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Risk Management: **Want to feel a bit stressed? The role of stress testing and downside scenario analysis in the corporate sector.**

Written by Peter Deans, Director of Notwithoutrisk Consulting, and first published in December 2011.

A little-known concept prior to the financial meltdown that consumed the global financial system in 2008 was stress testing. Stress testing for banks and financial institutions was in its infancy prior to the Global Financial Crisis.

Larger bank and financial institutions had departments undertaking various forms of stress testing, usually around deteriorations in credit portfolios and liquidity scenarios, such as a sustained loss of deposits over a number of days.

Likewise banking regulators were developing prudential and supervisory requirement for stress testing. Then came along the 'real life' stress test to end all stress tests, as we all now know. Banking regulators and individual banks have now institutionalized regular and rigorous stress testing.

How rigorous these tests have actually been is a matter of some debate, but I will leave that for discussion another day.

What lessons can businesses outside the banking and finance sectors learn from this experience ?

Does the concept of stress testing or downside scenario testing exist outside the banking industry ?

Should corporate businesses undertake similar stress testing ?

I will endeavour to answer these questions and elaborate on the role of stress testing in the corporate sector.

Periodic Stress Testing and downside scenario analysis – current practices.

It is not clear that there is widespread or uniform stress testing and downside scenario analysis, based on my research and industry discussions. Businesses and industries that do undertake stress testing or downside scenario analysis would appear to be those in one or more of the following situations:

- Larger organizations – usually with diverse operations (across many segments, industries and/or countries) and usually with well-developed financial modelling capability
- Businesses operating in industries with high degrees of revenue, profit and/or input price volatility (such as mining, oil & gas, metals processing and manufacturing, chemical production and agribusinesses)
- Businesses that are undertaking a major acquisition, project or investment and are seeking reassurance of its financial robustness, and
- Businesses that need to accurately model key future business profiles such as insurance companies or electricity and gas utilities (modelling tariffs) given the impact of small changes in key variables.

What are the benefits of Stress Testing ?

Regular stress testing or downside scenario analysis will improve the overall financial management of the firm. For example, stress testing can focus management on a key sensitivity or scenario for which the downside financial impacts have not previously been understood.

The results of the analysis can also be an enabler for a discussion on 'how bad things can get' and the financial impact of a worse case downside. This can often be a breakthrough discussion for many firms and a catalyst for new initiatives to address strategic, business or financial weaknesses.

Stress testing can also be used as a tool to communicate to stakeholders – shareholders, financiers and other third parties – the robustness of a business and sound financial management.

What types of Stress Testing should be undertaken ?

From a technical perspective, several types of analysis can be undertaken:

Single Case Downside – this focuses on one key variable and assessing a break even or worse case position. The limitation of this is that it assumes all other variables remain the same. The only real purpose of this is to understand the unit change impact on such things as EBIT or NPAT.

Multiple Case Downsides – this is the most effective tool and gives significant latitude to present a wide variety of scenarios. It involves constructing downside scenarios that have more than one variable being adversely affected.

The key is to construct scenarios that represent harsh, but possible, scenarios and understand the resultant financial and business profile. Optimism should not play any part in constructing these scenarios. Management should exercise judgment on whether to discard any 'optimistic' scenarios.

Reverse Stress Testing – this is a relatively new concept and is now being used in the banking industry. It is a slightly more developed 'break even' analysis. The objective is to understand how far one or more key factors or variables can go to breach a critical measure (EBIT, NPAT, Minimum Equity or Financial Ratio or Covenants in Loan Agreements, for example).

Variables to apply the sensitivity analysis to will vary from business to business and cover the full range of Revenue (price, volumes, margins), Expenses (labour costs, key input / commodity prices), Foreign Currencies, Debt Charges (interest rates and margins), Loan / Refinance Assumptions, Capital Expenditure, Asset Valuations, and Working Capital (increase in debtor days, tightening of trade credit) variables. This can include the timing thereof as well as the absolute levels.

For financial institutions, portfolio quality, the levels of bad debts and other types of losses/provisions will be key variables to adjust in stress testing exercises.

It is important when constructing the scenarios to be wary of relationships between variable that exist that may disconnect. For example, a number of currencies have tended to move 'in sync' with commodity prices (the Australian dollar and the USD gold price is one example).

Effective downside scenario analysis will consider and discard any such correlations.

The best placed function to conduct the stress testing exercise – from a capability and resourcing perspective – is the finance function. Accurately modelling the future financial profile of an organization requires knowledge of the business(es) and financial modelling expertise.

A strategic planning or risk management function in a larger organization may also be able to conduct such testing but it will often be duplicating the finance function (and often not accurately model the business(es)).

Stress testing could be undertaken:

1) during the strategic planning cycle – which looks at a longer time horizon
2) the annual budget process, or
3) during an annual risk assessment /risk management review process.

What to do with the results ?

Stress Testing or downside Scenario analysis is not an exercise in finding the 'right' result. It is more about understanding the impact of key business drivers on an organization and the sensitivity of key profitability, cash flow and balance sheet measures.

In my banking days however it was often quite unnerving how often 'worse case' combined downside cases did actually manifest themselves over the term of a loans.

As noted above, the results of the exercise can be an enabler for a discussion on new initiatives to address strategic, business or financial weaknesses.

About

Notwithoutrisk Consulting, founded by former Chief Risk Officer Peter Deans, is an Australian based firm. It offers a range of strategy, business and risk advisory services to banks & financial institutions, corporate and government clients.

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