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Macroeconomic effects of Basel III: estimates of the FSB and BCBS

Overview

In December 2009 the Basel Committee on Banking Supervision issued a consultative document setting out proposals for strengthening regulation of banks' capital and liquidity (widely referred to as Basel 3) in the light of lessons from recent experience, especially the current financial crisis, with the goal of improving the resilience of the financial system (BCBS, 2009). In the case of capital, the proposals build on the framework of Basel 2 as set out in the 2006 draft (BCBS, 2006).

Basel 2 has now been extended to include rules for the management of liquidity risk. This is widely considered justified since crises or serious threats to banks' solvency (and thus to the adequacy of their capital) are typically triggered by pressures on their liquidity positions in the form of difficulties over financing their portfolios of assets. Thus, the measurement and management of banks' capital is linked to successful management of their liquidity, as illustrated by events during the financial crisis.

In August 2010, the Basel Committee and the Financial Stability Board (FSB) issued two reports assessing the impact of Basel 3. One of these reports, MAG, is concerned with the impact during the transition period, when the new requirements for capital and liquidity are being phased in (FSB & BCBS, 2010), and focussed exclusively on the costs of introduction. The other report, LEI, analyses the long-term economic impact of Basel 3 (BCBS, 2010). "Long-term" is defined by the assumption that banks have completed the transition to the new regulations on capital and liquidity. The LEI report assesses the economic benefits as well as costs of the regulations.

The conclusions of the two reports are that the costs, in terms of lost output, due to changes in capital and liquidity requirements are likely to be moderate (and less than those estimated by the banking sector itself in a parallel exercise by the Institute of International Finance). Moreover, the report on the long-term impact concludes that there will be significant benefits from these changes due to the lower incidence of financial crises, and that these benefits significantly outweigh the costs.

Methods used

For the estimation of the effects on output, the new requirements on capital and liquidity were first translated

into higher costs of intermediation (higher lending spreads), and then, the impact of these higher costs on economic activity were estimated through macroeconomic models.

The MAG report provides a simplified example intended to demonstrate the conceptual basis of the estimation. Imagine a bank with the following stylised balance sheet: on the liabilities side there are deposits and debt, on which the bank pays an average cost of 5 per cent, and equity capital, on which the target return is 15 per cent. Two-thirds of the bank's assets are loans and one-third is securities and cash. Now introduce a one-per-cent increase in the ratio of capital to assets, which raises the cost of funds (the weighted average of the cost of capital, deposits and debt) by 10 basis points. To maintain its target return on equity capital of 15 per cent, the bank must recover its higher cost of funding by raising the rate of return on its assets. In the stylised case, this is most easily done by raising the rate of interest by 15 basis points on the loans which are two-thirds of its assets (FSB and BCBS, 2010: 13-14).

The translation of the new rules on liquidity into higher costs of intermediation lacks the simplicity of that for increased capital. To meet the liquidity coverage ratio of Basel 3 (designed to ensure that banks hold a stock of unencumbered high-quality liquid assets sufficient to offset the net cash outflows encountered during a period of acute short-term stress), a bank is likely to increase holdings of low-yielding assets. To meet the net stable funding ratio of Basel 3 (the amount of longer-term, stable sources of funding employed by an institution in relation to the liquidity profile of the assets in its portfolio and the potential contingent calls on funding liquidity due to its off-balance-sheet commitments), a bank may have to increase the average maturity of its liabilities. In both cases, the new liquidity requirements are assumed to exercise downward pressure on profitability, and thus, upward pressure on lending margins.

Estimates

The MAG report's estimates of the deviations of GDP from baseline forecasts in the eighteenth quarter after the introduction of increased capital requirements and increased holdings of liquid assets are modest. For a one-per-cent increase in the capital ratio introduced with a transition period of four years, the median benchmark

estimate is a decrease of 0.16 per cent, and for an increase in the ratio of liquid assets to total assets of 25 per cent, the median benchmark estimate is a decrease of 0.08 per cent. For an increase in the capital ratio to two per cent, this combined effect translates into a decrease of GDP of 0.32 per cent.

The LEI report provides a range of estimates of costs and benefits according to different levels of the ratio of capital to risk-weighted assets, and according to whether the capital rules are or are not accompanied by additional requirements for liquidity. A one-per-cent increase in the capital ratio is associated with a 0.09 per cent annual reduction of output, if not accompanied by additional liquidity requirements, and with a 0.17 per cent reduction of output, if accompanied by additional liquidity requirements.

Expected net benefits in the LEI report – the difference between expected benefits, as measured by the difference between the decrease in the annual probability of a crisis times the cumulative costs of a crisis, on the hand, and the expected costs of new requirements for capital and liquidity, on the other - vary according to assumptions as to whether or not the crisis has permanent effects on output. Where the crisis is assumed to have no permanent effects on output, the expected benefits of a one-per-cent reduction in the annual probability of crisis times are 19 per cent of long-run GDP. Where there are assumed to be long-lasting, but moderate effects – the case corresponding to the median cost of crises reported in all the studies in the literature surveyed for the LEI report – the expected annual benefits are 0.63 per cent of long-run annual GDP. Where there are assumed to be large permanent effects – the case corresponding to those in studies allowing for permanent effects, the expected annual benefits are 1.58 per cent of long-run annual GDP. The corresponding estimates of long-run annual net benefits of a one-per-cent rise in the capital ratio are 0.20 per cent of output when there are no permanent effects, 0.87 per cent of output when net effects are long-lasting but moderate, and 2.32 per cent of output when there are large permanent effects.

Technical and conceptual limitations of the estimates

These estimates of the MAG report are subject to various limitations: (1) the models on which they are based reflect the still imperfect state of conceptualization and econometric technique in this area; (2) the benchmark estimates do not allow for government policy actions intended to offset the unfavourable effects of more stringent capital and liquidity requirements on the cost and volume of lending; (3) the estimates also do not allow for developments in financial markets in response to these requirements; and (4) the estimates do not incorporate the impact of changes in banks' portfolio

management and business models which would help to sustain lending and keep down its cost.

The MAG report summarizes the state of the art of modelling as follows: "Most central banks, and many other economic agencies, have one or more large-scale, regularly updated macroeconomic models that have over time demonstrated their usefulness for forecasting and policy analysis purposes. While time-tested and well understood, these models suffer from the fact they do not directly incorporate banking sectors in a way that would allow investigation of the impact of prudential policy changes" (FSB & BCBS, 2010: 14). In the work used for the MAG report, statistical relationships between liquidity requirements and lending costs were often weak, and for some countries included in the exercises, it was impossible to estimate the impact of the Basel 3 net stable funding ratio. Precise matching of the model-based estimates in the MAG report with the changes proposed in Basel 3 is impossible owing to the imperfect correspondence between the measures used in the models and the indicators which are the target of Basel 3.

The benchmark estimates of the MAG report abstract from possible policy responses by governments to macroeconomic contractions resulting from the new regulations, from changes in the terms of banks' financing from financial markets, and from a range of possible responses of banks themselves to the new regulations. Differences between the estimates of the Financial Stability Board and the Basel Committee on Banking Supervision, on the one hand, and of other organizations such as the Institute of International Finance, on the other, can be explained, at least in part, by differences regarding assumed scenarios concerning the future.

Abstracting from a monetary-policy response to unwanted effects of more rigorous rules for capital and liquidity enables separation of the impact of the increased capital and liquidity requirements from other developments. However, such abstraction may also result in overestimation of costs, as compared to a more comprehensive scenario which allows for such a policy response. For example, in models which do incorporate an endogenous change in monetary policy to dampen the contractionary effects of a one-per-cent increase in capital requirements, the median estimate of the decrease in GDP in the MAG report falls to 0.06 per cent (FSB & BCBS, 2010: 22).

Amongst the developments in financial markets likely to dampen upward pressure on banks' financing costs, and thus on the spreads on their lending, are the effects of more stringent capital and liquidity rules in reducing the required return on bank equity via investors' improved perceptions of their soundness. Moreover the increased demand by banks for government debt and other low-risk assets could well exert downward pressure on the rate of interest on such

assets, which are the basis for banks' loan pricing (Bini Smaghi, 2010: 5).

The effects of increased capital and liquidity requirements on lending costs may also be affected by consequent adjustments in banks' portfolios and other aspects of their business models. These reactions may include a contraction of banks' trading books which leaves their lending business largely or completely untouched. For example, in the case of the two largest Swiss banks, a large part of the reduction of their balance sheets since the onset of the crisis in 2007 has been in the form of contractions of their trading books (FSB & BCBS, 2010: 55). Moreover, it is also possible to imagine banks holding down compensation costs, thus reducing pressure on lending margins, though banks' behaviour regarding staff remuneration since the avoidance of a global macroeconomic melt-down, thanks to the adoption by governments of expansionary policies, invites scepticism, rather than optimism, on this score.

The estimates of the LEI report are subject to qualifications similar to those of the MAG report. In its discussion of the net benefits of more rigorous capital and liquidity requirements, the LEI report emphasizes that historical estimates of the costs of financial crises, especially in recent times, are influenced by large-scale government intervention to minimize the negative effects on output. In the absence of such intervention, the costs would probably have been significantly higher. Since expected net benefits are measured by the decrease in the annual probability of a crisis times the cumulative costs of a crisis less the expected costs of increased capital and liquidity requirements, it could be argued that the LEI estimates of net benefits are correspondingly underestimated (BCBS, 2010: 31).

Scope of the exercises

The applicability of estimates of the costs and net benefits of increased capital and liquidity requirements should also be interpreted in the light of the scope of the exercises on which they are based. Major determinants of this scope are the following: (1) the relation between the models' specification, and the conclusions which can be drawn from them and (2) the sources of the data and models used for the estimates.

The estimates in the MAG and LEI reports are limited to the macroeconomic impact of increases in capital and liquidity requirements, and do not differentiate between countries and economic sectors. A better picture of the impact at the latter level will eventually be provided by the results of a new Quantitative Impact Study which is compiling information on the effects of the proposed new capital and liquidity standards for a sample of banks from a number of countries (BCBS & FSB, 2010: 35).

Regarding the global validity of estimates in the MAG and LEI reports, it should be emphasized that the data and models used are from a sample of developed

countries and of a minority of the more advanced emerging-market countries. A precise picture of the coverage of the data and models cannot be extracted from the reports – presumably because such a picture would have required unmanageably long technical annexes.

Model inputs to the MAG report were provided for the following emerging-market countries: Brazil, China, India, South Korea, Mexico and Russia. Except in the case of Brazil and South Korea, these inputs included only IMF models, and not models of national authorities (FSB & BCBS: 60). Estimates of the costs of crisis for the LEI report were based on episodes in the following countries with the numbers of crises being given in parentheses: Argentina (4), Brazil (2), Canada (1), Finland (1), France (1), Indonesia (1), Japan (3), South Korea (1), Mexico (3), Norway (2), Spain (2), Sweden (1), Turkey (1), United Kingdom (2), and United States (3) (BCBS, 2010: 38). A smaller set of models was used for the LEI than for the MAG report.

The revision of the capital and liquidity requirements of Basel 3 has so far been principally a response by regulators to weakness in the existing framework (including weaknesses in Basel 2 rules), which have been revealed by the experiences of financial crisis in developed countries. Past experience suggests that as a result of the consultative process associated with drafting a new text for Basel 3, qualifications will be inserted with the objective of adapting the rules to circumstances commonly found in countries with less developed economies and banking systems. Moreover, since Basel 3 will not be mandatory, the authorities at national level will also be able to adapt the rules to national circumstances and needs, and to provide their own guidelines for supervisory implementation. The scope for such adaptations should help ensure that introduction and implementation of the new Basel 3 rules in developing countries is not at the expense of activity levels and attainment of other important developmental objectives.

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