

The Regulatory Response to Bank Capital Adequacy as a result of the Financial Crisis

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Regulators are revisiting bank regulatory capital adequacy ratios in response to the financial crisis. Interim measures have been implemented as a stopgap whilst longer-term proposals are being developed. Both the interim and longer-term initiatives focus principally on the areas that regulators have identified as the biggest causes of problems during the crisis.

The regulatory response is still developing as there is not yet a full consensus on the best way to address some of the issues, and notably also due to the tension between the desire to increase regulatory capital ratios in the medium to long term against the urgency to increase bank lending in the short term.

This note summarises the regulatory response to date in respect of the principal focus areas. (The summary is with regard to banks regulated by the FSA (i.e. UK headquartered or UK located banking institutions). The FSA follows the Basel II framework under the European Capital Requirements Directive, consequently banks in other jurisdictions, especially in the EU, are likely to be in a similar position with respect to their home regulators).

Capital Treatment of Trading Book

Background

The Basel II capital framework requires banks to separate assets for regulatory capital purposes between those held as lending assets and those held in the trading book. Trading book positions attract much lower capital weights than lending book assets. Capital adequacy for trading book positions is calculated principally using VaR measures.

Losses in banks' trading books during the financial crisis have been significantly higher than the minimum capital requirements under Basel II's capital adequacy rules. The Basel Committee has noted that, "*Since the financial crisis began in mid-2007, the majority of losses and most of the build up of leverage occurred in the trading book.*"

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There have been three principal reasons for this:

- i) the VaR measures used underestimated risk and thus capital required because they followed a very benign period in financial markets;
- ii) some key risks, especially credit risk embedded in positions held in the trading book, were not adequately captured by the VaR measures of capital adequacy; and
- iii) many banks were 'parking' assets in the trading book in order to benefit from the lower regulatory capital allocation compared to the lending book.

The third reason above has been one of the main causes of the high levels of unrecognized leverage (from a capital adequacy perspective) in many larger banks. Pre-crisis such banks were holding super senior and AAA tranches of securitized assets in the trading book as they showed very low VaR and thus required very little regulatory capital allocation there. Notionally those assets were being 'held for trading/sale' in order to justify their inclusion in the trading book as opposed to the lending book, but in practice large inventories were accumulated and not shifted because even at low spreads, with very low capital requirements the return on capital was large. Leverage on these positions was thus extremely high, and when prices started dropping not only were there losses on the highly levered positions, but the capital requirements to support those positions also started to increase as measured VaR rose.

Regulatory Response

As a consequence of what has happened in banks' trading books, revision of the trading book capital adequacy rules is currently a major focus of regulators. Banks expect the new regime to increase the overall capital required to support trading book positions by up to three times (a very significant increase).

Before more comprehensive new rules are finalised and implemented, as an interim measure the FSA (and other regulators) are using a greater emphasis on stress testing to increase the capital required to support trading book positions compared to the capital allocations calculated according to the existing rules (which are now deemed inadequate). Stress testing also forms an important part of the new longer-term proposals, as regulators believe it is able to pick up risks that VaR and other Gaussian model type measures miss, as well as acting to dampen the pro-cyclicality¹ of the use of VaR to determine capital adequacy. The Basel Committee published a consultative document entitled 'Principles for Sound Stress Testing Practices and Supervision' on 16 January 2009 for comment by 13 March 2009. (The

¹ Lower VaR and thus lower capital requirements when markets are benign, higher VaR and thus higher capital requirements when everything has already gone wrong.

most significant features of these new provisions for stress testing are set out in the Appendix to this note).

The Basel Committee also published on 16 January 2009 their proposed revisions to the Basel II trading book capital adequacy rules (i.e. the 'longer term solution'). The Basel Committee's proposals have been published as a consultative document for comment by 13 March 2009 and for implementation by no later than 31 December 2010. The revisions contain three major changes that together will constitute the permanent significant increase in capital requirements that the market has been expecting:

- i) Market risk capital for trading book positions will be calculated on the basis of VaR (as before) plus the addition of a stressed VaR measure (new). (Further information on the new stress VaR measure is included in the Appendix to this note).
- ii) An Incremental Risk Charge (IRC) capital requirement is introduced to capture capital required to support default and migration risks of the credit risk component of unsecuritised credit products held in the trading book, as these specific risks are not necessarily captured by VaR measures. (The IRC also helps prevent regulatory capital arbitrage between the lending and trading books for unsecuritised credit products such as leveraged loans, being one of regulators' major objectives).
- iii) Securitised products held in the trading book require the same regulatory capital as if they were held in the lending book (i.e. for securitised assets regulators are making absolutely sure there will be no regulatory arbitrage between the lending and trading books in the future).

Liquidity Risk

Background

Liquidity risks have been prominent during the crisis, with many banks suffering from asset/liability mismatches as wholesale funding sources including the interbank market dried up and banks held inadequate levels of cash and liquid assets. Most prominent in this respect was the failure of Northern Rock. Regulators have been criticised for failing to monitor banks' liquidity risks and the existing Basel II bank capital adequacy rules hardly touch on liquidity.

Regulatory Response

As liquidity problems were one of the first symptoms of the banking crisis, the Basel Committee has been quicker to address this than solvency requirements, publishing 'Principals for Sound Liquidity Risk Management and Supervision' in September 2008. This guidance for banks and regulatory supervisors sets out 17 key principles of liquidity risk management and supervision, essentially ensuring that banks are able to demonstrate to their supervisors that they are adequately capturing, monitoring, and managing liquidity risk.

Securitisations

Background

Losses on securitised assets, especially resecuritisations, have been much higher than public agency ratings had suggested.

Regulatory Response

On 16 January 2009 the Basel Committee published 'Proposed Enhancements to the Basel II Framework' for consultation and comment by 17 April 2009, and implementation in December 2009. This document focuses almost exclusively on exposures to securitisations in its changes to capital adequacy calculations (Pillar 1). (The document also beefs up supervisory review under Pillar 2, and expands public disclosure of banks' risk profiles under Pillar 3).

The main changes for securitisations are the following:

- Exposure to resecuritisations (e.g. CDOs of ABS) will require up to 3.5 times more capital than securitisation exposures (previously there was no distinction). The Basel Committee noted that *"resecuritisations are more highly correlated with systematic risk than are traditional securitisations. Resecuritisations, therefore, warrant a higher capital charge"*.
- Liquidity lines to support ABCP conduits will have higher capital charges by removing the distinction between short-term and long-term liquidity facilities. Also liquidity facilities to ABCP or to transactions including ABS will be charged as resecuritisations.
- Banks cannot rely only on external ratings of securitised products but must be able to show that they also have comprehensive information about the underlying exposure characteristics, otherwise higher capital charges will apply.

- As previously noted, securitisation (and resecuritisation) positions in the trading book will have capital charges no less than if those positions were held in the lending book.
- Banks will be required to make much more public disclosure of securitised exposures that they hold, both on and off balance sheet, under Pillar 3.

Contrary to some expectations, risk weights for tranches of securitisations (other than resecuritisations) held on bank balance sheets are *unchanged* in the new proposals. This means that the securitisation market will still exist (i.e. the regulators have not chosen to regulate it out of business, and for instance in the UK Lord Turner (Chairman of the FSA) has confirmed that he still sees a place in the market for securitisation). However some of the more abusive 'regulatory arbitrages' have been closed off, resecuritisations will be much less attractive, and ABCP programmes will be more expensive.

With securitisation tranche risk weights unchanged, target capital ratios much higher (see further below), and the cost of new bank capital more expensive, the sale of first loss and retention of senior exposure on portfolios of lending assets (including trade finance) in order to release regulatory capital is more attractive to banks.

Pro-Cyclicality of Regulatory Capital Adequacy

Background

The Basel II capital rules are pro-cyclical, both in the trading book where capital is calculated by reference to VaR, and in the lending book where capital is calculated by reference to credit ratings (either from external ratings agencies or from banks' internal credit ratings) and where capital allocations increase exponentially as credit ratings decrease. The Quantitative Impact Studies completed whilst Basel II was being developed, in which a large number of banks were asked to calculate the impact of Basel II on their balance sheets, indicate that the capital required to support the same banking portfolio increases by around 25% from the top to the bottom of cycle excluding losses. If the capital effect of losses is also included the increase in regulatory capital requirement is around 40%.

Banks are extremely concerned by the pro-cyclicality of their regulatory capital requirements and have cited this as a major reason not to expand lending in the current environment. They have also asked regulators and the Basel Committee for relief from the pro-cyclical effects.

Regulatory Response

The Basel Committee have responded that the greater emphasis on stress testing by both banks and regulators, including the addition of stressed VaR as a capital measure in the trading book and the requirement to simply allocate extra capital where stress tests indicate it to be prudent to do so, will dampen the pro-cyclicality of the underlying Basel II rules. It seems unlikely that the Basel Committee will go further than this as any more profound solution that addresses the detailed capital calculations would almost certainly undermine the main edifice on which Basel II is built.

There has been some discussion amongst regulators about the Spanish supervisory regime, which seeks to have banks increase reserves when times are good, and Lord Turner has suggested that a similar system needs to be created in the UK. However such a measure would still be likely to be an overlay on Basel II.

Nevertheless an increasing number of voices are now suggesting that Basel II ought to be scrapped altogether and replaced with an absolute regulatory leverage ratio (i.e. a simple capital ratio calculated regardless of risk weights on assets). A form of absolute leverage ratio has been used in the USA as a floor for commercial banks' capital adequacy provision for instance (and its existence in the US regulatory system has been one of the reasons for regulators' reluctance to adopt Basel II in the USA). Switzerland has also introduced a leverage ratio post-crisis for its two largest banks.

Basel II has taken 10 years to develop and implement, has cost banks billions of dollars in aggregate to upgrade and adapt their risk and reporting systems, and is deemed an 'advance' as it enables banks to monitor their regulatory and economic capital requirements in similar ways. Thus whilst the debate may continue it is unlikely that Basel II will go easily.

Tier 1 and Tier 2 Ratios

Background

The minimum regulatory capital that a bank must hold under Basel II is 8% of risk-weighted assets, of which at least 4% must be T1 capital. However this level of minimum capital is now deemed inadequate by regulators as many banks are close to insolvency, strongly suggesting that the pre-crisis minimum ratios were inadequate.

Regulatory Response

As an initial response to the crisis the FSA has been talking about banks holding at least 8% T1 capital and 4% T2 capital, the T1 capital being 'core' and the T2 being the buffer for stress test scenarios (T1 capital has assumed much greater importance with regulators than T2 capital now). In Europe the consensus has been a little higher, with 9% T1 capital currently though of as the minimum acceptable.

However there is strong recognition that higher minimum regulatory capital ratios are not compatible with the pressure to increase lending, and the FSA has more recently modified its position and indicated that a T1 ratio of 6% would be acceptable for the time being.

Appendix

VaR, Stressed VaR, and IRC

VaR must be computed daily, as 99th percentile, one-tailed confidence interval, for a minimum 'holding period' of 10 days (which can be either an instantaneous price shock equivalent to a 10 day movement in prices or a shorter period scaled up to 10 days provided the use of a shorter period can be justified to the bank's regulatory supervisor). The sample period must be a minimum of one year, and data sets must be updated no less than once a month and be flexible enough to allow for more frequent updates if necessary. No particular type of model is prescribed: banks can use variance-covariance matrices, historical simulations, or Monte Carlo simulations.

Following the observed impact of the crisis it has been recognised that this 99%/10 day VaR framework may not reflect large daily losses that occur less frequently than two to three times a year, as well as the potential for large cumulative price movements over periods of several weeks or months. Additionally back testing over relatively short data windows (e.g. one year) produces insufficient required capital against trading positions following periods of relative calm in financial markets. Consequently a stressed VaR measure is being introduced in the trading book regulatory capital rules.

Stressed VaR is calculated based on the 10 day, 99th percentile, one-tailed confidence interval VaR of the current portfolio, with the model inputs calibrated to historical data from a period of significant financial stress relevant to the bank's portfolio. The Basel Committee are recommending a 12 month period relating to significant losses in 2007/2008 as suitable. Stressed VaR must be calculated at least weekly.

The minimum capital requirement, calculated daily, is then:

1. The higher of: i) yesterday's VaR, and ii) the average of the daily VaR over each of the previous sixty business days multiplied by a factor (M+F) [The existing rule]

plus
2. The higher of i) the latest available stressed VaR, and ii) the average of the stressed VaR over the previous sixty business days multiplied by factor M [The additional provision]

M is set by the bank's regulatory supervisor based on their assessment of the quality of the bank's risk management system, subject to an absolute minimum of 3. F is an additional factor that a bank must add to M for the first part of the capital computation (the non-stressed VaR) based on the ex-post performance of the bank's VaR model, and is set in the range 0 to 1. F is therefore intended to provide banks with a positive incentive to maintain the predictive quality of their VaR models.

Total trading book capital comprises market risk capital (the VaR measures above) plus specific risk capital (capital to cover other risks of positions held in the trading book not captured by VaR, principally credit risk and equity issuer risk). The IRC is a specific risk charge applicable to credit risk, and represents an estimate of the default and migration risks of unsecuritised credit products over a one year capital horizon at a 99.9pct confidence level.

For equities the specific risk charge is 8%. There is currently a discretion that allows a 4% capital charge for specific risk of equities applicable to portfolios that are both liquid and well diversified. However the Basel Committee proposes to abolish this discretion in its changes to the trading book capital rules so that the specific risk capital charge for equities will be 8% in all cases.

Stress Tests

The Basel Committee proposal 'Principles for Sound Stress Testing Practices and Supervision' contains 21 principles. The Basel Committee comments that both banks and regulators have concluded from the observed effects of the crisis that stress testing practices were not sufficient prior to the crisis and were inadequate to cope with rapidly changing circumstances. Losses have been greater than bank stress tests indicated, and reaction to stress test results inadequate.

Stress testing is now also seen as an important mitigant to pro-cyclical capital behaviour in times of benign financial markets.

The more significant of the principles set out by the Basel Committee are as follows:

- Stress testing must be an integral part of the governance and risk management of the bank. Stress test results must be discussed at senior management level and must be actionable. Regulatory supervisors will expect banks' senior management to be fully aware of the stress testing process and results and to be taking strategic decisions as a consequence of stress test results (i.e. no longer just a 'tick the box' process).

- Stress tests must cover a range of risks and business areas, including at a firm wide level so that the bank can obtain a complete picture of firm-wide risk (including impact on asset values, accounting profit and loss, economic profit and loss, regulatory capital, and liquidity and funding gaps). Supervisors must assess whether the scope and severity of stress testing scenarios are wide enough and severe enough.
- Reverse stress tests should be conducted in addition to conventional stress tests. Reverse stress tests start from a negative outcome – e.g. breach of regulatory capital ratio, illiquidity, insolvency – and ask what events could lead to that outcome for the bank. This is designed to assist banks to uncover hidden risks and interactions amongst risks, by amongst other things providing a framework that encourages the generation of scenarios beyond normal business settings, including contagion and systemic events, which induce correlations between previously considered unrelated risk factors.
- Following the events of the crisis the stress tests must take account of simultaneous pressures in funding and asset markets. Stress testing should better accommodate correlations between firm risks. The stress testing programme must also cover pipeline and warehousing risks.