David Rule: Regulatory reform, its possible market consequences and the case of securities financing

Speech by Mr David Rule, Executive Director for Prudential Policy of the Bank of England, at the Federal Reserve Bank of Chicago Annual International Banking Conference, Chicago, 6 November 2014.

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The financial crisis revealed fundamental weaknesses in pre-crisis bank regulation. The regulatory response internationally has been broad and deep. Whereas before the crisis, regulators struggled to keep up with financial markets innovation, since the crisis banks have struggled to keep up with regulatory innovation. That may continue for another year or so as reforms are finalised and implemented. But the broad shape of the new bank regulatory regime is now clear.

And, as regulators, we should prepare for a period in which market innovation is likely to increase again – both the good kind that improves services for customers and the more ambiguous kind in which firms adjust their activities in response to regulatory constraints. We need to follow these adjustments closely in order to understand the overall effect of regulatory change on banks and financial stability, and to identify, and where appropriate address, any unintended consequences. I would like to use this time to explore some of the possible effects, and focus on securities financing transactions as one area where tougher regulation is both needed but might have wider consequences.

The new structure of bank capital regulation will comprise three core elements:

First, a foundation of loss absorbing capacity, designed to absorb losses when banks fail so that resolution can take place without taxpayer support or huge damage to financial systems and the wider economy.

Second, a central structure of going concern capital requirements, with significant reforms to improve quality and quantity.

And third, capital buffers forming a protective roof against rainy days, with higher buffers for systemically-important firms, whose distress would do the most damage, and macroprudential authorities able to increase buffers counter-cyclically when they see storm clouds gathering.

In the UK, as in other jurisdictions, we will also use more than one approach to assess the robustness of this structure – with different approaches likely to bind on different firms, depending on their business models, at different times.

First, the internationally-harmonised Basel risk-weighted ratio, intended to be risk sensitive and, in our view, with some continuing role for firms' internal models where we can be confident that they make use of firms' internal information to improve risk sensitivity in a robust way. That debate continues internationally.

Second, the leverage ratio, which weights assets equally as a safeguard against errors in *ex ante* estimates of risk and prevents excessive balance sheet stretch. In the UK, the Financial Policy Committee (FPC) has recently announced its plans for leverage ratio requirements and buffers.[1]

And third stress testing, to assess capital against the impact of macro-economic scenarios of current concern to policymakers, in the UK modelled partly using firms' internal models and

[1] http://www.bankofengland.co.uk/financialstability/Documents/fpc/fs_lrr.pdf.

partly our models. The results of our first concurrent stress tests of major UK banks and building societies will be announced next month.

The new bank capital framework will cause banks to hold significantly more capital than the pre-crisis regime. Major UK bank capital requirements and buffers have increased around seven-fold once you take account of tougher definitions of capital, regulatory adjustments to asset valuations and higher risk weights as well as the more obvious increases in headline ratio requirements and buffers.

But, to use the language of micro-economics, this significant change in regulatory capital requirements – the "relative prices" of different risks – will lead to substitution as well as income effects. Over time, banks will adjust their portfolios to changed capital requirements. The overall extent to which banks are better capitalised and the financial system is more stable will depend on the scale and nature of these adjustments. Any substitution effects are likely to be stronger if regulation is introduced inconsistently across countries. It is important that we continue to seek consistency in implementing internationally-agreed standards.

One adjustment may be a shift in activity from banks to non-banks. That could be beneficial for financial stability: for example, where long-term market-based finance provides an alternative to bank credit. But we must be alert to the development of new forms of shadow banking, meaning substantial maturity transformation and leverage outside the banking system.

The balance of activities may also shift between banks. The post-crisis reforms include additional capital buffers for globally-systemically important banks (G-SIBs), and, as the Governor has said, the FSB is on track to present a proposal for an international standard on total loss-absorbing capacity for these banks, to the Brisbane G20 summit this month.[2] These changes are intended to move G-SIBs further away from distress and to make orderly resolution possible if, nonetheless, they do fail. But it is possible that tougher regulation of G-SIBs might also encourage them to become less systemically-important over time, perhaps with some shift of activity to smaller banks. At this stage, it is too early to tell. And, in the other direction, there are some signs that higher regulatory requirements might be leading to greater concentration of activity amongst the largest firms in certain markets: for example long-term derivatives. That might be consistent with micro-economic theory, which suggests that, in oligopolistic markets with high fixed costs, an increase in marginal costs due to higher regulatory capital requirements may tend to lead to a higher concentration of activity amongst the biggest players (Chart 1). Authorities will need to monitor these trends closely.

Within the scope of their business models, individual banks are also likely to change their mix of activities in response to changing regulatory requirements. Regulators will need to be alert for pure regulatory arbitrage – seeking to change the form but not the economic substance of transactions in order to lower regulatory requirements. We have already seen, for example, transactions seeking to take credit risk in the form of derivatives rather than loans in order to lower the leverage exposure measure.

More legitimately, banks might switch from activities for which risk weights have increased to activities which carry lower risk weights (Chart 2). The leverage ratio will, however, set an effective floor on the ability of banks to improve their capital position by shifting into low risk-weighted assets, providing a safeguard against uncertainties around our estimates of risk. Conversely, banks for which the leverage ratio is a binding requirement may have incentives to move into higher risk-weighted activities (Chart 3) but the risk-weighted ratio should limit the extent of any such risk shifting. In this way, the risk-weighted and leverage ratios should complement one another. It will be interesting to see how banks allocate capital in a world

[2] http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech765.pdf.

where they are subject to multiple capital constraints – risk-weighted, leverage and stress-test-based. In principle, banks should allocate capital to individual business units based on the marginal capital requirements of those activities to the bank as a whole – so if a bank overall is constrained by risk-weighted capital requirements, it will allocate capital based on risk-weighted assets even to business units for which the leverage ratio or stress test is binding on an individual basis. But as banks move closer to the critical point at which the leverage ratio rather than the risk-weighted ratio becomes binding – an average risk weight of 35% based on a Tier 1 leverage ratio requirement of 3% and risk-weighted requirements and buffers of 8.5%[3] – they will need to be increasingly mindful of both constraints.

The banking system will be substantially better capitalised in future than it was pre-crisis. But regulators will need to follow closely how banks are adapting to tougher bank capital standards and identify any adverse unintended consequences. Those might take the form, for example, of loopholes that provide an opportunity for regulatory arbitrage, an unexpectedly significant impact on financial markets or a conflict with other regulatory priorities, such as shifting derivatives markets towards central clearing. Where appropriate, we will need a snagging process to review and adjust through the international regulatory bodies.

Securities financing transactions

One example of a market where tougher regulation was both needed but might have wider consequences is securities financing.

Dealers run large securities financing "matched books" in which they borrow cash against securities, lend cash against securities, borrow securities against cash, lend securities against cash and borrow securities against other securities. At first hearing, that sounds like a rather pointless daisy chain. But securities financing markets are important (Chart 4). First, reverse repo transactions (short-term cash loans against high-quality bonds) provide money-like assets for risk-averse wholesale investors, like money funds and sovereign reserves managers. As Zoltan Poszar has shown, their demand for money, particularly in US dollars, far outstrips traditional supply in the form of insured bank deposits or Treasury bills (Poszar 2014). Securities financing markets fill the gap. Second, acting as prime brokers, dealers finance the long and short positions of leveraged investors such as hedge funds. Third, securities financing markets facilitate the flow of high-quality securities from their underlying beneficial owners, such as pension funds and insurance companies, to banks and dealers which increasingly need to use and reuse them in order to meet regulatory requirements to collateralise their obligations: for example, to other banks and dealers and to central counterparty clearing houses.

Securities financing markets may be important but the financial crisis demonstrated that they can also be fragile. Securities thought to be "safe" collateral, such as AAA-rated mortgage-backed securities and peripheral European sovereign bonds, became "risky" collateral. Haircuts on lending against those securities increased (Chart 5). Both the risk-averse money-seeking investors and the leveraged risk-seeking investors on either side of the dealers' balance sheets questioned the liquidity and solvency of many of those dealers. Maturities shortened dramatically until most transactions were at overnight maturities, rolling daily (Gorton et al, 2014). Some dealers experienced "runs". Financing terms for leveraged investors tightened sharply, causing some to fire sale assets and adding to market instability. In the US, the market infrastructure was flawed, with the daily unwind of tri-party repo transactions relying on massive intra-day financing from private sector clearing banks.

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[3] 8.5% is the sum of the 6% minimum Tier 1 to risk-weighted assets ratio plus the 2.5% capital conservation buffer under Basel III.

Since the crisis, regulators have addressed many of the underlying problems of excessive leverage and maturity transformation:

a. Securities financing transactions are included in the internationally-agreed leverage exposure measure adopted by the Basel Committee[4]. Leverage ratio requirements will put prudent limits on the size of dealers' matched books.

b. They are also included in the Basel Committee's measures to address liquidity risks. The recently-announced Net Stable Funding Ratio[5] will require short-term secured loans to financial and non-financial borrowers to be backed by at least 10% stable funding. And supervisors can use the Liquidity Coverage Ratio[6], as we have been doing for some time in the UK, to require dealers to hold liquid assets against prime brokerage risks such as withdrawal of cash margin by hedge fund clients.

c. The Financial Stability Board has agreed minimum haircuts[7] in order to limit the leverage that non-banks can obtain through borrowing cash against private sector securities. These haircut floors have deliberately been set at "backstop" levels designed to prevent excess in times of market exuberance while allowing room for prudent firms to do their own risk management.

d. The US authorities have taken steps to strengthen the tri-party infrastructure.

The reforms are not yet complete. One important missing ingredient is data collection to monitor market trends more closely. For example, the authorities need to understand the composition of the collateral being used across key financial markets in order to identify concentrations. The financial crisis showed the risks associated with a market-wide margin call when widely-used collateral is subject to an unexpected common price shock. Data is also needed to track the terms of transactions, including maturity and haircuts. One interesting idea is for regulators to run exercises in which they ask prime brokers to calculate portfolio haircuts against archetypal leveraged portfolios. The aims would be both to track any loosening in market-wide standards over time and to spot outlier dealers that require lower haircuts than their competitors.

These significant regulatory reforms will have consequences for the behaviour of dealers and investors in securities financing markets. Some market participants may seek ways around the new regulations: for example, there has been talking about dealers "renting" balance sheet from other market participants or establishing off-balance sheet financing vehicles. The flipsides of more resilient dealers and markets in periods of stress may well be less leverage, less maturity transformation and lower dealer inventories in more normal periods. The balance is not easy to strike; we may need to readjust our approach as we learn.

But the goal of these reforms is clear: to make securities financing markets resilient. Robust securities financing markets should help to stabilise rather than destabilise the financial system in the face of shocks. The reduction in dealer inventories has attracted a lot of comment, with questions about whether they will be willing and able to provide liquidity as market makers in falling markets on the same scale as in the past. But the role of dealers in providing stable financing to leveraged investors may be equally important. Those investors may be the most likely to see a market crash as a buying opportunity – but only if they are not over-leveraged and have access to borrowing from financially-sound dealers. Put another

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4 http://www.bis.org/publ/bcbs270.pdf.

5 http://www.bis.org/bcbs/publ/d295.pdf.

6 http://www.bis.org/publ/bcbs238.pdf.

7 In October 2014, the FSB published *Strengthening Oversight and Regulation of Shadow Banking: Regulatory framework for haircuts on non-centrally cleared securities financing transactions* (http://www.financialstabilityboard.org/publications/r_141013a.pdf).

way, we want dealers and leveraged investors to be providers not demanders of liquidity in a crisis.

References

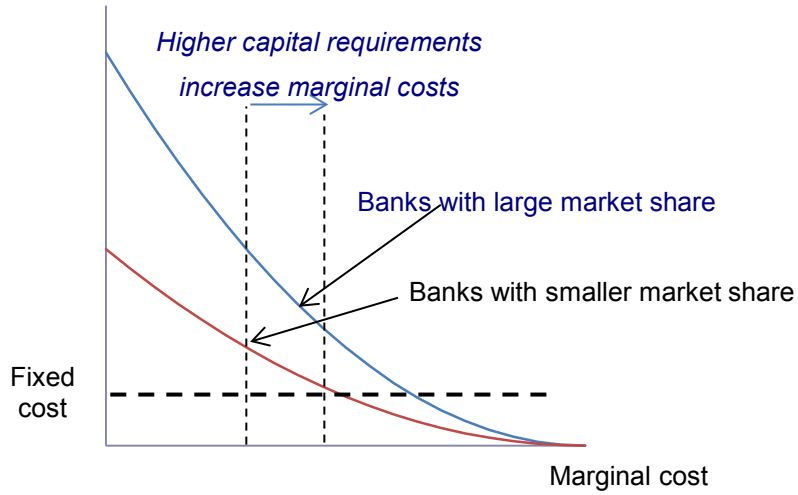
Gorton, G B, Metrick, A, & Xie, L (2014), *The flight from maturity*. No. w20027. National Bureau of Economic Research, 2014.

Poszar, Z (2014), 'Shadow banking: the money view', *Office of Financial Research Working Paper No.14–04*.

Tirole, J (1988), *The theory of industrial organization*, MIT Press.

Chart 1: Higher capital requirements and market concentration[(a)]

In an oligopolistic market, assume banks that invested first have a higher market share and are more profitable for a given level of costs than the banks that invested second. Higher capital requirements push the profits of the banks with smaller market shares below the fixed cost, causing them to exit, while the profits of banks with larger market shares remain above the fixed cost and they remain in the market. The market becomes more concentrated.



(a) The chart is drawn based on the Stackelberg-Spence-Dixit model described in chapter 8.2 in Tirole (1988).

Chart 2: A bank substitutes investment in a lower-risk-weighted asset for investment in a higher-risk-weighted asset when the risk weight for the higher-risk-weighted asset increases

A bank chooses a portfolio of assets where its indifference curve is tangent to its risk-based capital constraint. An increase in the risk weight on the higher-risk-weighted assets relative to the risk weight on the lower-risk-weighted assets induces a bank to decrease its investment in the higher-risk-weighted assets and increase its investment in the lower-risk-weighted assets.

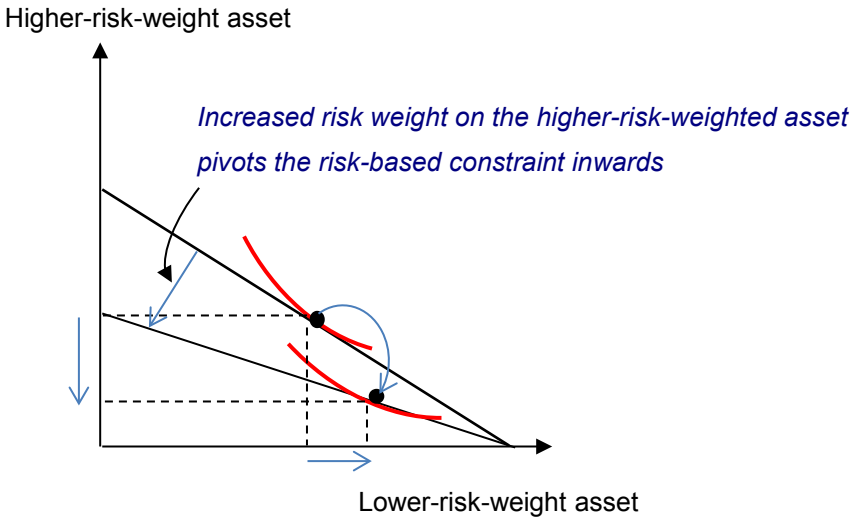


Chart 3: A bank invests more in a higher-risk-weighted asset when facing a binding leverage ratio constraint as well as a risk-weighted capital ratio constraint

A bank that faces only a risk-weighted capital constraint chooses a more highly leveraged portfolio consisting mainly of the lower-risk-weight asset. The introduction of the leverage constraint means this portfolio choice is no longer available. Faced with both constraints, the bank switches to a portfolio with more investment in the higher-risk-weighted asset and less in the low-risk-weighted asset. But the risk-weighted capital constraint limits the extent of that switch.

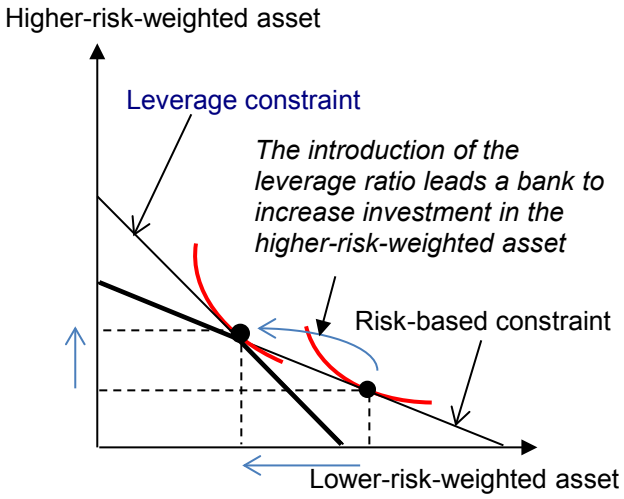


Chart 4: Simplified summary of securities financing market

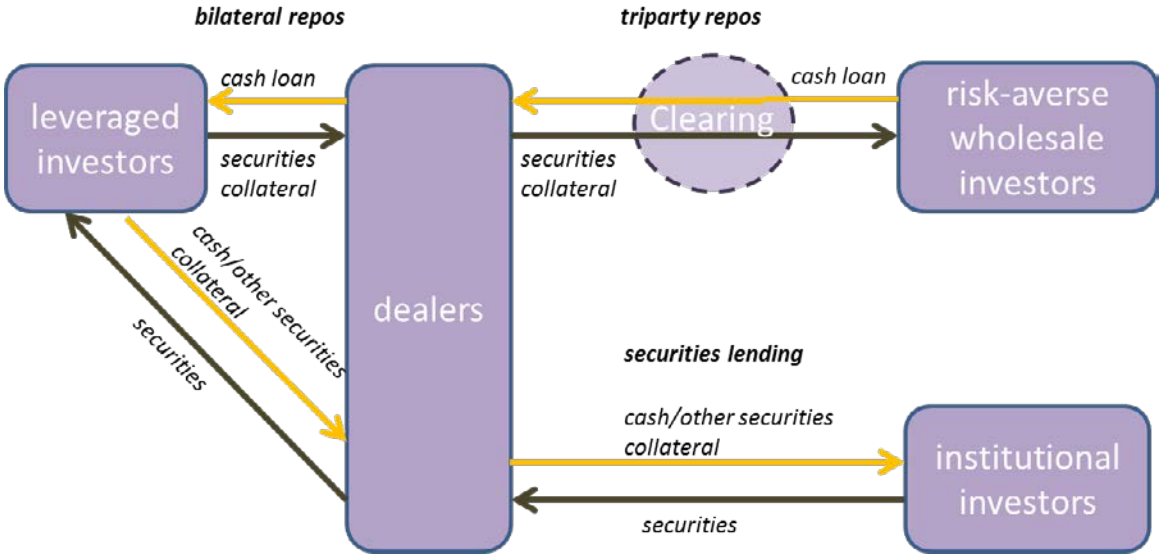
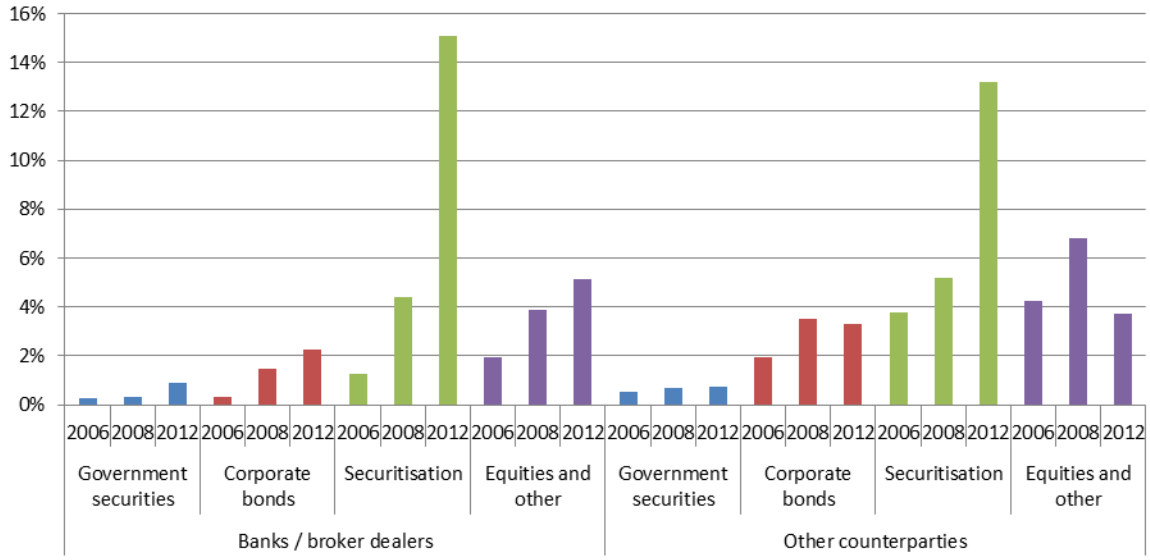


Chart 5: Average haircuts on securities financing transactions

This chart shows that haircuts increased during the crisis, especially for loans to non-banks against securities other than government securities. Data is based on responses to an FSB quantitative impact study by banks and dealers from a number of countries and uses actual transaction data.

Source: Financial Stability Board.[8]

Haircut



Split by asset class of collateral and by counterparty type.

[8] Details regarding this dataset are available at http://www.financialstabilityboard.org/publications/r_141013b.pdf.