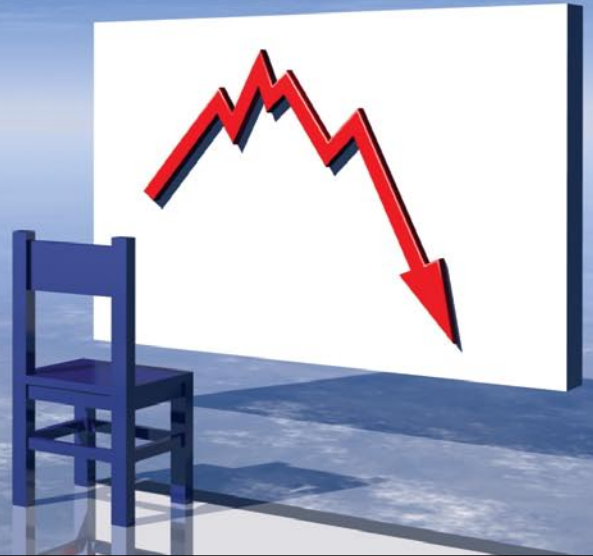


Risk²



– leveraging downturn risk

As cyclical fluctuations of losses and earnings by financial institutions may be amplified by market accounting, leveraged exposures and oligopolistic market structures, what are the risks ahead? What lessons can be learned from the global financial crisis to help us avoid further amplification of losses?

WITH A GLOBAL ECONOMIC DOWNTURN currently underway and a recession looming in Australia, some forecasters are examining the Japanese experience during its great recession (1990–2005) as one possible, but fairly shocking scenario.

The 15-year recession in Japan required a fiscal recapitalisation of banks with a total cost equivalent to 24% of GDP. Based on Australia's 2008 GDP, this would amount to a possible future burden on the Australian taxpayer of approximately \$190 billion, i.e., \$9,000 per capita. This number is a multiple of the level of financial support that Australians may receive from the Government. But is there any evidence to support such concerns, and what can we do to avoid this sort of outcome?

Economic downturns commonly lead to losses for financial institutions. While the investigation of the factors that led to the current crisis is ongoing, it is unclear as to how many financial markets, institutions and instruments may experience abnormal losses.



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Figure 1, which shows the US delinquency rate as a proxy for credit portfolio risk, indicates that credit portfolio risk changes over time and follows cyclical patterns. The years 1991 (first Gulf War) and 2002 (terrorist attacks), for example, were periods of high risk in terms of the default rates on business loans. In recent months, the delinquency risk of business loans has changed little, while loans secured by real estate have dramatically increased.

Cyclical fluctuations of losses and earnings, such as those illustrated, may be amplified by market accounting, leveraged exposures and oligopolistic market structures.

Market accounting

Capital markets often overprice in boom periods and underprice in downturns. The President of the European Central Bank, Jean-Claude Trichet, articulated this problem as far back as 2002 in his keynote address to the Federal Reserve Bank of Chicago conference.² He noted:

The impact of risk management techniques on market dynamics is particularly enlightening with regard to the question of asset price overshooting. Value-at-risk calculations have become a crucial element of the standard approach used by market participants to evaluate the risk inherent in their market activities and to set up exposure limits. In times of financial turmoil, the growing use of sophisticated risk management techniques by financial intermediaries might have had the paradoxical effect of amplifying the initial shock, exhausting liquidity, and contributing to contagion phenomena ... When market players rely on converging risk evaluations, they tend to take the same decisions at the same time, thus amplifying the initial shock to prices and trading volumes.

Leveraged exposures

Many new financial products such as credit derivatives have enjoyed tremendous growth while leveraging the risk-return profile of financial institutions. Examples include credit default swaps, CDS indices, asset-backed securities, collateralised debt obligations and mortgage-backed securities. Credit derivatives markets have grown globally from US\$5 trillion in 2004 to US\$33 trillion in 2008 (expected, before the crisis). The majority of these derivative products relate to single name CDS (33%), full index trades (30%), synthetic CDOs (16%) and tranching index trades (8%).

The value of credit derivatives is dependent on the occurrence of credit events of reference entities. Important market participants are large financial institutions and hedge funds. Common features of these vehicles are that they do not require an investment or, if they do require an investment, it is protected for first losses. In both instances, exposure holders were surprised to see losses in relation to the current downturn. These losses were further exacerbated by resecuritisations, which pooled unsold mezzanine tranches and resecuritised these assets.

Following the mergers and acquisitions within the financial services industry in recent years, the concentration of financial intermediation, and exposure to providers of risk models and model auditing have leveraged the exposure to model risk, resulting in systemic risk.

Key examples of this are: the small number of credit rating agencies for bond and structured finance issues; the growing market share of 'too big to fail' financial institutions; and joint ventures in model construction designed to reduce costs.

Oligopolistic market structures

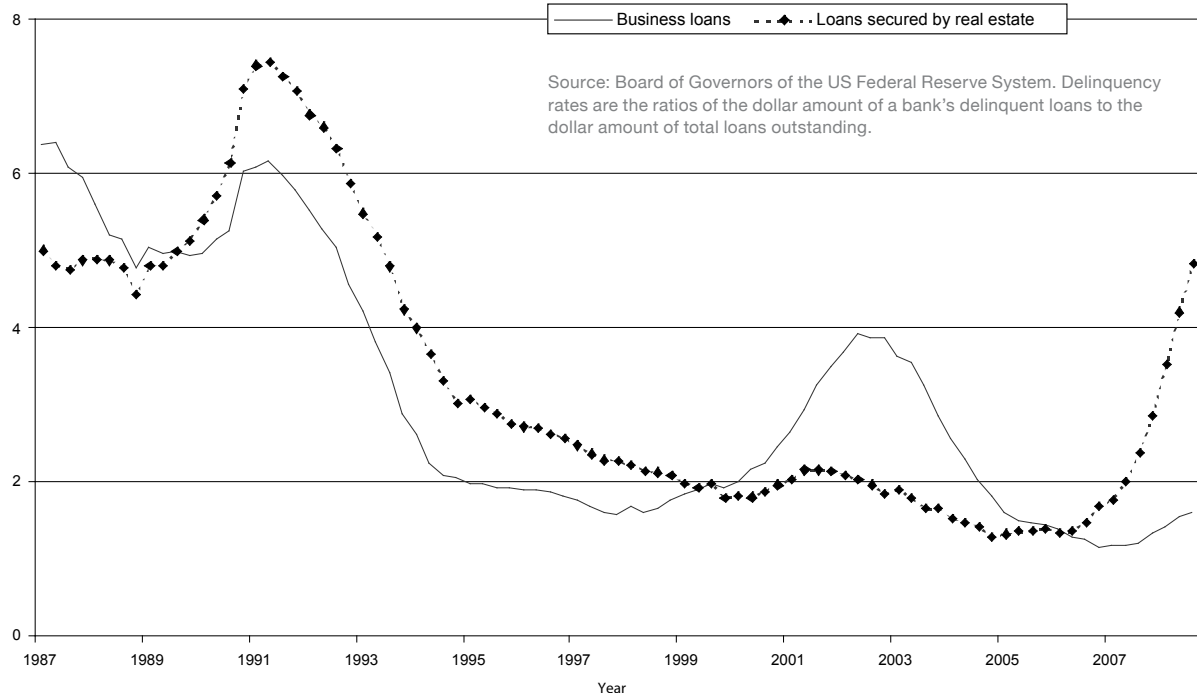
Following the mergers and acquisitions within the financial services industry in recent years, the concentration of financial intermediation, and exposure to providers of risk models and model auditing have leveraged the exposure to model risk, resulting in systemic risk. Key examples of this are: the small number of credit rating agencies for bond and structured finance issues; the growing market share of 'too big to fail' financial institutions; and joint ventures in model construction designed to reduce costs. This problem is compounded by the use of similar quantitative frameworks, and/or frameworks that are calibrated based on similar loss experiences. In such an oligopolistic market structure, the economic impact of models failures may be severe.

Which are the lessons for the future?

There appear to be two key areas of reform which may help to avoid further amplification of losses going forward: reversing the complexity of financial markets, institutions and instruments; and increasing the transparency. The following suggestions may contribute to addressing these issues:

- *Homogenisation and refinement of regulation:* regulation reform will be necessary in many areas. Bank models should be point-in-time and be able to forecast the credit risk for future periods with a reasonable degree of accuracy. Regulation should specify whether a financial institution's capital should be pro-cyclical, neutral or counter-cyclical with regard to the state of the economy. Existing regulations should be homogeneous across countries and industries. In the past, financial instruments were often inspired by differences in regulations

Figure 1. Delinquency rates, all commercial US banks, seasonally adjusted.



between countries or industries. Consistency of regulation may improve transparency issues. There will also be a need to regulate (previously unregulated) industries closely linked to regulated industries and avoid transactions that aim to exploit regulatory differences (also known as regulatory arbitrage transactions). In addition, stricter rules for information disclosure beyond Basel II may have to be implemented and potentially high-risk strategies limited.

- **Pooling and publication of information:** One major challenge to risk measurement and management is the availability of data for various stages of the business cycles. As a result of this limitation, past research has often focused on a few data sets that are publicly available. It may be important to share data, in particular credit loss histories, which are pooled but not aggregated over lenders, between financial institutions, model providers, auditors, researchers and prudential regulators. A global and compulsory data warehouse for credits may be a good approach. The data may be filed anonymously and be validated by the national regulators. In addition, models of various participants may have to be transparent and available in an open source environment. This includes internal models of rating agencies and other model providers.

- **Evaluation of model risk and stress-testing of risk models:** Models are used for pricing and risk measurement of complex financial products. Each model relies on a number of assumptions and therefore provides only a simplification of reality. As recent research has shown, the risk measures and implied prices of structured products are highly sensitive to the underlying pricing model and the assumptions. Model risk cannot easily be mitigated by diversification and may therefore lead to substantial systemic risk. There are only a limited number of providers of risk models using similar assumptions in their models. Sharing the same advisors may imply that many banks use the same models, and thus, model errors may be consistent across the entire industry. In other words, these models are called 'market-standard' but standard may not imply accuracy and quality.
- **Facilitation of knowledge transfer:** Financial markets are large and complex. To cope with the complexities involved, a sound education in disciplines such as econometrics, finance, mathematics or statistics is paramount. Unfortunately, education in these markets has not matched the growth in need for this knowledge. Training has been kept within financial institutions. This problem may be addressed by sponsoring existing and new credit risk research centres, supported by government, industry and academia. Such an initiative may be organised under the national rescue packages. ●

1 Dr Scheule also spoke at a MCFS event on downturn credit portfolio risk in February 2009.

2 William Curt Hunter, George G. Kaufman, and Michael Pomerleano 2003, eds., *Asset price bubbles: the implications for monetary, regulatory, and international policies*, MIT Press, Cambridge, MA.