

## Common Pitfalls in Economic Stress Testing

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### The Failure of Stress Testing?

It is easy to argue that economic stress testing in the credit sector has failed. Record losses, forced mergers, fallen banks and government bailouts all point to the fact that financial institutions were not in a position to weather the financial storm. Few could even claim to have known there was a storm coming! If economic stress testing was in place and worked then surely such chaos would have been foreseen and avoided?

It is of course unfair to berate institutions and risk managers in the UK for failing to anticipate the 'credit crunch'. With its genesis in the American sub-prime mortgage market and a domino effect involving complex financial instruments, major shifts in liquidity markets and the collapse of venerable institutions on both sides of the Atlantic, such a prediction would have been worthy of Nostradamus! While a small number of econometricians had begun to question the risk inherent in Collateralised Debt Obligations, no one can truly say they foresaw the nature and severity of the 'crunch'.

However, surely once the downturn was upon us and the economy began to shift, economic stress testing would come into its own? With revised economic parameters entered into the scenarios, the stress-test models would produce updated and accurate projections on which key decisions could be based. Or would they? Sadly, the truth of the matter is that the vast majority of stress-testing solutions used by financial institutions have failed to produce sensible or accurate results under the latest downturn. So, a downturn failed to be predicted and once it had arrived its impact could not be accurately forecast – hardly a convincing argument for the value of stress-testing!

### Where Did it Go Wrong?

During the boom years of economic growth, stress testing was viewed by most as unexciting or unnecessary. For many banks or lenders falling under supervisory legislation such as Basel II, stress testing was seen as a regulatory chore; a 'tick-in-the-box' exercise to achieve compliance. In sectors where no such compliance requirements existed, it was unusual for economic stress tests to be carried out in any form, and certainly not as central business practice. Many areas of the industry, from mortgage lenders to debt collectors, paid little heed to economic considerations in this time of growth.



As the economy began to unravel, two things became apparent very quickly. Firstly, those firms who had not invested in understanding how the economy would impact their businesses realised that they needed to develop this insight as quickly as possible. And secondly, those who *had* invested realised that in most cases the answers their stress testing models were providing were wrong. As forecasts and ‘actuals’ diverged, entire business models began to fail and management teams found themselves without the vital information they needed to set new strategy.

### The Problem with History

With hindsight it becomes possible to unpick the flaws, assumptions and oversights that were present in even the most sophisticated scenario-testing tools. The standard methodologies tended to involve using historical portfolio and economic trends to develop link models between portfolio performance and the macro-economic climate. But what these models really capture is the mechanics of past recessions; they function poorly when applied to a new downturn driven by different factors. Consider for example the Bank of England base rate; currently residing at a historical low, this particular factor reached an all time high during the previous recession. Models based on historical economic events cannot be expected to function accurately when the combination of factors causing a downturn has not been experienced before.

Even were historical data to prove relevant, there is a huge problem in moving from interpolation to extrapolation. Let us suspend our disbelief for a moment and suppose that, using historical data, the relationship between unemployment and portfolio performance has been identified. All correlations have been unpicked and the impact of other macro factors has been accounted for. Does this Herculean undertaking allow us to accurately forecast performance if unemployment rose to 20%? The sad answer is ‘no’; this value lies outside of any observed historical economic data so we are still required to extrapolate non-linear trends outside of the observed data space, with no evidence as to the validity of the results.

In truth, the use of past economic data is a red herring. Its value in providing a basis for stress-testing solutions is limited. In a recent consultation paper on stress and scenario testing the FSA themselves claim that ‘there was an over reliance on historical data when designing stress tests in the past...’<sup>[1]</sup>. This is borne out by the banks who, after reviewing the output of their stress tests, see little correlation with what really happened in the downturn.

### The Problem with No History

While the banks grappled with historical trends going back to the previous recession, other areas of the industry had different problems. For many their sector was unrecognisable from that of the previous recession, or in some cases hadn’t existed at all! Debt collection, sub-prime lending, specialist mortgages – all had grown and changed hugely in the last decade. Even those who did have a desire to consider stress-testing (and let us re-iterate here that it was very few!) found that they had no historical data on which to base their deductions.



With portfolio data only available during the heady days of growth, how could sensible stress tests be designed? The prevailing methodologies were of little or no use for those organisations with limited data. Faced with such obstacles these firms took one of two routes. Most just shrugged their shoulders and put stress testing to the bottom of the 'things to do' pile. Others, those who were really keen, made the best of expert judgement or developed simplified models based on one or two isolated macro factors. Needless to say, none were any better placed than the banks when the 'credit crunch' hit. While some lenders have thrived in the conditions created by the downturn, none could say that it was the insight provided by their stress testing framework that enabled this.

### Looking to the Future

As the dust settles risk teams re-evaluate their forecast models and align them to the new environment. The gap between predictions and 'actuals' begins to close as people find their new footing in this altered landscape. Mature performance data is becoming available on which to develop new models and strategies; funding is returning slowly for those who can prove their stability. So, is the worst past? Is it time to finally relax?

Risk professionals are not stupid and very few will tell you that they are happy to continue as before. The industry is keen to learn from past mistakes. The economic outlook remains fragile, with employment rising and house values undermined. Interest rates will rise eventually, but when? And how far? Economic scenario testing is again on the agenda, but now viewed not as a regulatory irritant, but rather as a key weapon in the portfolio management arsenal.

Of course, scenario testing is not all about averting disaster. Understanding how key parts of the portfolio will behave under a changing economy can provide opportunities as well as enable damage mitigation. A debt purchaser for example could identify when to re-enter the debt market and what to buy, enabling them to pick up improving debt portfolios on the cheap. When the economy declines, those with the best understanding will survive; as the economy turns and revives, those with the best understanding can really thrive.

Consider too that one man's growth scenario is another man's stress. Suppose for example that unemployment began to fall but interest rates rose. Is this an upturn scenario? For a debt collection agency this may indeed be good news as unemployment is a key driver of low recoveries. For a specialist mortgage lender however, the negative impact of the increasing interest rates is likely to outweigh this, making this a damaging scenario that needs to be mitigated against. This illustrates just how sensitive a scenario testing solution needs to be to the nature of the underlying portfolio – there is no 'one size fits all' solution.

Sadly, the realisation that stress testing is a key component of risk management practice coincides with the growing understanding of just how difficult it is to get right. Methodologies applied before the 'crunch' were clearly flawed and it would be folly to simply reuse them. What



are required are new approaches and ways of thinking, and a real drive to embed stress testing within the risk management framework.

Euristix have undertaken extensive research in this area and have successfully engaged with a number of clients to apply innovative scenario testing technology which avoids the pitfalls outlined above. The fundamental concepts underpinning this new approach are outlined in a follow up paper, which can be reached via this link ([click here](#)). In the meantime, if you would like to discuss any of the points above, or if you would like any further information on the research carried out by Euristix, then please contact Paul Matthews at [paul.matthews@euristix.com](mailto:paul.matthews@euristix.com).

[1] Financial Services Authority Consultation Paper – Stress and Scenario Testing (December 2008)