STRESS TESTING PRACTICES AND SUPERVISION

What is Stress Testing?

The Bank for International Settlements (BIS) published a paper under the Chairmanship of Mr Klaas Knot entitled "Principles for sound stress testing practices and supervision" in May 2009. It stated that stress testing plays an important role in:

- providing forward-looking assessments of risk;
- overcoming limitations of models and historical data;
- supporting internal and external communication;
- feeding into capital and liquidity planning procedures;
- informing the setting of a bank's risk tolerance ; and
- facilitating the development of risk mitigation or contingency plans across a range of stressed conditions

We define sensitivity analysis as the unitary movement of key variables and the stress test as the impact of taking such movements to a plausible extent. Basically you look at the relationships that underpin the analyses and then look to see at what point the relationships fail to hold together. The point at which an accepted (or expected) relationship breaks down can be defined as the Stress Event. With previous Basel papers the soundness standard had been set at 99.9%, so it would appear appropriate to use the same confidence level for stress testing as is used for capital calculation.

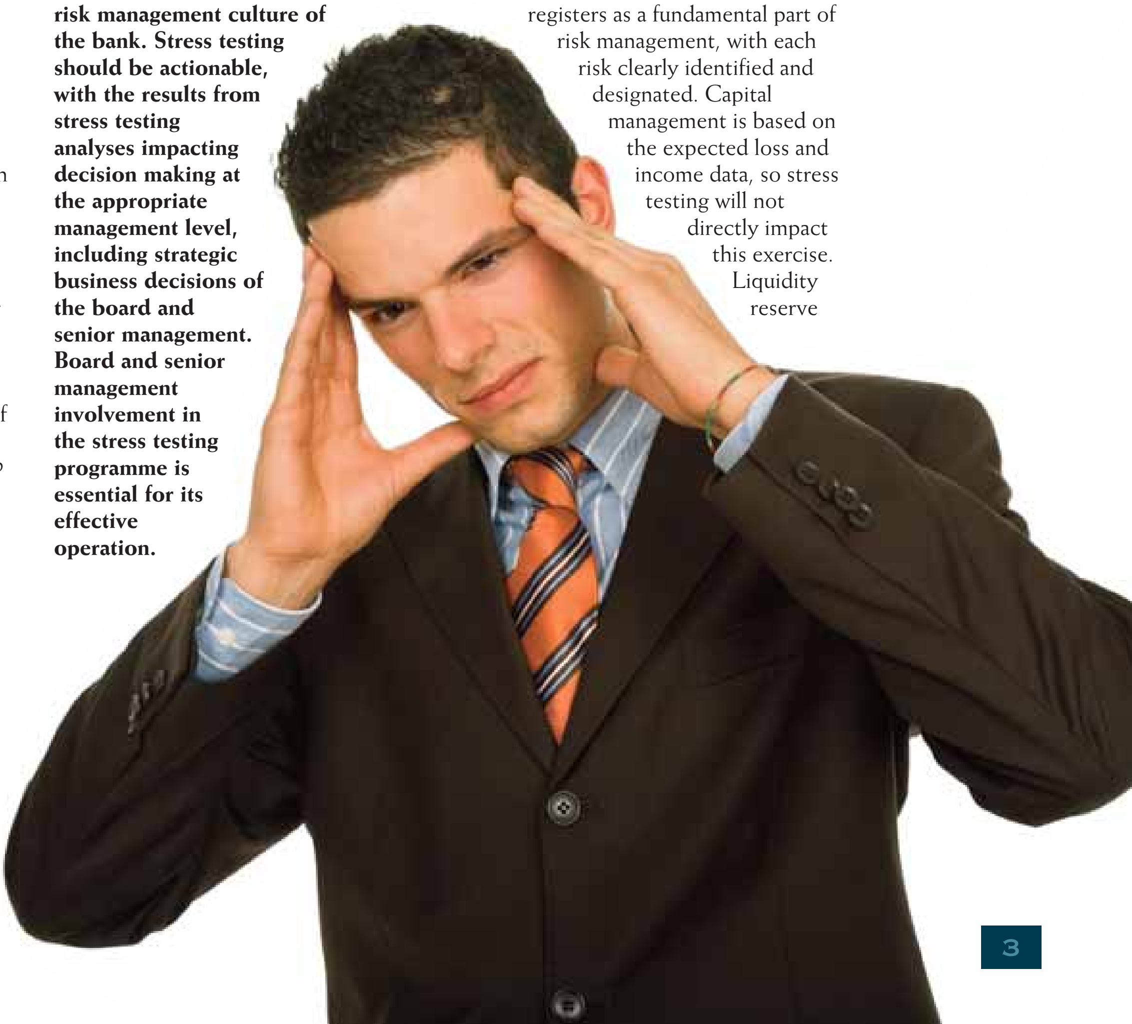
Before looking at the principles themselves, one should ask a number of questions: Can stress testing really achieve what is suggested in the paper? Can stress testing achieve what is claimed? Is it forward looking? Well stress testing certainly looks to ascertain the financial impact of what might happen in a relatively unlikely event - but even if that event is found to be manageable, the evaluation is hardly likely to be accurate. Can it get over the model problems and the limitations of historical data? Since the stress testing uses these models extensively it surely cannot achieve that – and it is calibrated using historic data.

Communication is a real problem. Providing the populace with data to deal with events that are unlikely to occur is likely to cause unnecessary concern. Even internally information needs to be provided with care – but externally?? Be scared – be very scared.

Risk tolerance is set by the Board and drives other behaviours as set out above. It is a view about the goals and missions of the bank and the appetite of management to the level of risk that they are willing to take. The stress testing will tell the bank the events that are unacceptable so that they can change the approach and avoid the loss occurring. This idea that stress testing needs to result in action is absolutely crucial and needs to be considered carefully by management. So given that the objectives for stress testing in the introduction are open to question – how about the principles themselves?

Principle 1

Stress testing should form an integral part of the overall governance and risk management culture of the bank. Stress testing should be actionable, with the results from stress testing analyses impacting decision making at the appropriate management level, including strategic business decisions of the board and senior management. Board and senior management involvement in the stress testing programme is essential for its effective operation.



Analysis

This focus on corporate governance is welcomed and important, operating as it does throughout all subsidiaries of the bank. If there is no action resulting from the calculations conducted, the entire process becomes meaningless – turning into a pointless mathematical exercise. The strategic options may well include ceasing some form of sales activity to alter the risk profile, for example.

Principle 2

A bank should operate a stress testing programme that promotes risk identification and control; provides a complimentary perspective to other risk management tools; improves capital and liquidity management and enhances internal and external communication

Analysis

This is the principle that is a little confusing. Banks should maintain risk registers as a fundamental part of risk management, with each risk clearly identified and designated. Capital management is based on the expected loss and income data, so stress testing will not directly impact this exercise. Liquidity reserve

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lines and strategies may be based on likely or plausible stress tests, but these also are at an extreme – not in the day-to-day. Communication can be dangerous - as has been seen in part in this crisis through the inappropriate explanations provided by journalists who should know better.

The paper does include the requirement that stress testing is fundamental within the internal capital adequacy assessment model or ICAAP –but this is about how the regulators assess the capital within a firm, and is in itself perhaps questionable. That the ICAAP must address such matters (together with risk appetite) will encourage banks to look towards such plausible events and is clearly welcomed.

Principle 3

Stress testing programmes should take account of views across the organisation and should cover a range of perspectives and techniques.

Analysis
This is where the BIS link stress testing with scenario analysis, without really adding anything new.

Principle 4

A bank should have written policies and procedures governing the stress testing programme. The operation of the programme should be appropriately documented.

Analysis
They state that the following should be documented:
1. the type of stress testing and the main purpose of each component of the programme;
2. the frequency of stress testing exercises;
3. the methodological details; and
4. the range of remedial actions envisaged.

How bold of them! These requirements really only represent common sense – which perhaps is not very common and can, of course, keep the internal and external auditors busy! Interestingly we are now through four principles without actually giving any real guidance to anyone as to what should be done in practice.

Principle 5

A bank should have a suitably robust infrastructure in place, which is sufficiently flexible to accommodate different and possibly changing stress tests at an appropriate level of granularity

Analysis
Is this really guidance? We recommend that the suite of stress tests should be conducted monthly where possible and reviewed quarterly to ensure that they meet the demands of the market and the business. This, of course, is real guidance, so clearly would not be in the principles.

Principle 6

A bank should regularly maintain and update its stress testing framework. The effectiveness of the stress testing programme, as well as the robustness of major individual components, should be assessed regularly and independently.

Analysis
They state that the independent control functions such as risk management and internal audit should also play a key role in the process, although what this role should be is not specified. Of course internal audit will conduct such work as they consider appropriate, so that is clear. Risk management in many cases are conducting the stress tests and if the wording here is suggesting that this should not be the case, then it would be a major change for many firms – which perhaps in time will be appropriate.

Principle 7

Stress tests should cover a range of risks and business areas, including at the firm-wide level. A bank should be able to integrate effectively, in a meaningful fashion, across the range of its stress testing activities to deliver a complete picture of firm-wide risk.

Analysis
The integrated stress testing requirement has been stated before. However firms, and to some extent regulators, have still been looking in silos. The stress tests used for market risk, for example, were rarely considered in credit risk. This is both illogical and unhelpful, so these requirements may help to redress this issue.

Principle 8

Stress testing programmes should cover a range of scenarios, including forward-looking scenarios, and aim to take into account system-wide interactions and feedback effects.

Analysis
I think this really repeats previous principles.

Principle 9

Stress tests should feature a range of severities, including events capable of generating the most damage whether through size of loss or through loss of reputation. A stress testing programme should also determine what scenarios could challenge the viability of the bank (reverse stress tests) and thereby uncover hidden risks and interactions among risks.

Analysis
What is interesting here is the term "most damage". This poor wording means that the worst case scenario should be considered. I suppose that would be 385,000,000% inflation, for example… but if that is not plausible what is the point of working it out? I suppose the sun could go out and everyone could die – any point in working out the impact? What would the action be? Move to Mars??

Earlier I suggested we aim for the 99.9% soundness standard for consistency and I would hope that is what the target in practice will be. Of course we do not expect to hit the target accurately – it is stress testing after all and at best an estimate.

The Other principles are:

Principle 10

As part of the overall stress testing programme, a bank should aim to take account of simultaneous pressures in funding and asset markets, and the impact of a reduction in market liquidity on exposure valuation.

Principle 11

The effectiveness of risk mitigation techniques should be systematically challenged.

Principle 12

The stress testing programmes should explicitly cover complex and bespoke products such as securitised exposures. Stress tests for securitised assets should consider the underlying assets, their exposures to systematic market factors, relevant contractual arrangements and embedded triggers, and the impact of leverage, particularly as it relates to the subordination level in the issue structure.

Principle 13

The stress testing programme should cover pipeline and warehousing risks. A bank should include such exposures in its stress tests regardless of their probability of being securitised.

Principle 14

A bank should enhance its stress testing methodologies to capture the effect of reputational risk. The bank should integrate risks arising from off-balance sheet vehicles and other related entities in its stress testing programme.

Principle 15

A bank should enhance its stress testing approaches for highly leveraged counterparties in considering its vulnerability to specific risk categories or market movements and in assessing potential wrong-way risk related to risk mitigating techniques.

Analysis

Principles 16 to 21 provide the rules for the supervisors and really echo the principles for the banks. As you can see what they have actually done is provide some high level principles, then allowed some people to put in specific areas that concern them now. These are not forward looking concerns for what might happen in the future – for example a massive increase in interest rate volatility or a US default – rather they are things that have happened and would actually appear in a historic data set. So many words and so little content, but remember it will be reviewed "regularly and comprehensively", so no doubt we will all be tying ourselves up in 'Knots' to make sure we comply. In doing so please do not lose sight of the objectives of stress testing – to enable you to see what might happen and then **GET OUT OF THE WAY**. This is not about counting the dead; it is about prolonging the living.