

BANKING REGULATION:

Has complexity worked?

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This paper examines the Basel Committee's approach to prudential regulation of bank risk, the recent apparent shift towards less complex regulation, and the reasons for this. The paper provides a brief discussion of the calls for alternative approaches to regulation from some prominent experts who generally dismiss the merits of the 'risk-sensitive', complex rules-based Basel approach. After addressing the pros and cons of simpler versus complex regulation, the paper also speculates on the future of financial regulation in light of the ongoing debate about the optimal regulatory structure and degree of complexity. The paper was prepared for the Monash University and Australian Centre for Financial Studies' 22nd Melbourne Money and Finance Conference on 10–11 July 2017.

The global financial crisis prompted a wide-ranging agenda of financial regulation reform led by the G20 and implemented by international standard setters and national authorities. A key objective of the G20 Leaders is: 'To make sure our regulatory system for banks and other financial firms reins in the excesses that led to the crisis. Where reckless behavior and a lack of responsibility led to crisis, we will not allow a return to banking as usual' (G20 2009).

Ten years later, much of the agenda set by G20 leaders has been implemented.¹ It has involved an expansion in the scope of regulation, 'tougher' (more restrictive) regulation, and (generally) more complex regulation. The increased complexity is most prominent in the Basel approach to capital regulation involving partial reliance on the internal risk models of large accredited banks for determining their minimum capital requirements (with smaller banks having capital requirements determined by simpler, formulaic, 'standardised' approaches).

But there are a number of features of recent regulatory changes, involving less reliance on bank internal risk models, which could be interpreted as de-emphasising complexity of regulation in favour of greater simplicity. One question that this paper addresses is whether this reduced complexity will be a continuing trend in future financial regulation. Alternatively, have we reached some sort of equilibrium, reflecting learning about which risks can (at the current time) be reliably modelled and where complex internal risk models of banks can be relied upon to improve regulation?

The paper also argues that there are two other important features of recent regulatory change which perhaps make the issue of the form of the technical Basel 'Pillar 1' requirements less crucial. One is the emergence of multiple targets of prudential regulation. This brings with it a need for multiple policy instruments beyond capital requirement rules. The second is that the relative importance attached to Basel's 'Pillar 2' of supervisory approaches and actions appears to be growing — in part reflecting the broader purview of prudential regulation. This suggests a reduced role for rules-based models and greater reliance on supervisory discretion, potentially creating less certainty for regulated institutions. Trends prompting such a view include greater supervisory reliance on stress tests, evolution of macro-prudential policies, and developments in intervention and resolution ('bail-in') powers and practices.

The Basel approach

One of the defining features of developments in the Basel approach to bank regulation, already in train prior to the crisis, was the application of more 'sophisticated', technical, capital regulation. Underpinning this development was the worthy objective (particularly at low capital levels) of making capital regulation more risk sensitive (to reflect the risk of bank failure and avoid the moral hazard of risk-taking incentives under risk-insensitive capital requirements). Also relevant was the acknowledgement that use of relatively sophisticated risk management systems by large banks should be able to inform the extent of capital levels (or risk mitigation activities) required for ensuring solvency.

The Basel Pillar 1 approach has focused upon specific types of risks that banks face. Typically these include: credit (counterparty) risk; market (trading book) risk; operational risk; interest rate banking book risk (IRRBB); and liquidity risk.

This approach has attempted to merge most of these disparate risks into one risk indicator (a risk-weighted assets (RWA) equivalent) to which a single regulatory capital requirement could apply.^{2,3} Initially (in Basel 1), credit and (later) market risk were incorporated, and in Basel 2 this was expanded to include operational risk. IRRBB was seen (and confirmed in April 2016) as a Pillar 2 add-on within this framework which would involve capital requirements.⁴ In contrast, liquidity risk did not fit naturally into this framework leading to a quite separate and distinct approach.⁵

Mapping of disparate risks into a single regulatory indicator (of risk-weighted asset equivalents) raises issues such as: the optimality of such an approach based on essentially one policy instrument;⁶ calibration concerns; and a lack of recognition of diversification effects by simply 'adding up' capital requirements for different risks. Even though there were a number of different 'types' of capital requirement (CET1, Tier 1, total capital) all have been based on a single (RWA) indicator. In this regard, even though concerns about the robustness of complex models (and their use by banks) underpin the adoption of additional capital adequacy requirements (a non-risk-weighted leverage ratio and 'capital floors'), these developments increase the number of policy 'instruments'.

Most discussion of those additional capital requirements does not perceive them as 'discretionary' policy instruments that policy makers may adjust to better achieve a number of policy objectives. However, a broadening of policy objectives beyond micro-prudential regulation to macro-prudential regulation (with the latter involving both temporal systemic stability objectives as well as influencing of financial sector interrelationships) suggests a need for a number of discretionary policy instruments. The introduction of capital conservation and countercyclical buffers into the Basel framework are elements of an expanded policy instrument set, but more relevant in terms of regulatory discretion are stress-testing requirements and enhanced regulatory intervention and resolution powers (and practices).

These changes raise the profile of the Pillar 2 component of the Basel approach, which stresses the importance of the supervisory process. This enables supervisors to impose differential standards for different banks at their discretion, based on their views on risk, and provides discretion in making decisions regarding resolving troubled banks. Two consequences follow. First, banks may find compliance with rules-based Pillar 1 requirements insufficient for meeting supervisory requirements, and may face uncertainty in that regard. Second, even if the regulatory capital requirement specified under Pillar 1 was not related to some objective measure of a bank's risk (as advocated by some commentators), regulators could be expected to adopt a risk-related approach under Pillar 2.

The recent trajectory of Basel standards

The most recent changes to the Basel standards raise the question of whether reliance on complex models has been, at least in part, a failed experiment.

Operational risk

'Basel 4' changes announced in 2016 (BCBS 2016b) removed the 'advanced management approach' (AMA), based around bank modelling of operational risk, in favour of a Standardised Measurement Approach (SMA).⁷ To many analysts, the demise of the 'sophisticated' approach was hardly surprising given the complexities of reliably modelling the likelihood and scale of a wide range of operational events. And, while 'risk sensitive' capital requirements might induce management actions to mitigate such risks, the extent to which this would occur is unclear.

Credit risk

A second change is the planned removal of certain asset portfolios from eligibility for the advanced internal models approach for credit risk, announced in a March 2016 consultative document (BCBS 2016c). The internal models approach was seen to lead to significant differences between large banks in their assessment of risk (and thus capital requirements) of similar portfolios. Although some such differences were explicable, concerns arose about the veracity of relying on the robustness of reliance on bank internal models for determination of capital adequacy. This has prompted the introduction of constraints on model characteristics, and disallowance of model use for some types of risk.

Specifically, the BCBS proposed (and final standards are not yet released) that capital requirements for credit exposures to banks, financials, large corporates and equity portfolios will no longer be determined under the internal models approach,⁸ but must now use the revised Standardised approach. For mid-sized corporates, capital requirements will now be calculated using the Foundation IRB approach, in which banks no longer have freedom to use estimates of loss given default (LGD) from their internal models. This reflects a general view that PD modelling is more robust than LGD modelling, partly because of the smaller sample size and limited data available for calibration of the latter. Similarly, there are new constraints on the use of internal models for specialised lending. Also proposed is a specific floor for counterparty credit risk based on the standardised approach, and credit valuation adjustments (CVA) are to be calculated using a standardised or basic approach.

Market risk

In 2012 and 2013, the BCBS released consultative documents on a *Fundamental Review of the Trading Book*, which included increased risk sensitivity of the standardised approach. One key component of changes to the internal models approach was a move away from a Value-at-Risk (VaR) approach to the use of an Expected Shortfall (ES) approach. VaR had been widely criticised as: not providing an estimate of how large the losses from extreme events might be; involving significant potential for mis-estimation (particularly if correlations change in extreme events); and not meeting the desirable statistical property of 'sub-additivity'. These changes could be interpreted as primarily improving on the complex models being used, rather than moving towards simpler approaches. A major concern was that the existing regulatory framework did not adequately capture all the risks in the trading book.

In January 2016, the revised standards for market risk were published (BCBS 2016a). Securitisation exposures in the trading book are to be treated according to the revised standardised approach. Under the IMA approach, capital requirements based on the ES include add-ons related to a default risk charge (DRC) and a stressed capital add-on (SES).

The decision to permit regulators to approve or disallow IRB status at a trading desk level rather than at the bank level suggests concerns that risk modelling may be of variable quality for different types of exposures of individual banks. In June 2017, a consultative document (BCBS 2017) was released proposing a simplified alternative to the market risk standardised approach, suitable for banks other than large, internationally active banks.

IRRBB

In April 2016 the BCBS released its final standards on IRRBB (BCBS 2016d). These allow for accredited banks to utilise an internal models approach for their assessment and determination of IRRBB capital requirements. However, as in some other areas, the determination of required capital is based on calculations using some regulatory provided parameters – in this case the size of interest rate shocks at which the calculation of change in EVE (economic value of equity) is to be made. A specific standardised model is suggested which regulators can require for use by other banks under Pillar 2.

In this area, there is no sign of a retreat towards simplicity. Several reasons might help explain that. One is the absence of a clear goal for IRRBB regulation with different banks wanting to make different trade-offs between stability of earnings (NII) and economic value of equity – with these variables not necessarily highly correlated. A second reason may be that IRRBB is generally a relatively minor component of overall risk – and one which can be adjusted rapidly through transfer of exposures to the trading book.

Liquidity regulation

The liquidity regulation introduced (BCBS 2013, 2014) has not gone down the route of allowing reliance on internal models – but does involve a bifurcation between smaller institutions subject to minimum liquidity ratios (such as in Australia) and larger institutions subject to the LCR and NSFR requirements. For those larger institutions, the two requirements involve application of prescribed weights to balance sheet structures to ensure compliance, as well as stress-testing requirements. While, in principle, it may be possible to rely on internal modelling to parameterise LCR and NSFR calculations, this has not been attempted.

Additional regulatory changes

Two further changes to the Basel arrangements also involve simplified approaches. One is the introduction of a non-risk-weighted CET1 leverage ratio as a backstop to the RWA approach. Although not yet finalised, the indicative minimum requirement of 3 per cent or 3.5 per cent means that it is unlikely to be binding for most banks.⁹ The other development has been the proposal (BCBS 2014b) for the application of ‘capital floors’ to IRB banks set at an expected 70–75 per cent of the capital requirement the bank would face under the revised standardised approach.¹⁰

In general, these rules can be interpreted as conservative overlays, reflecting both concerns about the reliability of bank internal models due to potential regulatory arbitrage and the ability of models based on historical data and relationships to perform adequately in future unknown crisis scenarios. The debate in this regard is about how much conservatism should be involved although, as discussed in the next section, some commentators have argued for the risk-weighting approach to be largely abandoned.

Another important development has been the increased reliance on stress testing for regulatory purposes. Again, this provides a backstop to complex capital and liquidity regulation, and could be interpreted as less willingness to rely solely on complex rules-based regulation which, despite its complexity, is unable to adequately capture stresses in the financial system to which banks are exposed. Again, some commentators have argued that stress tests should become a ‘frontstop’ rather than a ‘backstop’.

Accompanying these changes have been the introduction of macro-prudential controls in a number of countries which have tended to be very simple, blunt, instruments such as minimum loan-to-valuation ratios (LVRs) or ‘speed limits’ on certain types of lending.

Overall, this brief review of recent Basel changes suggests that there has been some shift away from reliance on complex regulatory approaches under Basel’s Pillar 1, although it has been selective. Some areas of risk assessment have been identified as unsuited to reliance on complex models, while concerns about the robustness of such models in dealing with unexpected financial stresses or being subject to potential manipulation have led to the use of ‘simple’ supplementary regulatory measures as backstops or conservative overlays.

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Risk sensitivity and regulatory simplicity

There are a number of prominent commentators arguing that greater simplicity of regulation may be preferable. Importantly, among these arguments are calls for greater reliance upon the use of a non-risk-weighted leverage ratio for banks, rather than the Basel risk-weighted assets approach.¹¹ FDIC Vice-Chairman Thomas Hoenig (2013) for example argues that '[t]he tangible leverage ratio is a superior alternative to risk-weighting schemes that have proven to be an illusion of precision and insufficient in defining adequate capital'.¹² While the BCBS has incorporated a leverage ratio requirement into the regulatory tool bag, it is viewed as a 'backstop' to the more complex risk-weighted capital requirement, rather than as a substitute.

There are two separate issues involved here. One is the merits of a regulatory approach that links regulatory constraints to some form of risk assessment of the institution's position via Pillar 1 rules. Regulation and supervision needs to take bank risk into account — although former Bank of England Governor Mervyn King (2016) has argued that it is 'fundamental uncertainty' rather than 'measurable risk' which is more relevant for financial sector stability and financial institution safety. If so, basing regulation on rules built on risk modelling may be inadequate.

The second issue is, if risk assessment is to be involved, how should that be done — using complex approaches to risk measurement, or more simple (approximate) approaches? The Basel approach to regulation has been to use both, and recent changes could be interpreted as a shift towards the simplicity end of the spectrum via greater reliance on the standardised approach (and 'simple' backstop regulations). But crucially, risk 'relatedness' if not risk sensitivity is still involved.

Two questions need consideration. First what are the relative merits of simplicity versus complexity? Second, if less reliance is placed on risk sensitivity in Pillar 1 rules, what does this imply for supervisory approaches under Pillar 2 which can allow for a more nuanced (albeit judgemental) view of risk? How much greater reliance should be placed on Pillar 2, and to what extent is this desirable? Does it make the debate about simplicity or complexity of Pillar 1 rules less relevant?

Complexity versus simplicity: The merits and alternatives

The question of the merits of regulatory complexity is a topical one.¹³ The Chair of the Basel Committee Stefan Ingves (2016) recently remarked that 'simple rules can sometimes be more risk-sensitive and robust than complex ones, and can better meet supervisory objectives. I would encourage further research to develop this point'.

A range of considerations are typically advanced in considering the merits of simple versus complex rules and regulations (many of which arise in debates about the relative merits of rules versus principles-based regulation). These include: compatibility with the complexity of activities involved; incentives and ability to evade regulation; ease of identifying non-compliance; compliance costs; public understanding; competitive balance; and distortion of the activities of regulated institutions.¹⁴

In some respects, the debate about complexity is misplaced. Risk-weighted capital requirements are simple rules — capital needs to exceed a specified measure of risk-weighted assets. It is the calculation of the inputs to the rule that is complex. More relevant is the question of whether the rules are sufficient and/or necessary for efficiently achieving regulatory objectives and an important issue in this regard is what are the objectives of banking regulation? There has been a significant shift in this regard since the crisis. Initially prudential regulation was primarily 'micro focused' on bank solvency. The focus has shifted towards also preventing crises and runs (macro-prudential regulation), with regulation attempting to meet both objectives — and potentially becoming more complex in the process.

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In this regard, the calls for greater reliance on supervisory stress test results and enhanced intervention powers, both involving supervisory assessment and discretion, could be seen as an appropriate reflection of the multiple objectives of prudential regulation. Complexity of the system and multiple objectives may imply less reliance on specific features of Pillar 1 rules and greater reliance on Pillar 2 approaches which being dependent on regulatory discretion arguably involves greater 'complexity'.

Complex financial regulation, it could be argued, is required because of the complexity of modern financial institutions and financial systems.¹⁵ An alternative (or complementary) regulatory approach is to impose restrictions on the activities of relevant financial institutions, simplifying the structure of financial institutions and of the financial system, and types of regulation required.

Some developments of that type have already occurred. The Volcker rule, retail ring-fencing in the UK, CCP requirements, and STC (simple, transparent, comparable) securitisation initiatives, are examples of explicit regulatory policies designed to shape the structure of the financial system. More generally, regulatory imposts may induce regulated financial institutions to exit (or concentrate on) certain activities, thus (and perhaps inadvertently and perhaps deleteriously) affecting the evolution of the system.

Some commentators (such as Cochrane 2016) have argued for further more fundamental changes — such as limiting the reliance of banks on 'runnable' liabilities, perhaps by the imposition of 'Pigouvian taxes' on short-term debt/deposits of banks, as an alternative to capital regulation. This type of argument has a long history of proposals for narrow banking or mutual-fund banking emanating from the Chicago School which, as Cochrane suggests, are now more feasible as a result of digital technology. Such radical proposals,¹⁶ which fundamentally change the allocation of risk-sharing and nature of banking, seem unlikely to garner political support in the near term. But regulators have already embraced radical changes such as 'bail-in' requirements for bank liabilities, exercisable at the discretion of regulators, creating extensive uncertainty about 'risk sharing' among bank stakeholders.

The outlook

Different views exist internationally about the appropriate future directions for bank regulation, although large banks appear committed to the continuation of the internal models approach based on risk-weighted assets. But among academics and regulators there is less convergence of views.¹⁷

Among regulators, the USA has been a hesitant adopter of the complex regulation of Basel. Indeed the Collins amendment to the Dodd-Frank Act,¹⁸ and its use of a leverage ratio requirement makes the risk-weighted internal models approach largely irrelevant for regulatory purposes.

Other members of the Basel Committee (such as Australia, UK and the EU) appear to be committed to a continuation of the current approach.

While much of the current debate is framed in terms of complexity versus simplicity, this paper suggests that a more important issue in the future may be the relative importance of Pillar 1 versus Pillar 2 in the regulatory approach. Pillar 1 is primarily a rules-based approach that has drawn more attention than Pillar 2 which can involve supervisory discretion (or rules for responses to Pillar 1 indicators) and relies on supervisory capabilities.

Simpler (and possibly less risk-sensitive) rules under Pillar 1 arguably imply a greater reliance on Pillar 2 supervisory approaches involving more subjective risk assessment, more akin to principles based regulation. The rules may be simpler, but regulation overall may be more complex.

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Notes

1. See FSB (2017).
2. This relates to 'Pillar 1' of the Basel approach, with Pillars 2 and 3 providing scope for alternative regulatory and supervisory considerations.
3. Blundell-Wignall, Atkinson and Roulet (2014) argue that differences in business models make use of a single capital ratio approach inappropriate and that '[c]apital rules make more sense when fundamentally different businesses are separated'.
4. See BCBS (2016c). In Australia, APRA has implemented IRRBB capital requirements for IRB banks as a Pillar 1 component.
5. The nature of the liquidity regulation does, because of the risk-weighting of assets involved, have implications for bank capital adequacy. The interaction of liquidity and solvency issues in cases of bank failure suggests one explanation for increased attention to stress testing as part of the regulatory tool-kit.
6. There is a long-established economic policy literature arguing that there should be at least as many policy instruments as objectives. This approach implies that the individual types of risk are not important in their own right but only via their contribution to the one objective of banks' solvency. With the expansion of regulatory objectives to macro-prudential as well as micro-prudential concerns, this view may be questioned.
7. The SMA approach is built around a relatively simple concept of a Business Indicator (BI) whereby financial statement information about the mix of business and perceived operational risks of different business activities is combined with the historical loss experience information of the bank. While formulaic, the approach is hardly non-complex (and the method of incorporation of historical experience hardly non-controversial), but is clearly simpler than the AMA reliance on complex statistical models.
8. It is rumoured that use of the Foundation IRB approach will ultimately be approved for some of these exposures.
9. The Total Loss Absorbing Capacity (TLAC) requirements for G-SIBs also require eligible TLAC liabilities to exceed both a non-risk-weighted benchmark (eventually 6.75 per cent of the leverage ratio denominator) and a risk-weighted benchmark (eventually 18 per cent of risk-weighted assets). See FSB (2015).
10. It has been suggested that these would have virtually no impact on Australian, US or Asian banks, but could require some EU banks to raise further capital.
11. See also comments by former Bank of England Governor Mervyn King (2016, chapter 7), former US Federal Reserve Board Governor Daniel Tarullo (2014), and Bank of England Executive Andrew Haldane (2012).
12. Whether evidence based from the Basel 1 risk-weighted capital ratio provides reliable evidence about how more risk sensitive capital ratios such as under Basel 3 will perform in predicting bank distress is something of an open question.
13. Of course, simplicity versus complexity is merely one of a number of interrelated dimensions along which regulatory approaches can be considered. Also important are the severity of regulation, consistency and interoperability of regulation across jurisdictional boundaries, and consistency between different elements of the overall regulatory structure.

14. Kay (2015) also argues that '[r]egulation based on detailed prescriptive rules has undermined rather than enhanced ethical standards, by substituting compliance for values'.
15. An alternative argument is that advances in technology and knowledge have made more complex regulation possible — indeed this would appear to underpin the Basel decision to incorporate use of bank internal models 'to ensure that the Framework keeps pace with market developments and advances in risk management practices' (BCBS 2006, para 15).
16. Radical, in the sense of departures from the status quo.
17. As well as authors cited earlier, it is also appropriate to mention Admati and Hellwig (2013).
18. This imposes a floor on the minimum capital for large banks approved to use the internal models approach, which is calculated by reference to that which would arise from application of the simpler standardised approach.

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