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Global Securitisation Review



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Foreword:

What happened? An anatomy of the global credit crunch

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The difficult part in dissecting a financial crisis is not determining why the bubble burst in such a spectacular way. 20/20 hindsight usually provides the answer. Rather, the difficult part is piecing together the series of events that led to the bubble inflating in the first place. This is certainly true of what's going on in the world today. It is well recognised that subprime mortgages are at the root of the current financial crisis. It is now easy to see that NINJA loans (loans made to those with No Income, No Job and no Assets) were nonsensical. It is also easy to see that it was foolish to give housing loans to those of questionable credit quality which required no money down, required no amortisation of principal, and offered artificially low teaser rates with interest rate step-ups that borrowers could not afford.

Then why did US subprime mortgage originations jump from less than US\$140bn in 2000 to approximately US\$650bn in 2006, growing to over 22% of all mortgage originations? Why were more than US\$1.3 trillion in subprime loans granted from 2005 to 2007, a period in which we now know underwriting standards were quite lax? Most importantly, where did these loans end up, why was there so much demand, and how did this contribute to the much wider global credit crunch taking place today?

Where did these loans end up?

Of the roughly US\$1.3 trillion subprime loans granted from 2005 to 2007, it is estimated that 90%, perhaps more, were securitised into residential mortgage backed securities (RMBS), of which about 80% of the amount securitised was rated triple-A. The majority of the subordinated tranches, those rated less than triple-A, went into collateralised debt obligations (CDOs). High grade CDOs of asset-backed securities (ABS) issued in 2006 and 2007, consisting mainly of double-A and single-A tranches, had 40% collateral exposure to subprime RMBS. Mezzanine CDOs of ABS, consisting mainly of triple-B and single-A tranches, had 67% collateral exposure. Linking the two together, senior tranches of mezzanine CDOs were sold to high grade CDOs and represented 10% of the latter's collateral exposure. Even with the tremendous growth in subprime mortgage loan origination, the supply of mezzanine subprime RMBS still fell short of demand. To address this, CDOs of ABS synthetically created an additional supply of US\$75bn by writing credit default swaps that referenced triple-B and single-A rated subprime RMBS tranches.

The risk from these subprime loans was ending up with banks, brokerages, and other investors. There was

also appetite from monoline insurers who provided credit protection on over US\$100bn of CDOs of ABS. In addition, the US home loan agencies Fannie Mae and Freddie Mac, who had historically focused on prime loans to credit-worthy borrowers, entered the fray. They started investing heavily in private-label securities, comprised of subprime and Alt-A (less than prime) collateral. Their combined investment in these non-agency securities eventually reached US\$217bn, with privately issued securities backed by subprime mortgages representing 9.2% of the companies' combined portfolio

The risk was also finding its way into a growing number of arbitrage vehicles seeking to fund the purchase of these longer-term securities with lower-cost shorter-term asset-backed commercial paper (ABCP) and medium-term notes (MTNs). In tandem with the growth of subprime mortgage origination, the outstanding issuance of ABCP nearly doubled from 2004 to mid-2007, reaching US\$1.2 trillion. Much of this growth came from non-traditional ABCP programmes including securities arbitrage conduits, structured investment vehicles (SIVs), and SIV lites. Unlike traditional single-seller and multi-seller conduits in which sponsoring banks provide liquidity in the event that ABCP can not be rolled over, these newer market-value structures issued extendible asset-backed commercial paper (XABCP), and relied on internal cashflow and the sale of assets to repay maturing liabilities in the event that new debt could not be issued.

As efficient as the traditional ABCP conduits were, they had one major drawback for the banks that provided them. This was the need to provide liquidity. Although keeping the liquidity lines to less than a year and rolling them over effectively removed the assets

from balance sheet, there was still a capital charge associated with this liquidity provision. To address this, and facilitate the sudden growth in RMBS, conduits began offering XABCP. These notes have the ability to be extended by a number of months in the event they can not be rolled over on the expected maturity date. The outstanding volume of XABCP grew to US\$195bn by mid-2007, representing 17.3% of the outstanding ABCP market. Investors demanded little premium over traditional ABCP for accepting this extension risk, sometimes as low as one to two basis points.

Whereas traditional ABCP conduits had served as an alternative funding mechanism for banks and had provided efficient capital markets execution for their corporate clients, securities arbitrage vehicles were created to invest in rated securities. They seek to create an interest-rate arbitrage by purchasing longer-term assets and funding them with lower-cost short-term liabilities. Going into 2007, securities arbitrage conduits had 61% of their assets in RMBS and CDOs, although only a portion of this contained exposure to subprime mortgages.

Like conduits, SIVs issue short-term debt, mainly ABCP and MTNs, to purchase higher-yielding long-term assets. Unlike conduits, SIVs operate on high leverage (about 15 times leverage prior to summer 2007) and are market-value vehicles that rely on XABCP, internal cashflows, and if required, the sale of their assets for liquidity. Pre-crisis there were 30 actively managed SIVs with approximately US\$400bn in assets under management. As of October 2007, subprime RMBS made up 4.7% of SIV assets and CDOs of RMBS made up another 1.1%. These structures have a rolling capital base and are able to operate in perpetuity.

SIV lites are somewhat of a hybrid of a SIV and a CDO. Like SIVs, these are market-value structures which fund long-term assets with shorter-term liabilities and rely on internal cashflow and asset sales for liquidity. Like CDOs, and unlike SIVs and conduits, SIV lites are structured with a finite life. Pre-crisis, there were six SIV lites, with smaller and less diversified portfolios than SIVs and about US\$12bn in assets under management. Relative to SIVs, SIV lites had significantly greater exposures to US RMBS.

Why was there so much demand?

Whereas it may seem to some that the proliferation of market-value structures and the growth in ABCP to fund them was a result of the huge supply of subprime mortgage loans being originated, this was not the case. Rather, the supply of mortgage loans was being created to satisfy the insatiable demand by investors for subprime mortgage risk. As discussed above, even

with the phenomenal growth in origination taking place, US\$75bn of mezzanine subprime RMBS exposure had to be synthetically created to meet the demand of CDOs.

Amongst the most important inputs into the RMBS and CDO models are the expected loss on the underlying collateral, as defined by default probability and loss severity, and the correlation amongst assets in the collateral pool. In January 2008, S&P revised their expected loss estimate from 14% to 19% for the 2006 vintage of subprime mortgage loans, a 35% increase relative to their initial expectation. This was based on a 42% default rate and 45% loss severity. Although origination standards for subprime mortgage loans began deteriorating in 2005, it appears this wasn't noticed, or at least disclosed, until 2008. This resulted in artificially low levels of subordination for the 80% of subprime RMBS issuance that was rated triple-A during this period.

In April 2008, Moody's increased their asset correlation assumptions for subprime RMBS and CDOs by up to three times – to 75% for subprime RMBS and to 100% for CDOs (CDO squared). This had a large negative impact on the ratings of CDOs of ABS which had purchased the subordinated tranches of RMBS to create new pools of which a portion of the risk was rated triple-A. It had an even larger impact on the CDO squared structures which had purchased the subordinated tranches of the CDOs of ABS, to further convert what was left of the original subordinated RMBS tranches into triple-A rated securities. Whereas it had been believed previously that most subprime mortgage risk could eventually be converted into triple-A securities if only it were repackaged enough, the change in correlation assumptions demonstrated that this was not the case.

The artificially low expected loss and correlation assumptions had given the impression that it was possible to turn straw into gold. This resulted in origination standards being further relaxed to increase the inventory of straw and the various securities arbitrage vehicles being created to turn this straw into gold. However, it soon became apparent that what looked like gold was nothing more than pyrite, and unfortunately a great deal of it had been created in a short period of time.

How did this contribute to the global credit crunch taking place today?

During the summer of 2007, the market began to realise that the US\$1.3 trillion in subprime mortgage loans originated since 2005 was not performing as expected. As the market value of these loans

deteriorated, so did the value of the corresponding RMBS into which they had been repackaged. This sparked a fear amongst investors that led to a general loss of confidence in the assets backing RMBS and CDOs. The vehicles with market-value structures that had purchased these assets and proliferated in recent years began to find they could no longer roll-over their ABCP. Without access to bank liquidity lines, they started selling assets to pay off maturing debt. But, with the rush to the market by so many parties to sell structured securities, combined with a general loss of investor confidence in the asset class itself, prices began to plummet.

This led to six market value ABCP programmes experiencing difficulties in August 2007, the first casualties of what was eventually to become a global credit crunch. The programmes were Broadhollow, KKR Atlantic, KKR Pacific, Luminent Star, Ottimo, and Thornburg. By July 2008, 27 ABCP conduits that had focused at least to some degree on securities arbitrage, including market value programmes, exited the market.

SIVs also began to suffer. After having reached a 19-year maximum net asset value (NAV) of 106% in March 2006, the average NAV of SIVs reverted to a band of 102% to 104% where it remained until July 2007, before beginning a precipitous decline. By December 2007, the average NAV had dropped to 53%. From a peak of US\$400bn in mid-2007, SIV assets under management dropped to US\$282bn by mid-October, and to US\$161bn by March 2008. What began as a price dislocation in the subprime mortgage sector, to which the SIVs actually had little exposure, grew to affect the entire universe of structured assets held by these vehicles.

This was something that the rating agencies had not contemplated. SIV analysis had assumed that individual SIVs may not be able to roll-over their financing at reasonable spreads and would have to sell assets to fund maturing liabilities. However, there was an assumption that the sale of such assets would take place in an orderly market, as any periods of market dislocation would be brief. The agencies did not contemplate the scenario that unfolded in which the entire SIV market could not extend its financing while asset prices were falling well beyond historical stressed prices, resulting in forced sales of entire portfolios into an already falling market.

Of the 30 SIVs created, 24 were sponsored by Bank of Montreal, Banque AIG, Citibank, Dresdner Kleinwort, Emirates Bank, HSBC, HSH Nordbank, MBIA, Ontario Teachers Pension Fund, Rabobank, Societe Generale, Standard Chartered Bank, and WestLB. With only one exception, support extended by these financial institutions protected senior debt

holders from suffering a loss. Although there was not a contractual obligation to extend such support to these vehicles, these institutions had strong incentives to avoid upsetting the senior debt holders, many whom believed there was implicit liquidity support from the SIV managers.

However, the story for senior debt holders of the non-bank sponsored SIVs was not so rosy. Beginning in August 2007, the first non-bank sponsored SIV defaults began to take place, resulting in the first-ever defaults of senior debt in the structured CP market in its more than 20 years existence. Eventually, five of these (Axon, Cheyne, Orion, Rhinebridge, and Victoria) would stop payment on their debt, and the sixth, sponsored by Eaton Vance, restructured as a market value CDO to better match assets and liabilities. Of the six SIV lites, none remained investment grade by the end of 2007.

In mid-July 2008, receivers of Cheyne Finance Plc, the first of the SIVs to auction assets after collapsing, accepted bids at 44% of face value. Later that month, Merrill Lynch sold US\$30.6bn of CDOs to Lone Star Funds for 22% of face value. As of mid-August 2008, banks worldwide had marked down or lost US\$500bn since the start of the crisis. Estimates by many are that losses could eventually reach over US\$1 trillion, with some now saying that before all is said and done, the final number may actually be closer to US\$2 trillion.

Conclusion

The series of events that led to the current credit crunch does not begin with subprime borrowers suddenly deciding they wanted to buy homes. Nor does it begin with mortgage bankers suddenly believing this class of borrowers represented better risk than they previously thought. Rather, it begins with a deterioration in the quality of subprime loans being originated as demand for these assets increased.

The increased demand was a result of a realisation that by plugging the rating agencies assumptions for default probability, loss severity, and correlation into RMBS and CDO models, an arbitrage could be produced from the portfolios of risky, but high-yielding subprime mortgage loans. The statistical assumptions used by the agencies allowed for 80% of these loans to be securitised into triple-A rated securities and for the remaining 20% to be repackaged into CDOs that produced even more triple-A rated securities from this residual. Origination standards continued to deteriorate in order to facilitate ever greater supply, but the statistical assumptions upon which the financial models relied remained static, and the bubble began to inflate quickly.

The notes issued by the CDOs were then onsold to conduits, SIVs, SIV lites, and other CDOs. Although

subprime mortgage risk represented a small portion of the overall risk in many of these vehicles, as the performance on these loans began to deteriorate, a market sentiment began to form that all of the structured assets these vehicles held were tainted. The associated general asset price decline resulted in the need for these market-value structures to begin liquidating whole portfolios into an already declining market, further exacerbating the problem and leading to a bursting of the bubble.

Looking forward, it is important to highlight that securitisation as a tool remains just as robust and useful as it has always been. The problem underpinning the crisis is not the use of securitisation to transform the mortgage loans into securities, but simply the inputs that went into the financial models during the process. To address this, market participants need to be much more diligent in ensuring that the assumptions upon which their models are based truly

represent the risk of the portfolios being securitised. So long as this is adhered to, securitisation will continue to provide tremendous value and will remain a cornerstone of modern finance.

All facts and figures were obtained from public sources.

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