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BLUE PAPER



Wholesale & Investment Banking Outlook

Liquidity Conundrum: Shifting risks, what it means

Financial regulation and QE are at the heart of a huge shift in liquidity risk from banks to the buy-side, which is increasingly a concern for policy makers. This shift is far from over: we expect liquidity in sell-side markets to deteriorate further, as regulation shrinks banks' capacity another 10-15% over the next two years. Our interviews with asset managers highlighted their concerns over scarcer secondary market liquidity, particularly in credit and in Europe.

Regulatory risks are rising for asset managers, as policy makers worry about the risks to financial stability from US QE exit and market structure changes. Our base case is the *initial* set of reforms follow an incremental approach that involves stress testing of select funds and a range of micro reforms. This could add an extra cost of 1-5% to asset managers, albeit the largest firms are already well placed on this.

To calibrate possible stress tests, we've analysed the periods of worst fund redemptions in the last 35 years. For instance, fixed income mutual fund outflows in 1994 were *on average* ~5% in the worst 3 months vs 4-7% fund cash holdings today, which gives us some reassurance. However regulators may wish to test for an even tougher scenario at a fund level. Our bear case is for a more profound longer-term change in regulation that would hit profits and investment flexibility.

For the banks, diminishing returns on capital from market making demand even greater efficiency, dexterity and scale to achieve 10-12% returns. More firms will trim this business, ultimately leaving a potentially attractive prize for those able to endure.

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Executive Summary: Profound Shift in Liquidity Risks

There's a liquidity conundrum in fixed income markets facing policy makers and investors: how it's resolved will have long-term investment implications across banks, asset managers and infrastructure players.

At its heart is the huge shift in liquidity risks to the buy-side and asset owners as the twin forces of financial regulation and QE have played out. New rules have driven a severe reduction in sell-side balance sheet and banks' liquidity provision. Wholesale banking balance sheets supporting traded markets have decreased by 40% in risk weighted assets terms and 20% in total balance sheet since 2010. At the same time, credit markets have boomed as companies turn more to bond finance and investors are hungry for income. Credit market issuance is 2.4 times larger today than 2005. Within this, AuM in daily redeemable funds have grown 10% per annum and are now 76% above 2008 levels. Cash in mutual funds has risen compared to pre-crisis periods and is at an industry level above redemptions experienced in periods of prior stress, suggesting asset managers are responsive to emerging risks. Nonetheless, policy makers are wrestling with the large changes to markets.

This comes at a time when we think the liquidity of secondary fixed income markets is likely to get materially worse. As regulatory costs continue to drag on returns, we expect another 10-15% shrinkage of fixed income balance sheet from the largest wholesale banks in the next 2 years. As much as 15-25% could be taken out of flow rates, we think, given the huge returns pressure on that business.

Exhibit 1

We expect banks to shrink balance sheet further
Share of 2014 balance sheet and expected reduction

	Changes in balance sheet 2010-14	Further potential reduction
Rates & repo	~ -30%	-15% to -25%
FX, EM, & Commodities	~ -25%	-5% to 0%
Credit & Securitised	~ -30%	-5% to -15%
Equities	~ 0%	-5% to 0%
Total	~ -20%	-10% to -15%

Source: Oliver Wyman proprietary data and analysis

There is a growing urgency to tackle this debate by policy makers. The impact of less liquidity has been masked by a benign, ultra low interest-rate environment, but this is set to reverse in the US in the next 12 months, and could also reveal the side effects of QE pushing investors to less liquid securities. A key market debate is how macro-prudential concerns about markets could lead to changes in the way asset managers are regulated.

Our proprietary survey of asset managers with AuM of >\$10trn for this report indicates this is now a major source of concern. All were increasingly concerned about secondary market liquidity not just in emerging market credit and high yield market liquidity, but also US and European corporate bonds. Some also expressed concerns around areas of rates markets and emerging market FX. Many interviewees cited liquidity risk in credit markets as their top concern. Interestingly, on average European asset managers are more worried than their US peers, given European credit markets are even less liquid, the lack of sticky 401k retirement savings and European wholesale banks are under even more pressure to shrink. These concerns are all the more important given the focus of Capital Markets Union to reduce the dependency on bank lending.

Credit markets are the thorniest to solve. While there are significant causes for concern in most traded markets, such as Rates and FX, it's in credit markets where the issues are most prominent. There is an unresolved conflict in regulator desires to reduce the interconnectedness between banks, to ensure that asset managers have sufficient liquidity to deliver on promises to their investors, and to preserve companies' flexibility to issue in a wide range of markets. Mutual fund holdings of US credit have doubled since 2005, and now account for 20% of outstanding credit securities (compared to 11% in 2005).

Electronic trading and new marketplaces will grow – but will not solve the fundamental issues. There are a host of initiatives under way to increase electronic trading, establish new data networks, launch new agency execution models and create new marketplaces. However there are significant limitations to how far electrification will go in fixed income markets in the next few years given instrument heterogeneity. For example 15% of volume in credit is electronically traded today, and aggressive estimates are unlikely to see it grow to more than 25%. More importantly however electrification doesn't improve liquidity in tail events, per se; this would

require more fundamental changes to increase standardisation, which in turn would bring trade-offs for issuance flexibility and investment portfolio construction. Similarly, while agency structures offer some benefits, they would not improve liquidity.

Increasing regulatory risks for the asset management industry

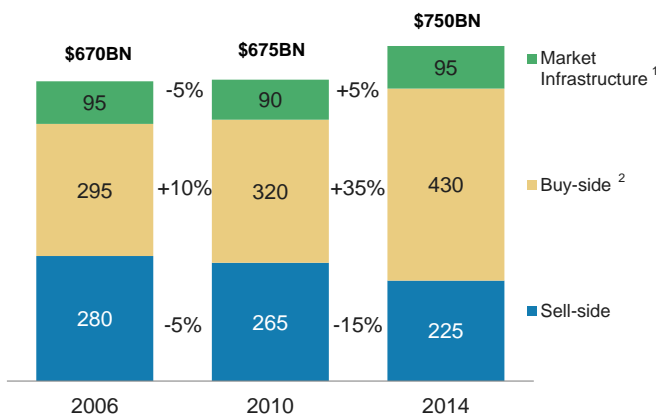
Regulatory risks and earnings risks are rising for asset managers as policymakers now grow more concerned about the transition out of US QE and interest rate hikes.

Over the last 5 years we have seen a profound value shift in the capital markets. QE has driven asset prices higher but dampened volatility, while regulatory change has driven capacity out of the sell-side. Since 2006 sell-side revenues have fallen by 20% (\$55 billion), whereas buy-side revenues have risen +45% (\$135 billion). However the risks have shifted too and we now see concerning trends on the horizon for asset managers.

Exhibit 2

Growth in securities revenues has been led by the buy-side

Securities revenue pools by player; 2006-14, \$BN



¹ Includes execution venues (exchanges, inter-dealer brokers, clearing houses, CCPs) CSDs, custodians and data providers

² Includes Asset Managers and Hedge Funds

Source: Company annual reports, Oliver Wyman proprietary data and analysis

We expect asset managers will be asked to shoulder more regulatory burden, contrary to what many asset managers think, and the question for us really is to what degree? We expect regulators are likely to require some form of stress testing of select funds, expanding what some asset managers have started to do already. Depending on how it is calibrated, this may result in asset managers holding even more liquidity in funds to protect against a tail risk event, as happens with the bank capital rules, even if base liquidity is in line with historical redemptions. To be clear, we are not

advocating bank style regulation for asset managers; rather as we engage with policy makers, there may be a few lessons they feel appropriate to adapt.

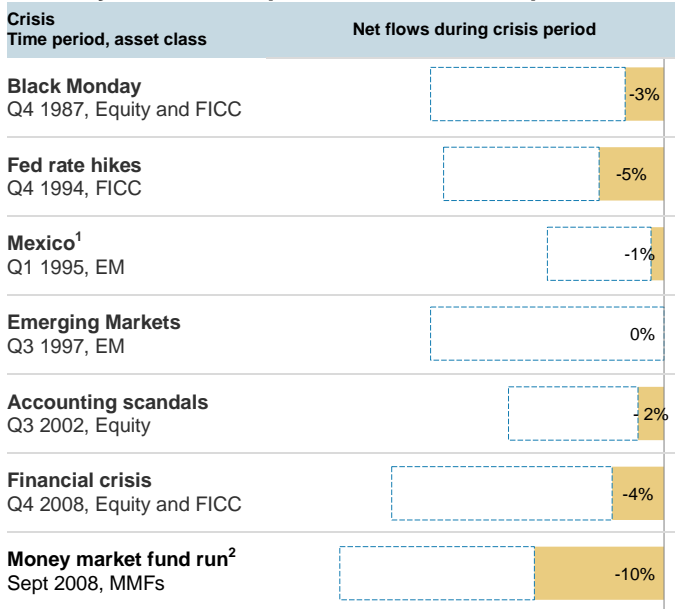
To ground our work and assess the risks from stress tests, we have analysed the periods of worst mutual fund redemptions in the last 35 years from market shocks.

Contrary to some perceptions, we cannot find an example of a run on a long-term mutual fund - as opposed to short-term money market funds. The worst period for industry-wide fixed income mutual fund outflows was in 1994 when we saw on average ~5% outflows across the industry in the worst 3 months and ~13% in the worst 12 months. What was striking was that even in the most recent financial crisis bond fund redemptions were only ~4% in the worst 3 months. This compares to average cash holdings of 4% to 7% today across all US corporate bond and high yield funds on latest data, suggesting asset managers are managing risks prudentially today and risks are manageable. In addition, industry data also highlight that liquidity in funds has increased 1-3x during times of stress.

But stress tests may seek to calibrate higher for several reasons. We think that macro-prudential policy makers are most focused on systemic concerns – as they focus on the risks to the flow of credit to the real economy. On that basis, the averages of each category of funds, we think, are plausible for a first set of stress tests. However, if we look at the funds that had the worst redemption experience, outflows for the bottom quarter of funds were closer to 15-20% in the worst 3 months. As we have learned from the bank stress tests, regulators have often calibrated using worst case data. Policy makers we have met are also trying to assess what are the implications of mutual funds owning 3x the share of US credit since 1994 as well as the reversal of the unprecedented monetary stimulus and the impact of reduced secondary market liquidity today. Relevant data doesn't exist for some of the worst crises, such as 1937. We also think that conduct regulators will be interested in stress tests to ensure funds can deliver on their promises, and so may look at worst quartile of fund outflows rather than the averages that we have used in our base case. Writ large, the question that regulators are trying to assess is whether mutual funds have sufficient cash levels and flexibility to raise cash in a tail risk redemption event given the uncertainty on US QE exit and such diverging monetary policies.

Exhibit 3

Industry-wide redemption levels in crisis periods



■ Industry average net outflows
□ Straight average of outflows for bottom quartile funds
1 Excludes Dec 20th - Dec 31st which saw -2% outflows
2 Run on MMFs only covers 4 weeks
Sources: ICI, Morningstar, Oliver Wyman analysis

Asset managers may need to invest more in trading / execution capabilities, collateral management, and risk management to adapt to the new environment. We think many asset managers, particularly mid-sized ones, many of which are captive, now underestimate the need for change and have not touched the core of the operating model, which we believe will have to be a key focus, in particular significantly upping execution / trading capabilities, overcoming traditional asset class silos in core processes such as collateral management and upgrading risk management and stress testing capabilities. In our base case, we think this could add an extra cost to asset managers of 1-5ppts, although we think the largest firms are already well placed on trading and better on collateral and risk management.

However, our bear case is for far more profound change in regulation after a significant market correction entailing a liquidity event for the industry.

In our bear case, tougher reforms may reduce investment freedom as well as returns earned by investors. They could also indirectly accelerate shifts to ETFs and support a shift to funds with lock-up periods, such as alternatives. Interventions we could envision include

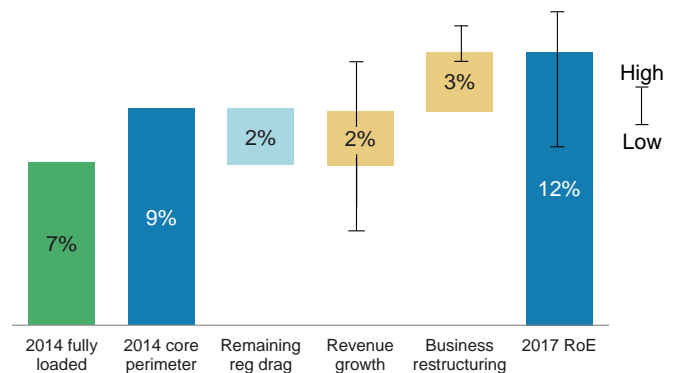
redefining redemption periods in light of underlying asset liquidity, increasing fiduciary standards, and applying larger capital requirements for asset managers. Taken together this could drag earnings down 5-10%, compared to our base case. This would be in addition to the first order impacts on earnings of a market correction and redemptions (which we model at 10-15% of earnings in our bear case). In our view, the mid-sized asset managers and captives will be hardest hit and consolidation would have to ensue.

Trench warfare in the rebuild of returns in wholesale banking

For the banks, the diminishing returns on capital from market making call for more and faster structural change. An uneven global recovery and increased volatility bring a mix of tailwinds and headwinds for wholesale banking revenues. We expect re-pricing for capital, policy divergence, and an improving real economy to be key tailwinds. But capacity withdrawal, tougher conditions in credit, lower leverage and turnover on the buy-side, and increasing electronification are all headwinds. Under our base case revenue forecast of ~3% growth until 2017, management teams will need to deliver a 2-3% RoE uplift through business restructuring to hit 10+% returns on capital.

Exhibit 4

Outlook for wholesale banking industry RoE 2014-2017, %



Source: Oliver Wyman proprietary data and analysis

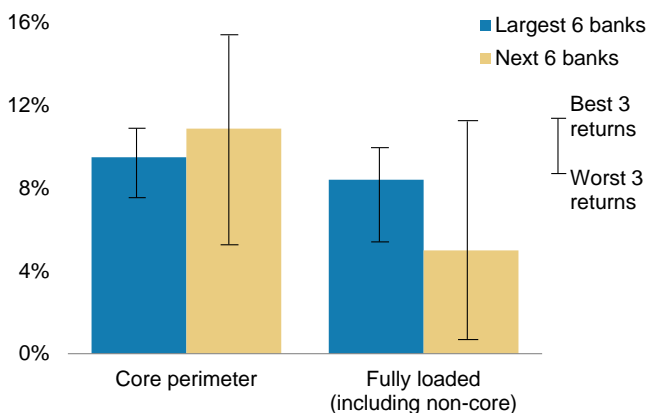
We see huge opportunity for banks to change the way they do business to deliver this uplift. More strategic selection is required, particularly in FICC and overseas markets. But also a fundamental move from a people driven “push” service model to a technology driven “pull” model, and from a support model based around proprietary infrastructure to one built around supply chains. However, success will require a much

more structural approach. The opportunity – but also the challenge – is there for the banks that can be decisive and make these changes in the next few years.

We expect further consolidation of share within the sell-side, but the competitive landscape is becoming more diverse and returns accordingly more dispersed. In our discussions with asset managers it was striking that as liquidity reduces, many wish to consolidate their sell-side wallet more to access liquidity, potentially helping some leading sell-side firms win share. At the same time, small firms will be under growing pressure to white-label execution and clearing in some products. Rates and FX are key areas for further consolidation, given the pressured economics and relatively diffuse supply side today. Developments in OTC clearing underscore this trend where the heavy capital costs of OTC clearing are driving that business towards an oligopoly structure similar to the tri-party repo market.

However, it's not all about size. In fact the costs of size and complexity are rising. G-SIFI rules and regulatory Balkanisation are pushing up capital and funding costs, while complex legacy infrastructures look increasingly disadvantaged as supply chains develop. As a result we think that while a small number of global banks can deliver superior returns through consolidating share across a broad business footprint, the execution risks of this approach are high and there is significant investor pressure to demonstrate the value of the global network. Meanwhile in the medium to smaller wholesale banks, good strategy and good execution are reasserting themselves, with up to 10% points of returns difference now between wholesale banks of similar size.

Exhibit 5
Smaller banks have a larger range of returns
2014 range of return on allocated equity for top 12 wholesale banks



Source: Company annual reports and investor presentations

Market Infrastructure still searching for how to exploit the opportunity

Opportunities in market infrastructure likely to accrue to data/risk management rather than electronic platforms

We see only limited opportunity for incremental execution and clearing revenues related to increased electronic trading in credit markets, given the constraints to market development owing to instrument heterogeneity. Though we do expect greater focus on these electronic initiatives by the buy-side as they seek ways to solve for the liquidity conundrum. Greater opportunity we expect will emerge for those able to capture data/risk management analytics needs (particularly in the areas of stress testing and liquidity management) and provide the banks with smart sourcing solutions. In our view this is a revenue pool of around \$3 billion, which is 10-15% of the execution / clearing revenues.

Limited value migration towards core market infrastructure/post trade to continue

Despite significant growth in asset prices, market infrastructure has only benefited marginally compared to the asset management industry from the asset reflation trade. This reflects gearing to a number of the headwinds that have impacted the broader bank sector - low rates, subdued volatility, deleveraging trends - in addition to the emergence of increased competition in certain parts of the value chain. We continue to see pockets of structural growth opportunity (e.g. OTC clearing, collateral management, risk management, data) and note more constructive cyclical dynamics to top line (normalising volatility, listing and trading activity) emerging. At the same time however we see increased focus from regulators given growing concerns around systemic risks in CCPs in particular (including counterparty credit risks (primarily gap risks due to collateralisation), liquidity risks around collateral and operational risks).

Policy debates we've engaged with banks and asset managers on for this report

During the course of our research for this year's report we have debated, and had suggested to us, many possible policy steps that could improve the functioning and liquidity of the FICC markets. Given the plethora of in-train regulations that are seeking to improve structure and conduct, there are few simple wins. However, here are a number of suggestions relating to market liquidity that we think have merit to explore and debate further between practitioners and regulators on traded markets.

- Build a roadmap for macro-prudential policy makers to understand holders of credit and maturity terms, and potential risks throughout the system. Encourage better disclosure of tenors, concentrations, leverage, and type and size of liquidity tools employed (cash, lines of credit, swaps, ETFs, high quality liquid assets) to support this understanding.
- Consider running stress tests on select fixed income funds using the industry experience of the last 30 years redemption history. Prioritise based on size, complexity, exposure to thinly traded markets and distribution complexity. Assess benefits of different levels of fund level liquidity versus cost to investors of protecting themselves against a tail risk outflow event. However, in the first instance do not make as complex as bank stress tests given asset managers do not share the systemic risks banks pose. Further investigate the role of asset managers as source of operational risk for the funds they manage.
- Create the conditions to allow greater standardisation of corporate bonds. Investors are holding and trading a wide number of heterogeneous securities. Areas to investigate include standardisation of issuance amounts, coupon dates and maturities (for the very largest issuers), as well as rules and standards. Steps should be incremental and measured as no one would wish to jeopardise the success of debt financing market and the flexibility valued by issuers.
- Ensure regulators have and deploy consistent powers to gate / suspend redemption rights for funds in extremis. For instance, the SEC has granted this power to money market funds, UCITS allows suspension in exceptional circumstances with Board and/or regulator approval.
- Reduce early redemption interests by agreeing commonly accepted valuation / pricing standards (e.g. swing pricing).
- Consider the implications of mark-to-market accounting on institutional investors. Whilst we have found policy makers are focused on mutual funds, given they own less than 30% of credit markets and have no higher than ~5% peak redemptions in any 3 month period in the worst crises of the last 35 years, we think as much attention should be focused on other holders and the risks from MTM accounting on insurers and pension funds.
- Carefully (re-)calibrate post-trade transparency requirements and block trade exemptions. Immediate post-trade transparency requirements (e.g. in TRACE) discourage large order transactions, as buyers that are uncertain of ultimate size become concerned about being run over. The answer to this is to establish block sizes well above retail investor size, and delay reporting on large blocks for T+1 or T+2, in line with the MiFID II proposal. This may give brokers the incentive to take reasonable risk to facilitate client flow.
- Support e-platforms, but expect Request for Quote rather than Central Limit Order Books are more likely to succeed - given 1) low trading volumes, 2) difficulties of matching buy-side to buy-side orders, and 3) heterogeneity of instruments. Other data-driven innovations, such as networks linking potential buyers and sellers, should be welcomed.
- Evaluate the role of ETFs as a cash substitute within portfolio construction, considering the potential benefits (e.g. mitigating the yield drag caused by increasing cash holdings) as well as the potential risks (e.g. of potentially reduced liquidity of some ETFs under stressed market conditions)
- Recognise that inconsistent regulatory practices across regions will lead to different market structure decisions in different geographies. Whilst regulatory convergence could help markets, political economy reasons make harmonisation very unlikely, but heightens the need for increased coordination between regulators.
- Evaluate creating standardised settlement terms and documentation standards for leveraged loans, whilst taking into account the unique financing requirements of companies that rely on the loan market for financing.

Messages from our Proprietary Survey

Key takeaways from our meetings with senior executives of asset managers representing over \$10 trillion of AuM

Investors have heightened concerns about credit market liquidity

- All were increasingly concerned about secondary market liquidity.
- Concerns were not just in high yield and emerging markets but in US and European credit markets given low market liquidity.
- Some also expressed concerns around areas of rates markets and emerging market FX.
- Investors worried about the potential for dislocation when the US raises rates and that ultra-low or negative interest rates are luring even more money into less liquid bonds.

There is little consensus on the solutions for credit markets, but everyone we met had ideas and were working on internal and external solutions

- Some would like issuers to reduce the number of unique securities, while others were concerned about the impact on corporates' funding structures.
- Most are looking to embrace alternative execution methods (e.g. agency, peer-to-peer, electronic), although they were concerned the heterogeneity of markets would impede them being successful and how to pump prime these platforms.

European firms were more worried than US firms about credit outflows with rate rises

- We suspect this comes from the different structure of retirement savings, where a far higher % of funds in the US are held in sticky 401K plans (where investors can only switch funds rather than outright redeem) whilst a greater % in Europe are invested in discretionary mutual funds. This is critical to address for the Capital Markets Union project to be a success.

Most felt electronic trading won't resolve the fundamental issues

- All wanted to harness technology to unlock hidden liquidity and improve efficiency. But most felt that this did not address the underlying problem of heterogeneity in instruments and that corporates prize the flexibility that issuing in different currencies, tenors and envelopes (MTNs, private placements, benchmark bonds) offers.

Demand for relaxation/recalibration of transparency requirements

- Need to balance benefits of post-trade transparency with impacts to market liquidity through block trade protection. If dealers did not have to quote size of larger trades or were able to post with a delay, for example, this could improve the current situation which disincentivises dealer intermediation of larger or less liquid trades.

Asset managers are already pulling a variety of levers, but with different levels of intensity

- The majority of firms were looking to concentrate their business on fewer large counterparties to achieve better financing terms, although some were concerned what the impact of this may be in a crisis. Most also looking to pull multiple levers including risk management and thinking about capacity management.

Asset managers crave regulatory coordination, although don't believe it is coming

- Particularly in Europe, interviewees highlighted that regulators have not agreed on a harmonised approach to handling potential requests for suspension in redemptions, which would be critical for minimising dislocations in a liquidity crisis.
- Interviewees also suggested that common standards for pricing allocation of transaction costs and in-kind redemptions should be reviewed.

We would like to thank the firms and individuals who took the time to meet with us.

1. The Liquidity Conundrum

1.1 Liquidity provision is falling further

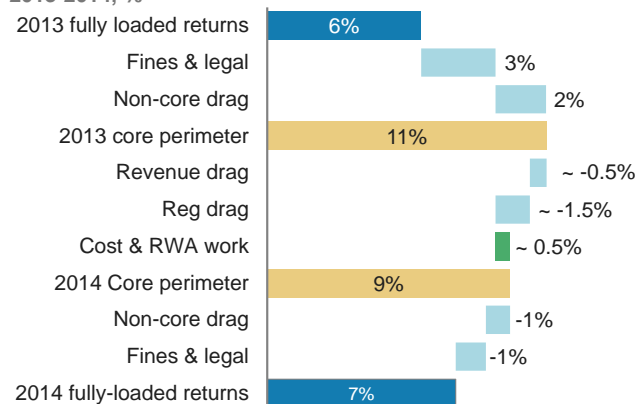
We think the market underestimates how much more constrained market making will become in rates, credit markets and security financing. Wholesale banks' risk weighted assets have already shrunk 40% since 2010 and balance sheet is down ~20%. Yet more is still to come – we expect a further 7-15% reduction in balance sheet over the next 3 years, focused in flow fixed income products.

Banks will have to reduce balance sheets further to boost returns. In 2014 we estimate RoE for the top 15 players was 7%. Even if we exclude litigation costs and non-core businesses this only rises to 9%.

Management teams have worked hard to cut costs and de-risk the business. We estimate RWA are down 40% since 2010 on a Basel 3 like-for-like basis. Gross balance sheet (US GAAP equivalent) is down 20%. Progress on costs has been more limited, while at the same time allocated equity has increased to meet new regulatory requirements, knocking ~1.5% off industry returns. And a 2% decline in revenues, driven largely by a weak year in Rates, FX, and EM, knocked a further ~0.5% off returns. Non-core units, and fines attributable to wholesale activities took a combined 2% off ROE in 2014 – down from 5% in 2013, but still a material drag.

Exhibit 6

Evolution of industry RoE 2013-2014, %



Source: Oliver Wyman proprietary data and analysis

We estimate new regulation will take another ~2ppts off RoE, which cancels out the benefits of our base case expectation for revenue growth by 2017. We think investors require a minimum end-state 10% ROE, encouraging banks to shrink further, and in turn provide less liquidity.

Flow fixed income products are the hardest hit. All areas of securities trading are affected, but the capital and funding pressures are most acute in three areas:

- Rates markets will likely be under huge pressure. In 2014, we estimate flow rates consumed ~40% of industry capital, but generated only 5-10% of PBT. Most banks are generating single-digit returns. As a response, our base case is they will shrink balance sheet committed by a further 15-25% over the next 3 years.
- Credit trading is at risk not only from in-train rules but also the Fundamental Review of the Trading Book (FRTB). Depending on the outcome of this, banks may shrink their credit balance sheet by 5-15% from here.
- Security financing is also an issue. The top 15 banks have shrunk repo provision by 15% in the last 2 years and we think another 15-25% is plausible.

Exhibit 7

We expect banks to shrink balance sheet further Share of 2014 balance sheet and expected reduction

	Changes in balance sheet 2010-14	Further potential reduction
Rates & repo	~ -30%	-15% to -25%
FX, EM, & Commodities	~ -25%	-5% to 0%
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Equities	~ 0%	-5% to 0%
Total	~ -20%	-10% to -15%

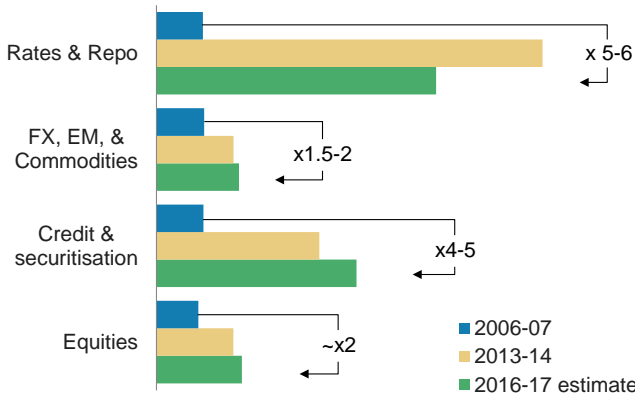
Source: Oliver Wyman proprietary data and analysis

More broadly, almost all areas of securities trading are in flux, as banks look to reduce capacity, manage operational and conduct risk, and react to new market structure regulations (e.g. MIFID 2). For example, conduct risks and cost pressures are particularly straining sub-scale players in FX, structured products, and corporate derivatives and FRTB is again increasing capital pressure on structured rates/credit. In equities, leverage and NSFR concerns are placing pressure on Prime and synthetics businesses while of EU dealing commissions unbundling proposals are likely to put pressure on cash equities revenues. In combination, these factors are likely to further reduce liquidity/capital provision and associated client services in the market, far beyond the immediate hot spot of credit and rates.

Exhibit 8

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

Capital and funding requirements continue to ratchet up as banks deal with additional RWA and leverage pressures.

We estimate that by 2017 capital consumption per unit of revenue generated in rates and credit intermediation will have increased 4-6x since pre-crisis levels. The key focus areas in 2015 are:

- RWA reform – FRTB and standardised capital floors potentially increasing risk weighted assets by 10-30% by

2019, if no mitigating actions are taken, in particular affecting credit and structured businesses.

- Stress tests – already the binding constraint on capital for most US banks, and a major challenge for the US operations of European ones. There is an increasing chance of a CCAR-like approach in Europe. Stress tests also constrain banks’ ability to sizeably increase risk or leverage intra-period.
- Leverage ratio – a significant constraint forcing a tougher re-evaluation of where the balance sheet is deployed; we expect an additional 15% to be withdrawn.
- G-SIFI – additional capital charges of 1 to 5ppts for large institutions, with much of this ultimately attributable to wholesale banking businesses.
- NSFR (net stable funding ratio) – increasing the long-term funding requirements, potentially adding \$3-5 billion of costs, and in particular affecting rates and equities.
- Structural reform – particularly the non-ring-fenced banks in the UK and intermediate holding companies (IHC) in the US.

Today each bank faces a different set of constraints depending on business mix, footprint and overall group position. But for the industry as a whole we estimate 10-15% of additional capital would be required by 2017 absent further restructuring and deleveraging.

Exhibit 9

New regulations will have significant negative impacts across the range of wholesale products

Expected impact on product economics by regulation

	Rates & repo	FX, EM, & Commodities	Credit & securitisation	Structure fixed income	Equities	Impact
FRTB & Capital floors ¹	Medium	Medium	High	Very high	Medium	<ul style="list-style-type: none"> • FRTB likely to raise wholesale RWA 10% to 30% • Large impact on credit & structured from Illiquidity modelling rules
Stress tests	Medium	Medium	High	High	Medium	<ul style="list-style-type: none"> • Binding constraint for most in US; increasingly relevant in Europe • Wholesale products often cause large losses in adverse cases
GSIFI add-on	Medium	Medium	Medium	Medium	Medium	<ul style="list-style-type: none"> • 1 to 5ppts addition to capital requirements for large institutions • Wholesale banking is a major contributor to size of capital add-on
NSFR	High	Medium	Medium	Medium	High	<ul style="list-style-type: none"> • \$300-500BN additional stable funding required for derivatives • 10-15% increase in derivative funding cost
Leverage ratio	Very high	Medium	Medium	Medium	Very high	<ul style="list-style-type: none"> • Meeting 5% ratio at a wholesale standalone level would require an additional ~50% capital; impacts yet to be fully filtered down to BUs

Legend: Very high (dark blue), High (medium blue), Medium (light blue), Low (grey)

¹ New floors on RWA requirements as a percentage of standardised approach are still early in development, but likely to raise capital requirements across products with greater impact in Europe

Source: Oliver Wyman proprietary data and analysis

1.2 Shift in value and risk

A profound shift in value capture within securities markets is under way, but with that, risks are shifting too. Buy-side revenues have grown while the sell-side has shrunk. Liquidity risk has shifted to asset owners, as secondary market liquidity has thinned, yet AuM in daily redeemable funds has grown. Our proprietary interviews with asset managers suggest bond market liquidity is their key concern.

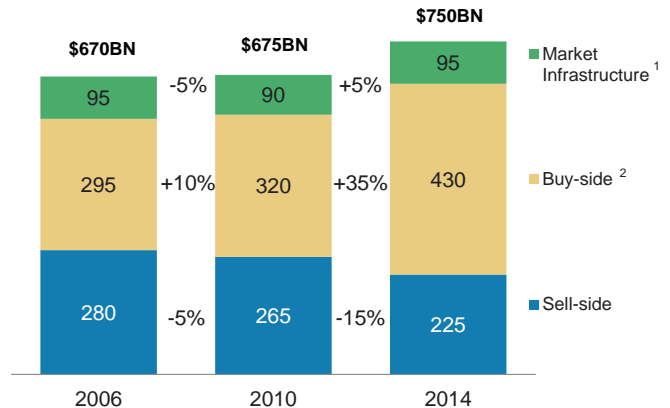
A profound shift in value capture within the securities industry is occurring. Since 2006 sell-side revenues have fallen by 20% (\$55 billion), whereas buy-side revenues have risen 45% (\$135 billion) and market infrastructure has stayed flat. Banks cutting capacity and de-risking is an important factor. But the macro-economic climate has also supported this shift, as QE has translated into strong asset growth benefiting asset managers. Low volatility and weak economic recovery continues to depress sell-side revenues. Revenue capture by market infrastructure providers – including custodians, execution venues, clearing houses and data providers – is broadly flat, albeit with significant shifts within this group, mainly towards the tech and data providers.

Risks are also shifting. The sell-side is continuing to de-risk across the board, while risks in the market infrastructure (MI) layer have grown, with the introduction of central clearing and initial margins.

Exhibit 10

Growth in securities revenues has been led by the buy-side

Securities revenue pools by player; 2006-14, \$BN



1. Includes execution venues (exchanges, inter-dealer brokers, clearing houses, CCPs) CSDs, custodians and data providers

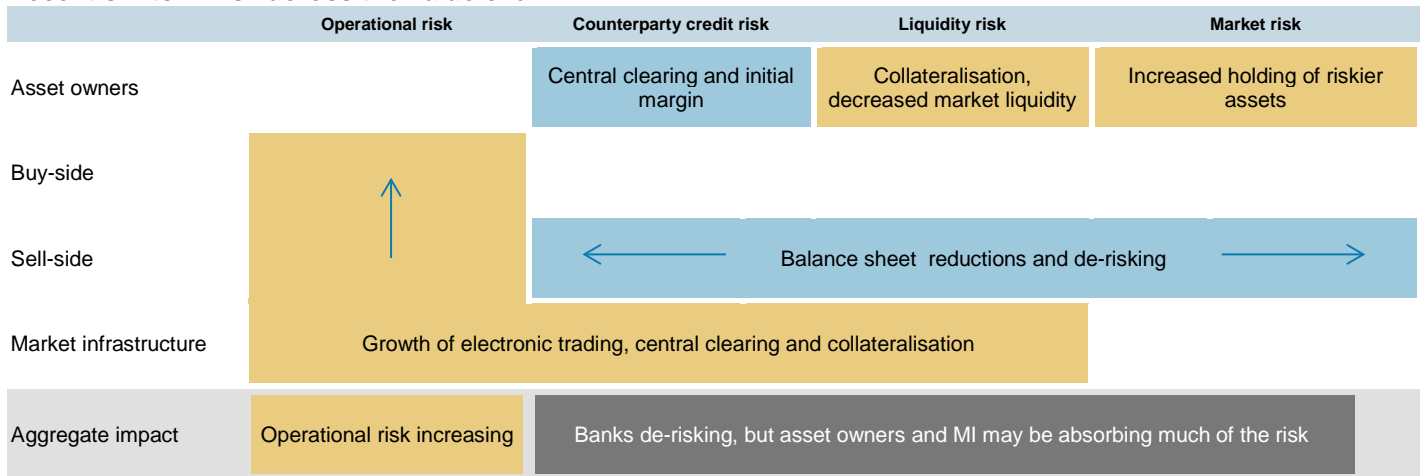
2. Includes Asset Managers and Hedge Funds

Source: Company annual reports, Oliver Wyman proprietary data and analysis

But the biggest shift is towards the asset owners. While liquidity provision by banks is falling, AuM in daily redeemable funds has grown rapidly, up 76% since 2008, with >45% of all globally managed assets now sitting in daily redeemable funds, up by 3 ppts since 2008, with increased investment in less liquid asset classes (e.g. HY credit). With the continued growth of defined contribution (DC) an even larger share of total industry assets sit in retail-related funds, although DC structures such as 401k plans in the US are stickier since investors can only switch funds rather than outright redeem.

Exhibit 11

Recent shifts in risk across the value chain



Changes in risk over past 2-3 years:

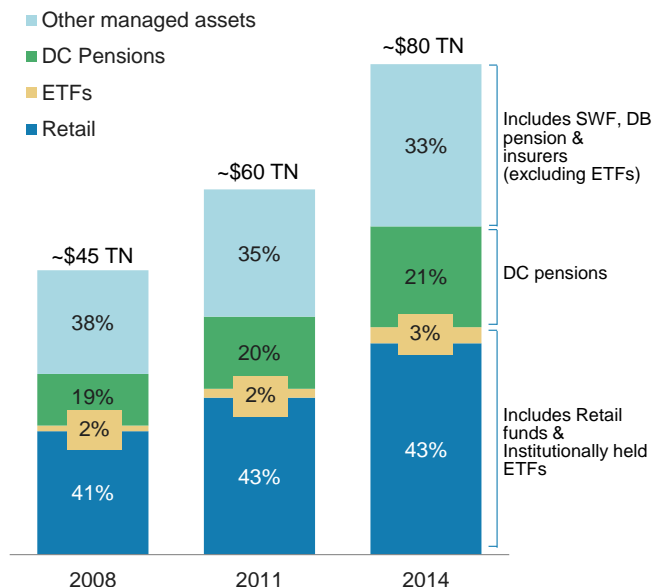
■ Increased Risk ■ Decreased Risk

Source: Oliver Wyman analysis

Exhibit 12

Redeemable funds account for ~46% of AuM

Global AuM evolution, \$TN



Source: The CityUK, Oliver Wyman Wealth & Asset Management model

Credit is the key pain-point today, with the prospect of rising US rates adding urgency. We see an unhealthy confluence of sharply reduced secondary market liquidity, a significant surge in primary issuance, and strong growth in mutual fund holdings with daily liquidity.

- Dealer balance sheet in corporate credit is down 30% globally since 2010 and we expect another 5-15% to come out
- Debt issuance has grown at a 10% CAGR globally since 2005; primary issuance in 2014 was 2.4x 2005 levels
- Mutual funds offering daily liquidity have more than doubled their holdings of US credit since 2005 and now hold 21% of outstanding securities globally, compared to 11% in 2005.

The ultra-low interest rate environment has pushed investors towards higher yielding assets, creating strong demand for corporate credit, while issuers have looked to take advantage

of attractive financing terms, and to move away from pressured bank lending. Some of the strongest growth has been in HY markets, where issuance has grown 28% over 2010-14. Yet the pressures on secondary market liquidity are acute. Lack of risk appetite and capacity means that it is harder to execute large (“block”) trades that would traditionally require a dealer to take principal risk and hold a position over a period of time. The pressures come from a number of sources:

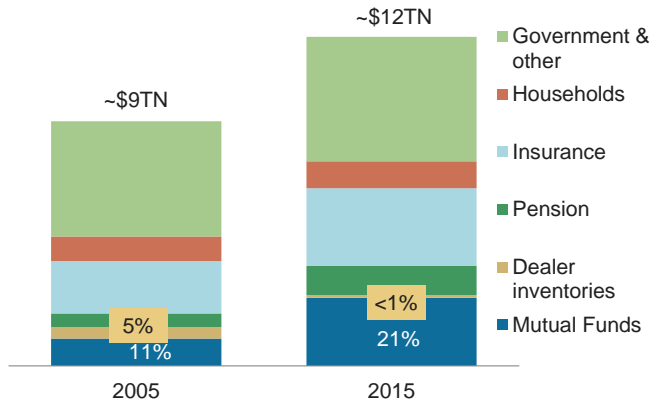
- Most directly, capital and funding costs on dealer inventories have increased 4-5x
- Many dealers also cite the massive contraction in activity the single name CDS market as a key factor making it harder to hedge and manage risk in corporate bonds (single name CDS volumes have dropped ~70% in response to specific regulatory pressures)
- Many also cite concerns around proprietary trading limits (e.g. Volcker) and earnings volatility as another constraint on risk appetite
- Many of the market participants we spoke to felt that increased transparency (e.g. through TRACE) had undermined liquidity
- Some also felt that increased buy side concentration in credit, and the growth of passive strategies (e.g. trackers, ETFs) had contributed to an environment of more correlated flows, often occurring at the same time (fixed income ETFs have grown 27% p.a. since 2008 and are now ~20% of FICC AuM)

The concern is that while holdings of corporate bonds have materially shifted towards mutual fund structures that offer daily liquidity to their investors, the liquidity of the underlying assets has significantly reduced. Dealer inventory is now down to less than 1% of outstanding credit securities globally, or circa 1.5% of mutual fund AuM. In 2005 these statistics were ~2.5% and ~19%. Put differently, a recent IMF study suggested it could take 50-60 days for full liquidation of a US high yield fund, compared to the 7 day limit for redemption payments on US funds (“Global Financial Stability Report”, IMF, October 2014).

Exhibit 13

Ownership of credit assets has shifted towards mutual funds

US corporate credit asset ownership \$TN



¹ Includes government entities and other financial institutions
Source: Federal Reserve, Oliver Wyman

Our proprietary interviews with a dozen asset managers who collectively manage more than \$10 trillion in assets suggest liquidity is turning into a major headache. All

were increasingly concerned about secondary market liquidity not just in emerging market credit and high yield market liquidity, but also US and European corporate bonds. Some also expressed concerns around areas of rates markets and emerging market FX. Most interviewees cited liquidity risk in credit markets as their top concern. Interestingly, European asset managers are more worried than their US peers, which can be explained by the lower liquidity of European credit markets, the lack of a sticky 401k retirement savings market, and the even greater pressure on European wholesale banks to shrink.

We do not see easy solutions to this as policy-makers face a trade-off between three conflicting goals. There is an unresolved conflict among regulators' desires to reduce the riskiness and interconnectedness between banks, to ensure that asset managers have sufficient liquidity to deliver on promises to their investors, and to preserve companies' flexibility to issue in a wide range of markets and tenors. Yet resolution of this conundrum is critical to ensure capital markets remain effective channels of funding to support the global recovery.

Capital Markets Union and Market Structure

The crisis has taught us that Europe sorely needs a more diverse funding market for corporates and infrastructure. The problem is an over-reliance on lending by banks, whose balance sheets remain four times the size of the currency zone's gross domestic product – far larger than elsewhere in the west. Insolvency regimes are also complex and inconsistent, limiting appetite for cross-border lending. We need to find new ways to channel non-bank finance to businesses and infrastructure projects, which will require some significant changes to Europe's market plumbing as well as the approach of policy makers to markets.

But the Capital Markets Union also requires credit markets that function well, and the findings of this report about the lack of liquidity will need to be addressed for the CMU to be a vibrant success. In part as the next set of issues in Europe that the Commission is keen to promote are related to funding of mid-sized companies.

We see several legs to the CMU agenda

First, mid-sized companies need to be able to tap long-term savings via a pan European private placement market that gives them access to long-term competitively priced funding. In the US, 80% of long-term company finance is provided by investors; in the Eurozone it is 30%. But our work has highlighted the importance of finding the right buyers and creating a secondary market that supports the primary issuance, although we are realistic about liquidity likely being very thin in this market.

Second, it is not just about providing cheaper debt. Europe's growing companies also need access to the equity market, from venture capital through to listed equity.

Third, the Commission should also lay out plans for project bonds for infrastructure, perhaps along the lines of North American municipal bond markets. Banks have traditionally played a major role in funding infrastructure, but new Basel rules strongly disincentivise this. Given the EU itself estimates it may need €1 trillion to finance such projects by 2020, a strong focus is

needed to develop the right bond structure, transparency and tax treatment. Again, our work underscores the need to find the right buyers given lack of liquidity in these instruments.

Fourth, enabling banks to sell small business loans directly to investors could also provide a boost to lending capacity, but post-crisis rules make this far more difficult. Thoughtful recalibration of the regulations, along lines that the ECB and the Bank of England are already investigating, could give banks more capacity to lend to SMEs. This said, the presence of the 4 year TLTRO and continuation of the UK's Funding for Lending – both helpful schemes – mean in reality we are unlikely to see an opening up of private sector SME securitisation when central bank subsidised funding is far cheaper.

Fifth, as peer-to-peer lending continues to grow, we need a strong regulatory framework ensuring that investors are aware of the risks being taken.

Sixth – and perhaps most importantly – to reduce the cost of funding for countries in southern Europe we should also focus on clearing some of the roadblocks that hold up flows of credit. An obvious one would be to narrow the massive differences in bankruptcy procedures. For example, it can take 5 to 10 years to recover bad debts in the Italian courts. In some other countries, the same work can be completed in two years. If one of Europe's challenges is to ensure capital is moved more swiftly from unproductive assets to ones that can help drive Europe's economic growth, tackling very long-tailed insolvency regimes is critically important.

For more on our views on this topic see

"Europe needs a more flexible financial market: Europe needs to channel non-bank funding to businesses and infrastructure", argues Huw van Steenis, Financial Times, September 30, 2014) and "Unlocking funding for European investment and growth", Oliver Wyman for AFME, 2014

1.3 Electronic markets and new execution models are only a partial answer

There are a host of initiatives under way to increase electronic trading, establish new data networks and create new marketplaces. We expect continued growth, and believe they can be helpful in supporting market efficiency and improving dealer economics. However, we believe that there are limits to how far and how fast change can occur, and the extent to which these can help address liquidity concerns.

Fixed income markets are entering a period of accelerating market structure change. A confluence of forces is driving this:

- Economic pressures on dealers
- Client concerns around liquidity
- A desire to manage conduct risks relating to sales and trading activities
- Mandated electronic trading (SEFs under Dodd-Frank and OTFs under MIFID / EMIR)

- New pre- and post-trade reporting requirements
- Advances in technology

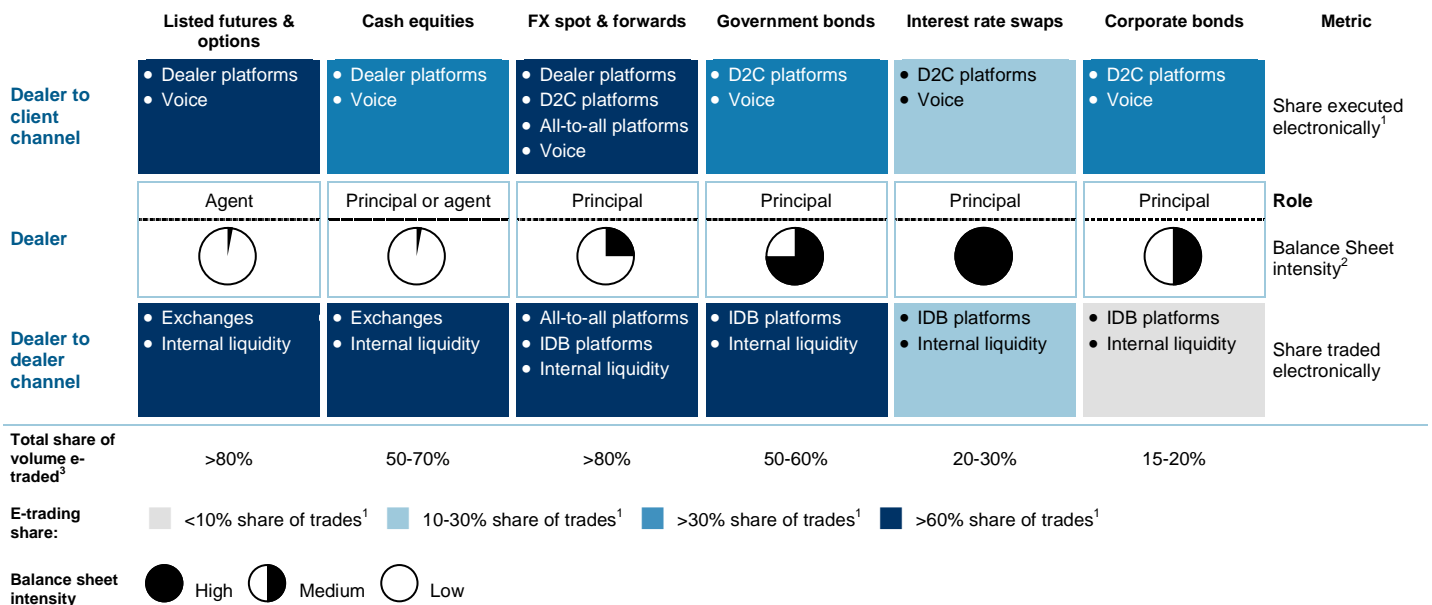
Banks, platforms, asset managers and regulators are committing considerable time and resource to the topic. We have seen a proliferation of new initiatives being launched. While electronic trading is not new in fixed income and currency markets, the level of penetration of electronic trading varies widely across asset classes (from 10% to >80%), with different supporting market micro-structures. In contrast to the cash equity and listed derivative markets, they operate almost entirely on a principal model. These very different structures can in part reflect different inherent characteristics. This suggests limits to how far and how fast market structure can evolve, and the extent to which this can improve underlying liquidity.

The impact on sell-side economics should not be over-stated - we estimate that only 25% of rates and 10% of credit revenues are likely to be affected over the next 2-3 years.

Exhibit 14

Penetration of electronic trading varies widely by asset class

Relevance of different trading models by asset class



¹ Share of total trades (electronic + voice) within channel;

² Dealer leverage exposure per unit of revenue

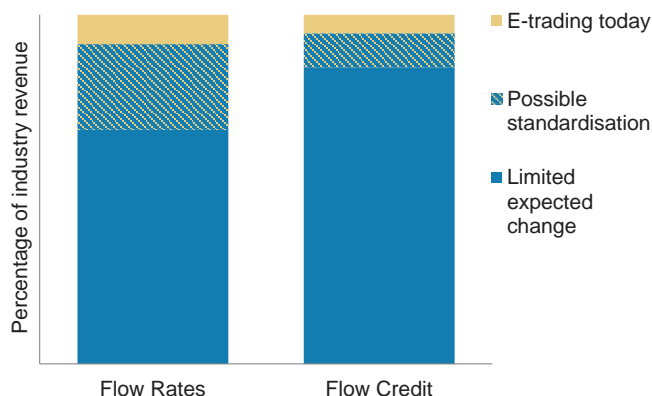
³ Share of trade volume across all platform types

Source: Oliver Wyman proprietary data & analysis, Euromoney, BIS, Celent

Exhibit 15

The impact of e-trading on sell-side economics should not be over-stated

Share of industry revenue likely to be impacted by e-trading cash & derivatives, 2014

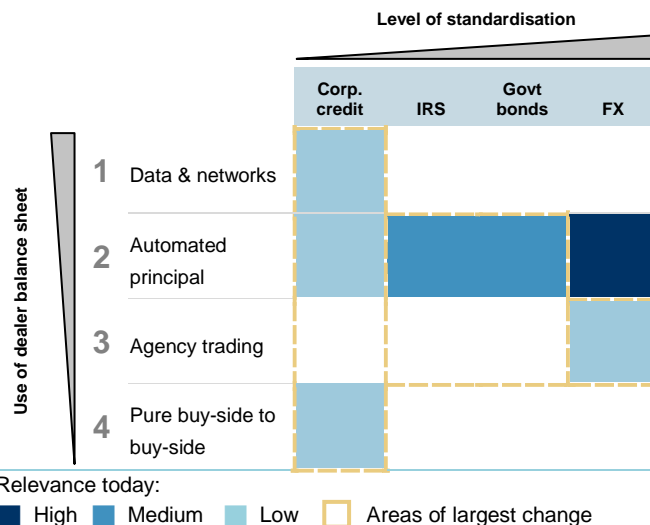


Source: Oliver Wyman proprietary data and analysis

Exhibit 16

Areas of focus differ across asset classes

Relevance of different trading models by asset class



Source: Oliver Wyman proprietary data & analysis, Celent

Today we see four distinct areas of focus:

1. Data and networks – using technology and data to help dealers more efficiently link potential buyers and sellers, reducing the need for inventory to ‘rest’ on dealer balance sheet
2. Automated principal – accelerating the evolution of the existing client-dealer relationship towards electronic platforms, allowing automation of elements of price distribution, construction and risk management
3. Agency trading – fundamentally changing the role of the dealer from one of market-maker offering committed pricing and liquidity in return for a spread, to one of a broker offering connection to a liquidity pool in return for a commission
4. Pure buy-side to buy-side platforms – removing the role of the dealer as intermediary, and allowing clients to trade directly to each other (or potentially also dealers) through an electronic platform

Credit market issues are some of the thorniest to solve.

A host of different market structure solutions are on the table, ranging from peer-to-peer structures, to electronic trading platforms and quasi-exchanges, to new data networks. In our view the most promising are those that work to make the existing dealer-driven model more effective, rather than seeking disintermediation or radical market structure change.

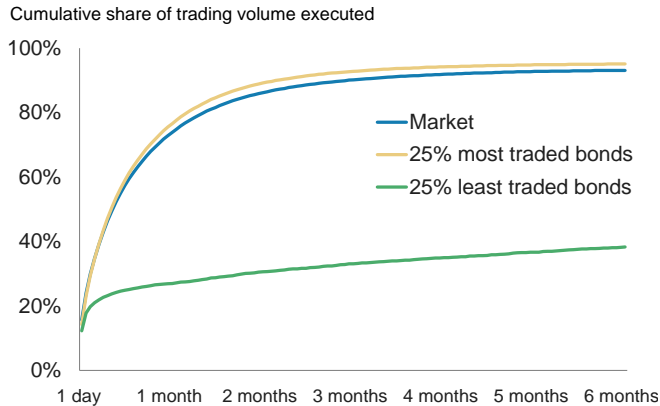
While electronic trading is well established in credit, it currently accounts for only 15-20% of total volumes (higher in the US, lower in Europe), and is currently mainly relevant in smaller size transactions in more liquid issues. Credit markets have several fundamental characteristics that contribute to this lower level of uptake compared to other asset classes:

- Heterogeneous securities – the S&P500 corporates have ~6,000 bonds outstanding between them, an average of 12 bonds per company compared to typically only 1 stock per company. Some have as many as 100 different bonds outstanding, with different durations, yields and contractual language.
- Correlated trading – 70% of client flows are from buy-side clients, compared to only ~45% for FX where corporate and transactional flow is a more important driver of volumes.
- Low turnover – many US corporate bonds are illiquid with only 34% trading an average of once a week or more in 2013. Outside the US, most markets are even less liquid.

As a result for a significant part of the market it would take a considerable length of time for ‘natural match’ to occur between buyer and seller. Our analysis of the US corporate bond market suggests that even for fairly liquid bonds, an average of only ~70% of an order would be filled in 1 month.

Exhibit 17

Even for fairly liquid bonds only 70% of volumes would meet natural buy & sell orders in 1 month
US Corporate Bonds share of trading volume by number of days to execute



Note: We simulate an order book environment for all US corporate bond customer trades and estimate how long it would take for each trade to find a "natural match". For each bond, we match all buy and sell volume sequentially and track the time between the offsetting trades. We allow orders to be matched in pieces – e.g. a \$10 MM buy order followed by 10 \$1 MM sell orders is matched in 10 pieces rather than on the last day. We include customer trades only and treat the market as a single dealer, assuming a "perfect" inter-dealer market
Source: FINRA TRACE, Oliver Wyman analysis

In this context, while we see huge potential for innovation in market structure to improve the efficiency of market functioning, we see only limited potential to fundamentally improve market liquidity, particularly in times of stress.

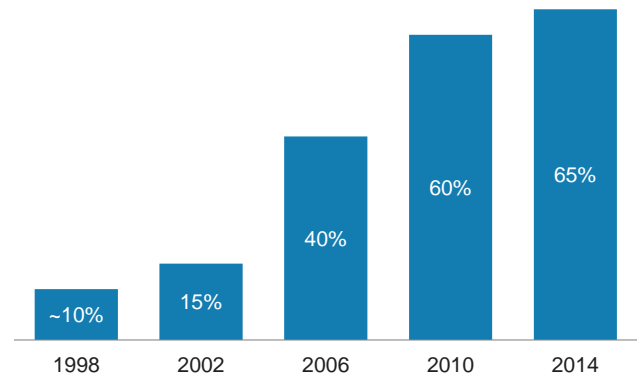
Rates markets are increasingly in focus. There are already growing concerns around liquidity gaps and discontinuous price movements in several areas. The events of last October 15th, which saw in a 10-minute period the sharpest movement in US Treasuries prices in 50 years, are the most prominent example. The huge strain on dealer economics is pushing banks to find ways to strip out more balance sheet and cost. A key debate is how this, combined with regulatory and client considerations, plays into market structure change.

One area of focus is to push more trading through electronic channels to improve balance sheet velocity, cut costs, and effectively meet regulatory reporting and transparency requirements. The government bond market is already 50-60% electronic (in volume terms) and we expect this to continue to grow. The Swap market, while only 20-30% e-traded today, is being pushed in this direction by regulation. By way of analogy, at an equivalent stage of development, the proportion of FX markets traded electronically increased 5 ppts per annum, moving from 15% in 2002 to 60% in 2010. This level of growth would imply a ~20% growth in e-trading volumes per annum.

Exhibit 18

FX trading volumes underwent a step change in the mid-2000s

FX electronic trading as a percent of executed turnover



Source: BIS, FRBNY FXC, BoE FXJSC, Oliver Wyman estimates

A key debate is whether the market structure changes more profoundly and moves towards an agency structure. Agency models could be attractive to some dealers, due to the huge capital release possible, and could also have advantages from a conduct perspective. However, the revenue potential is uncertain and clients are in no hurry to move away from the current model of committed pricing supported by (underpriced) capital provision.

The experience of FX and cash equities however would suggest that more technology-driven trading would increase rather than decrease the likelihood of 'mini flash crash' type events. Furthermore it is in times of stress that machines are most likely to be turned off, or over-loaded to the point of failure.

FX markets face a different set of challenges. FX is already highly electronic (~65%) and the market has evolved into a complex ecosystem with a wide range of actors – banks, platforms, distributors, non-bank market-makers – all performing specific roles and offering clients a wide range of execution channels. The Swiss Franc de-pegging (15th Jan 2015) highlighted the ability of the market to transact large volumes through extreme volatility. On the other hand, it also highlighted some of the pain points in the market, as liquidity dried up for some participants. In particular, many stop-loss orders were rendered ineffective due to the lack of underlying principal liquidity in the stressed period, resulting in large losses for distributors acting as riskless principals (or their clients).

The pressure on dealers here is not driven by capital but rather by growing technology costs, difficulties monetising

flow and the need to manage conduct and operational risks. A key debate is the extent to which agency models can be adopted. Agency models exist at small scale within FX today, but there is growing focus on their potential application to certain transaction types (e.g. fixing orders). Broader take-up of an agency model could offer a cheaper and lower risk way for some banks (and non-banks) to distribute prices to their end clients. Yet most asset managers we spoke with are

comfortable with the current level of principal based liquidity provision. Furthermore, withdrawal of more banks from the role of market making could create greater systemic reliance on a narrower set of banks, and on non-bank liquidity providers.

2. Impact on Asset Managers

2.1 Growing regulatory risks for asset managers

As liquidity risks have shifted towards asset owners and the buy-side, the focus moves towards the available tools for policy makers to respond. The greatest area of uncertainty is around Asset Managers. Our base case is for the introduction of stress tests for some funds and a range of incremental measures. However, we see risks of a more wide-ranging regulatory response, most likely including higher fiduciary and capital standards that would have a heavier impact on long run asset manager earnings.

Regulatory focus on asset managers is likely to increase.

As risks have shifted and continue to build in the system, the focus moves towards the available tools for policy makers to face these challenges. There are four potential avenues to explore:

- Bank capital and funding rules
- Market structure rules
- Regulation of funds and/or fund managers
- Changes to issuer profile to drive standardisation

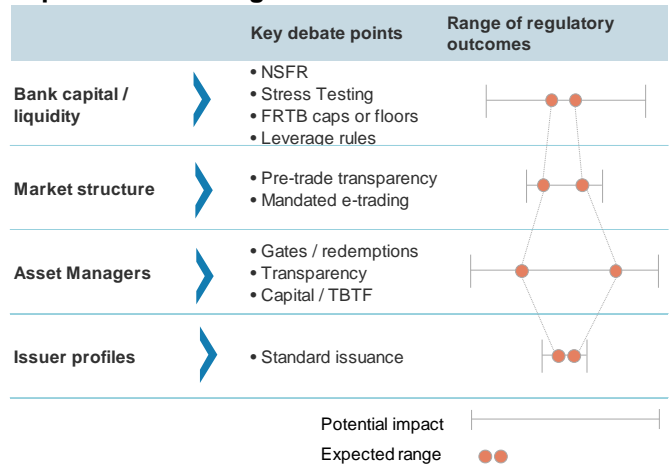
We believe there is very little potential for relaxation of new capital and funding rules for the banks. Many of these rules have only recently been adopted, and some are still being implemented. We see no appetite from regulators to revisit this topic, and the desire to ensure the bank system is well-capitalised and stable remains paramount.

We are hopeful that liquidity concerns will play into careful calibration of market structure rules, as potential benefits of improved transparency are weighed against potentially adverse impacts on liquidity. Key areas include: calibration of block trading exemptions; requirements for pre / post trade transparency; product eligibility for mandatory electronic trading and clearing.

Action to standardise bond markets, while potentially beneficial to corporate credit market secondary liquidity, could impose costs on issuers by reducing flexibility. And material standardisation (e.g. of maturities) is likely only relevant for subset of the market - the very largest and most frequent issuers. As such, in line with the Fair and Effective Markets Review (FEMR), while we see some movement in this direction as potentially helpful, this is no panacea.

Exhibit 19

There is potential for new regulation to significantly impact asset managers' economics



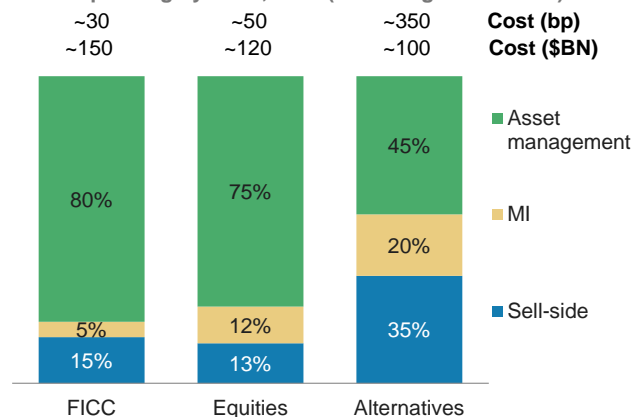
Source: Oliver Wyman analysis

With limited room for manoeuvre on 3 of these 4 avenues for potential response, the area of greatest uncertainty is the extent of regulatory change for funds and asset managers, the layer that currently consumes 80% of the ultimate cost to asset owners of accessing FICC securities via managed products.

Exhibit 20

Asset managers form the largest component of asset owner spend

Investor spending by actor, 2014 (excluding distribution)



Source: Oliver Wyman proprietary data and analysis

Asset managers have already started to respond with a range of initiatives. In our base case, we expect the industry to proactively respond by further increasing transparency in the areas of liquidity and leverage. However, there are barriers to more structural change. For instance, some levers,

such as higher cash shares, would result in a performance drag. Others, such as introducing redemption gates would reduce investor flexibility, and could even trigger a run. The industry therefore faces a collective action problem, as managers seek to avoid first mover disadvantage.

Equally, regulators face difficult tradeoffs as they seek to find an appropriate response across the available levers. In light of the recent FSB/IOSCO discussion on NBNI G-SIFI, we expect regulators in our base case to primarily respond by enforcing stress tests on select funds and possibly asset managers.

We believe that the combination of limited direct industry response and stress tests may not be sufficient in the face of a more severe liquidity event. To calibrate, we have analysed the worst mutual fund redemptions in the last 35 years from market shocks. The worst period for industry-wide fixed income mutual fund outflows was in 1994 when we saw 5% outflows across the industry in the worst 3 months. The most impacted funds saw 17% net outflows (based on average outflows for the 25% of FICC funds that suffered the worst outflows). In 1997, average net outflows for the most impacted quartile of EM funds was 18%, although the industry as a whole saw net inflows.

Exhibit 21

Industry-wide redemption levels in crisis periods

Crisis Time period, asset class	Net flows during crisis period
Black Monday Q4 1987, Equity and FICC	-3%
Fed rate hikes Q4 1994, FICC	-5%
Mexico¹ Q1 1995, EM	-1%
Emerging Markets Q3 1997, EM	0%
Accounting scandals Q3 2002, Equity	-2%
Financial crisis Q4 2008, Equity and FICC	-4%
Money market fund run² Sept 2008, MMFs	-10%

Industry average net outflows
 Straight average of outflows for bottom quartile funds

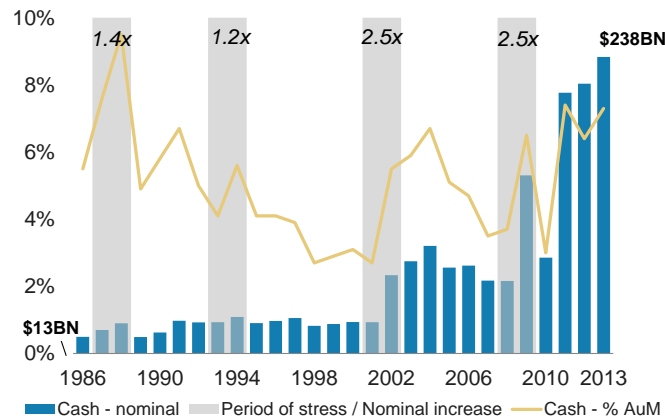
1 Excludes Dec 20th - Dec 31st which saw -2% outflows
2 Run on MMFs only covers 4 weeks
Sources: ICI, Morningstar, Oliver Wyman analysis

In the stress periods we looked at, average liquid asset holdings in funds typically increased 1-3x as the industry responded prudentially to redemption pressures and market volatility. Today, cash and equivalents represent 7% of AuM across all US bond funds, and 4% across global HY funds. This is down from 2009-10 levels, but broadly in line with 2005-6 levels. Anecdotally, cash-substitute products such as ETFs are now a larger share of these holdings, but depending on the underlying assets such substitutes may prove less cash-like in a stressed environment.

Exhibit 22

Liquidity in funds has increased 1-3x during periods of stress

Cash holding, % of total US bond fund AuM/ nominal \$



Source: ICI, Oliver Wyman analysis

While the industry has a track record of managing redemptions effectively, the concern now is that deteriorating secondary market liquidity is making cash and redemption management significantly more challenging. A liquidity crisis could force funds to take a significant hit on asset prices to meet redemption obligations or even, in extremis, to fall short on redemption obligations. As we saw in 2008 with the banking sector, isolated issues can spread very quickly, especially when retail money is involved.

In our bear case, most likely triggered by a stress event, we would see regulatory scrutiny focus shifting significantly onto the asset management industry. A liquidity crisis impacting retail money would likely lead to a significantly wider range of regulatory outcomes for asset managers. We would expect regulators to act along three dimensions:

- Installing gates and/or redefining redemption periods based on underlying asset liquidity, most likely as a result of emergency measures required to address a crisis

- Significantly increasing fiduciary standards
- Increasing capital requirements for asset managers

The earnings impact for traditional asset managers would be substantial in such a scenario. We estimate this additional regulatory cost burden would damage long run asset manager earnings by 5-10%. Longer redemption periods could accelerate shifts to ETFs, which are deemed more liquid, and support a shift to funds with lock-up periods, such as alternatives. In terms of fiduciary standards, beyond higher controls requirements, regulators would likely install elevated requirements for the product manufacturers. This would create new costs for the industry, to understand distribution practices as well as the suitability for end investors to a much larger extent than in MiFID II. As a consequence of these increased fiduciary standards we expect that asset managers will have to hold larger capital bases dampening returns even further.

The sell-side remains in our view more exposed to the first order earnings risks of a debt market correction and liquidity event. Typically sell-side have lost 50% to 100% of a year's earnings in such crises (e.g. in 1994, 1998) while asset management earnings have only dropped up to 20% quarter on quarter. However, the second order risks to the business from regulatory change are now skewed towards the buy-side.

Exhibit 23

Second order impacts on buy-side return could be significant

2017E impact on profits of bear case vs base case

	1st order: Market impact	2nd order: Regulatory and market structure impact
Buy-side	-10% to -15%	-5% to -10%
Sell-side	-50% to -100%	-5% to +5%

Source: Oliver Wyman analysis

2.2 Rising operational costs and consolidation

The industry has started to respond to the new liquidity environment but at different levels of sophistication. It has also not touched the core of the operating model, which we believe will have to be a key focus, in particular significantly upping execution / trading capabilities and overcoming traditional asset class silos in core processes. While economics remain manageable at the industry level, it conceals the need for scale. This would be even more pronounced in our bear case of severe regulatory action.

Underestimating the need for change. We believe the industry underestimates the need to change its operating model to adjust to the new liquidity environment.

Policy makers such as FSOC, SEC, FSB and BoE are starting to ask asset managers for views on how to maintain liquidity during ordinary and stressed markets. Where we have seen most industry action to date is in

- Improving ‘core’ liquidity management
- Ensuring liquidity contingency plans are in place at the fund level
- Refining product structures including portfolio construction and design

The range of actions taken and in many cases the sophistication of the response, however, differs significantly:

- In liquidity management, we are seeing all managers review and track cash and cash-substitute shares, selectively use derivatives, and agree credit lines. A smaller group of asset managers is looking to fully understand end-investors and their expected flow behaviour (e.g. difference of DC vs. regular retail mutual fund assets) and link this back to portfolio management to account for investor liquidity in their strategy.
- With regard to contingency planning, we are seeing that all managers have basic plans in place; where we are seeing differences is a) to what extent these plans are linked to stress tests, b) how board / executive team management run “Fire Drill” exercises, testing their decision making in a crisis situation and c) the level of coordination with all regulators in which jurisdictions they operate.
- In terms of product / fund structures we have seen a clear shift towards multi-sector funds which also allow taking advantage of liquidity dislocations by pivoting liquidity

towards these areas. We also see a growing number of asset managers looking much more seriously into capacity management for their respective fund structures

We see three key areas requiring additional work:

- A significant increase in trading / execution capabilities
- A much more integrated management of cash and collateral across the typical asset class silos.
- Upgrades in risk management and stress testing capabilities

Taken together these could add 3-6% to industry costs, in our base case. The impact will be more pronounced on mid-sized managers many of which are captive.

Exhibit 24

Asset managers will have to invest an additional 3-6% in adapting to the new market conditions

Percentage increase in cost buckets, base case

Area of investment	Increase in AM industry cost base
Collateral and data analytics	1-2%
Execution and connectivity	<1% Wide range for smaller players
Risk management, stress testing, and treasury	1%
Total	3-6%

Source: Oliver Wyman analysis

Trading and execution capabilities are likely to become a more important differentiator, driven by few key elements. First, the buy-side is forced to manage the ‘valuation gap’ between more liquid and illiquid bonds. Second, buy-side firms are more likely to take on a larger role as a price maker (similar to their role in Equities). Third, spreads, at least in stressed markets, are likely to further widen as a result of lower dealer inventories. For these reasons we expect trading capabilities to become a significantly more important factor for adding value to end investors. Asset managers that manage to mitigate the impact by improved trading capabilities could achieve an incremental impact of on their funds’ performance; particularly in a zero yield environment, this is a significant factor.

Overestimating the love from the street? Another worry for us is that as banks look to cut back, many are trimming the tail, and re-focusing resources around their most profitable accounts. The top 100 asset managers generate twice as much revenue for the sell-side as the next 1000. In a stressed environment, the smaller institutions are the ones that could become most squeezed. For those funds that are more attractive to the sell-side, it will make sense to concentrate flow and develop partnerships with banks. For the others, spreading the risk may be more prudent in the long run to avoid risks of liquidity withdrawal / widening spreads from a single counterparty, but this would require enhanced trading capabilities to deliver.

In terms of the broader operating model we find that many asset managers still operate across relatively strong asset class silos. While cash and collateral requirements ultimately impact the underlying funds, we see leaders further building centralised expertise on managing cash and collateral, understanding that these are scarce resources which require active management with dedicated expertise. This is in fact similar to what we have observed on the sell-side post 2008.

As a result of the FSB / IOSCO efforts, asset managers deemed directly or via the investment funds they manage as

systemically important will have to invest in stress testing capabilities. These stress tests may be less focused on capital and more focused on liquidity — for example asking each firm to imagine to re-play the PIMCO Total Return fund scenario in more turbulent markets.

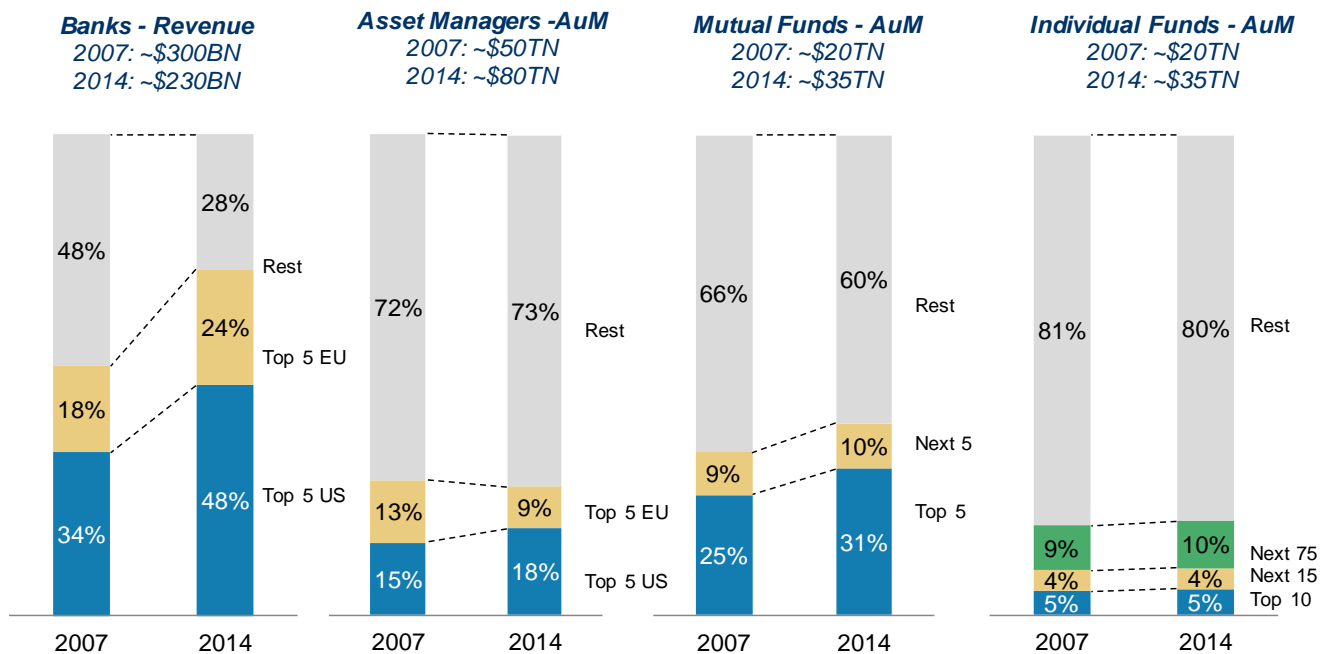
Not much of a pain point at the industry level but it conceals the need for scale. While this is a significant reform agenda, an overall increase in CIR of 3-6% is something the industry can absorb. Cost-income ratios today are typically 60-65%.

However, we believe this still rather benign impact at the industry level conceals the need for scale, a factor which in addition to innovation in product management, and distribution strength we would highlight as a key success factor going forward.

First, the need for scale will be triggered by the required industry change outlined above. It will also impact an industry which, in contrast to the sell-side, has not seen a significant shift in overall industry concentration levels, although we recognize that in certain pockets, such as ETFs and LDI mandates, excessive concentration may indeed be a problem.

Exhibit 25

Banks have consolidated significantly since the crisis, however AM concentration has remained flat
Market share



Note: Excludes Insurance Funds
Source: P&I, Oliver Wyman analysis, Lipper

Second, taking recent history as a guide for the future, we believe that, beyond scale, asset managers' ability to innovate in terms of fund and product categories will be a key differentiator. As an example, we find that in the UK market, more than 50% of asset inflows are related to multi-asset and income funds in 2014. Moreover, managers who launched these products first typically still enjoy a top 3 position in these products.

Third, higher fiduciary standards will lead to a mutual reinforcement of stronger but much fewer manufacturing-distribution relationships, which in turn also supports the case for scale.

Consolidation forces even more pronounced in a bear case scenario. There are also a few other factors which could impact industry economics in a bear case. Some of our interviewees argued that the regulatory-driven creation of gates could significantly accelerate the trends towards ETFs, which are seen as liquid. Higher capital requirements would lead to a twofold drag on economics: first, incremental capital would lead to a dilution of a high ROE model, and second, the raised capital would need to be held in zero-yielding highly liquid assets. In terms of industry structure, we believe that our three key success drivers will only be further reinforced in this scenario, as a flight to (presumed) quality / brand may take place.

Exhibit 26

Base and bear case structural earnings impacts (i.e. excluding asset price effects)

	Current Industry C:I	Base case cost impact	Bear case reg impacts	Potential C:I drag	Impact
Other Asset Managers	~65%	150-500bps	<100bps	1-5% drag	<ul style="list-style-type: none"> Smaller asset managers have to enhance or develop collateral & data analytic systems Large gap between trading capabilities of small and large asset managers Presumably lower focus from regulators on Stress Testing & capital
Top 20 Asset Managers	~60%	50-200bps	100-200bps	1-4% drag	<ul style="list-style-type: none"> Regulators to enforce Stress Testing of systematically important funds and managers Possibly higher capital requirements for larger asset managers Trading infrastructure largely in place though spend still required on increasing collateral capabilities

Considerable impact
 Moderate impact

Source: Oliver Wyman analysis

3. Impact on Banks

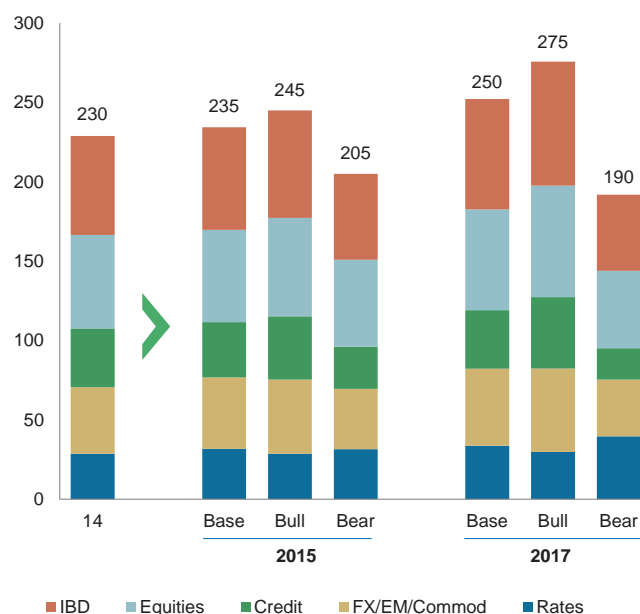
3.1 More structural change needed

The sell-side will have to make more structural changes to rebuild returns. Under our base case revenue forecast, management teams will need to deliver a 2-3% RoE uplift through business restructuring to hit 10+% returns on capital. We see huge opportunity for banks to change the way they do business to deliver this, but it will require a much more structured approach. The opportunity – and the challenge – is there for whoever will be decisive and make these changes in the next few years.

We expect modest growth in sell-side revenue pools but not enough to take the heat off returns. An uneven growth recovery, reduced liquidity, and increased volatility bring a mix of tailwinds and headwinds for wholesale banking revenues. In our base case we expect industry-wide wholesale banking revenue pools to be up 2ppts in 2015 and by a further 7ppts in 2017.

- **Tailwinds:** growing policy divergence driving stronger client activity in macro products; some re-pricing for capital costs in secured financing, parts of FICC and potentially clearing; improving macroeconomic conditions in core US/UK markets driving IBD activity; continued broadening of credit markets in Europe/Asia; FIG & public sector restructuring in continental Europe; growing FIG demand in Asia (both investors and banks); new and innovative product structures to adapt to the new environment
- **Headwinds:** capacity withdrawal (reduction in headcount, balance sheet); tougher conditions in credit trading; lower leverage and turnover on the buy-side; depressed rate volatility in EMEA (QE); margin compression linked to growing electronic trading

Exhibit 27
Historical and forecast wholesale industry revenue pools
2010-2017E, \$BN



Source: Oliver Wyman proprietary data and analysis

Our bull/bear range for 2017 revenues is \$275 billion to \$190 billion, or +10% to -25% of our base case. Our bull case is based on a broader recovery, with QE in Europe having a more positive impact on asset prices and economic growth, driving stronger activity in M&A and primary financing and in equity markets. Our bear case reflects a more disorderly transition from US rate tightening at some point between now and 2017, triggering significantly weaker revenues in credit and EM, as well as equities and banking, only partially offset by stronger results in Rates/FX from increased volatility.

Exhibit 28
Base / bull / bear macroeconomic scenarios

Macroeconomic and market outlook			
	Bear: Weak growth with major shocks	Base: Modest growth with continued volatility	Bull: Broadening recovery and improved stability
Economic outlook	<ul style="list-style-type: none"> • Stagnation of economic recovery • Disorderly unwind of QE / rate rises • Liquidity event focused in HY / EM with some impact on credit assets 	<ul style="list-style-type: none"> • Stable and modest improvements in macro economy • Continued volatility with minor liquidity events 	<ul style="list-style-type: none"> • Strong and broad economic growth in US and Europe • EU QE larger than expected • Few significant "bad volatility" events
Impact on revenue pools	<ul style="list-style-type: none"> • Rates FX up from flight to quality and volatility and wider spreads • Credit and EM affected by trading losses • Equities and IBD cyclically down 	<ul style="list-style-type: none"> • Cyclical growth in IBD and equities • Rates and FX benefiting from 'divergence' 	<ul style="list-style-type: none"> • M&A and equities up from booming economy • Strong performances in credit and SPG driven by QE and low defaults

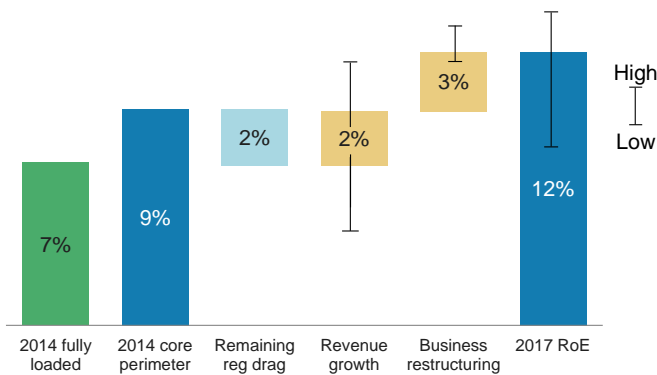
Source: Oliver Wyman proprietary analysis

To hit target returns, banks will need to push further on restructuring the business. Revenue growth in our base case forecast is expected to provide a 2% uplift to RoE, but we expect this to be offset by continued regulatory drag. To achieve the required 3ppt improvement in RoE the industry will need to take a much more structural approach to changing how it does business.

We see huge potential for change, with three key areas of focus:

- A. **Strategic selection:** more tough decisions, focused on FICC businesses and the international footprint
- B. **Client service models:** shifting from people-based push services to technology-based pull services and being more selective with balance sheet extension
- C. **Operating model:** shifting from proprietary infrastructure to supply chain based infrastructure

Exhibit 29
Outlook for wholesale banking industry RoE 2014-2017, %



Source: Oliver Wyman proprietary data and analysis

Exhibit 30
The wholesale industry has the potential to fill the needed 3% RoE uplift in 3 key areas
Potential RoE uplift 2014-2017

	RoE impact	Potential benefits
A. Strategic selection	1.5% to 2%	<ul style="list-style-type: none"> • BS and RWA reduction • Cost reduction
B. Client sales and coverage	0.5% to 1%	<ul style="list-style-type: none"> • Cost reduction • BS reduction (lending)
C. Operating model reform	1% to 2%	<ul style="list-style-type: none"> • Cost reduction

Source: Oliver Wyman analysis

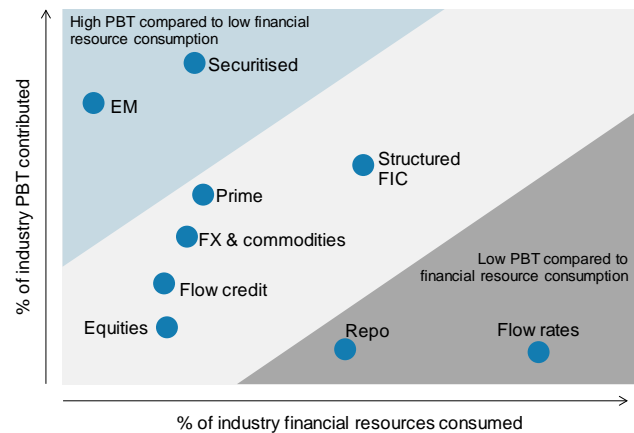
1 Includes effects of change in operating model on reforming banks only

A. Strategic selection

A key battleground for further strategic selection is FICC. Several firms have already taken steps to shrink and restructure FICC divisions, but further action is required. We estimate 4% of market share has been released by restructuring banks over the last 2-3 years, and a further 2-3% may move over the next 2-3 years.

The huge capital drag of the rates business makes it one of the biggest single levers to boost returns. We estimate the flow rates business consumed 40% of industry capital (on a blended leverage exposure and RWA basis) in 2015, but generated only 5-10% of PBT. Tough decisions are required on where to push agency and alternative execution models, where to pull back from fringe markets, and how to more fundamentally streamline the business.

Exhibit 31
Rates and repo are a large consumer of capital relative to their contribution to PBT
Share of PBT vs. share of financial resource commitment¹ by product, 2014



Source: Oliver Wyman proprietary data and analysis

1. Financial resource commitment calculated using 50% risk capital and 50% leverage capital

We also see more tough decisions on international operations as banks adjust to more Balkanised regulation and skewed profitability across regions. Asia and Emerging Markets more broadly are a particular challenge for many global banks as revenue pools shift onshore and the cost of accessing them increases. Meanwhile a few of the larger regional banks are investing heavily in their Markets capabilities. Many of the most promising opportunities, such as corporate/SME business and deepening local currency markets, are hard for banks without a deep local network to penetrate and typically face challenges from home market credit committees. And the

localisation of regulation (funding, capital) is increasing the cost of this footprint.

There are also challenges in the major G10 markets. The IHC regime and the transition into CCAR stress-testing is proving onerous for overseas banks in the US, raising strategic as well as operational challenges. In Europe the challenges for foreign banks stem from the weak revenue environment, fragmented market infrastructure and cross-country sales/coverage structures, as well as fundamental supply-side over-capacity.

B. Client service models

Adapting client service models to the new environment is another priority area. Much sharper differentiation of service levels is required, focusing expensive sales and coverage time on only the most value-adding activities. Rapid growth in technology offers the opportunity to shift a swathe of poorer returning clients towards a more industrial service model.

The drivers for reform are various:

- Static or shrinking client revenue pools are putting pressure on coverage and sales cost structures, with banks still carrying multiple overlapping and duplicative teams
- Clients are increasingly sophisticated in how they allocate their spend, favouring ‘partners’ and ‘specialists’
- Profitability levels are highly skewed across clients and products and only loosely linked to revenues (see Exhibit 32) – with a different answer required for different banks
- Growing electronic trading and conduct risk concerns are shifting the value proposition of institutional sales around information assimilation and distribution
- New digital propositions linking execution into a wider portfolio of services e.g. corporate treasurer portals
- Pressure on cross-subsidy model – in particular the unbundling of research commissions in equities
- Increasing cost of “franchise” lending – both institutional (repo) and corporate (revolver)

At the same time there continue to be important opportunities for banks to add value to clients through sales and coverage:

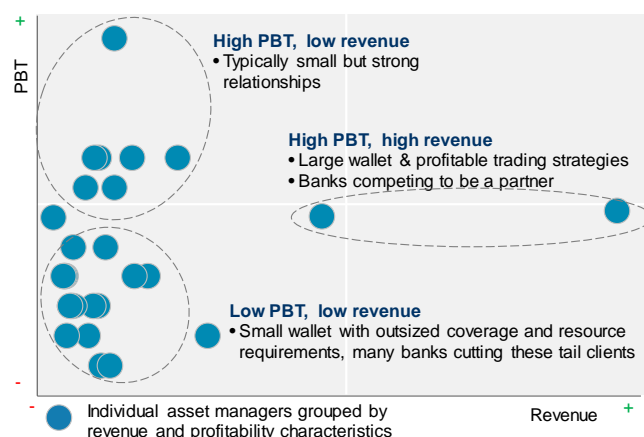
- Helping clients shape their execution strategy as liquidity remains scarce and market structures change
- Helping clients deal with new clearing and margin requirements

- Helping clients with complex risk management and restructuring
- Helping clients navigate a challenging and evolving macro climate

We are already seeing the leading banks respond with a range of initiatives:

- Launching new ‘low touch’ teams, with structurally lower cost-to-serve
- Restructuring organisational complexes to de-layer and remove overlaps
- Redefining roles and mandates across sales, sales-traders and coverage to streamline touch-points
- Revisiting loan subsidy and cross-sell processes; applying similar concepts to repo and prime
- Re-shaping the seniority pyramid to improve leverage and reduce cost structures
- Creating a more professional, industrial sales culture to improve productivity
- Supporting all of this with new metrics, processes and tools to optimise resource allocation

Exhibit 32
Different asset managers generate a wide range of PBT and revenues for banks PBT
Summary of type of asset managers’ PBT and revenue in Equities 2013 -14



Source: Oliver Wyman proprietary data and analysis

C. Operating model reform

Reform of the infrastructure operating model has the potential to pull out up to 5% of total costs. This is worth 1ppt in RoE to the industry, but more urgency and ambition is needed to

deliver it. In the last couple of years costs have hardly budged outside of those few banks that have made radical business model and footprint changes. For most, the growth in regulatory, compliance, risk, and legal costs have eaten into the benefits of the cost reduction programmes that have been run to date. We believe there remains a huge opportunity to reduce cost in the core infrastructure layers, which are unnecessarily complex and duplicative. Banks should be targeting 15-20% nominal infrastructure cost reductions over 2-3 years.

The biggest savings are in four main areas:

- Technology simplification (e.g. reducing the number of unique systems involved in clearing & settlement of trades)
- Challenging infrastructure service levels (e.g. standardisation of services provided to front-office)
- Smart sourcing (e.g. outsourcing of collateral management or reference data management to a market utility)
- Digital in the securities processing layers (e.g. digital solutions for payment service hubs)

Underlying this is a fundamental shift in mind-set from a function based view of the organisation to a services based view. The challenge is not to optimise existing processes, but to understand the core services that are required and how best to provide them, be that internally or externally.

Yet there are myriad barriers to be overcome for banks to deliver:

- Vested interests: it is not in the interests of incumbent service providers (that is to say the current managers of bank ops and IT) to outsource at large scale or to reduce the level of service provided
- Execution risk: difficulties on the supplier and buyer side due to the sheer complexity
- Cost to achieve (CTA) profiles: change will require investment and a potentially long implementation phase during which time legacy systems may still run in parallel
- Vendor management: many banks are not very smart at sourcing or managing vendors on an ongoing basis, partly because managers don't have the right skillset
- Maturity of service 'purchasers': many front offices are used to very bespoke/hand held service
- Maturity of suppliers: there is not always a solution and collective action may be required to create the right platform; furthermore too many banks are hoping to onboard others onto their outsourced solutions
- Balancing the need for cost reduction with the need for service differentiation in some areas
- Success requires a fundamental approach that challenges the status quo and looks across functions and activities. Senior management and shareholders should be raising the ambition levels and pushing for more rapid delivery.

Exhibit 33

Operating model reform can deliver a potential 1-2% RoE, but will require banks to raise ambition levels

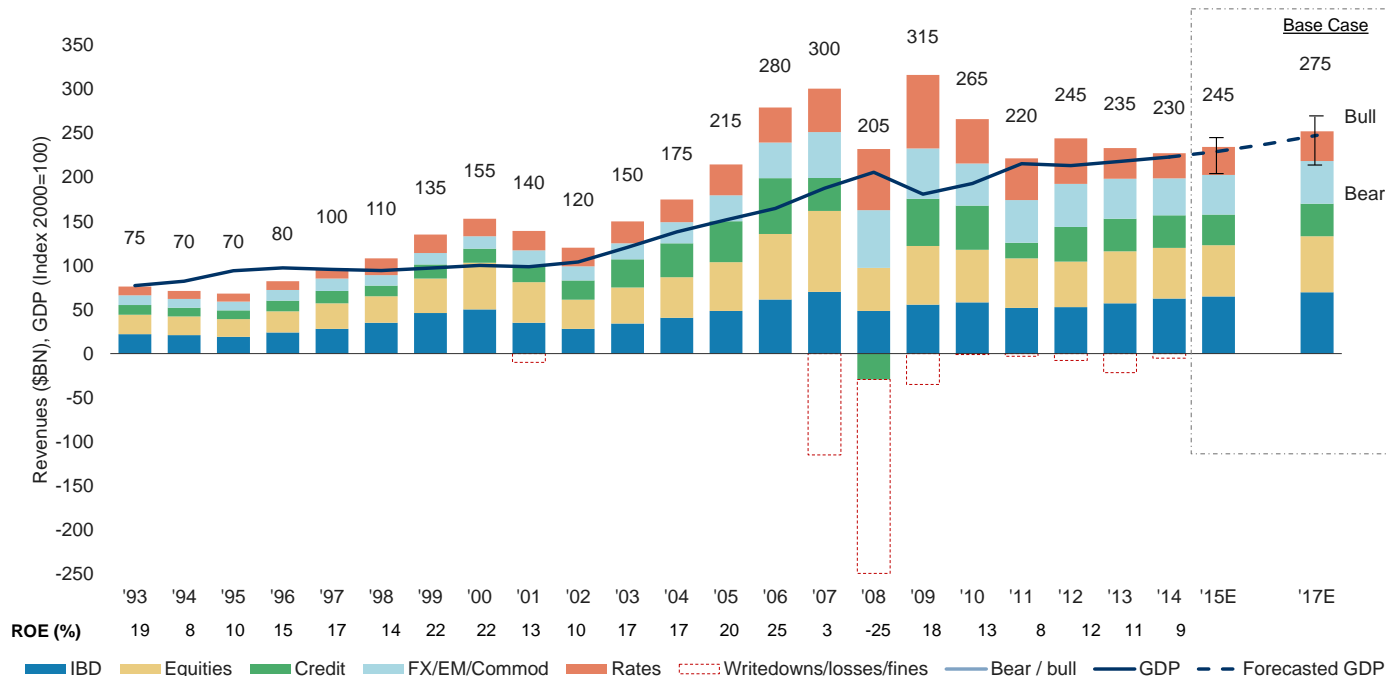
% saving of industry infrastructure cost base

Type of reform	Achievable saving on infrastructure cost base over 3 year horizon	Challenges
Technology simplification	7-12%	<ul style="list-style-type: none"> • Cost to achieve profile and timing
Challenging service levels across the board	10-15%	<ul style="list-style-type: none"> • Cultural reluctance to adjust / standardise service levels • Front office managers lack the tools to question existing cost structures and links to front office demands
Smart sourcing	6-10%	<ul style="list-style-type: none"> • Hard to disaggregate services by end-client • Collective action required to prioritise and guide the proliferating providers • Execution risks given implementation time scale
Adoption of digital in securities processing	1-2%	<ul style="list-style-type: none"> • All of the above
Total	15-20%	<ul style="list-style-type: none"> • Significant overlap between reform levers • Success will require difficult choices on business strategies and priorities

Source: Oliver Wyman analysis

Exhibit 34

Historical and forecast wholesale revenues



Source: Oliver Wyman analysis

Exhibit 35

IBD revenues: 2014-2015

	2014 market dynamics	2014 (vs. 2013)	2015 outlook	2015 (vs. 2014)
M&A	<ul style="list-style-type: none"> M&A revenue up to highest levels since 2008 Corporate balance sheet deployment drove US targeted M&A volume to highest year on record Healthcare, technology, and energy showed particularly large gains 	\$18BN ↑ 15-20%	<ul style="list-style-type: none"> Large cash balances, particularly in the US continue driving M&A activity M&A revenue as a share of global economy not yet near previous peaks; still only half 2006-7 levels Continued high demand in EM, energy and tech New treasury rules on tax inversions to stop or slow inversions 	\$19BN ↑ ~10%
ECM	<ul style="list-style-type: none"> Continuation of strong 2013 into H1, tempered by a drop in H2 revenues Global volume highest level since '07; Driven by Europe, EM, tech and ~50% rise in IPO activity 	\$22BN ↑ 10-15%	<ul style="list-style-type: none"> High and stable US equity values drive high US ECM activity Further dramatic growth unlikely, as revenues are near peak levels of 2007 and 2009 	\$23BN ↑ 0-5%
DCM	<ul style="list-style-type: none"> HY revenues slightly off 2013 highs; issuance still supported by yield hunt and low rates IG returned to 2012 levels after modest '13 decrease CNY corporate issuance still growing rapidly 	\$23BN ↑ 0-5%	<ul style="list-style-type: none"> Volume of bonds scheduled to mature in 2014 similar to 2015 Strong growth in Asia and Lev Fin in Europe Limited further upside in HY revenues Leverage / NSFR driven balance sheet reductions continue shift from bank lending to market intermediation Lower CNY issuance as Chinese corporates tap into the Euro market 	\$23BN ~0%
IBD		\$62BN ↑ ~10%		\$65BN ↑ ~5%

Source: Oliver Wyman analysis

Exhibit 36

Equities revenues: 2014-2015

	2014 market dynamics	2014 (vs. 2013)	2015 outlook	2015 (vs. 2014)
Cash Equities	<ul style="list-style-type: none"> Despite equity market rallies, depressed volatility and electronification continue to undermine revenue H1 robust IPO pipeline, particularly in Eurozone, providing some off-setting uplift Declines in Japan and EM after highs in 2013, however strong macro trend in Asia Q4 	\$25BN ↑ 0-5%	<ul style="list-style-type: none"> Modest further growth expected from recovery in US Uncertain growth and deflationary pressure in Europe coupled with weaker ECM pipeline and low volatility EU commissions unbundling likely to precipitate reductions in cash commissions Asia overall with resilient macro outlook although tail risk has increased 	\$24BN ↓ 0-5%
Derivatives	<ul style="list-style-type: none"> Volatility remained low compared to historic norms, but some improvement in Q3 Q4 saw some poor volatility (e.g. Oil) Offset by ECM boom driving issuance hedging 	\$18BN ↓ 0-5%	<ul style="list-style-type: none"> Low volatility dampening client demand More event specific volatility, with potential m-t-m losses Weaker issuance outlook and hedging demand 	\$18BN ~0%
Prime, synthetics and ETD	<ul style="list-style-type: none"> Continued growth in hedge fund AuM and lower than expected prime balance sheet reductions Continued shift towards ETD Synthetic remained a strong cash alternative 	\$16BN ↑ 5-10%	<ul style="list-style-type: none"> Prime balance sheets to remain in short-medium term as FICC continues to experience majority of reductions (weaker returns and multipliers) 	\$17BN ↑ 0-5%
Equities		\$59BN ~0%		\$59BN ~0%

Source: Oliver Wyman analysis

Exhibit 37

Fixed Income, Currencies and Commodities revenues: 2014-2015

	2014 market dynamics	2014 (vs. 2013)	2015 outlook	2015 (vs. 2014)
Rates	<ul style="list-style-type: none"> Low H1 volatility, supply side repositioning, & shift to electronic dampening revenues Leverage-driven Repo rationalisation programs Some 'one-off' gains/losses, e.g. Oct 15 Mixed results in options and structured products as supply side consolidated 	\$29BN ↓ ~20%	<ul style="list-style-type: none"> Pick-up in activity linked to turning US rate cycle, although flat European curves still a headwind Risk of 'bad volatility' as markets react to divergent rate environment Further supply side capacity withdrawal; some re-pricing 	\$32BN ↑ 5-10%
FX	<ul style="list-style-type: none"> Low volatility reducing investor appetite in H1, offset by increased volatility in H2 in major currency pairs 	\$13BN ↓ ~10%	<ul style="list-style-type: none"> Increased volatility driven by divergent monetary policies Rebound after very low H1 in 2014 Mixed impact in Q1 from CHF movement on options book 	\$14BN ↑ 10-15%
EM	<ul style="list-style-type: none"> Mixed performance as investors continue shift back towards G10, and GDP outlook for a number of key EMs falter (some volatility driven opportunities – e.g. Russia) 	\$22BN ↓ 5-10%	<ul style="list-style-type: none"> G10 economic/rate outlook draws flows away from EM Increasing debt concerns damaging credit outlook, but continued volatility around interest rates and FX driving client activity 	\$23BN ↑ ~5%
Credit	<ul style="list-style-type: none"> Strong H1, but weaker H2 with wider spreads HY coming under pressure on possible rate rises Opportunities in structured funding business failing to offset continued supply side pressures 	\$20BN ↓ ~5%	<ul style="list-style-type: none"> Rising rates & weaker spread driving some m-t-m losses QE and continued issuance brings growth in Europe, offset by weaker US as rates rise and investor appetite erodes Credit derivatives margins widening for remaining players 	\$19BN ↓ 5-10%
Securitised	<ul style="list-style-type: none"> Rebound in agency business after weak 2013 driving gains for a number of banks Continued pressure on RWAs and withdrawal of QE weighed down the upside potential 	\$17BN ↑ 5-10%	<ul style="list-style-type: none"> Signs of modest private label recovery: marginal uptick in new issuance and increasing credit quality Opportunities in CLOs contracting as credit spreads widen ABS more stable with continuing support for CMBS/ CRE 	\$17BN ↓ 0-5%
Commodities	<ul style="list-style-type: none"> Early bank gains in NA P&G offsetting weak client demand and mixed results in other assets Price drops and return of volatility; opportunities for physical players as contango emerged Ongoing bank withdrawals 	\$7BN ~0%	<ul style="list-style-type: none"> Bank pull-back may support a margin increase Further price volatility likely in key asset classes, could support uptick in hedging demand Trading opportunities mildly positive, however few banks left with integrated physical/financial businesses. 	\$7BN ~0%
FICC		\$108BN ↓ 5-10%		\$111BN ↑ 0-5%

Source: Oliver Wyman analysis

3.2 Consolidation and strategic selection

We expect further consolidation of share within the sell-side and a wide dispersion in returns. The pressure for smaller intermediaries to white-label execution and clearing in some products will grow, as will the pressure on the buy-side to consolidate its spend on intermediaries. Universal models are increasingly under pressure to prove the value of synergies and linkages to the group.

Returns across wholesale banks have remained wide, yet only loosely linked to scale. The distribution of returns in 2014 remained wide – with the upper quartile hitting 12% and the lower quartile 6%. We expect returns to remain divergent as disadvantaged banks incur transition costs of shrinkage and the leading players capture an outsized share of the upside.

Forces for consolidation will remain strong. As asset managers look for advantageous financing terms, our interviews suggest that in ordinary market conditions most of

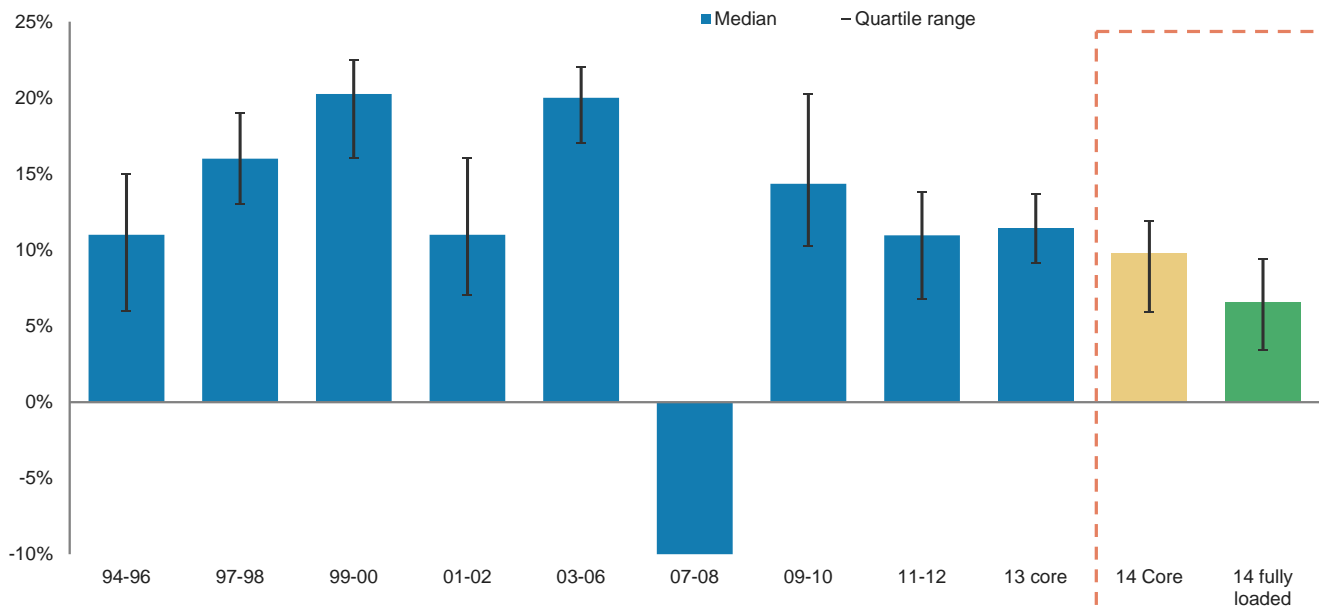
them would look to focus business. However given past experience, in stressed market conditions some indicated they would likely want to have broad enough relationships to avoid risks of liquidity withdrawal from a single counterparty. Dealers continue to de-lever and focus on areas of relative strength. The changing structure of some markets – thinner liquidity, more transparency, more reliance on technology – makes it fundamentally harder to operate successfully at small scale.

Rates and FX are key areas for further consolidation, given the pressured economics and relatively diffuse supply-side today. The top six banks in macro products generate ~35% of revenues today compared to 45-50% in credit or equities. Consolidation could take the form of in-sourcing flow, potentially on an agency or white-label basis. Alternatively, it could mean leveraging alternative distribution channels – either through proprietary low-touch platforms or through external specialist distributors – to compete directly with smaller banks on their home turf.

Exhibit 38

Spread of wholesale banks returns around the average has increased 2013-14

RoE (%)



1. Includes impact of legacy books and fines attributable to wholesale banking activities. Excludes FHFA and Department of Justice settlements / fines for BAML and BNPP
Source: Oliver Wyman analysis

Exhibit 39

Macro products are less concentrated than other asset classes today

Market share by bank rank; 2014



Source: Oliver Wyman analysis
1 Includes: Rates, emerging markets and FX

Yet there are some countervailing forces. Most pressingly, regulatory capital and funding pressures for the largest global banks are increasing, both through the G-SIFI regime, and the continued Balkanisation of bank regulation, e.g. the implementation of the Intermediate Holding Company (IHC) regime in the US and the Independent Commission Banking (ICB) in the UK. Looking ahead, this trend is unlikely to diminish as regulators focus on the competitive and systemic effects of growing concentration of share.

The economic benefits of size are also under scrutiny. The complexity of bank infrastructures means the industry has a poor record in delivering economies of scale in technology and operations. While individual products and capabilities demonstrate strong scale benefits, excellence in one area, by and large, has not been readily transplanted to other areas. The largest banks, many of whom have grown through acquisitions, often have the most complex and challenging infrastructure environments.

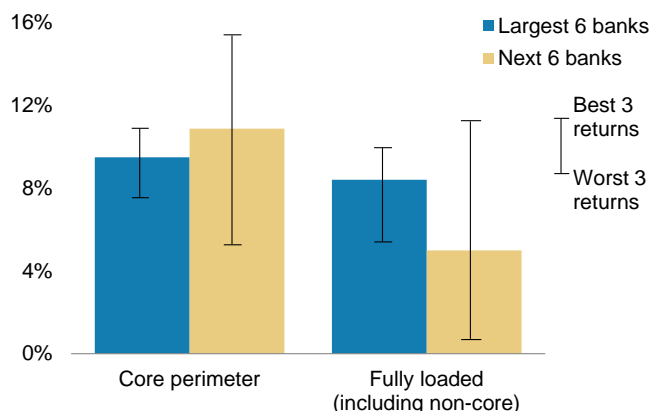
Smaller, more nimble banks will have opportunity to take share in areas of edge – be that around content, financial resource capacity or deep in-market presence.

Global banks are taking increasingly divergent paths. A small number of global banks can deliver superior returns through consolidating share across a broad business footprint, but execution risks of this approach are high. For many others a much more selective approach is favoured, focusing around areas of advantage.

Exhibit 40

Smaller banks have a larger range of returns

2014 range of return on allocated equity for top 12 wholesale banks



Source: Company annual reports and investor presentations

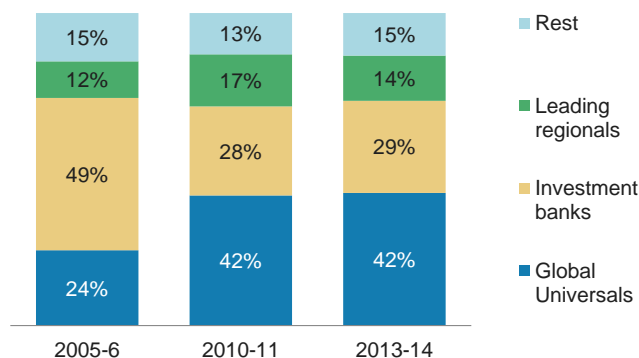
Global universal banks were the big winners of share in the aftermath of global financial crisis. Market share for the group as a whole jumped from 24% in 2005-06 to 42% in 2010-11. This group is made up of 5 of the top 6 global banks by revenue today. However, pressures on this group are mounting; revenue pools continue to shift away from their areas of advantage in FICC, and towards IBD and equities, while the costs of size and complexity are increasing.

Global Investment Banks remain cyclically advantaged, benefiting from stronger growth in equities and investment banking, where they have built hard-to-assail leadership positions. Equally, this business mix also makes this group more exposed to the downside risks in our bear case.

Exhibit 41

Since 2005, universals have experienced a large growth in market share

Share of sell-side wholesale revenue by bank type



Source: Company annual reports and investor presentations, Oliver Wyman analysis

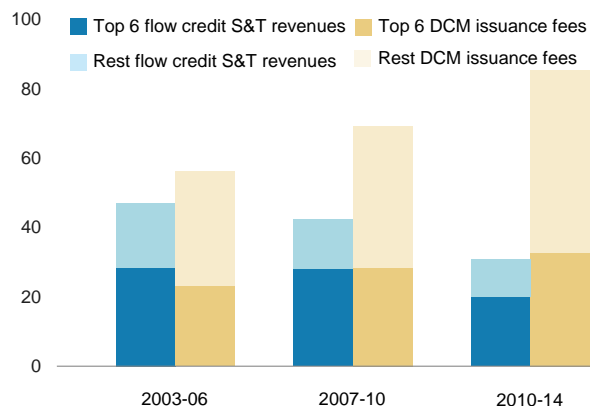
Regional universal banks face a particular set of challenges and opportunities. Many of these banks have traditionally built their wholesale platform around debt origination, derivatives and FX sales, and related trading and institutional business. Aspects of this business remain highly attractive, in particular the mid-market and smaller corporate business. Many of these banks are targeting selective growth, and see opportunities to deploy capital into the Wholesale business to boost earnings. Yet as the returns on market making are dragged down and regulatory complexity increases, they must think carefully about where to compete, and work closely with the wider bank to maximise synergies from the franchise.

One example is credit markets. Over recent years the debt origination business has grown strongly, while the secondary credit business has become smaller and more concentrated in the largest dealers. This trend is likely to persist: trading successfully in thinner markets requires broad distribution networks and risk appetite. Smaller dealers have maintained a presence in secondary bond markets to support their primary activities, yet for many this is an increasingly costly burden.

Exhibit 42

Credit trading revenues have shrunk, while DCM has grown

Industry revenues, 2003-14 \$BN



Source: Oliver Wyman proprietary data and analysis

Market structure change is both an opportunity and a threat. Margin erosion, transparency and growing technology costs accentuate scale disadvantages. Yet new platform-based and agency trading, partnerships, and white-labelling arrangements could offer attractive ways to reduce costs, balance sheet and operational risks, while maintaining the value of distribution. Regional banks will therefore have to go through a rigorous process of reviewing capital and operational cost relief, as a result of moving from a principal to an agency-style model, against potential revenues at risk from various client segments.

4. Impact on Market Infrastructure

4.1 Market Infrastructure still searching for how to exploit the opportunity

Despite significant growth in asset prices, market infrastructure has only benefited marginally compared to the asset management industry since 2006. We also see limited near term upside potential related to execution in the fixed income space given the challenges of shifting the market to a more electronic model. Opportunities will emerge for those able to provide data / risk management analytics and provide the industry with smart sourcing solutions.

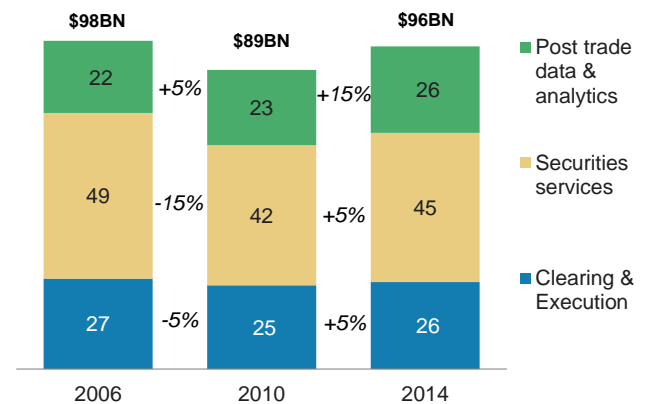
Missing the growth wave? Despite significant growth in asset prices, market infrastructure has only benefited marginally compared to the asset management industry since 2006. Although the financial reform response of significantly increasing the role of post trade (clearing, post trade transparency, collateral management) offers opportunities, some of which are already being enjoyed (e.g. US client clearing in OTC), economics in these business remain challenging and revenue pools small compared to the size of the overall MI layer; moreover, economics in other areas are yet to be proven (e.g. SEFs, collateral management). Meanwhile the combination of negative gearing to falling rates (via NII), to lowered volatility (derivatives), and to reduced velocity of trading, plus emergence of competition in certain

business lines (e.g. cash equity) has provided headwinds, offsetting some of the positive structural drivers. Global custody for example has suffered from significant margin compression (global custody margins for top 10 peers down from 2.4 bps in 2008 to 1.7 bps in 2013). Only a few data and technology providers have managed to achieve superior economics.

Exhibit 43

Growth in market infrastructure since 2010 has been driven by securities services and data & technology

Market infrastructure revenue by activity, 2005-14 USD BN



Source: Oliver Wyman proprietary data and analysis

Exhibit 44

Current view of securities ecosystem revenue pools

VALUE CHAIN	Market infrastructure						TOTAL
	Sell-side	Buy-side ¹	Execution venues (exchanges, IDBs, CCPs)	(I) CSDs	Custodians	Data & tech providers & other 3 rd parties	
Primary	\$60 BN		\$1 BN				~\$60 BN
Execution	\$165 BN		\$15 BN		\$4 BN	\$3 BN	~\$190 BN
Investment management		~\$430 BN					~\$430 BN
Clearing			\$5 BN		\$1 BN		\$5-10 BN
Securities services			\$1-2 BN		\$40 BN		\$40-45 BN
Post trade data & analytics			\$5 BN	\$3 BN		\$21 BN	\$25-30 BN
Revenue	~\$225 BN	~\$430 BN	\$25-30 BN	~\$3 BN	~\$45 BN	~\$24 BN	\$750 BN

2010-2014 CAGR: ■ < -3% ■ -3-0% ■ 0-3% ■ 3-5% ■ > 5%

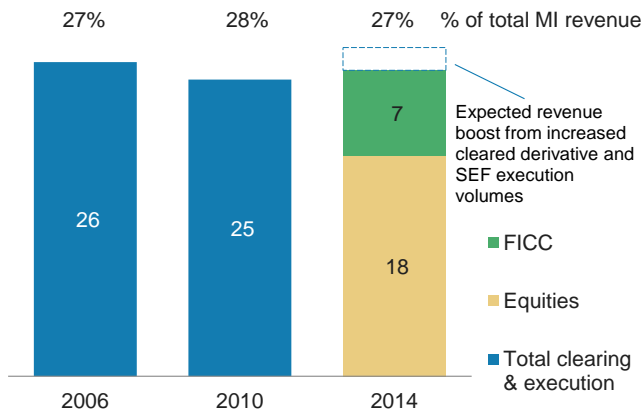
¹Includes Asset Managers and Hedge Funds. Excludes Private Equity and Real Estate. Includes Distribution and Manufacturing
Source: Company annual reports, Oliver Wyman proprietary data and analysis

Not much incremental value in the execution layer. We find that there is not much incremental value capture in execution-related business. Also SEF execution revenues are unlikely to be a panacea as even the full addition from SEF mandates and futurisation will increase the FICC execution revenue pool by less than 15%. While many execution vehicles will likely compete for the emerging FICC execution, including peer to peer platforms, block execution platforms and small order platforms, we anticipate that economics will remain rather poor and that after a period of fragmentation the forces for consolidation in FICC marketplace execution will be strong. In fact these consolidation forces are already being felt in Equities, a market which accounts for ~2x the FICC execution revenues.

Exhibit 45

Execution remains a relatively small portion of total MI revenues

Clearing & execution revenues for market infrastructure players; USD BN



Source: Oliver Wyman proprietary data and analysis

Meanwhile clearing and collateral management, while growing fast, remains a rather small part of the total revenue pool (7% of MI revenues). We see most potential for the MI layer, particularly custodians, further tapping into the opportunity of growing their tri-party repo business as a result of banks' SLR challenge. There also remains opportunity in collateral optimisation, which will become ever more critical as end-user collateral demands continue to increase.

However, clearing and collateral management has seen an increase in risk... As the sell-side continues to de-risk, we see MI players and CCPs in particular taking on increasing levels of risk. Most relevantly this includes counterparty credit

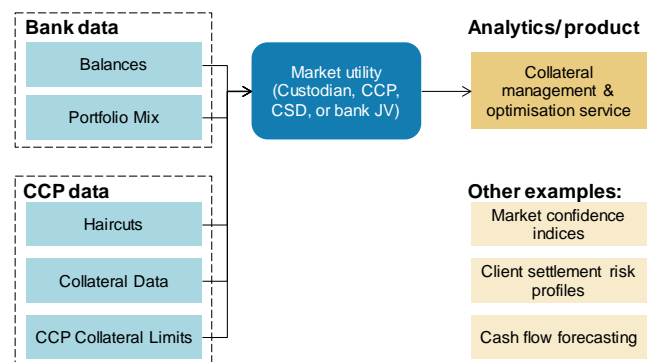
risks (primarily gap risks due to collateralisation), liquidity risks around collateral, and operational risks. For example, while banks have removed ~20% of balance sheet since 2010, CCPs have increased capital by >50%.

... which should be turned into an opportunity. Particularly as regulators continue on the path of adding further institutions to their regular stress tests and as the focus is likely to increasingly shift towards liquidity risk, market infrastructure players are advantaged in terms of leveraging their data as it provides the most comprehensive picture on risk at an industry level. There is also value to be captured on the back of increased disclosure and transparency for the industry, particularly for those who manage to link static data with flow data. One specific example is collateral optimisation, which will become ever more critical as end-user collateral demands continue to increase. At this stage, incremental revenue pools are difficult to size. Based on current data spend, and client willingness to spend on more effective data / asset / risk management solutions, we could see a revenue pool of \$0.5-1 billion emerge over the next 3-5 years. However, this will be split across a broad range of market infrastructures and banking intermediaries, as well as banks.

Exhibit 46

Market infrastructure faces new opportunities to aggregate data that is widely distributed across firms into valuable analytics

Example: collateral management and optimisation



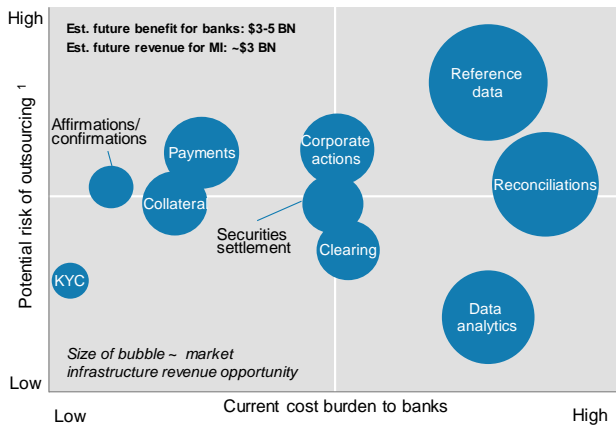
Source: Oliver Wyman analysis

In our view, data and technology firms have a lead in capturing the opportunity in the data / risk management space but we still see an opportunity for the custodians to better leverage their unique and captive access to static data.

Exhibit 47

There are many remaining outsourcing opportunities with large potential economic benefits for banks

Cost savings opportunities from smart sourcing vs. risk of implementation



¹ Potential risk of outsourcing considers execution risks as well as whether the activity is a differentiating activity for a bank
Source: Oliver Wyman analysis

We see a growing opportunity in smart sourcing, supporting the banks stripping out cost via utilities, e.g. in KYC. Banks will assess the outsourcing questions by reviewing opportunities along a matrix of both reputational and operational risk versus cost and P&L impact; we estimate that the total economic benefit could reach \$3-5 billion. For the MI layer, this could turn into an incremental revenue stream of ~\$3 billion. We expect industry utilities to be the main winner in the smart sourcing solutions space as particularly the larger banks prefer to mutualise costs instead of giving away value.

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