

Moral Hazard and the Financial Crisis

Pascal Nguyen

Finance Discipline, University of Technology Sydney, Australia

E-mail: pascal.nguyen@uts.edu.au

Tel: +61-2-9514-7718; Fax: +61-2-9514-7711

Abstract

A highly profitable alternative to intermediated lending, securitisation has pushed lenders to aim at unsustainable credit growth targets. As a result, lending standards were dramatically relaxed. However, the increase in marginal risk was concealed by soaring real estate prices. By failing to adequately price risk, investors allowed the lending boom to develop into a global financial crisis. This article plays down the role of moral hazard and argues that securitisation is likely to recover.

Keywords: Securitisation, profitability, subprime mortgages, credit quality

1. Introduction

Securitisation of US mortgages, and particularly subprime loans, is widely considered to be responsible for the 2007-2008 financial crisis (e.g., Ashcraft and Schuermann, 2008; Nadauld and Sherlund, 2009; Swan, 2009; Keys et al., 2010; Purnanandam, 2011). However, economists tend to focus on moral hazard issues, i.e. the incentives for economic agents to deviate from socially optimal decisions to achieve personal gains while the costs are borne by others. For instance, Swan (2009) argues that the complexity and opacity of securitisation structures allowed investment banks to disguise toxic assets as safe high-yield financial products which were sold to unsuspecting investors around the globe (e.g., NSW councils in Australia). Rating agencies are similarly guilty of putting their own interest above everything else and bestowing their coveted investment grade seal of approval to effectively junk paper. To make things worse, mortgage originators took the opportunity to generate increasing volumes regardless of a borrower's actual repayment ability since the loans would eventually be passed on to others through the securitisation channel. In this respect, Swan (2009) cites the case of a Mexican strawberry picker with an income of \$14,000 who was lent the full amount to buy a \$720,000 house.

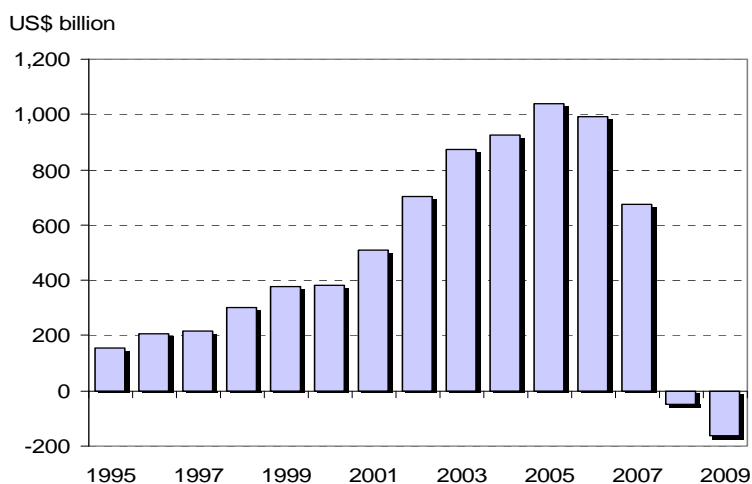
Certainly, moral hazard has been a contributing factor. However, it is unlikely to be the whole story. By contrast, our analysis springs from a simple but compelling observation: securitisation has fuelled a rapid expansion of credit in addition to it having unleashed greater competition among lenders. The unavoidable consequence has been a relaxation of lending standards followed by a dramatic deterioration in the quality of borrowers. Nonetheless two factors have helped conceal this trend up to a certain point: the booming real estate market made default risk effectively harmless and risk measurement methods which failed to spot the underlying change in credit quality. These conditions have entertained the illusion of value creation until the US housing market began to crack in late 2006. In short, the crisis was primarily the result of flawed judgements and inadequate analytical tools, rather than the product of moral hazard which would have been unable to take root without the involvement of the former.

2. Credit Growth and the Securitisation Process

The starting point of our argument regards the role played by securitisation in stimulating credit growth. But what is securitisation and what does it strive to achieve? In broad terms, the idea is to take loans out of a bank's balance sheet by putting them in a specialized investment company directly funded by investors. In this process, potential value can be created on two fronts. On the asset side, a clever mix of loans can help reduce the average risk through the principle of diversification. For instance, a portfolio of mortgages originating from different geographic areas should, on average, be much safer than each individual loan. On the liability side, the cash flows can be allocated in a variety of ways to a range of securities in order to better suit the needs of different types of investors (Schwarcz, 1993). Needless to say, the overall risk does not change in the process. However, the risk of each security is, in principle, better recognized, and thus the securities issued by the securitisation vehicle should, on average, fetch a higher price.

A less emphasized, although more important, aspect of securitisation is to have helped break up an inefficient value chain connecting borrowers and investors. When a bank had to carry a loan on its balance sheet, value came from the bank's interest margin. For a given borrower, that margin was determined by the rate at which the bank could raise its funds. Large banks used to have a funding advantage since they could collect household deposits at a lower cost. With the advent of securitisation, the cost of funds becomes formally linked to the quality of the loan, in a similar way as the cost of capital for a project is determined by the estimated risk of the project rather than the risk of the firm that undertakes the project. As a consequence, small banks are no longer at a disadvantage. In particular, their size, credit rating and cost of capital become factually irrelevant (Loutskina and Strahan 2009). What matters is only the rate at which they can lend since the rate at which they can refinance the loan depends formally on the borrower's characteristics which ultimately determines the risk to capital providers.

Figure 1: Household sector's net mortgage borrowings



Source: Federal Reserve Board

In essence, securitisation has contributed to establish a more unified market where any institution can come to procure funds. In this system, value derives from the ability to identify and sign up good borrowers, not from a hypothetical funding advantage. This development has two major implications. The first is that, for credit institutions, the battleground has moved away from the collection of funds to centre on the provision of loans. In line with this shift, bank profits seem more than ever to result from the ability to distribute loans either through an extensive retail network or effective sales teams. Put differently, banks can use securitisation to leverage their comparative advantages in loan origination (Purnanandam, 2011). The second implication is that banks no longer need to retain their loans. Securitisation allows them to offload the loans and yet retain the present

value of the interest margin because the loans are sold for more than the borrowed amounts (implying that investors receive only a fraction of the interests paid on the loans). Note that the risk associated with the loans repayment can be entirely transferred to investors. However, originators typically retain the most risky equity tranche to signal the quality of the loans or their intention to exert efforts in collecting the payments from potentially difficult borrowers.

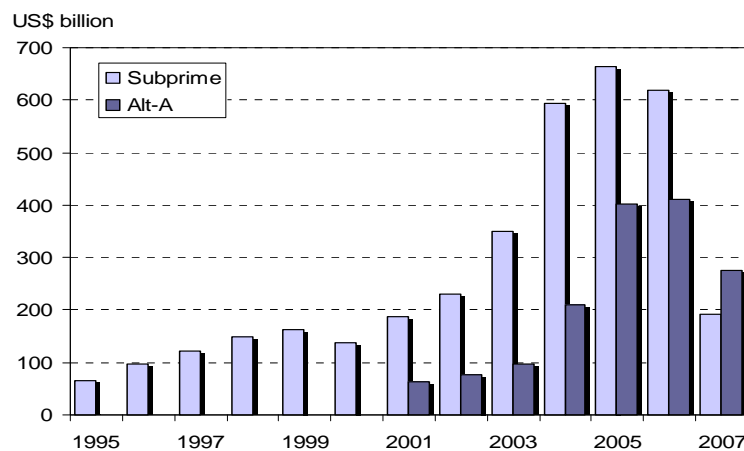
As a result, banks involved in the securitisation business must have experienced an irresistible pressure to increase their lending since, for each securitised loan, they could immediately book the profit corresponding to the whole interest margin without having to wait for the loan to mature. In addition, securitisation meant that invested resources were immediately freed up to make new loans and repeat the process to generate yet more profits. This simple argument explains why mortgage debt increased sharply in the US. Indeed, net household borrowing on mortgages soared from \$153.6 billion in 1995 to \$990.7 billion in 2006 before collapsing with the financial crisis (Figure 1).

3. New Competition and Lower Lending Standards

The fragmentation of the credit chain caused by the securitisation process has also facilitated the emergence of new players seeking to capitalize on the most profitable segments. For example, mortgage brokers found an advantage in specializing in the production of loans, i.e., the relationship with clients looking to purchase real estate property on credit, rather than trying to put efforts in attracting and servicing household savings. Mortgage brokers opened offices which looked very much like ordinary bank outlets boiled down to their mortgage departments. More generally, these new players saw the opportunity to grow at the expense of traditional banks since they did not need to control a vast pool of deposits to operate a huge lending business. For instance, the 2006 annual report of Countrywide Financial shows that the second largest mortgage lender in the US originated \$468 billion of mortgages and refinanced some \$362 billion of this amount through various securitisation schemes.

Reflecting the irresistible appeal of the new lending paradigm, Countrywide made \$5.68 billion of profits from pure origination (producing and securitizing mortgages) compared with \$2.69 billion of net interest the company earned from mortgages held on its balance sheet. This phenomenon was definitely not an isolated case. Profits across the entire financial sector took off, in part because of increasing lending volumes, but more importantly because each securitized loan allowed lenders to immediately book the capitalized interest margin on a loan instead of collecting the margin over time. As a result, profits in the US financial sector climbed to reach 40% of all corporate profits (Stiglitz, 2010). This figure is significantly above the financial sector's share of total wages which also rose from a long term average of about 10% to reach almost 18%.

Figure 2: Subprime and Alt-A mortgage originations



Source: Inside Mortgage Finance

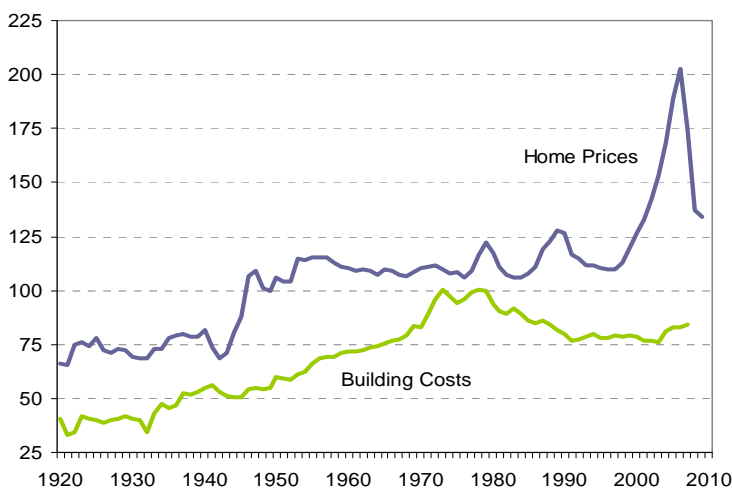
There was, however, a roadblock on the path to ever increasing profits. In the short run, the pool of creditworthy borrowers could not keep pace with the required growth in lending. Moreover, new competitors were appearing to compete for the same clients. Lenders had to look beyond their traditional customer base, and for that they needed to further relax their credit standards. Mian and Sufi (2009), Demyanyk and Van Hermert (2011) and Keys et al. (2010) also point to declining underwriting standards. Subprime loans developed rapidly from \$187 billion in 2001 to \$663 billion in 2005 (Joint Center for Housing Studies, 2008). Alt-A mortgages, considered to be only a touch safer, took off similarly from \$64 billion to \$403 billion over the same period (Figure 2). Around 80% of Alt-A loans are believed to have been securitised. At the same time, lenders increased the representative size of their loans, made necessary by the continued rise in real estate prices. The average loaned amount rose to represent up to 90% of the value of the purchased property while the proportion of transactions entirely financed by credit jumped from almost nothing to about one-third of all subprime mortgages (Coleman et al., 2008).

Nevertheless, the jump in accounting profits brought by securitizing existing mortgages convinced financial analysts to raise their earnings expectations. Stock prices soared to the point that the financial sector accounted for no less than 22% of the total market capitalization of the S&P 500. The logical implication was that pressure began to build on lenders to meet the ambitious production targets needed to sustain their lofty valuations. Credit officers were required to use aggressive sales tactics and had to depict unworthy borrowers in the most favourable light to push up loan figures. Hence, while outrageous behaviour took place at lending institutions, it was in large part because bank managers were eager to go with the market rather than against it, possibly out of fear of being sacked. However, as agents of shareholders, they took actions which were totally aligned with the presumed (although misguided) interest of their principals. It is thus difficult to see moral hazard where there is none.

4. Housing Boom and Failure of Risk Models

Whilst the incentive for lenders to press ahead with more lending seems to be clear, it is rather surprising that investors continued to purchase mortgage-backed securities as if nothing was happening. Yet, Demyanyk and Van Hermert (2011) note that a sufficient increase in the risk premium required to fund the more recent riskier mortgages would have been sufficient to take away any profit made in the securitisation process. This would have prevented lending growth to gain momentum and trigger the financial crisis. In that sense, it appears that investors have responded poorly to the rapid deterioration in the flow of credit. How can this be explained?

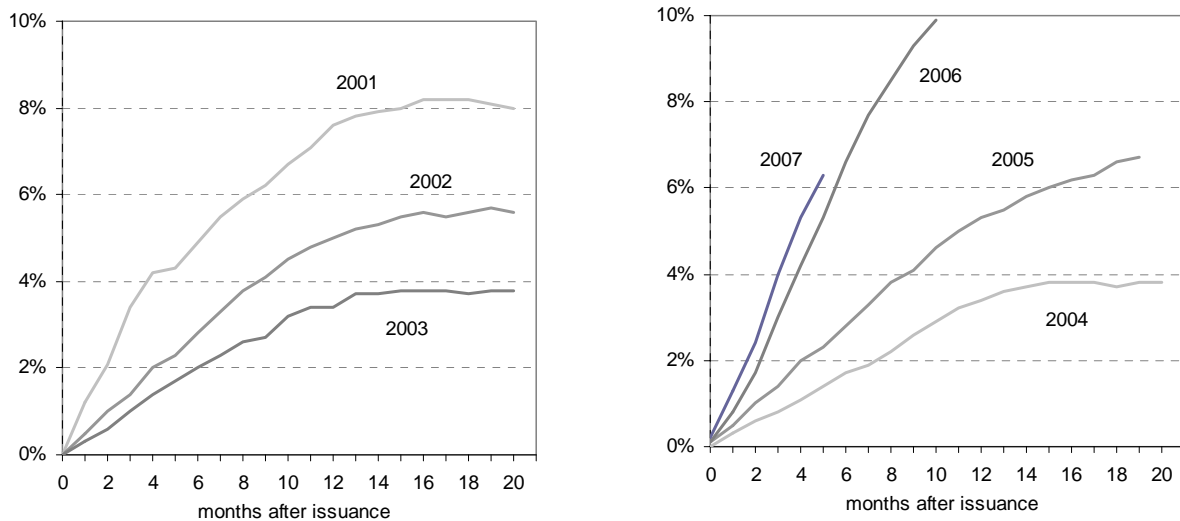
Figure 3: S&P/Case Shiller index 1920-2009



Source: Robert Shiller's website

First, strong lending growth supported by slack credit conditions fuelled the US housing bubble. Mian and Sufi (2009) confirm that the outbound shift in the supply of credit caused house prices to increase while Nadauld and Sherlund (2009) provide evidence of feedback loop running from house price appreciation to credit growth. The S&P/Case-Shiller index shows that real house prices almost doubled over the period 2000-2006 far outstripping the small increase in real building costs (Figure 3). As a result, existing mortgages became safer since the collateral used to back them was increasing in value. In case of personal troubles, borrowers had plenty of equity in their properties and could simply sell them to repay their loans in full. Supporting this argument, figures from the US Mortgage Bankers Association show that the percentage of subprime mortgages in arrears fell from 15% in early 2002 to just 10.4% by the middle of 2005. A similar study by Moody's confirms the decreasing delinquency rates while the housing market was booming (Figure 4A).

Figure 4: Subprime loan delinquency by issuance year



Panel A – Booming housing market creates the illusion of a decrease in credit risk.

Panel B – Burst of housing bubble results in the direct revelation of credit risk.

Source: Moody's

Because actual defaults became practically non-existent, statistical models of risk concluded that risk was decreasing! Accordingly, the credit spread between prime and subprime mortgages narrowed from around 2.8% to as little as 0.6% (Swan, 2009; Demyanyk and Van Hermert, 2011). Rating agencies which used such models can certainly be criticized for their poor judgment. However, moral hazard proponents argue that the latter knew what they were doing, but that the value of their long term reputation was insignificant relative to the short term profits they could make from generating biased ratings. Yet, most market participants, and especially credit insurers (e.g., AIG), did put their future on the line, which suggests that they genuinely believed in their risk models. In addition, bank CEOs did not reduce their shareholdings in anticipation of the crisis, nor while the crisis was unfolding (Fahlenbrach and Stulz, 2011). Their large losses certainly provide evidence contradicting the moral hazard argument. For instance, Jim Cayne, the CEO of Bear Stearns sold his shares in the company for about \$54 million only after their value had fallen by a staggering \$425 million in one month (Keys et al., 2009).

In fact, marginal risk was quickly escalating. All things equal, each additional borrower had a lower loan servicing ability. Many had neither a stable job nor established sources of income. Besides, the amount of cash they could put toward their down payments was low to trivial. For example, Coleman et al. (2008) indicate that the proportion of loans with loan-to-value ratios under 90% declined from 35% to less than 15% over the period 2000-05. Soaring house prices also meant that the loaned amounts were also higher in proportion of the borrowers' expected income, making the

repayments particularly uncertain. Lenders tried to accommodate these constraints by stretching loan maturities and delaying interest payments. But lenders' relentless pursuit of unsustainable growth targets could only involve them taking increasing risks by signing up less creditworthy borrowers (Demyanyk and Van Hermert, 2011). In addition, the rising real estate market made each new loan riskier than those previously granted even with equally-worthy borrowers. The dramatic decline in credit quality over the period 2004-06 is vividly depicted by the rising proportion of impaired loans along with their issuance year (Figure 4B).

Marginal risk was increasing whereas average risk was decreasing. The explanation to this troubling paradox was that, despite the rapidly deteriorating flow of credit, the stock of existing loans was becoming safer thanks to rising house prices stimulated to a large extent by greater risk lending (Mian and Sufi, 2009). Investors essentially kept their eyes on the average and felt safe. But they failed to notice the underlying change in risk as lenders dramatically increased their loan production, which could only be achieved by sacrificing credit quality. As a result, investors didn't question the favourable credit rating imparted on increasingly risky securitized mortgages. Funding rates stayed abnormally low, or even decreased, and this allowed the process to gather speed until it fell off its tracks.

5. Concluding Remarks

Regardless of the financial chaos it helped to start, securitisation remains a useful tool that can contribute to a healthy degree of competition among credit providers. Households are likely to benefit from it in the form of better credit conditions. In fact, there is clear evidence that securitisation increased access to housing credit in local communities previously confronted with high loan denial rates (Mian and Sufi, 2008; Nadauld and Sherlund, 2009). It is somehow ironical that many households borrowed near the peak of the housing market and have then defaulted and been forced out of their homes. The financial services industry is also likely to become more efficient by specializing in different segments of the credit business (Purnanandam, 2011). In that sense, securitisation can bring to financial services what outsourcing has brought to manufacturing: enormous productivity gains. Nonfinancial firms can also benefit from the securitisation process, as in the case of leases and project financing, by letting debtholders directly finance some of their assets. This allows firms to focus on their true value-added tasks. An example of such a strategy is offered by Ryanair. Better known as a successful low-cost carrier with minimum in-flight services, the Irish airline company is keen to lease its commercial airplanes from a company it has helped set up; the value it creates for its shareholders comes from operating the planes rather than from owning them.

Since the onset of the financial crisis, transactions have plunged. Investors appear to have lost their former appetite for asset-backed securities. But this does not mean that securitisation is bound to disappear. Ten years ago, initial public offerings collapsed following the dotcom crash on the Nasdaq. However, they quickly recovered to reach a new record five years later. Likewise, it is quite certain that the securitisation will ultimately recover from the crisis because of its genuine usefulness (Keys et al., 2010). The other message from our analysis is that moral hazard may not have been the main factor. This is good news because moral hazard is generally difficult and costly to control. On the other hand, if flawed reasoning and inadequate risk evaluation methods were the main cause behind the crisis, the system can more easily be fixed and another similar crisis can probably be avoided.

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