquidity:
 - **Manage duration and credit** independently and optimize asset and liability management
 - **Preserve accounting treatment** on fixed income portfolios by raising cash without liquidating assets
 - **Transform assets** into eligible collateral used to secure derivative transactions
 - **Manage redemptions and secure short term cash investments**

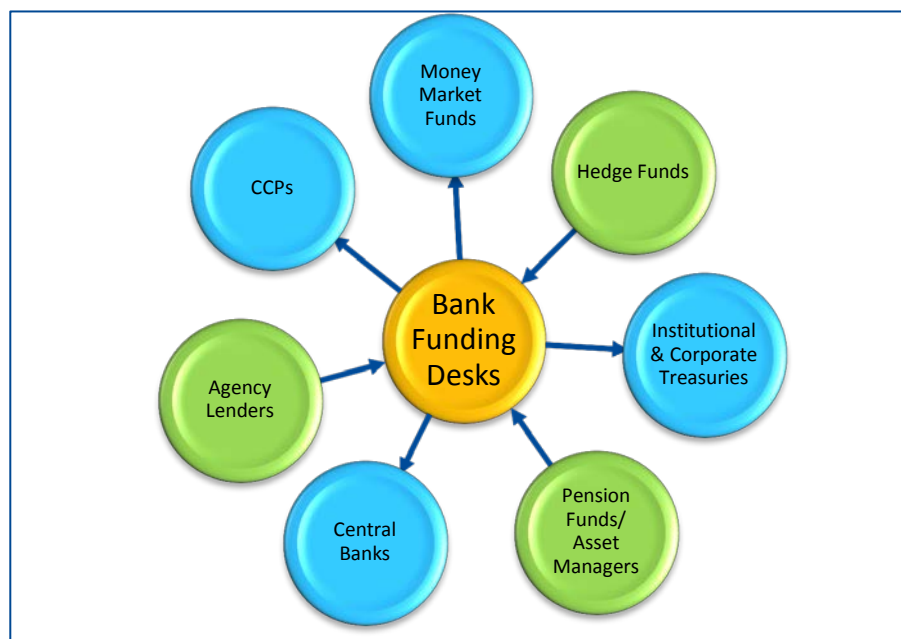
Bonds are the main instrument for insurance company and repo is a key instrument to manage risks and allow optimal credit allocation

Collateral fluidity and bank intermediation

Collateral equilibrium:

$$\text{Demand collateral} \equiv \text{Effective Supply collateral} \times \text{Collateral Fluidity}$$

The repo and collateral market-making service of the bank funding desk:



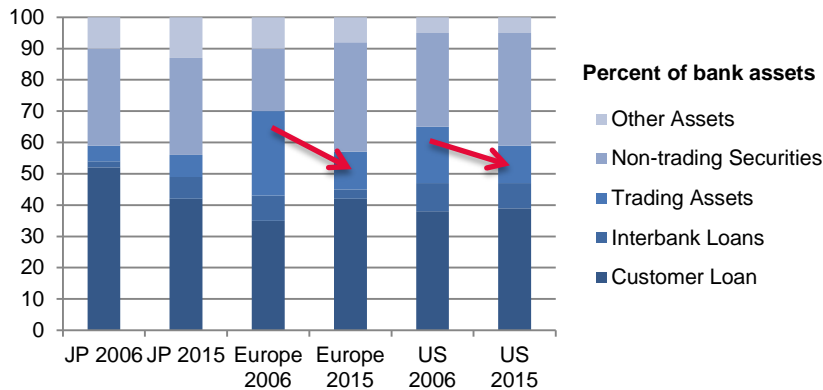
Regulatory barriers to repo market functioning: key regulations

- ➔ **Leverage ratio (and supplementary leverage ratios)**
- ➔ **Liquidity Coverage Ratio**
- ➔ **Capital costs (RWA)**
- ➔ Net Stable Funding Ratio
- ➔ CSDR mandatory buy-ins
- ➔ SFT Regulation
- ➔ MiFID II/R reporting obligations
- ➔ Mandatory haircuts
- ➔ Restrictions on collateral re-use

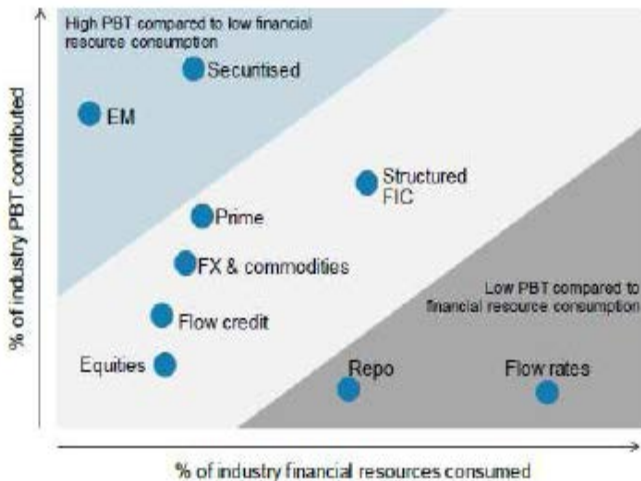
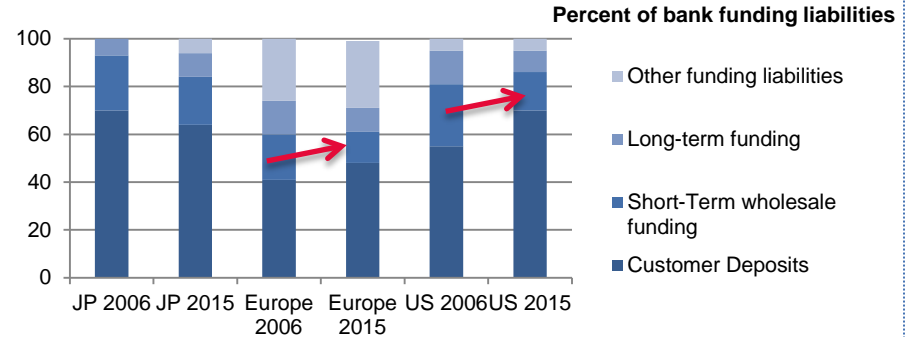
Regulatory barriers to functioning: impacts on banks & market

Since 2008, banks have adapted their business model to new regulatory requirements

Decrease in trading activities



Decrease in wholesale activities in EU and US



- ➔ Rates and repo are a large consumer of capital relative to their contribution to profit before tax.
- ➔ Share of profit before tax vs. share of financial resource commitment* by product, 2014

Source: Oliver Wyman proprietary data and analysis

* Financial resource commitment calculated using 50% risk capital and 50% leverage capital

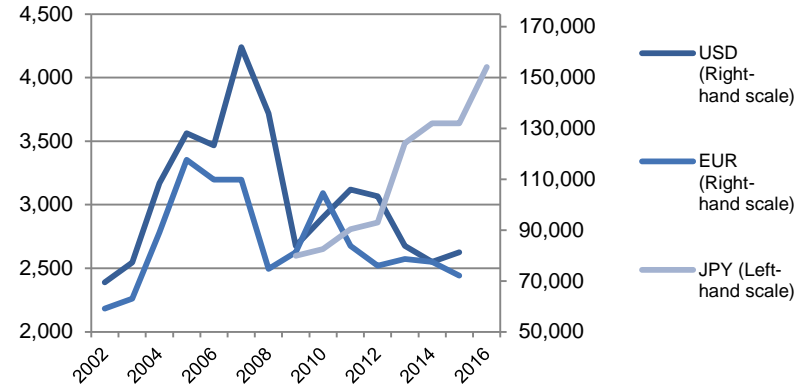
Rates and repo should be the businesses most impacted by regulation

Current market conditions impact of repo liquidity on bond market

Global repo market:

- ➔ Repo market has fallen in recent years, particularly in the US since 2007
- ➔ Global initiative
 - Repo market weaknesses highlighted by market participants lead FSB to initiate a cross jurisdiction analysis on repo market
 - BIS report** on repo market functioning evidences repo market is in a transition state with some jurisdictions more impacted than other, key drivers being pressure on banks balance sheets and central banks accommodative monetary policies

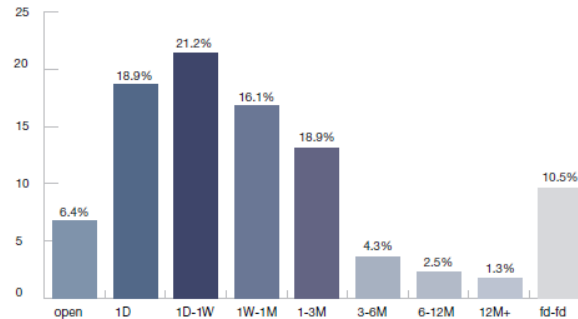
Global Outstanding amount in billion local currency



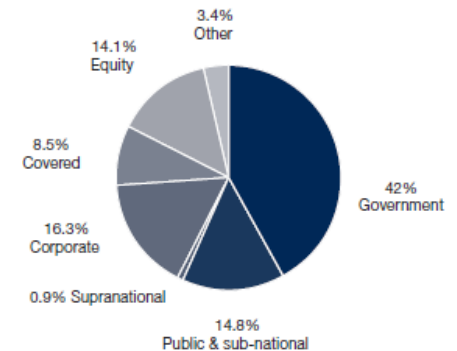
Focus on €repo market:

- ➔ Short term market with high quality govies as the most used collateral
- ➔ Trends observed in the EUR market
 - **Concentration increase:** 10 largest players market share increase to 61% from 55% during the last quarter
 - **G-SIFIs with strong IB franchises increased the size of their repo books**
 - More optimization around repo netting and month/quarter end reduction

Maturity repartition



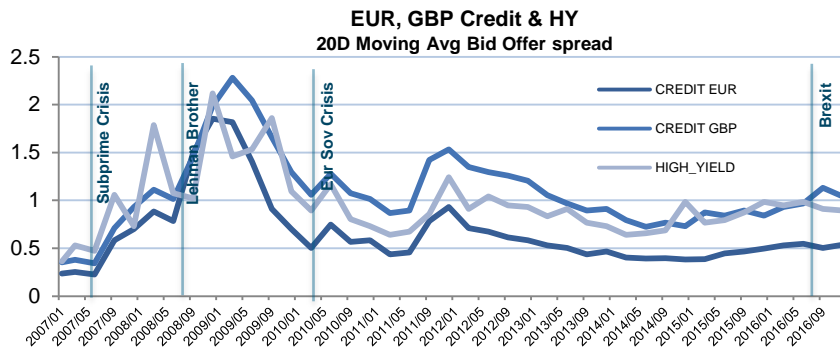
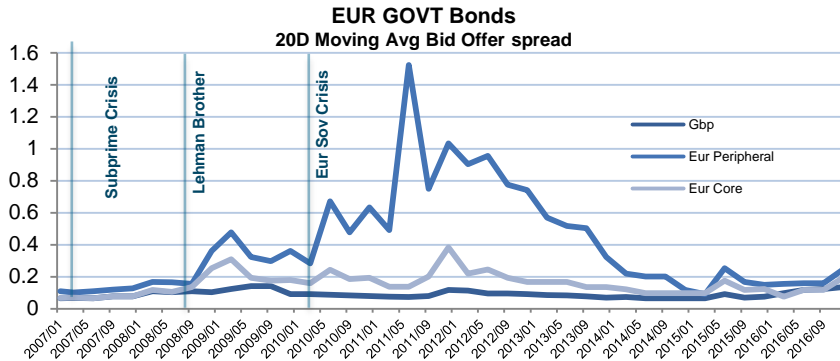
Collateral repartition (tri-party agents)



Macro data remains stable and govies remain the main asset for collateral. Market changes started to appear and are under the radar of regulators

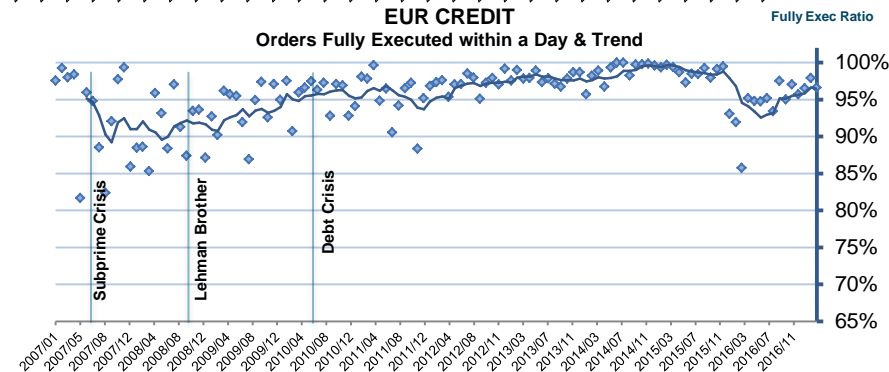
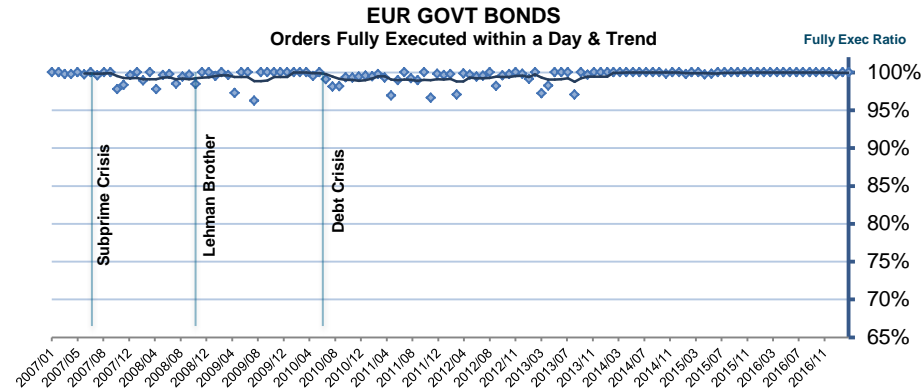
Current bond market conditions: the view from a large investor

Bid-offer spreads observed by AXA IM remain relatively tight since the financial & sovereign crisis



- ➔ Bid-offer spreads remain tight since last crisis but with discrepancies in the market.
- ➔ Government bonds & Linkers are not really facing issue today
- ➔ Specific expertises (Credit, High Yield...) evidence more concerns due to QE, financial regulations and market structures changes

Full Exec Ratios highlight only one liquidity chock and is due to CB's action



- ➔ Consistent Full execution ratio on Eur Govies
- ➔ Choppy although more stable on the Eur Credit Investment grade as depth of repo market is lower

Liquidity conditions for Bonds had not deteriorated for AXA and repo pressure did not appear material. Nevertheless, Market appears fragile & AXA investigates alternatives to source bonds and optimize repo



Current repo market conditions

Dealer balance sheet dedicated to repo has reduced significantly

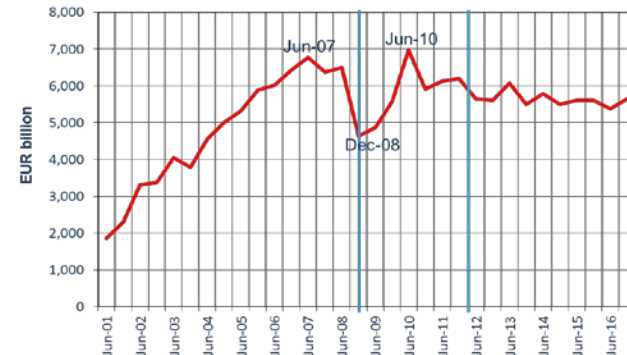
TABLE 5.1: BALANCE SHEET REDUCTIONS, 2010-15 (% CHANGE)

PRODUCT	2010-15	NEXT 3-4 YEARS
Repo	Down ~50%	Down ~10%
Prime	Up ~20%	Flat
Bonds, FX & commodities	Down ~25%	Down ~10%
Structured & securitized	Down ~20%	Down ~10%
Listed, flow & cleared products	Down ~20%	Down ~5%
Issuance & advisory	~ Flat	Down ~5%
Total	-25% to -30%	-5% to -10%

Source: Oliver Wyman and Morgan Stanley (2016)

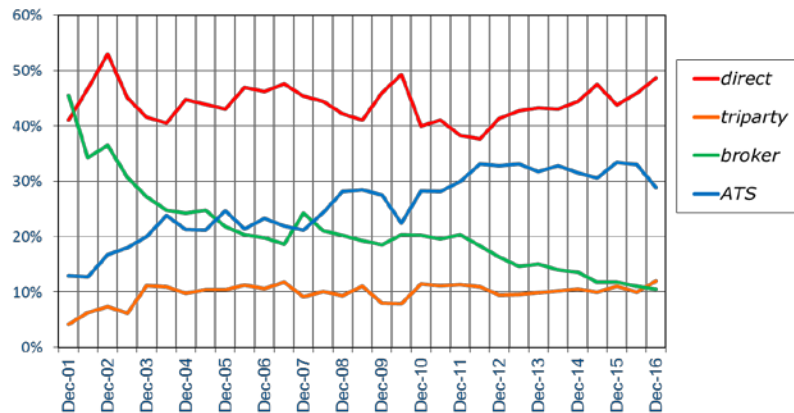
Repo outstandings remain steady

European Repo Market Outstandings *



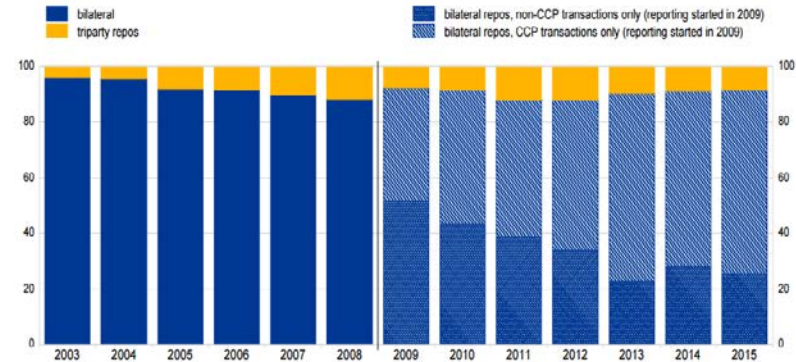
The market is becoming more bespoke and more direct

Trading analysis*



Greater use of CCPs

Breakdown of secured market**



The repo market has become a story about Leverage Ratio and balance sheet optimization

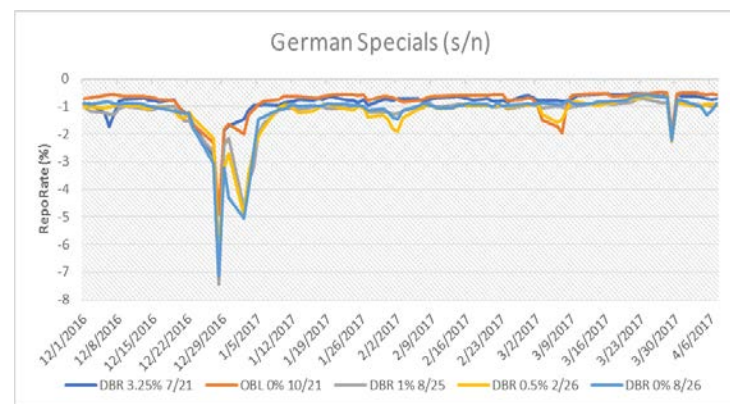
What happened:

- ➔ Positioning
 - Shorting bonds (outright and basis)
 - Short EUR-USD basis
- ➔ Quantitative easing
 - PSPP as at Dec 2016 €1.2tn: €300bn Germany (27% outstandings), €240bn France (15%)
 - Fragmented CB lending programs
 - Limitations of repo scheme
- ➔ Regulation
 - Balance sheet constraints for regulatory reporting (LCR, LR)
 - Year-end balance sheet levies
- ➔ Other considerations
 - Other supply of HQLA (non-EU SWFs)
 - Inability to arbitrage dislocations (loss of market efficiency)
 - Risk aversion

German General Collateral *



German Specials**



Questions for discussion:

- ➔ Are sudden episodes of sudden evaporation of bond market liquidity affecting bond market functioning and repo rates? If so, are investors and banks adapting to these changes?
- ➔ The EUR repo market has become more concentrated. Is this affecting its resilience and the cost of liquidity?
- ➔ What will in your view be the impact of a reduction in the monetary policy accommodation by central banks?
- ➔ Will full implementation and future regulations further impact repo and bond market liquidity?
 - Full impact of Basel 3: LCR, LR, NSFR
 - FRTB and Basel 4
 - Impact of MIFID II on bond purchase/sale programs
 - CSDR mandatory buy-ins
 - Other regulations or initiatives: SFTR, mandatory haircuts, collateral re-use