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Black Swan Event
FINANCIAL PLANNING

THE GLOBAL FINANCIAL CRISIS – Causes and Responses

Level 11, 28 The Esplanade Perth WA 6000 • P (08) 9322 7818 • F (08) 9481 5570 • E perth@blackswanevent.com.au • W www.blackswanevent.com.au

The Global Financial Crisis (GFC) hit in 2007-2008

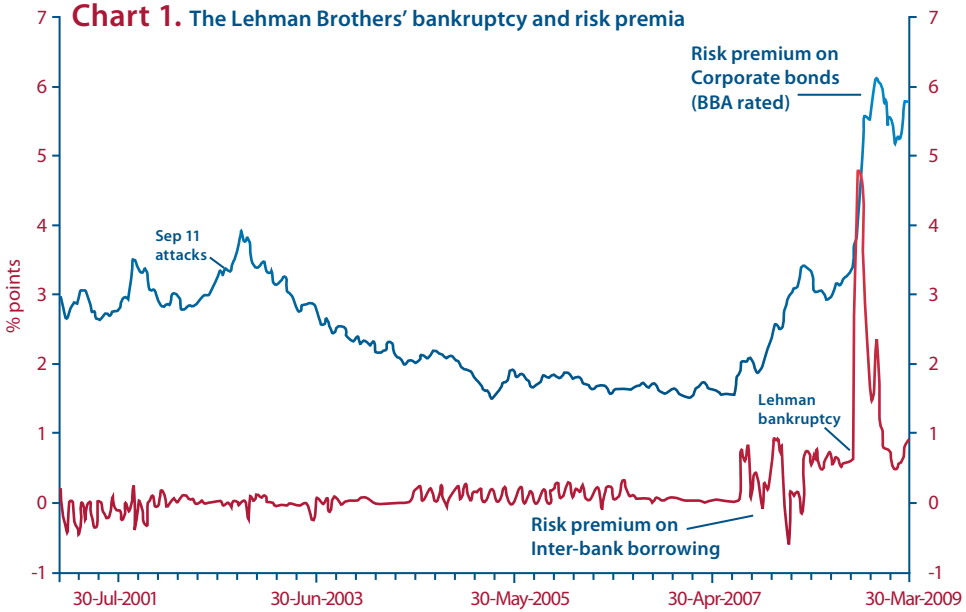
It was the most severe financial crisis since the Great Depression, and threatened to plunge the world into another Depression.

Financial Crises are nothing new. There were relatively few between the end of World War 2, and the 1970s (which was a time of considerable regulation), but plenty before and since then, as outlined by Reinhart and Rogoff in "This Time is Different" (Princeton University Press, 2009).

However, the GFC turned out to be much more severe than other crises since the depression. Following the Lehman Brothers collapse in September 2008 many banks (in the USA; UK; and Europe) stopped lending, even to other banks, and other credit markets also dried up. This is seen in the following chart, which shows the spike in risk premiums in both inter-bank borrowing and corporate borrowing following the collapse of Lehman Brothers. Lehman Brothers was not the first financial institution to get into trouble, as is seen by the jump in risk premia from mid 2007. However, problem institutions prior to Lehman Brothers were bailed out, re-capitalised, merged or otherwise dealt with in an orderly fashion such that the impact on markets was minimised (although shareholders in troubled institutions suffered big losses).

The risk premium on short-term inter bank borrowing rose sharply when Lehman Brothers entered Chapter 11 bankruptcy protection in September 2008. This pushed up the premium on corporate borrowing relative to US treasuries. As the real economy has deteriorated, corporate risk premia have remained extraordinarily high.

Chart 1. The Lehman Brothers' bankruptcy and risk premia

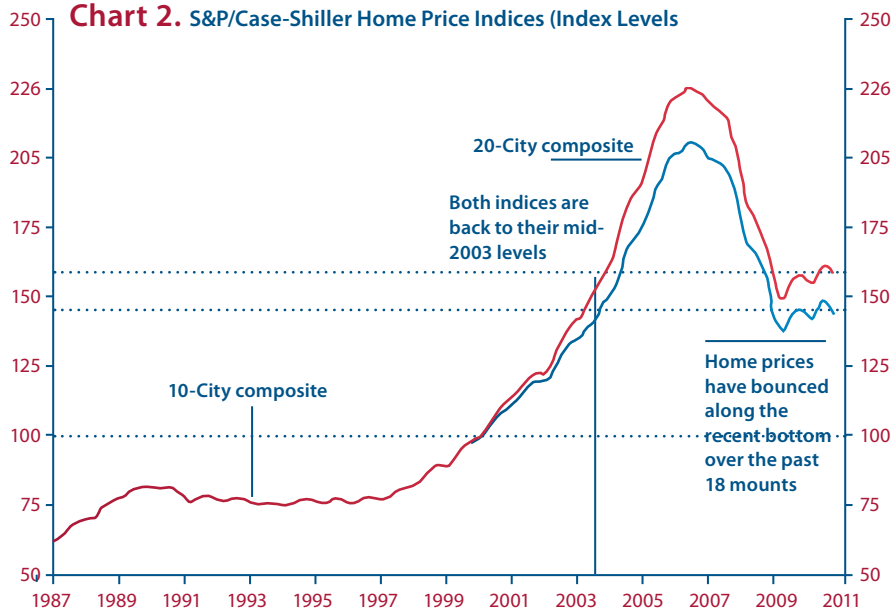


Source: McKibbin, WJ and Stoeckel, A.

A similar pattern occurred in the UK, (at the time London was vying with New York to be the top world financial centre), and spread around the world. Spreading was made much easier by the development of securitisation. Governments in America, the UK and elsewhere reacted with massive intervention to keep credit flowing, and stop the onset of another "Great Depression". The intervention consisted chiefly of Governments (in USA, UK and Europe) recapitalising major banks by subscribing to share issues (and some non-banks as well, such as AIG (insurance), and General Motors), as well as increases in Government spending, and big reductions in interest rates.

The immediate cause of the GFC has been put down to the collapse of the real estate boom in the USA, in 2007 (Rajan, 2010) (see chart, below). The boom was built on borrowed money (often with very high LVRs). Furthermore, the lenders themselves were very highly geared, and the drop in real estate values forced them into insolvency (more below). The growth of securitisation and associated trading, spread the poor investments around much of the world, especially Europe.

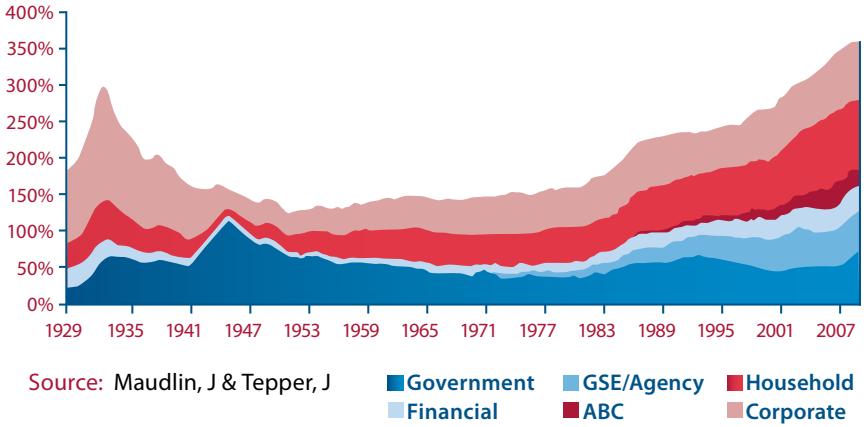
The following chart shows US Real Estate values from 1987, until 2009.



Source: Standard & Poor's and Fiserv

While real estate rose, and then fell, there were other forces at work. From about 1980, the total level of debt in the USA, rose from about 150% of GDP, to 350%, by 2008 (Maudlin, J. & Tepper, J, 2011) as seen in the following graph.

Chart 3



Source: Maudlin, J & Tepper, J

While the Real Estate boom and subsequent collapse were the immediate causes, my argument is that they were just the catalyst, and there were many contributing factors, that go back many years.There is a common thread that runs through them – poor regulation, and arguably a failure of leadership at important institutions.

CAUSES

A timeline (Council on Foreign Relations) of major developments gives a good view of the gradually gathering storm.

In 1971, President Nixon ended convertibility of the US dollar into gold. The 1970s was also a period of high inflation, until the US Federal Reserve employed (very) tight monetary policy to bring inflation down.

Then, a succession of de-regulatory changes to the financial system began:

- In 1980, the USA deregulated interest rates, allows bank mergers.
- In 1983 Saloman Brothers and First Boston created the first collateralised debt obligations or CDOs. (CDOs and other forms of securitisation, played a major role in the GFC.)
- 1986 saw the S & L crisis in the USA, and the subsequent bail-out.
- 1988 Major central banks established minimum capital requirements for banks (Basel 1). In 2004, this was followed by Basel 2. Basel 2 required banks to hold capital, commensurate with the risk of their loans, as the following table shows (Valentine, T. et al, 2006).

Asset	Amount ($m)	Weight (%)	RAA *
Notes and coin	100	0	0
Lending to banks [1]	100	20	20
Housing mortgages *(owner occupied)*	500	35	175
Loans to A-rated businesses	500	50	250
Loans to BBB – rated businesses	500	100	500

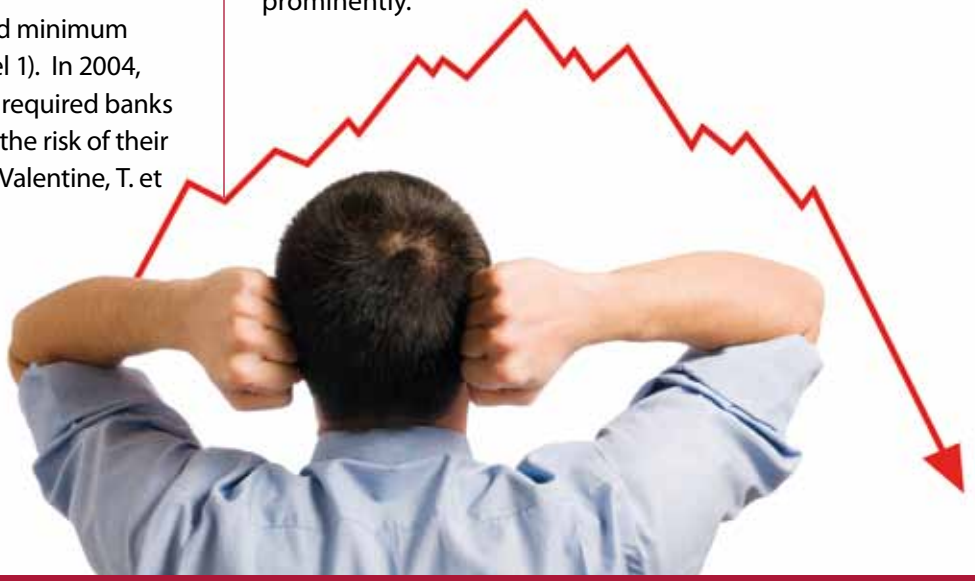
*RAA = risk adjusted assets

[1] It is assumed that the bank's credit rating is such that a 20% risk-weight applies.

In this example, the bank hold is 8% of total risk-adjusted assets. In this case the required amount is:

$0.08 x $945 million = $75.6 million

Which is 4.4% of the unadjusted asset total. There is no direct requirement to hold a certain amount of shareholders funds, and many banks became highly leveraged. Also, the credit rating of borrowers figures prominently.



- 1992 Congress require Fannie Mae and Freddie Mac to make a percentage of their loans to affordable housing. A big increase in securitisation followedand in 1994 Credit Default Swaps are introduced – to act as a kind of insurance for investors in credit.
- 1995-1999 Subprime market in US grows. In 1995, mortgage lenders receive credit towards their affordable housing lending obligations by buying sub-prime securities.
- 1999 Banks are allowed to operate other financial businesses such as insurance and investment brokerages.
- 2004 The SEC allows firms with more than $5 billion in assets to leverage themselves as much as they like.

An important development is the allowance of higher and higher leverage. The more highly leveraged a business is, the more it is at risk if there is a run, or the value of its assets fall. If a bank is geared 12 to 1, then 8.3% of its assets is its own capital, and the value of assets has to fall 8.3% before it is insolvent.

If leverage is 40 to 1, then only 2.5% of its assets is its own capital, and the value of assets has only to fall by 2.5% before there are problems with solvency.

Basel 1 and Basel 2 sought to achieve stability in the banking system by adjusting the amount of capital, in line with the risk of loans. Loans to real estate, or other banks had a low risk rating (see above). But, what if a real estate bubble occurred and the risk profile of real estate changed significantly??? This is very much what happened, and there was a steady decline in the "quality" of loans (i.e. the drop in the certainty that interest could be repaid, and capital repaid.) Many securitised loans that banks bought, thinking they were rated AAA, turned out to be anything but AAA – and banks found they were short of capital.

Several reinforcing factors were at work:

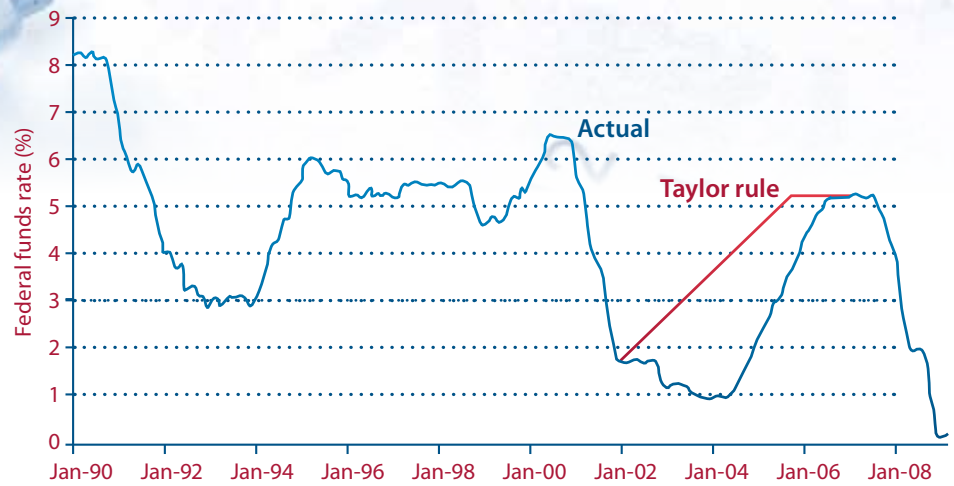
- Government incentives for more and more money to be loaned out to sub-prime borrowers – to raise the level of home ownership among lower socio-economic groups.
- Growth in securitisation. Banks moved from making loans and holding them, to making loans, bundling them, and on-selling them. In the former position they were incentivised to screen potential borrowers, and lend to people with the ability to service the loan. In the latter position, the incentive to do this was greatly reduced.

The whole process of securitisation was further boosted by the development of credit default swaps, which (supposedly) enabled buyers of securitised loans to protect themselves against default. Then there were the rating agencies. Often paid by the originators, and using questionable mathematical models, they assigned AAA ratings to bundles of mortgages. Securitisation also enabled packages of loans to be sold to banks throughout the world, with the result that the crisis spread rapidly throughout the world when it hit.

An important feedback loop was at work. As more money was loaned, real estate prices rose ever higher and more money could be advanced. The margin of security may have looked OK, but only if real estate values stayed at this elevated level. (Rajan)

The result was a massive build-up in debt – particularly household debt, as chart 3 shows.

However, there is more.
All of the lending took place at a time of low interest rates, and plentiful money. Following the Asian Financial crisis, many Asian countries were keen to build up reserves, and they needed somewhere to invest this. Where better than AAA rated US securities. It has been argued that the US Federal Reserve left rates too low for too long, following the dotcom bust of 2001. For a period, they were much lower than would have been indicated by the "Taylor Rule", as shown in the following graph.



Source: McKiibin, WJ and Stoeckel, A

Why did the Fed leave rates so low for so long?

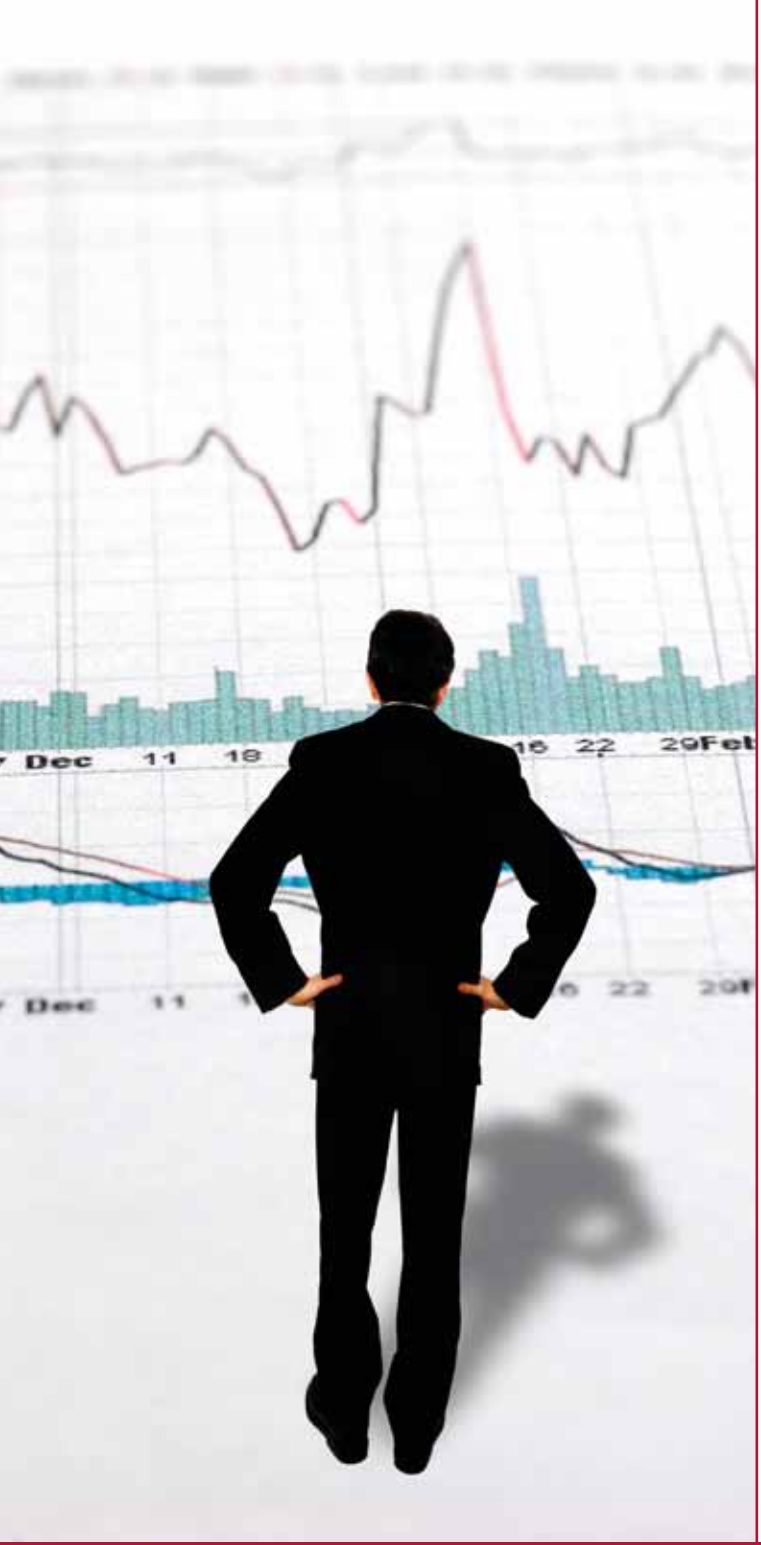
The answer to this may lay with the wide acceptance of the "efficiency of markets" (Kaletsky, A., 2010). It was widely held that financial markets were efficient, and could be relied on to price risk and assets correctly. From this, it was a simple step to allow loans to be made with minimal checking, and securitised bundles to be traded without checking what was in the bundle. (After all, if there was anything wrong with them, the market would have priced them differently).

Alan Greenspan, Chairman of the US Federal Reserve throughout much of this period, was a staunch believer in the efficiency of markets. In his autobiography, "The Age of Turbulence" which was published in 2007, he wrote approvingly of growth in liquidity and the growth of derivatives. He wrote:

"Along with the dramatic rise in liquidity since the early 1980s has come the development of technologies that have enabled financial markets to revolutionise the spreading of risk. With the advent of the ability to do round the clock business, real time, in today's linked worldwide market, derivatives, collateralised debt obligations and other complex products have arisen that can distribute risk across financial products , geography and time."

Greenspan also wrote and spoke approvingly of the banking industry's ability to police and regulate itself. After the GFC, he changed his views.

Thus, the level of debt was left to rise and rise, partly due to Government policy, with higher and higher levels of leverage and ever declining loan quality, all encouraged by compensation systems that awarded bigger and bigger bonuses to financial executives that produced bigger and bigger profits, which in fact arose from taking on more and more risk. And the disease spread throughout the system, particularly the USA, Great Britain, and Europe, as securitised packages were bought and sold, with confidence in the Ratings Agencies, and the efficiency of markets.



Greenspan was warned at the annual Jackson Hole conference in 2005, by Rajan, who was then the chief economist at the IMF. Rajan argued that because banks were holding a portion of the credit securities they created on their books, the whole banking system would be in trouble if those securities ran into trouble. He argued that the inter-bank market could freeze up and there could be a full-blown financial crisis.

That was essentially what happened.

However, Rajan got a hostile reception. He wrote:

"I exaggerate only a bit when I say I felt like an early Christian who had wondered into a convention of half starved lions".

The most disappointing thing, was:

"....because the critics seemed to be ignoring what was going on before their eyes"

Then there was the role of Modern Portfolio Theory. It used one measure of risk (volatility) and made no allowance for risks that did not fit this model. Risk was assumed to fit the normal distribution curve, and importantly, there was no allowance for changes in behaviour.

Two harsh critics of this system were Taleb (2007) and Mandelbrot (2004). They forensically destroyed the theory behind the whole model. Importantly, when modelled results were compared with real world results, the fit was very poor. Yet, the models persisted. Their continued use provided a mechanism to price securities (often wrongly as it turned out). The securities were widely bought and sold (particularly in the USA, Europe and Great Britain) and when the Minsky Moment arrived, the problem securities were widespread.

SO FAR

Thus we see that the GFC was the result of no single cause, but the culmination of many causes that built up over time.

Now it is time to turn to action to prevent future GFCs. This part of the paper is much shorter – there is not so much to tell. While much has been written, only a limited amount of reform has so far occurred. Furthermore, Rajan notes that there is "no single silver bullet cure". Also, one complicating factor is that the effects of the GFC are ongoing. Many of the excessive debts of the financial sector have been swapped for excessive Government debt, either actual, or implied by the need to continue propping up banks in vulnerable countries such as Ireland (and others). There is hardly a week goes by when some story of Sovereign debt problems does not feature prominently in the financial and popular press.

However, a start has been made toward boosting the strength of the world wide banking system. The main forum for this task is the Bank for International Settlements. Their still evolving proposals are known as Basel 3.

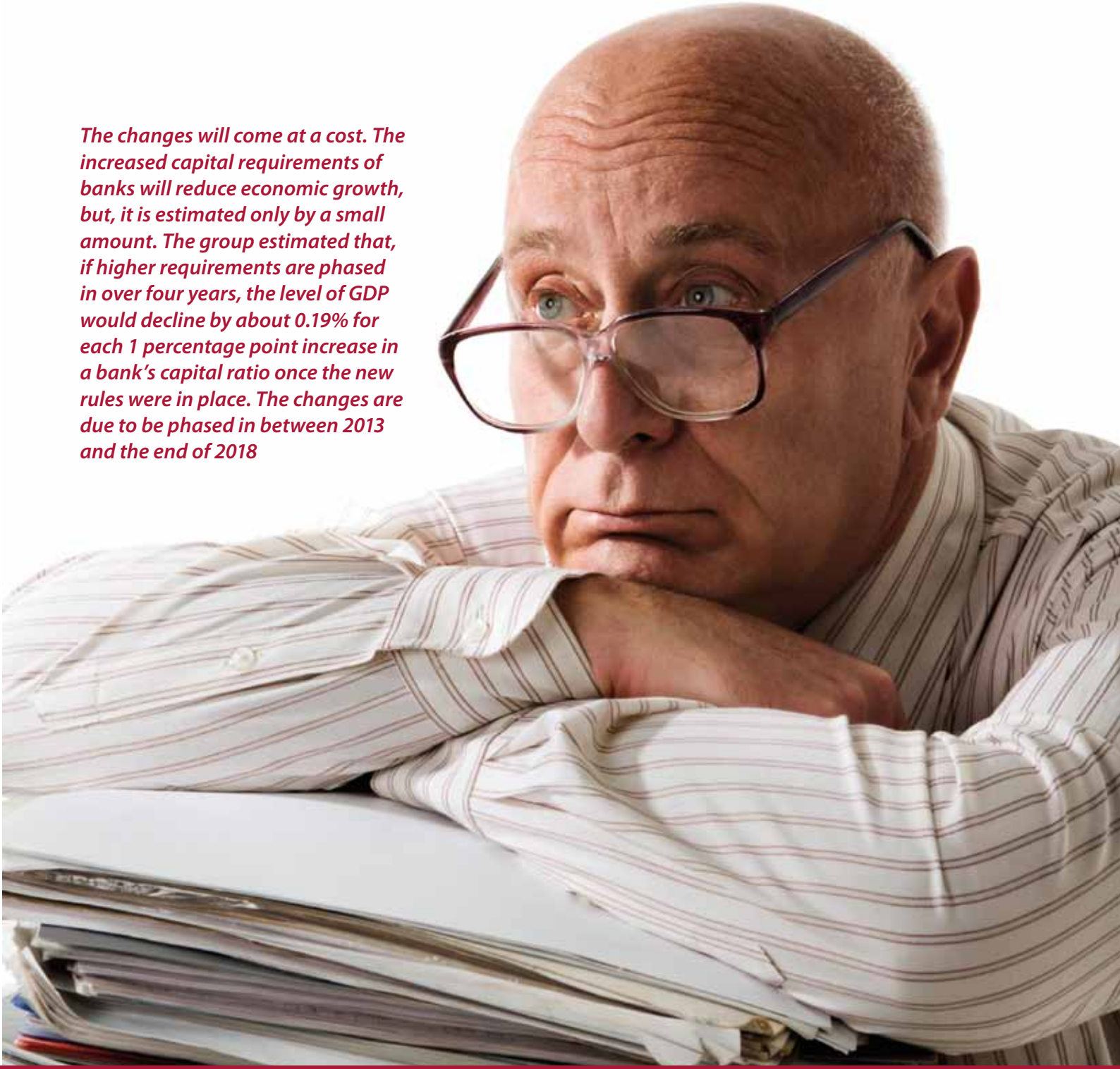
The report of the Basel Committee on Banking Supervision to the G20 (October 2010) had this to say:

> ***"The depth and severity of the crisis were amplified by weaknesses in the banking sector such as excessive leverage, inadequate and low-quality capital and insufficient liquidity buffers. The crisis was exacerbated by a procyclical deleveraging process and the interconnectedness of systematically important financial institutions. In response the Committee's reforms seek to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spill over from the financial sector to the real economy.***
>
> ***The reforms strengthen bank-level, or micro prudential, regulation, which will help raise the resilience of individual banking institutions in periods of stress. The reforms also have a macro prudential focus, addressing system wide risks, which can build up across the banking sector, as well as the procyclical amplification of these risks over time."***

In order to strengthen the banks Basel 3 propose:

- Raising the quality of capital to ensure banks are better able to absorb losses.
- Increasing the risk coverage of the capital framework.
- Raising the level of the minimum capital requirements, including an increase in the minimum common equity requirement from 2% to 4.5% and a capital conservation buffer of 2.5%, bringing the total common equity requirement to 7%.
- Introducing internationally harmonised leverage ratio.
- Raising standards for the supervisory review process and public disclosures .
- Introducing minimum global liquidity standards.
- Promoting the build up of capital buffers in good times that can be drawn down in periods of stress, including both a capital conservation buffer and a countercyclical buffer to protect the banking sector from periods of excess credit growth.

The changes will come at a cost. The increased capital requirements of banks will reduce economic growth, but, it is estimated only by a small amount. The group estimated that, if higher requirements are phased in over four years, the level of GDP would decline by about 0.19% for each 1 percentage point increase in a bank's capital ratio once the new rules were in place. The changes are due to be phased in between 2013 and the end of 2018



SUMMARY

The Basel 3 changes amount to significant re-regulation of banks. In 2004 the SEC removed limits to bank leverage. Basel 3 will re-impose limits on leverage and banks will need more capital. While this will provide a bigger buffer, it still allows problems in investment banking to flow into retail banking. Investment banking is inherently riskier, and it was the troubles in investment banking, with their innovative, highly geared securitised products that lay at the heart of the GFC. For this reason, a number of critics want to see something like the Glass-Steagall Act reimposed, and investment banking structurally separated from investment banking – thus making it easier to contain losses in investment banking (Grenville, S. AFR 2/5/2011)

Other areas to be addressed are:

- The actions of central banks (why did the US Fed leave rates so low for so long??)
- The incentive structures within the financial sector, which have often rewarded short term performance at the expense of long term stability.

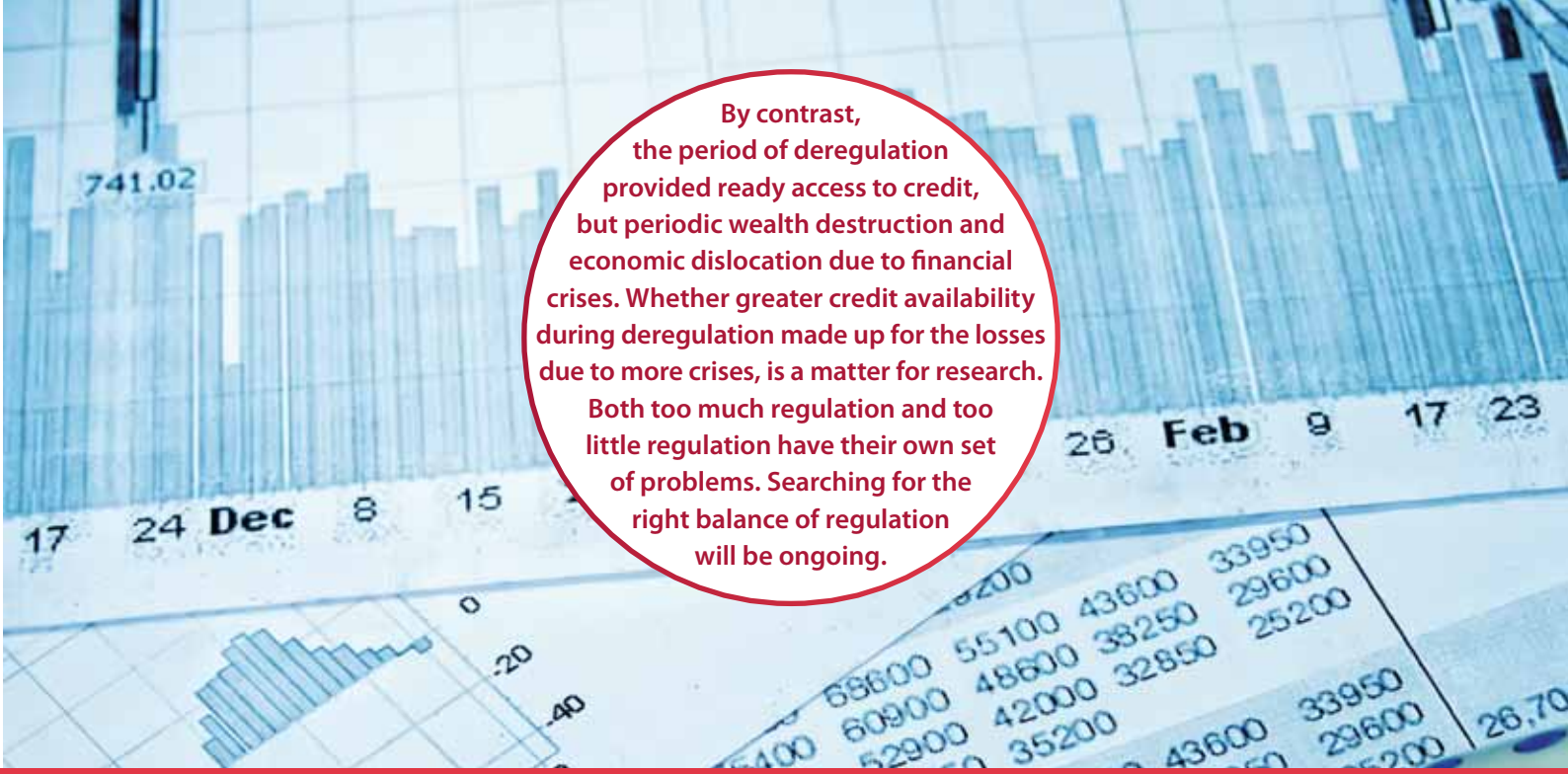
Will the changes prevent future financial crises? **Unlikely, but it should certainly improve the health of the banking system and at least reduce the frequency and severity of future crises.**

Even in a best case scenario, of a long period of future financial stability the seeds of future crises will still be lurking.

Minsky (2008) noted that "Stability breeds Instability". Periods of stability breed over confidence, banks relax their lending standards, debt builds up, only to collapse "with a bang".

One possible area of weakness is the very existence of uniform standards (Basel 3). Then if all banks are subject to the same guidelines, a particular weakness in one may well exist in the others as well.

The final word belongs to Kindleberger (2005). The role of central banks in preventing crises is critical. However, there is no mechanistic rule that can be applied in all situations, and human judgement calls are always needed.
The Bretton Woods era was successful in greatly reducing the frequency of financial disasters. It was built upon a determination to never see the likes of the Depression again. A by-product of this period of intense financial regulation was a decline in financial innovation, and restrictive lending (it was difficult to get a home loan in Australia). So, there was a plus in terms of greater financial stability, and a negative in access to credit.



By contrast, the period of deregulation provided ready access to credit, but periodic wealth destruction and economic dislocation due to financial crises. Whether greater credit availability during deregulation made up for the losses due to more crises, is a matter for research. Both too much regulation and too little regulation have their own set of problems. Searching for the right balance of regulation will be ongoing.

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