



BANK OF ENGLAND

Speech

Market-based finance: a macroprudential view

Speech given by

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In 1849 Thomas Carlyle branded economics as the 'dismal science'. That was almost certainly unfair. But unfair or not, the tag has undeniably stuck fast; the public's perception of economists is that it is a gloomy profession.¹

Central banking generally has picked up much of that gloomy reputation, along with a reputation for being pretty unintelligible - and occasionally deliberately so.

But within the profession of economists and the community of central bankers in the years since the financial crisis, the prize for gloominess, and perhaps for unintelligibility, probably goes to those of us charged with financial stability and what is now known as macroprudential policy.

The root cause lies in what we do – or perhaps more accurately in what we are trying to achieve which is very different to that other core objective of central banks, monetary stability.

Those of us pursuing monetary policy are essentially concerned with central probabilities. The task is to make the best forecast we can of how the economy and inflation pressures will evolve and to adjust policy to ensure the outcome is consistent with monetary stability.

Financial stability by contrast is more about the tail of the probability distribution than the central probability – about what could happen rather than what is likely to happen. Our task is to ensure the financial system avoids very bad outcomes. Or, if they cannot be avoided, that the system can weather them without breaking down and without acting as an amplifier of stress.

Though infrequent and unlikely, the events we lived through 10 years ago demonstrated that such breakdowns not only can happen but are also extremely costly when they do happen.

So although it may appear gloomy, we are always looking for the downside risk, always asking what risks could the financial system generate, what risks could it withstand, what risks could it amplify? And, by extension, whether it is worth insuring against those risks crystallising.

The past of course gives us some guide. We know many of the things that have caused financial crises in the past that we need to prevent causing problems in the future.

But our job is not just about preventing the last war; it is also about anticipating and assessing new risks as the financial system grows and evolves. And, where justified, taking action to address them.

It is against that gloomy – some would say dismal – background that I want to discuss today how I view the growth and development of market-based finance in recent years.

¹ Carlyle is thought to have coined the phrase having read the works of Thomas Malthus, who argued that economic stagnation and starvation would be an inevitable result of population growth, although the exact phrase first appears in Carlyle's tract on his opposition to the emancipation of West Indian slaves.

And, to reassure you that we do not invariably see the glass as half empty, I want to start not with the risks, but with the benefits of the development of market-based finance from a financial stability perspective. And finally, I want to look at some of the issues and the risks to market-based finance arising from Brexit.

Growth and development of market-based finance.

Market-based finance, measured by the assets of non-bank financial institutions, grew to \$150 trillion in 2015 – an increase of about 50% since 2008. It now represents nearly half of the assets of the global financial system. The asset management industry – firms like those here today – manages around \$70tn, half of which is in investment funds.

The growth of market-based finance since the crisis has not been evenly distributed – either geographically or between types of activity.

Geographically, the US still dominates with 35% of global non-bank financial assets. But, as the global pool of non-bank assets has grown, the US share has declined while the share of emerging economies, most notably China has increased. (**Chart 1**)

The growth of market-based finance since the crisis does not, as some have claimed, represent the movement of toxic risks out of the regulated banking sector into less regulated areas.

Indeed the opposite, if anything is true, in that we have seen a movement within market-based finance away from the more dangerous forms of ‘shadow banking’ – away from the types of activities that were at the centre of the financial crisis and that amplified and transmitted stress to other parts of the financial system.²

Much of this shift is the result of the post crisis regulatory reforms. As the Financial Stability Board (FSB) noted in its report to the G20 this year, ‘a series of measures are eliminating toxic forms of shadow banking and transforming the remaining into resilient market-based finance’.³

In a nutshell, market-based finance has become a bigger part of the global system, more broad based regionally and less engaged in the riskier aspects of shadow banking.

From a financial stability perspective, that is generally a good thing. There are a number of aspects of the growth in market-based finance that reduce financial stability risks.

Most obviously there is the benefit of diversification. A strong, market-based channel of financial intermediation in the economy avoids over-reliance on the banking system and creates resilience.

² FSB Assessment of Shadow Banking 2017

³ Mark Carney letter to G20 leaders, 3 July 2017

As a number of commentators have observed the recovery in the US was faster than in other countries, despite the damage to the banking system, in part because the market-based channel was less affected and able to continue to provide finance to the economy.⁴

The banking systems in many of the crisis-affected countries have begun to lend again. But in the five years following the crisis, virtually all of the increase in lending to the private non-financial sector in advanced economies came through market-based finance.⁵

The benefits however are not just diversification of the channels of financial intermediation. There is also the benefit of diversity for individual investors. And of course, market-based finance enables investors to invest in equity, which in financial stability terms is the most effective way to share risk.

Market-based finance, generally speaking, is more able to share risk and pass losses back to investors than the banking system. Investment funds do not carry the same solvency risks as banks as investors are entitled only to the market value of their investments. In a crisis, the valuation of the assets and of the liabilities of investment funds broadly move in the same direction, whereas for banks assets can go down in value while the liabilities remain fixed.

That is not completely true of course. Financial and synthetic leverage does exist in the world of market-based finance, and I will return to this later on.

But, unlike in banking, for most firms involved in market-based finance leverage is not at the core of the business model. And leverage, or the lack of it, affects liquidity risk as well as solvency risk. In a crisis, when credit is constrained, the unwinding of leverage and the threat of insolvency drives fire-sales of assets which amplify financial stress.

Unleveraged investors may of course still run if asset prices fall, but they are not forced to do so by the withdrawal of credit. Historically, when faced with deteriorating financial asset markets, investors in retail funds, insurance companies and pension funds have on the whole tended to stick fast and run their losses. Peak outflows from European investment funds investing in investment grade corporate bonds in the crisis were no more than 5% in a month.⁶

Large scale losses to investment funds, insurance companies and pension funds can present very difficult issues and strain the financial system, especially through their knock on effects on other parts of the system.

But in and of themselves, they have been less likely to lead to systemic failure compared to major stress in the banking system that provides not just credit but the means of transaction – i.e. the money itself – in our economies.

⁴ Empirical work supports this. See for example, Allard and Blavy (2011): “market-based economies experience significantly and durably stronger rebounds than the bank-based ones (in particular the more bank-based economies of continental Europe).”

⁵ Carney (2014)

⁶ In contrast, at Northern Rock over the second half of 2016 retail and wholesale deposits each fell by nearly 60%.

In a major crisis, market-based finance might therefore be expected to be a materially less disruptive way of passing very substantial losses back to end investors than bank lending. This is particularly true in the case of international capital flows where bank lending across borders, particularly short term inter-bank lending, can create an explosive channel of transmission of systemic risk from one jurisdiction to the next if banks do not have the resilience to absorb major losses and authorities are not able to resolve them safely if they fail.⁷

It is no accident that the ECB identified market-based finance as an important risk sharing mechanism between euro area countries and encouraged the development of an EU Capital Markets Union.⁸

Risks in market-based finance

I have noted the trend in market-based finance away from the activities that amplified stress during the financial crisis. And I have tried to explain why, viewed through the lens of financial stability, I see major benefits in a strong market-based channel of finance.

That is not, however, the same as saying that the growth and development of market-based finance in recent years is without financial stability risk. In line with my dismal profession, I want now to highlight those risks and how we might prevent them from arising.⁹

Since the crisis, structured investment vehicles, money market funds, and broker dealers have been made safer as a result of regulation and have reduced in size. They make up a much smaller share of the market-based finance universe.

But hedge funds have more than doubled since 2008 and now total around \$4trillion. And investment funds have more than doubled since then to nearly \$40 trillion. Within that, debt-focussed funds make up nearly a quarter of the assets under management as investor flows into fixed income funds since the crisis have materially outpaced those into equity funds (**Chart 2**).

This has brought the potential liquidity risks from market-based finance into sharp focus.

In the FSB's most recent assessment of shadow banking – defined as activities which have the potential to increase systemic risk – the largest and fastest growing component is collective investment vehicles subject to run risk, such as fixed income investment funds and credit focused hedge funds.

We have not, as I have noted, seen system wide runs out of collective investment vehicles in the past. Faced with falling markets, retail investors have generally decided to hold on for the longer term.

⁷ The international reform effort following the crisis has of course been focused precisely on reinforcing resilience and enabling resolution of banks, particularly globally systemic firms, to ensure a much safer channel of cross border bank finance.

⁸ Coeure (2014)

⁹ The speed of growth can itself be a risk which is not covered here. For example, the FPC has highlighted that the speed of credit growth in China (both inside and outside the formal banking sector) as a risk to global financial stability. See also Adrian (2017).

However, outflow of markets based finance particularly in fixed income have played a role in crisis.¹⁰ And there is evidence that asset managers may now behave more pro-cyclically (**Chart 3**).¹¹ So there are reasons, for those charged with thinking about ‘what might happen’, to question whether the past remains a good guide to the future.

Funds now encompass a broader spectrum of investors and invest in a much broader range of markets and products. The bulk of flows into funds since the crisis have been into funds invested in less liquid debt instruments and, due to the search for yield, in the riskier parts of the market. In this respect, given market news in recent days, it is worth noting the selling of volatility by asset managers – including it would seem to retail investors.

The liquidity risk is amplified by a number of factors.

Funds investing in less liquid instruments have grown quickly at the same time as market liquidity has gone in the other direction. Market liquidity, particularly in dealer intermediated markets is lower than in the decade before the crisis.¹² Banks’ risk appetite and business models have changed and regulation has ensured that they are adequately capitalised for the risks they run as market makers.

In 2015 the Bank of England and Financial Conduct Authority conducted a joint information-gathering exercise on 17 asset management firms and 143 of their funds, focusing on those with large holdings of corporate bonds.

One key finding was that funds individually were assuming more liquidity than might be available if there was market-wide selling pressure. For example, in the dollar corporate bond market, funds’ individual expectations of what could be liquidated in a day, when aggregated together, was three times daily market turnover.¹³

The risk of sharply falling markets triggering large-scale redemptions is exacerbated by the fact that many retail funds offer investors daily liquidity, regardless of the nature of the fund’s investments. Individual funds do of course have a variety of mechanisms – ‘gates’, penalties, discounts, suspensions, etc – to help manage large-scale redemption pressure.

But in an episode of severe market stress, it is not at all clear whether activation of such mechanisms by funds under stress would dampen rather than amplify redemption pressure across the market more generally.

¹⁰ For example, foreign currency debt securities were at the heart of the Latin American debt crisis in the 1980s in which bond investors played a significant role in volatile capital flows and ultimately in sovereign crises.

¹¹ Recent Bank research shows that during the 2013 ‘taper tantrum’ asset managers sold bonds as prices fell, perhaps exacerbating the episode. See Czech and Roberts-Sklar (2017).

¹² Whilst price-based measures of liquidity in fixed-income markets, such as quoted bid-ask spreads, are in line with historical standards, volume-based measure have deteriorated. In US and UK government bond markets, turnover ratios have declined materially since pre-crisis. In corporate bond markets, average large trade sizes have fallen. US corporate bond dealer inventories are over six times less than before the pre-crisis period and Sterling and US corporate bond inventories have been steadily declining since 2011.

¹³ Bank of England *Financial Stability Report*, Box 2, December 2015

It is also less clear now that other investors like pension funds and insurance companies would come in to stabilise a falling market in the way that they may have done in the past. A Bank of England-led study in 2014 found evidence that in some instances, insurance companies and pension funds might indeed act pro rather than counter-cyclically in a severe episode of stress, selling into a falling market.¹⁴

It is of course difficult to gauge the probability of a stress event leading to a self-reinforcing downward spiral of redemptions and forced asset sales. The Bank of England has developed simulation models that give an indication of the point at which liquidity would break down and such effects could set off.¹⁵

These are only simulations. But given that we are paid to think about what could happen – what is unlikely but plausible – there is enough here to be of concern to macroprudential authorities.

This concern is the backdrop to the FSB's recommendations on asset managers that IOSCO published in February this year.¹⁶ From the Bank of England's point of view, the most important recommendations are around fund liquidity and ensuring that the liquidity offer matches the investment profile of the fund.

IOSCO is also taking forward the FSB recommendation to develop better and more consistent leverage metrics for investment funds. The Financial Policy Committee of the Bank of England has also commissioned work on non-bank leverage.¹⁷

Leverage, as we know, is usually somewhere at the bottom of a banking crisis and the last episode was no exception. Leverage is perhaps the core necessary element of the banking business model. But when it gets out of hand it stokes up the boom phase in the financial cycle and can leave banks with insufficient resources to cope with the correction, so amplifying the bust phase of the cycle.

It also, as I have noted, amplifies market corrections as leveraged investors are forced to sell when credit dries up.

I do not start from the view that leverage poses the same scale or nature of risks in the market-based finance world as it does in banking. But nor am I confident at present that it is without systemic risk.

We do not have the tools to make that assessment yet. We need a better set of lenses through which to view leverage in this world in order to assess the risks that it might pose to the system as a whole – hence the work now underway in IOSCO and elsewhere.

The use of *financial* leverage i.e. borrowing to gear up exposure to risk looks to be materially lower in market-based finance than in the banking world.

¹⁴ Bank of England (2014)

¹⁵ Baranova et. al. (2017)

¹⁶ Recommendations for Liquidity Risk Management for Collective Investment Schemes, February 2018

¹⁷ As reported in Bank of England Financial Stability Report, November 2017. The in-depth assessment will seek to develop the FPC's understanding of how non-banks use leverage, and what financial stability benefits and risks arise from leverage. It will examine measures of leverage and its distribution throughout the non-bank financial system.

Retail investment funds in most jurisdictions are heavily constrained by regulation on the amount of borrowing they can do. In the UK, insurance companies are limited users of financial leverage. Pension funds are active in repo markets but do not run highly leveraged positions.

Financial leverage for risk taking is most prevalent in the hedge fund sector, but even here it appears to be relatively low compared to banks.¹⁸

The risks from *synthetic* leverage - the leverage that is embedded in derivative contracts - is, however, much harder to measure, let alone categorise.

Funds make very significant use of derivative contracts. An FCA survey published in 2015 suggested hedge funds have outstanding notional derivative positions 28 times greater than their net asset value. But, in many cases derivatives seem to be used to hedge and reduce rather than to gear up risk. And notional values are rarely an accurate measure of risk exposure from a derivative.

So measures of total net economic leverage are preferable. That is, measures which show the extent to which derivatives increase or decrease a fund's overall exposure to risk factors such as asset prices or interest rates.

The issue here is not just whether we can identify how much synthetic leverage is being used to reduce rather than to take on risk. It is also to identify, at the level of the financial system, whether the large-scale use of derivatives to manage risk at the fund level creates a risk in the system as a whole.

There are perhaps two related ways in which this could happen. The first is simply the degree of inter-connectedness this creates in the system as a whole.

Much of the post-crisis reform effort has been aimed at reducing the systemic risks that derivatives can create through the way they interconnect multiple actors in the system and can amplify market shocks. Mandatory margining, central counterparty clearing and trade reporting are all designed to create resilience and to simplify the network and make exposures more transparent.

It may be however that widespread and increasing use of derivatives by market-based finance will over time make the opacity and complexity too difficult to manage. What is sensible for risk management at the fund level simply may be too difficult to manage risk at the system level.

¹⁸ Hedge funds and banks have different business models, which complicates comparisons of financial leverage. But, in aggregate, hedge funds' non-derivative liabilities (made up primarily of borrowings through repo and prime brokerage) are roughly the same size as their total net asset value. Banks' non-derivative exposures are over 15 times greater than their tier 1 capital. However, whilst the hedge funds industry's financial leverage is lower than banks, some individual hedge funds make extensive use of financial leverage.

Second, and more importantly, given the channel of interconnectedness created by funds' use of derivatives, to what extent could the failure of a fund or a number of funds create systemic risk? Again, the post crisis reforms around margining and clearing reduce that risk. But is there a point in stress at which some combination of fund losses and margin calls leads to forced asset sales and/or failures elsewhere in the system?

For me, the jury is very much out on the scale and nature of the risks from funds use of synthetic leverage. We need, as I have noted, better metrics and better lenses through which to view funds' use of synthetic leverage or, to put it more accurately, funds' use of derivatives.

It may well be that we determine that where derivatives are being used to hedge and reduce rather than to gear up risk, what makes sense at the level of individual funds makes sense at the level of the system. There may be no need to mitigate the risks or, indeed, no risks to mitigate.

I should note that macroprudential authorities have so far taken a different view of similar issues in relation to the inter-connectedness created by insurance companies' use of derivatives to manage the risks of their liabilities. But investment funds are very different animals.

However, to return to my dismal theme, our responsibility as macroprudential authorities is to make the best assessment we can – not only of the risks with which we are familiar but also of the ones that may be developing as the financial system evolves. The IOSCO work on leverage will play a major role in helping us to understand these risks.

And finally, before I leave the question of macroprudential risks in the asset management world, there is I think an optimistic message in the work that the FSB and IOSCO have been carrying out in this area. There is now, in my view, a much greater understanding and cooperation between macroprudential authorities and market regulators.

This has been a quiet, but significant, development over the last few years. It is perhaps a bit of a caricature, but when I first became involved in this debate four years ago, the macroprudential world was engaged in applying a bank-centred view of macroprudential risk to asset managers and investment funds. And, in the other direction, the market regulator community was in denial that systemic risk could originate in this area of market-based finance.

There are of course still major areas where we do not agree – perhaps unsurprisingly given the very different mandates of macroprudential authorities and market regulators.

But there is a much greater understanding now that, on the one hand, there are risks in this area that do need to be explored but also, on the other hand, that this assessment and any policy action cannot be a read-across from other very different parts of the financial system. Rather, it must recognize the essential characteristics of the asset management and investment fund universe.

This growing understanding will be crucial if we are to be able to identify and manage risks from this sector as it grows in size and spreads geographically.

Greater understanding between national macroprudential authorities and their market regulator counterparts is important. But given the international nature of these markets, and indeed the benefits they can have in diversifying risks across borders, it is increasingly only at the international level that we can really get our arms around the risks and how to mitigate them.

Fragmentation

This brings me to my final set of risks – the potential risks not *from* market-based finance but *to* market-based finance that could arise from fragmentation and a rolling back and national ring-fencing of the global integration that has taken place in these market.

Post-crisis, not only was market-based finance important for plugging the gap that banks were leaving, it also proved important for maintaining the flow of financing between countries. Cross-border bank lending fell sharply in 2009 as banks not only stopped lending but actively retrenched. International investment in debt and equity securities was substantially more stable (**Chart 4**).¹⁹

My concern is of course heavily coloured by Brexit and by the prospect that it raises of fragmentation in European financial services. But it goes wider than that to encompass the possibility that reactions to Brexit, or indeed other forces, could lead to more general restrictions and to moves to manage risk and to ring-fence business activity at the jurisdictional rather than the international level.

To be clear, that this is not primarily a concern about economic activity in the UK following Brexit. Important though that is, it is not an issue for regulators.

And despite perceptions in some quarters to the contrary, the UK's role as the leading international financial centre does not rest or depend exclusively on the EU single market in financial services. The UK has the largest asset management industry in the EU. But this is not built primarily on the management of the pool of European savings.

Well over 50% of the roughly \$8.5tn assets under management in the UK are pensions, insurance and investments of UK citizens. Another 20% comes from the rest of the world beyond the EU. Less than 20% of assets managed in the UK, are domiciled in the rest of the EU.²⁰

Looked at another way, estimates suggest that UK located asset managers manage around 10% of the \$12tn of assets of funds domiciled in the rest of the EU. Asset managers domiciled outside the EU – many in the US – manage a much larger proportion, at least some 20%, of non-UK EU assets.²¹

¹⁹ Hoggarth et. al. (2016)

²⁰ Based on Investment Association 2016 data.

The reason for the UK's specialisation in financial services generally and market-based finance in particular are worthy of further investigation. The provision of services for non-UK related capital flows, EU and more importantly non-EU, is clearly a major part of the story.

But the UK's large scale and highly developed domestic pension and insurance industries have almost certainly also played a major role in the accumulation of expertise and capacity that has led to the current agglomeration of financial services.

The UK's general openness both to inward investment and to the export of its savings abroad has been important as well. The UK's gross stocks of external assets and of external liabilities are high among large advanced economies.

Certainly, for asset management, as the numbers above suggest, the management in the UK of assets domiciled in the EU is not the dominant part of the EU or UK story.

There may be good regulatory reasons to look, as the EU is currently engaged in doing, at how asset management is organised and regulated both within the EU and between the EU and non-EU countries. But Brexit itself is not going to lead to some huge scale, new regulatory risks for the EU. 90% of the management of non-UK EU-domiciled fund assets happens outside the UK. 20% of it currently happens outside of the EU entirely.

Of particular concern here, are the arrangements for asset managers to delegate portfolio investment and risk management functions across borders to entities in other jurisdictions.

This has become a central element of the asset manager business model and is now an international norm.

The existing EU delegation regimes allow European investors to access investment opportunities around the world, as well as allowing foreign investors to add European exposure to their portfolios while maintaining the management of their total portfolio in another jurisdiction. It has very probably helped UCITS funds become a global investment brand.

The pooling of asset management through delegation enables asset managers to benefit from economies of scale to meet cost pressures, delivering higher returns on investment.

It allows investment firms to access global markets and the best available talent in terms of investment professionals in those markets for the benefit of all investors, regardless of where those markets and that expertise are based.

The concentration of asset management activities in particular centres can enable specialisms to develop. For example, analysis suggests that UK-managed funds domiciled in the rest of Europe may be

²¹ These estimates have been made for the EEA given access rights operate across the EEA. Given the size of economies within the EEA but outside the EU, the estimates should hold for the EU.

more focused on non-European assets, such as emerging markets, when compared with such funds managed in other EU countries.

Another benefit of centralisation of portfolio management through delegation is that it allows firms to aggregate the execution of trades across vehicles, thereby achieving better outcomes for the end investor. It enables multi-manager funds that allow investors to diversify exposure to managers while minimising costs.

And from an investor protection standpoint, centralised portfolio management allows investment firms to more efficiently address 'fair allocation' requirements – fairly allocating purchases or sales across all clients in similar strategies and to aggregate similar strategies when forming the performance 'composites' that are presented to prospective clients.

Delegation, of course, has to exist within a framework of regulation to ensure investor protection. Fund managers need to delegate responsibly. Delegation must not be allowed to become devolution.

Managers should not use delegation to escape their obligations and accountability for managing their investors' money. They must supervise and track activities that have been delegated. And the entities to which they delegate must be regulated appropriately in their own jurisdictions. Supervisors in the respective jurisdictions need to be able and willing to cooperate.

There are of course already global norms covering delegation. In 2000, IOSCO set out broad principles to underpin the regulation of delegated functions. In the EU, these have been already implemented through the likes of UCITS and AIFMD.

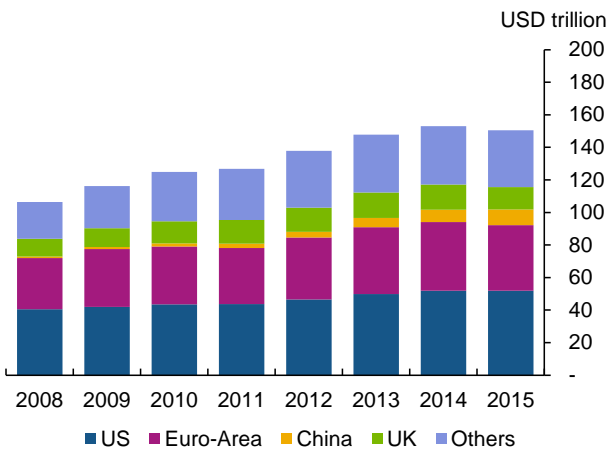
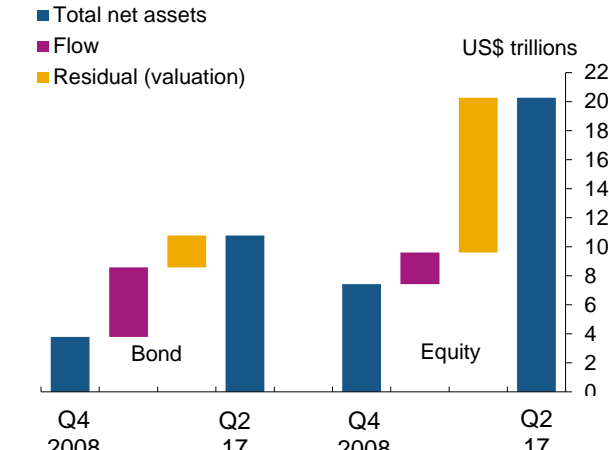
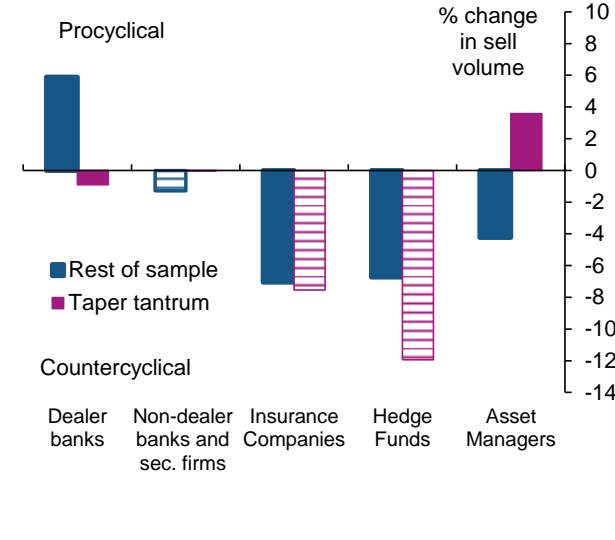
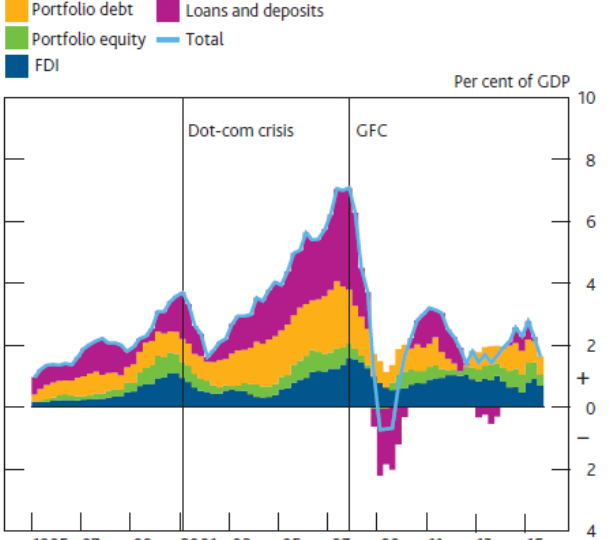
I do not want to comment here on the detail and motivation of the current EU proposals. As I have noted, to the extent that these are sensible regulatory improvements in line with global norms intended to enable delegation and global business models to operate effectively and practically while managing risk, one would have little concern.

To the extent, however, that they are motivated by Brexit and a desire to pull activity and risk back within jurisdictional boundaries,²² contrary to current global practice, I do have a concern that they could act as the harbinger of fragmentation to come.

That would raise the cost and reduce the efficiency of market-based intermediation of savings in the EU and, if it led to wider effects, further afield. It would also slow, and perhaps frustrate, the development of market-based finance globally as a way of diversifying economic risks and benefits across jurisdictions and of dampening economic and financial shocks.

And from a macroprudential perspective, for the reasons I have set out earlier this morning, that could be the biggest long-term loss.

²² The stated aims of the European Commission's proposal are to ensure effectively supervision of outsourcing, delegation and risk transfer arrangements in third countries.

<p>Chart 1: Growth of market-based finance</p>  <p>Source: FSB Global Shadow Banking Monitoring Report 2016 dataset Notes: Data are for 21 participating jurisdictions and the Euro Area, Data include insurance corporations, pension funds, other financial intermediaries and financial auxiliaries.</p>	<p>Chart 2: Growth in open-ended fund assets worldwide and flows</p>  <p>Source: Bank of England Financial Stability Report, Nov-17 Notes: Adjusted for a break in the series due to expanded coverage in 2014 Q4 on best-efforts basis. Including money market funds but excluding funds of funds where possible. In 2008 Q4, bond and equity funds accounted for half of all open-ended funds; in 2017 Q2 it was two thirds.</p>
<p>Chart 3: Impact of a 10 basis point increase in yields on sell volume</p>  <p>Source: Czech and Roberts-Sklar (2017) Notes: Based on Zen database maintained by the Financial Conduct Authority (FCA) which includes transaction-level information on trading in sterling corporate bonds for all firms regulated in the UK, or branches of UK firms regulated in the EEA. Dataset covers the period between 1 September 2011 and 31 December 2016. Hashed/dashed bars indicate no statistically significant coefficient.</p>	<p>Chart 4: Gross capital inflows to advanced economies by instrument</p>  <p>Source: Hoggarth et. al. (2016) Notes: Quarterly gross capital inflows are divided by annual GDP and averaged over four quarters.</p>

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