PRESENTATION TO THE BROOKINGS INSTITUTION

The Future of the US Financial Sector

June 2015

JPMorgan Chase & Co.

Bank lending and capital markets: US vs. EU

"Banks in the Euro Area accounted for ~75 percent of total lending; in the United States, banks accounted for just under half of total lending in 2013."

International Monetary Fund
Global Financial Stability Report: Risk Taking, Liquidity, and Shadow Banking--Curbing Excess while Promoting Growth
October 2014

"The balance between capital market finance and bank lending matters. An overreliance on banks comes at a cost in terms of reduced economic growth."

Christoph Kaserer and Marc Steffen Rapp
Capital Markets and Economic Growth: Long-Term Trends and Policy Challenges
March 2014

Lending rates have been affected by post-crisis banking regulation

Forms of Lending	Price (spread over applicable pricing benchmark)			
Loan/ borrower type	**2000-2007**	**2008-2010**	**2014**	**14 vs. pre-'08**
Credit Card	10.6%	13.2%	13.1%	249bp
Higher FICO	9.6%	10.8%	11.6%	200bp
Lower FICO	10.3%	13.3%	13.1%	281bp
Residential mortgage	--	--	--	--
Jumbo	1.7%	3.0%	2.0%	29bp
Conforming	1.7%	1.9%	1.8%	9bp
FHA / VA	1.8%	2.1%	1.5%	-31bp
Subprime	--	--	--	--
Home equity	2.7%	4.5%	3.4%	65bp
Commercial real estate	--	--	--	--
Class A (higher-credit)	--	--	--	--
Class B (mid-credit)	1.7%	2.6%	2.1%	47bp
Smaller CRE	--	--	--	--
Commercial & industrial	--	--	--	--
Large IG corporates	1.5%	2.7%	1.3%	-23bp
Large HY corporates	5.5%	9.3%	4.0%	-147bp
Medium unrated corporate	3.5%	5.6%	4.5%	93bp
Small unrated corporate	2.4%	3.3%	2.7%	31bp

Source: Goldman Sachs Global Investment Research. The appropriate benchmarks are the one-year Treasury for credit cards and the 10-year Treasury for residential mortgages, commercial real-estate and home equity loans. C&I lending spreads for corporate borrowing are measured against the 3-month Treasury, though for investment grade (IG) bonds, each bond is measured against the appropriate benchmark Treasury, determined by the bond's maturity date. For high yield (HY), the spread is options-adjusted.

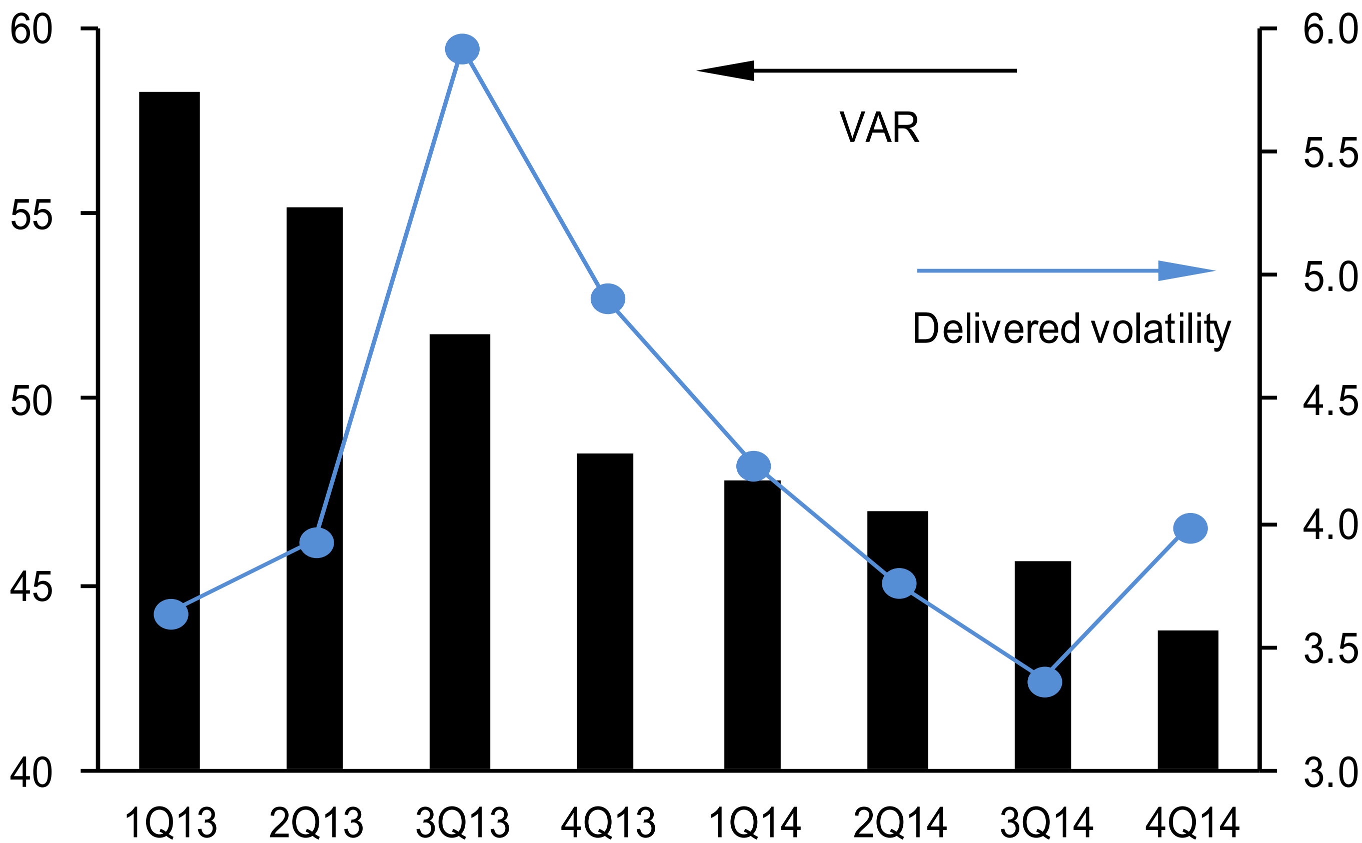
Overview of fixed income market liquidity

Market Developments

- **Issuance has increased**
- **Dealers are exhibiting diminished risk appetite and sensitivity to liquidity concerns in wake of the crisis**
  - Capital models are incorporating crisis losses
  - Expansion in number and type of risk limits
- **Concentration in asset management has grown**
- **Investor herding has increased in recent years, partly driven by central bank policies**
- **Regulatory changes have led banks to shrink low margin, capital-intensive businesses, and electronic and algorithmic market making has grown.**
  - Various current or pending rules (e.g. LCR, SLR, G-SIB surcharge, Volcker) increase the cost for market makers to hold inventory.
  - Trade sizes generally have been reduced

Risk appetite at major investment banks has been declining

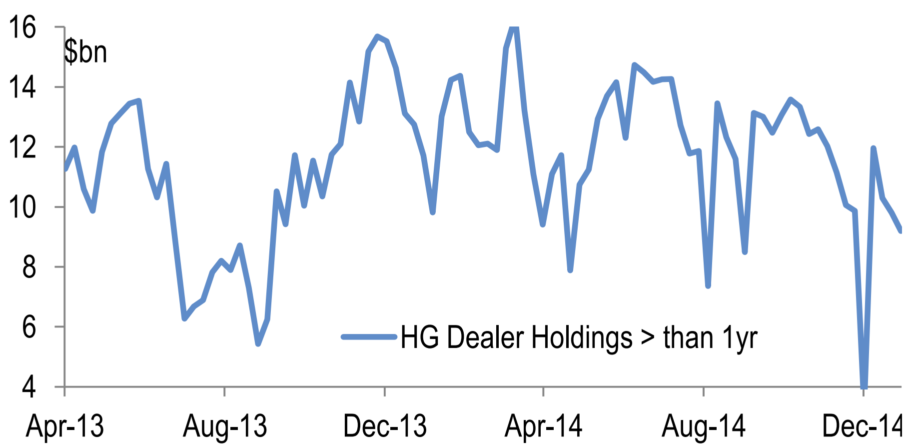
Four-quarter moving average of daily VAR (averaged over each quarter) for the 9 largest investment banks*; plotted versus 3-month average of daily delivered vol in 10-year Treasuries; $mn bp/day



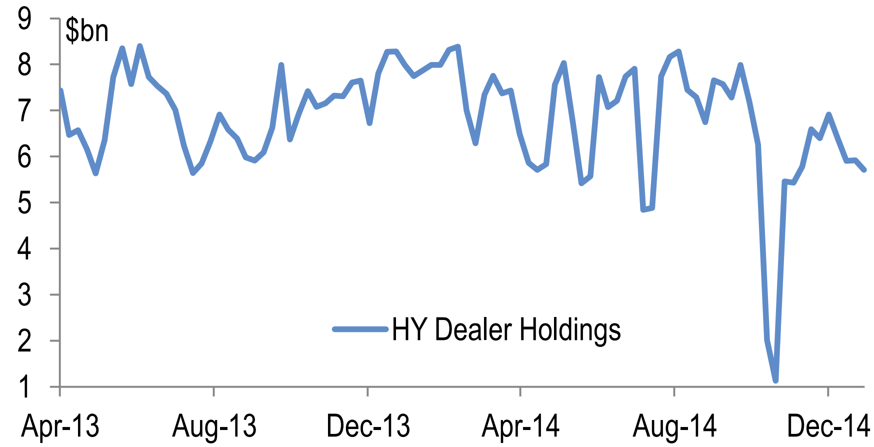
* Average VAR reported by JPM, GS, MS, BAC, C, UBS, CS, Soc Gen and DB.

Dealers hold about 0.25% of HG bonds and 0.40% of HY bonds, very small positions. This positions are less than 1 day's trading volume

HG dealer holdings represent less than 0.25% of market size



HY dealer holdings also represent less than 0.4% of market size



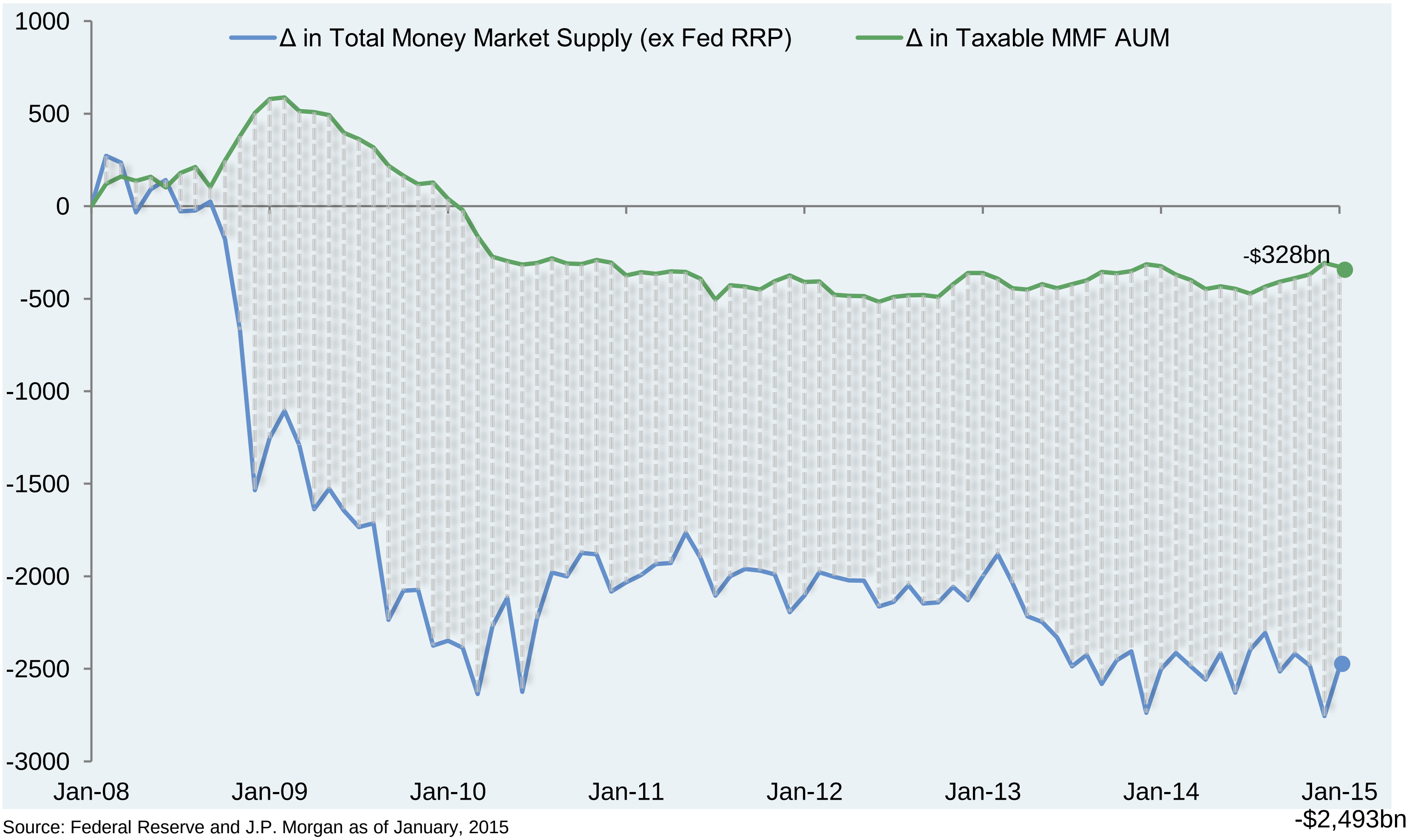
Source: JPMorgan, FINRA TRACE, Federal Reserve Bank of NY. Data as of Dec 2014. Market sizes are total market figures. Average trading volume as reported by FINRA.

Key Observations

- **The average dealer positions in High Grade bonds in 2014 was $12.0bn.**
  - This represents 0.23% of the HG bond market size ($5.2tn). It is also about 93% of the average daily trading volume in 2014
- **The average dealer positions in High Yield bonds in 2014 was $6.7bn.**
  - This represents 0.39% of the HY USD bond market size ($1.7tn). It is also about 97% of the average daily trading volume in 2014
- **There are some errors and mis-classifications in the TRACE data, we believe**

There is a lack of supply in the short-term money market

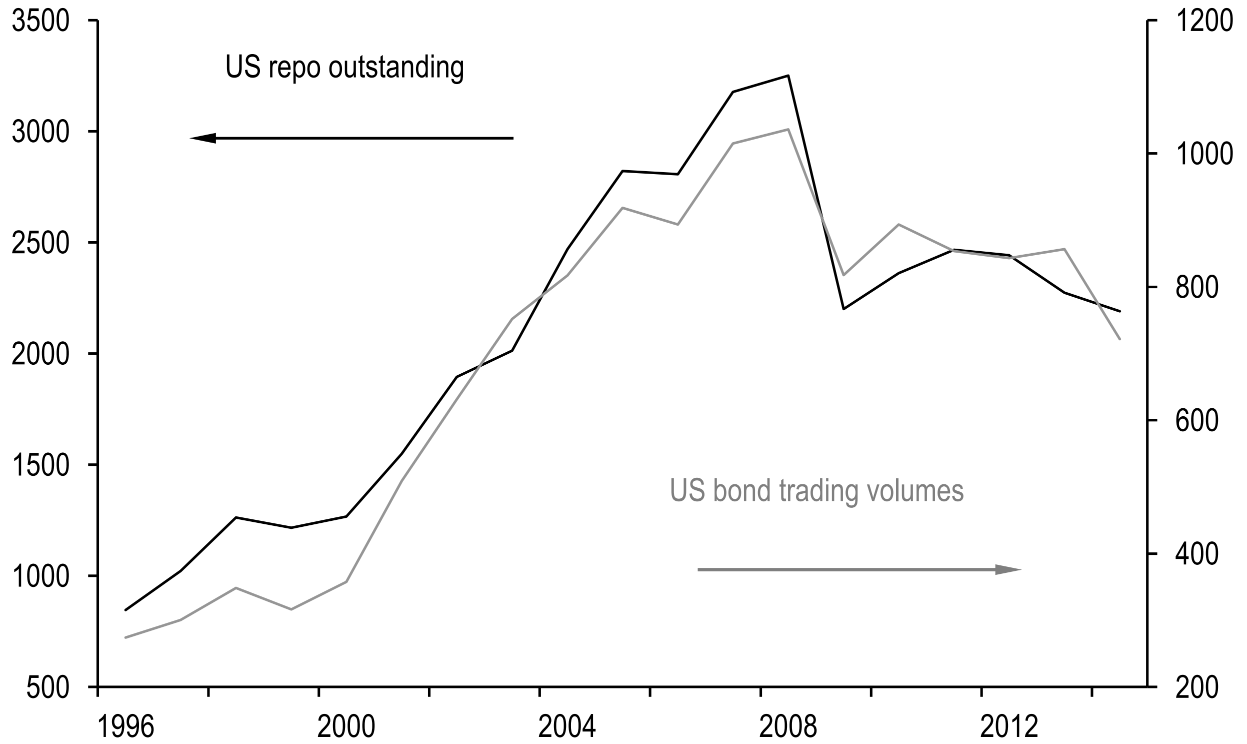
Cumulative change in taxable MMF AUM and total money market supply ($bn)



Source: Federal Reserve and J.P. Morgan as of January, 2015

As repo balances fall, so do bond trading volumes

Outstanding amount of repo versus daily average trading volumes in US bond markets; $bn



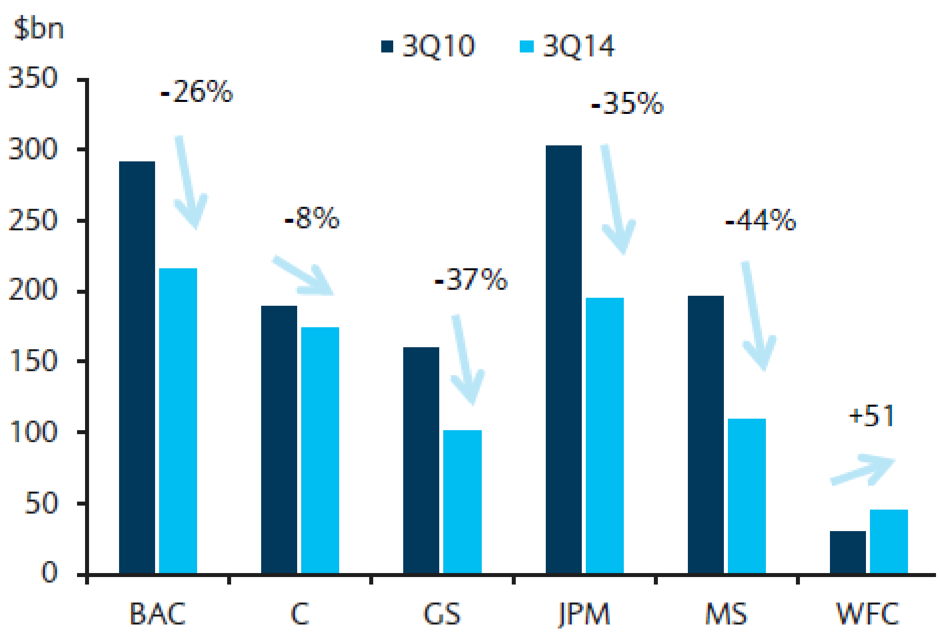
Source: SIFMA

New capital and liquidity frameworks make repo balances more costly

Impacts of regulations on short-term markets

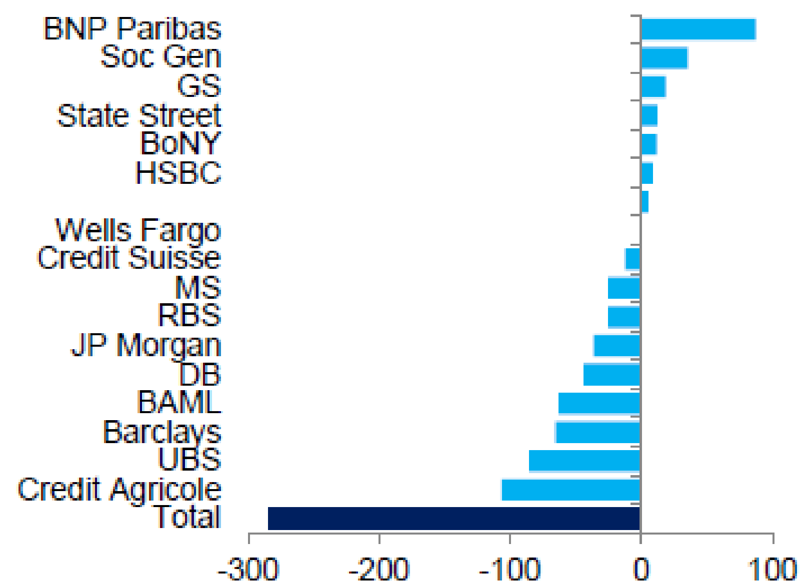
- **U.S. Supplementary Leverage Ratio (SLR) minimum of 5-6% (versus 3% internationally) raises cost of holding Treasuries and other high-quality assets.**
- **Because of Liquidity Coverage Ratio (LCR), banks are terming out their repo maturities beyond 30 days on the liquidity side.**
- **U.S. NSFR, TLAC and U.S. G-SIB surcharge will further increase the cost of short-term funding by denying it credit as liquidity or loss absorbency and imposing a capital charge for it.**

Most large U.S. banks have responded to SLR requirements by reducing repo balances, *Repo borrowings ($bn)*



Source: Company reports; Barclays Research

Change in gross repo (EU), *$bn (4Q12-4Q14)*



Source: Citi Research, company filings.

Market-makers follow different business models, but broadly share some common features

A market-maker's stylized profit and loss (P&L) account

Bid-ask spread
− Broker fees, clearing & compensation costs
= Facilitation revenues

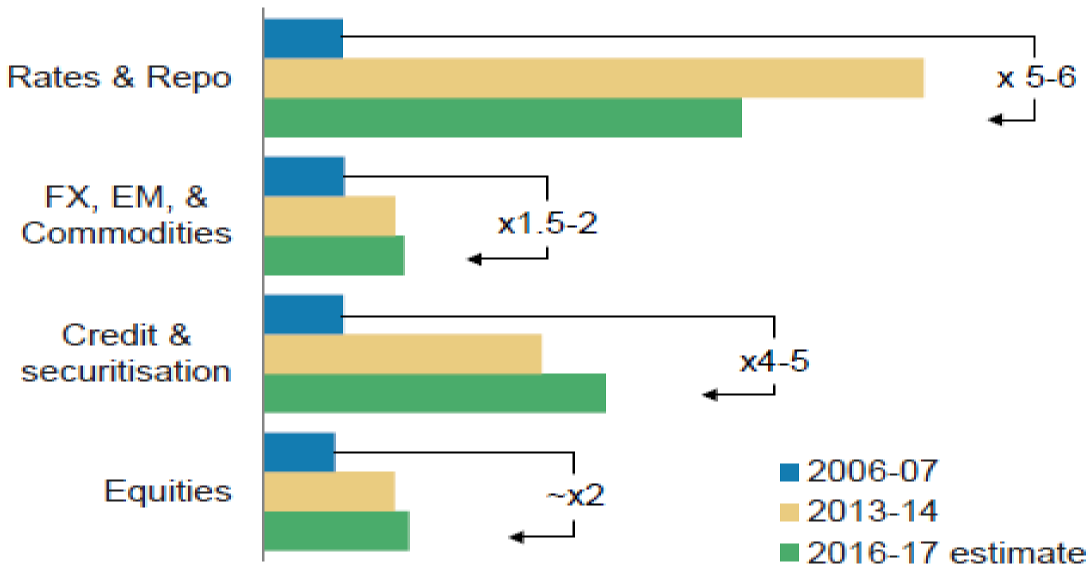
Variation in price (delta market value)
+ *Carry of the position*
− Funding/borrowing costs (repo or bank's treasury)
− Hedging costs
− Capital costs (eg credit risk, counterparty risk marginal, VaR marginal)
= Inventory revenues

Facilitation revenues + Inventory revenues
= Gross P&L
− Other costs and/or revenues[1]
= Net P&L

[1] Other costs include compliance, IT and administration; other revenues include income from other business lines.
Source: CGFS (2014)

Capital costs of market businesses are increasing

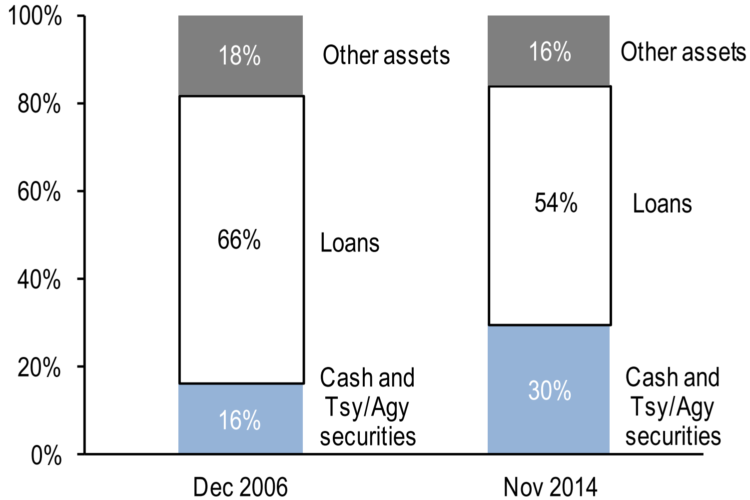
Capital required to generate $1 of revenue has greatly increased across wholesale products
Estimated dealer financial resource consumption / revenues; 2006-2017E



Note: 1 2006-07 based on Basel II RWA; 2013-14 and 2016-17 based on blended average of leverage exposure and Basel III RWA; Revenue outlook based on base case revenue projections to 2017; 2017. Includes impacts of FRTB, leverage ratios, and structural reform in rates
Source: Oliver Wyman proprietary data and analysis

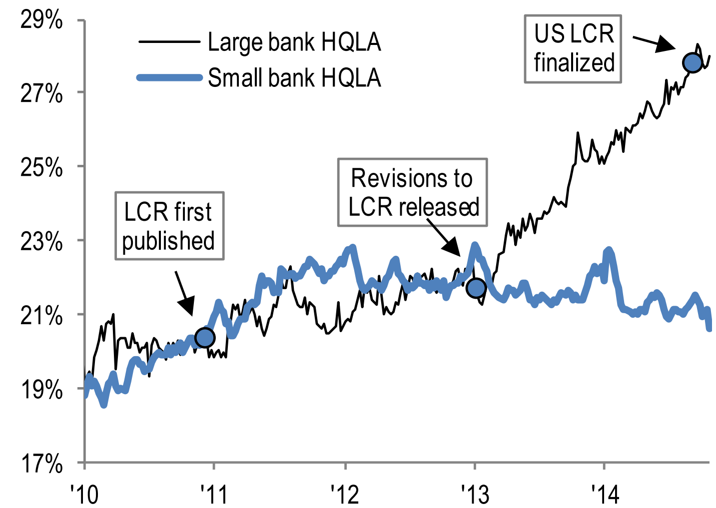
Liquidity rules have had significant implications for banks, funds and corporates

Asset breakdown of large banks' balance sheets as of 12/2006 and 11/5/2014



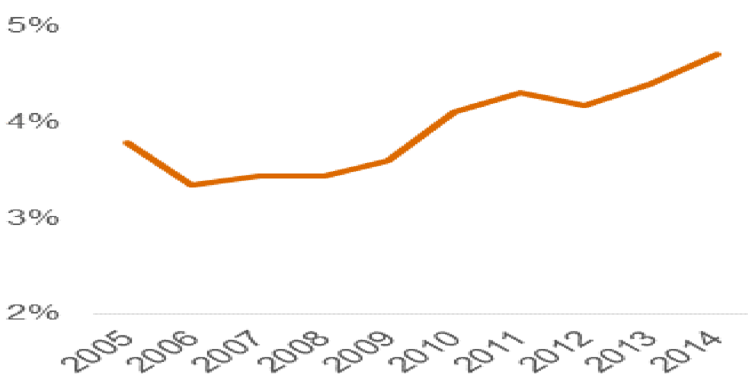
Source: Federal Reserve H.8
Note: Loans include commercial and industrial loans, real estate loans, consumer loans, other loans and leases, as well as interbank loans

Index of HQLA of large and small banks, where Treasuries, cash, Ginnies receive 100% weight, conventional MBS 85%, other assets zero



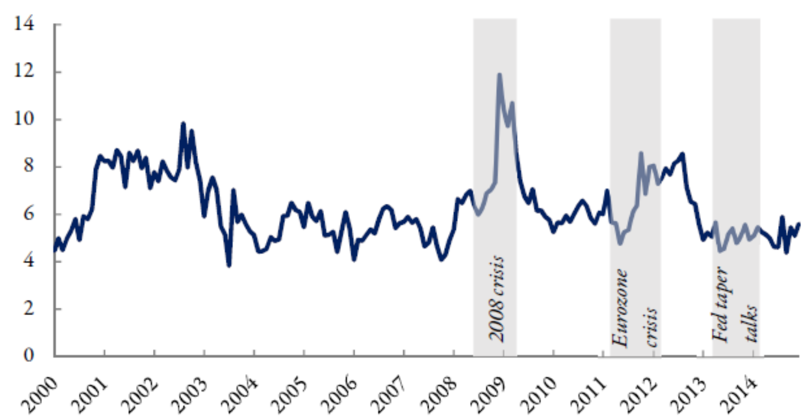
Source: J.P. Morgan, Federal Reserve

Corporate cash holdings



Source: Datastream, average for S&P500, FTSE100, DAX 30, CAC 40 and Nikkei 225

"Cash" ratio of high-yield bond funds *(Percentage of fund assets; monthly – January 2000-December 2014)*



Source: Investment Company Institute
Note: Data exclude high-yield bond funds designated as floating-rate funds

Facing new constraints, large global banks are exiting or shrinking wholesale businesses

Name	Exits	Stated Rationale
Morgan Stanley	■ 49% reduction in fixed income risk-weighted assets since 3Q2011 ■ Exiting physical commodities business and scaling back other commodities activities	■ Strategic cuts due to regulatory pressures and changing market dynamics
Bank of New York Mellon	■ Shutting down derivatives sales and trading business	■ To streamline operations and remain competitive in a new regulatory landscape, specifically related to new capital and liquidity requirements
BNP Paribas	■ In 2011, made plans to cut corporate- and investment-banking balance sheet by $82 billion, mostly in capital-markets activities. ■ Also cut assets by curbing lending and through sales and other business disposals	■ Efforts to increase CET1 capital ratio under Basel III rules
Credit Suisse	■ Announced decision to scale down prime brokerage unit ■ Announced plans to reduce leverage exposure from trading operations by $74B	■ Improve leverage ratios and boost profitability
Citigroup	■ Selling margin foreign exchange business (including CitiFX Pro and Tradestream platforms)	■ Strategic sale to streamline its operations
RBS	■ Exiting MBS, commercial real estate, commercial mortgage-bond sales and trading , and significantly reducing other investment banking activities	■ To stay below $50 billion asset trigger for heightened FRB capital requirements and other restrictions. Other foreign banks expected to restrain growth that would take them over the limit.
Deutsche Bank	■ Exiting single-name CDS trading	■ New banking regulations have made business costlier
Goldman Sachs	■ Sold its aluminum business ■ Reduced asset size by 24% from 4Q07 to 4Q14 ■ Reduced its repo activity by about $42Bn	■ Regulatory scrutiny ■ Post-crisis regulatory pressures to shrink ■ New capital requirements
Barclays	■ Exited global commodities activities ■ Reduced repo lending by ~$25Bn	■ In line with "objective to actively evaluate and manage our businesses, ensuring they meet strict economic and strategic criteria within the new regulatory environment" ■ New capital requirements
HSBC	■ Planning significant cuts to its fixed-income operations (e.g. interest rate trading)	■ Strategic cuts in response to regulatory and supervisory pressure in the US and UK
JPMorgan	■ Evaluating future of OTC clearing business ■ Reducing non-op deposits by $100bn in 2015	■ Current market economics are incompatible with capital rules in their current form ■ Product is non-core to its customers with outsized operational risk and capital charges