Basel Committee on Banking Supervision
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Banking on leverage

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Let me begin this morning by thanking the FSI and the EMEAP Working Group on Banking Supervision for organising the latest in this excellent series of High-Level Meetings for the Asia-Pacific region. I would also like to thank the Reserve Bank of New Zealand for its gracious hospitality in hosting this event.

Today I will focus on the Basel III leverage ratio and its role in the regulatory framework. Leverage is an essential part of banking. But as the financial crisis showed us only too clearly, excess leverage can give rise to problems and risks that regulations must address.

The leverage ratio has been receiving a lot of attention lately. So today I would like to review how the Basel Committee developed the revised ratio, and clarify its role in the Basel framework. The leverage ratio should be seen as complementing the risk-based capital adequacy regime in Basel III. It should serve as a safety net or backstop – but for it to be a meaningful backstop, we must remember that sometimes it will have to act as a constraint on banks' behaviour.

Leverage – friend or foe?

Banking is all about leverage. Put simply, banks are highly leveraged institutions that are in the business of facilitating leverage for others.

Leverage – or, as it is sometimes called, gearing – is a fairly basic concept in finance. In simple terms, it is the extent to which a business funds its assets with borrowings rather than equity. More debt relative to each dollar of equity means a higher level of leverage.

Businesses, be they financial or otherwise, spend a lot of time identifying their optimal level of leverage. Debt, by virtue of its servicing costs being tax-deductible, typically offers a cheaper source of funding than equity. For a firm that begins with only equity funding for its assets, replacing a dollar of equity with a dollar of debt will generally lower its overall cost of funding and improve its return on equity. Hence, there are clear incentives to operate with some degree of financial leverage.

Beyond a certain point, however, we know that too much leverage can be perilous. This is because, in times of stress, the fixed servicing obligations that debt imposes on a firm may not be able to be covered by the cash flow generated by a firm's assets. Fluctuations in revenue, or the need to write down the value of assets, may create a shortfall in servicing ability, which has to be met by writing off

some of the interests of equity holders. In an extreme case, all of the interests of equity holders are wiped out and the firm fails. So there is a point beyond which adding more debt, relative to the riskiness of the cash flow generated by the firm's assets, is no longer efficient, and potentially dangerous. In the academic literature, this particular trade-off is often referred to as the trade-off between the tax advantages of debt and bankruptcy costs.[1]

Leverage in banking is far higher than in other industry sectors. For example, the average leverage ratio across 10 of the world's largest listed non-financial companies is on the order of 50%.[2] That is, on average these companies fund their assets around 50:50 with debt and equity. In banking, a more common ratio is 95:5 (and that can be before off-balance sheet exposures are taken into account). That raises an important question: given that we know that high levels of leverage are dangerous, why do we persist with fractional reserve banking systems that produce, in the very financial institutions that are critical to the health and stability of our economic systems, what in any other industry would be seen as dangerously high levels of leverage?

To paraphrase Winston Churchill, it is probably because fractional reserve banking is the worst form of banking, except for all the other forms that have been tried from time to time. The provision of credit is essential to the efficient functioning of market-based economies. Firms and consumers borrow for a range of economically sensible reasons. For example, debt facilitates investment in capital and income-producing assets, and the smoothing of consumption patterns over time. And in most jurisdictions, banks play the primary role in the process of intermediating credit to those who wish to access it. By borrowing from those firms and households that have surplus funds to invest, and lending to those who wish to borrow, banks play a critical role in ensuring savings are efficiently allocated for investment and consumption, at the lowest possible cost. But maximising these benefits for society tends to result in banks which are themselves very highly leveraged.

To compensate for this risk, almost all governments have set up regulatory regimes with minimum requirements for bank capital, leverage, liquidity, funding and large exposures – as well as behavioural standards on governance, fitness and propriety, risk management, internal controls and audit. These requirements aim to ensure that the high leverage inherent in bank business models is carefully and prudently managed. Basel III is at the core of this framework for internationally active banks. And a minimum leverage ratio – that is, an absolute cap on bank leverage – is a key component of the Basel III package.

Controlling leverage

Capital adequacy requirements and minimum leverage ratios are often spoken about as if they are one and the same. While they are similar in many respects, they are ultimately different concepts, and achieve different things.

Risk-based capital adequacy ratios have been the cornerstone of the Basel framework since it was introduced 25 years ago. Capital adequacy ratios measure the extent to which a bank *has sufficient capital relative to the risk of its business activities*. They are based on a simple principle: that a bank that takes higher risks should have higher capital to compensate. Of course, there are plenty of challenges in measuring risk – something I will come back to shortly – but I have yet to meet anyone who seriously disagrees with that simple principle.

[1] The academic literature also highlights other factors that influence the optimal level of leverage, such as agency costs, asymmetric information and transaction costs, and, in the context of banking, the public safety net, which gives banks an incentive to maintain higher levels of leverage than other firms that do not benefit from real or perceived public support.

[2] Average of balance sheet leverage ratios for Apple, Exxon Mobil, Google, PetroChina, General Electric, Wal-Mart Stores, IBM, Microsoft, Nestlé and Chevron.

Leverage ratios, on the other hand, measure the extent to which a bank *has financed its assets with equity*. It does not matter what those assets are, or what their risk characteristics. Leverage ratios effectively place a cap on borrowings as a multiple of a bank's equity.

With the benefit of hindsight, it is easy to see that the risk-based framework did not provide an effective limit on leverage. Prior to the crisis, a number of banks reported ostensibly healthy risk-based capital ratios but nevertheless found themselves in need of capital support as the market lost faith in their risk assessments (and hence balance sheet values), judging them to be under-capitalised and overly leveraged.

One shortcoming of the Basel framework before the crisis that is now evident is that it relied solely on the risk-based ratio to establish minimum capital requirements. As a means of controlling leverage, this places a premium on making sure that risk weights are right. Unfortunately, whether we are talking about standardised risk weights set by regulators, or risk weights determined by banks' own internal models, they are ultimately based on a prediction of the likely future course of events.

Crises tend not to occur when people overestimate risk. But unfortunately there is ample evidence that crises occur when enough people convince themselves that something is "low-risk", only to learn afterwards that they had underestimated the risk involved. Indeed, it is hard to think of any sort of financial crisis that did not have at its heart the underestimation of risk. In today's banking and regulatory systems, a lot of science and statistical analysis is devoted to measuring risk, and we should not discourage this from continuing. Nevertheless, given that our measurement of risk is at best a prediction – hopefully a well founded prediction, but nevertheless still involving a high degree of judgment – we will not always get it right. In such an environment, when leverage is high and the room for error is low, we need a strong safety net in case risk may be underestimated.

The Basel III leverage ratio provides that safety net.

Recent and remaining work on the leverage ratio

The leverage ratio has been in the spotlight recently, in the light of the Basel Committee's recent agreement on how leverage should be measured. I'd like to take a few minutes now to recap what we've done, and what remains to be completed.

When it comes to the recently announced agreement on the leverage ratio, it is important to remember that it is an agreement on how bank leverage ratios should be *measured*. A common complaint for many years has been the inability to compare leverage ratios across jurisdictions because of material differences in accounting standards. Our recent agreement marks the development of an internationally agreed leverage ratio that is largely independent of national differences in accounting standards.

When we finalised the measure, most attention was focused on the changes from a set of proposals the Committee issued in mid-2013. But these, in turn, involved changes to the agreement on the leverage ratio that was reached in 2010. So when thinking about how the leverage ratio has evolved, it's worth reflecting on where we started from.

In terms of traditional on-balance sheet banking assets (like loans and securities), nothing much has changed: an asset on the balance sheet is an exposure for leverage ratio purposes. We count them one for one; there is no risk weighting. Much of our focus has been directed at the treatment of exposures related to repos (more technically termed securities financing transactions or SFTs), derivatives, and off-balance sheet items like loan commitments. The key things the Committee decided were:

- We allowed a degree of netting of SFTs, but only where strict criteria were met (for example, same counterparty, same maturity date). In these cases, the net position provides the better

measure of the degree of leverage in a set of transactions between counterparties. And importantly, because SFT accounting is both arcane and inconsistent across various accounting standards, the Committee developed its own netting criteria to ensure international comparability.

- We allowed variation margin to be netted against derivative exposures – but only where the margin is paid in cash. Again, this seems the most sensible measure of leverage, since the cash margin payment is, for all intents and purposes, a settlement of a liability. It also has the advantage, as would not have otherwise been the case, of encouraging the good risk management practice of taking cash collateral against derivative exposures, and is consistent with broader regulatory reforms to promote the margining of OTC derivatives. So not only was this a sensible change for the leverage ratio itself, but it helped align the leverage ratio with other regulatory initiatives.
- We kept a firm limitation on the extent to which credit derivatives can be netted. In particular, banks can net long and short credit derivatives, but only on the same underlying and when the hedge has a maturity at least as long as the underlying. In other words, there can be no maturity mismatch.
- We determined that the most appropriate measure of exposure for off-balance sheet items would be their credit equivalent value. This reflects the fact that the degree of leverage in these transactions is not the same as if banks had made fully funded loans. That is, a 100% credit conversion factor (CCF) overestimated leverage. The use of standardised CCFs retains a consistent and conservative treatment that is not dependent on the risk of the bank's counterparty.

Of course, while there is a rationale for each of these decisions, there are also arguments for an alternative approach. For example, each of these changes brings slightly more complexity into the leverage ratio framework. Nevertheless, the Committee eventually reached the view that, on balance, these modifications would improve the measurement of leverage without jeopardising the underlying intention that the leverage ratio remain a simple backstop.

When this agreement was announced, some lamented that the Committee had "watered down" the leverage ratio. In response, let me make three important points:

- First, as I noted earlier, the Committee's task was to agree a common *measure* of bank leverage. The issue of *calibration* is still open.
- Second, netting was permitted in the 2010 agreement – it is not new when it comes to the leverage ratio – and potentially was permitted to a greater extent than has now been agreed.
- And finally, alongside the leverage ratio measure itself, we also agreed a template for public disclosure. The template includes both gross and net information for SFTs, and gross notional and credit equivalents for off-balance sheet items. So to the extent that there is a desire to calculate the leverage ratio on a more conservative measure, the information is readily available for market participants to do so.

As an aside, I'm also often told that the leverage ratio is inconsistent with the other components of Basel III. For example, whereas the Liquidity Coverage Ratio (or LCR) encourages banks to hold a portfolio of highly liquid, lower-risk assets, a non-risk-based leverage ratio provides incentives to switch from lower-risk to higher-risk assets. This is said to be an example of regulatory inconsistency, but I think this viewpoint is somewhat naïve.

First, regulators are well aware of the adverse incentives that leverage ratios – *if used in isolation* – can create. But that is why we do not use the leverage ratio in isolation. Basel III needs to be looked at as a *package* of constraints that *mutually reinforce* prudent behaviour. So, a leverage ratio provides an absolute cap on leverage but, by itself, may also create an incentive to take on high-risk assets. The LCR

compensates for this by preventing banks from imprudently running down their liquidity. And, of course, the risk-based framework would quickly constrain any bank that materially increased its risk profile without additional capital to support it.

We now have an internationally agreed measure of bank leverage, which is no small feat in itself. But that is not the end of the task. When the Basel III package was settled in 2010, the following was agreed:

- Banks should begin to disclose their leverage ratios from 2015 on an internationally consistent basis – that is the part we have just done.
- And, then, the Committee would carefully monitor the impact of these disclosure requirements. Any final adjustments to the definition *and calibration* of the leverage ratio will be made by 2017, with a view to migrating to a Pillar 1 (minimum capital requirement) treatment at the beginning of 2018.

At present, our analysis continues to be based on a minimum Tier 1 leverage ratio of 3%. Some see this as too low, although until now it has been hard to judge whether that is the case given that we had not agreed how the denominator would be measured. On the other hand, banks have warned of the dangers of the leverage ratio being set in such a way that it replaces the risk-based framework as the binding capital constraint on bank balance sheets.

Only now that we have an agreed definition can the Committee begin to turn to the issue of calibration, and the relationship of the leverage ratio to the risk-based framework. We have quite a bit of work to do to get this balance right. But our basic goal has not changed: that is, the risk-based regime should be the binding constraint on most banks most of the time, supplemented by the leverage ratio as a backstop. But this goal has two important, albeit perhaps implicit, implications. The first is that the leverage ratio should be a *meaningful* backstop: it will only influence bank behaviour if it will conceivably become binding in some circumstances. And following on from this, while the risk-based regime should ideally be the binding constraint on most banks most of the time, that means the leverage ratio will be binding on at least some banks some of the time, and maybe even some banks most of the time. A requirement that does not constrain anyone at any time is not worth bothering with.

Concluding remarks

Allow me to conclude. Leverage is an inherent and essential part of modern banking systems. Banks have a range of financial incentives to operate with high leverage and, at least up to a point, those benefits flow through to society more generally when that leverage is managed well. But there comes a point beyond which leverage becomes dangerous – something that was painfully obvious during the financial crisis. For this reason, sound prudential controls are needed to ensure that private incentives do not result in excessive leverage.

The leverage ratio, by placing an absolute cap on borrowings relative to a bank's capital, is an important component of the Basel III framework, and complements the risk-based capital adequacy regime. But neither of these parts of the framework stands alone: it is important to look at Basel III as a package of constraints that mutually reinforce prudent behaviour. Even though the leverage ratio has been designed as a backstop, it must be a meaningful backstop if it is to serve its intended purpose. Getting the calibration right is therefore a critical part of the Committee's remaining work on the post-crisis reforms.