
The implosion of the Alt-A mortgage-backed securities market

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Abstract While the demise of the subprime mortgage-backed securities (MBS) market has received a great deal of attention, the implosion of the Alt-A MBS market has so far received much less attention. As recently as June 2007, annual issuance of Alt-A backed securities exceeded issuance of subprime-backed securities. The outstanding amount of Alt-A securities poses a significant systemic risk that is already becoming evident. This paper identifies the underlying causes for the deterioration of Alt-A MBS pools. While the deterioration in the subprime mortgage market was caused by lending to borrowers with poor credit, the Alt-A crisis was caused by lending to borrowers with fairly good credit who assumed excessively speculative, leveraged positions in overvalued housing markets. The paper applies value-at-risk to demonstrate that Fannie Mae's capitalisation was completely inadequate given the size of its subprime and Alt-A portfolios and its underlying loss expectations. As many of the Alt-A loans are adjustable-rate mortgages that will reset in 2009 and are moreover concentrated in the most overpriced housing markets, even more delinquencies and write-offs of Alt-A securities are in the offing.

Keywords: *Alt-A mortgages, mortgage-backed securities (MBS), collateralised mortgage obligations (CMOs), asset-backed securities (ABS), value-at-risk (VAR), subprime mortgages, structured finance*

INTRODUCTION

As a result of the ongoing credit crisis in financial markets, risk managers are acutely aware of the liquidity risk facing their institutions. Despite the many warning signs, few risk managers anticipated this crisis. In reality, the demise of the subprime mortgage market is only one aspect of the

deterioration underway in the broader collateralised debt obligation (CDO) market. It is useful to remember that, little more than a year ago, annual issuance of Alt-A backed securities (\$198bn) exceeded issuance of both subprime-backed securities (\$177bn) as well as all other non-mortgage asset-backed securities (\$151bn). The

outstanding amount of Alt-A mortgage-backed securities (MBS) poses a significant systemic risk that is already becoming evident. By focusing on the subprime segment, risk managers are assessing the current credit crisis far too narrowly. This narrow focus is detrimental to financial risk management if there is little recognition of the fact that losses have already spilt over to other structured instruments.

This paper focuses on the Alt-A MBS market. Alt-A securities are almost certain to be the next set of structured instruments that will experience very significant write-offs. It is already evident that other asset-backed securities (ABS) like motor loans and student loans are beginning to deteriorate. Between the second quarter of 2007 and 2008, issuance of non-mortgage ABS declined by 24 per cent. Non-mortgage ABS are still in the early stages of deterioration, whereas the deterioration in the Alt-A securities market is well underway. The data presented here are straightforward and provide a convincing case that more write-offs in the Alt-A market are in the offing.

ALT-A MORTGAGE-BACKED SECURITIES

In 2007, Standard & Poor's estimated that the value of residential real estate held by US households and non-profit organisations totalled US\$22.5trn.¹ The value of real estate investments, in fact, exceeded the US\$19.9trn invested in equities. The National Association of Realtors reported that about 33 per cent of home purchases in 2007 were made for a purpose other than the purchase of a primary residence, 21 per cent were made for investment purposes and 12 per cent were for vacation homes.

MBS (or collateralised mortgage obligations, CMOs) are a class of securities intended to access the investment opportunity offered by this massive asset class. MBS can be divided into various categories depending on the credit quality of the underlying mortgage loans. Prime mortgages are loans issued to borrowers who possess good credit scores and can fully document their income, while subprime mortgages are loans issued to borrowers with poor credit histories. (The term 'subprime' achieved such notoriety that the American Dialect Society named it word of the year in 2007.) Alt-A mortgages fall in between these two categories. Alt-A borrowers typically possess good credit scores but are unable to provide full documentation of their income. There are many reasons for this, such as self-employment or hard-to-document income. Alt-A loans are often referred to as 'stated loans', because they allow the borrower to state their income to the lender without necessarily having to document it. (For a more comprehensive introduction to the Alt-A market and the MBS market more generally, see the Nomura Fixed Income Research Alt-A primer² and Frank Fabbozi's MBS guide.³)

The emergence of Alt-A securities as a distinct asset class is a fairly recent phenomenon. Alt-A loan originations grew from less than 3 per cent (\$36bn) in 2001 to nearly 13 per cent (\$390bn) of all residential loan originations by 2006. This growth in loan originations was accompanied by a corresponding growth in Alt-A securitisation. Recent estimates suggest that Alt-A collateral backs about 15 per cent of total private-label securitisations.⁴

An Alt-A MBS is a structured debt instrument that is collateralised by an underlying pool of Alt-A mortgage loans. The issuer of an MBS/CMO is usually a special purpose entity (SPE) established for the purpose of issuing MBS. The SPE distributes the principal and income from the underlying collateral pool to various tranches which are engineered to experience varying degrees of risk and return. In the simplest case, an MBS distributes the cash flow from the underlying pool depending on whether it originates from interest payments (interest-only securities) or principal payments (principal-only securities). More complex structures have several tranches all exposed to varying degrees of interest rate risk, prepayment risk and credit risk. In an MBS structure, defaults and losses are disproportionately absorbed by the lower tranches. In some cases, this can lead to a 100 per cent loss for an investor in the lowest tranche and, if the defaults are large enough, even higher-tier tranches can suffer considerable losses. It is important to note that many of these securities are securitised and sold as AAA-rated securities, so investors are sometimes not completely prepared for extreme negative outcomes. The issuer also may have substantial exposure if a portion of the structured securities has not been sold to investors, resulting in risky securities still being held on the issuer's balance sheet.

THE PERFORMANCE OF ALT-A MBS POOLS, 2005–2007

To date, most of the write-offs taken by financial institutions and ABS issuers have been related to subprime MBS. Although the quality of the collateral underlying Alt-A MBS pools is

technically superior to that underlying subprime mortgages, it is evident that the collateral underlying various issues of Alt-A securities is already displaying very disturbing trends. At the end of 2007, Fannie Mae reported a loss of \$2,338m on its subprime mortgage portfolio. The loss on its Alt-A portfolio was comparatively lower — \$931m, or about 40 per cent of the loss on the subprime portfolio.⁵

The paper now turns to examining the performance statistics of the collateral underlying various issues of private label Alt-A securities between 2005 and 2007. The study takes a sample of the largest issuers of Alt-A securities, taking representative samples from each year in order to span the three years that marked the crest of the housing bubble. The data are disturbing as the collateral performance of Alt-A securities closely resembles the deterioration of subprime-backed mortgage debt. In essence there are four main areas of concern regarding the Alt-A collateral pools — delinquency rates, geographic concentration, loan characteristics and credit scores. These are analysed below.

Delinquency rates

As discussed previously, recent data indicate a steep rise in overall delinquency rates for mortgage loans. Delinquency rates for Alt-A collateral pools are in fact an even greater concern. Table 1 reports recent data from Bloomberg on the performance of several representative collateral pools of different vintages (2005, 2006 and 2007) issued by some of the largest issuers of such securities (Wells Fargo, Countrywide, Bear Stearns and Washington Mutual). The first point to note is the steep increase in loan

Table 1: Performance of Alt-A CMO pools

2005 Alt-A vintage							
Issue date	21/10/2005	Issuer	Wells Fargo	Cusip	949920AK8		
Monthly data	March-08	February-08	January-08	December-07	November-07	October-07	September-07
Balance (m)	132,042	134,384	138,103	141,735	145,007	151,905	344,994
Delinq. 60+	27.79%	25.50%	23.11%	20.87%	17.05%	14.41%	12.80%
Delinq. 90+	24.82%	22.77%	19.91%	16.81%	14.47%	12.44%	11.26%
Full document	0.00%	0.00%	0.00%	0.08%	0.08%	0.07%	0.07%
Credit score	686	686	687	687	686	688	688
Location	Florida	Florida	Florida	Florida	Florida	Florida	Florida
1st location %	19.40%	19.10%	19.00%	18.80%	18.80%	18.30%	18.00%
Location	California	California	California	California	California	California	California
2nd location %	14.50%	14.20%	13.90%	13.90%	14.00%	13.50%	13.40%
					Source:	Bloomberg	20/4/2008
2005 Alt-A vintage							
Issue date	30/12/2005	Issuer	Countrywide	Cusip	12668BDE0		
Monthly data	March-08	February-08	January-08	December-07	November-07	October-07	September-07
Balance (m)	686,573	693,552	703,649	708,143	719,984	733,524	745,592
Delinq. 60+	22.08%	19.61%	17.68%	15.00%	13.58%	11.18%	9.80%
Delinq. 90+	18.08%	15.98%	13.69%	12.21%	10.13%	8.77%	7.07%
Full document	11.75%	11.71%	11.67%	11.63%	11.68%	11.76%	11.70%
Credit score	699	700	699	699	699	699	699
Location	California	California	California	California	California	California	California
1st location %	65.70%	65.60%	65.70%	65.70%	65.40%	65.10%	65.10%
Location	Florida	Florida	Florida	Florida	Florida	Florida	Florida
2nd location %	9.80%	10.00%	10.00%	9.90%	10.10%	10.20%	10.30%
					Source:	Bloomberg	20/4/2008
2006 Alt-A vintage							
Issue Date	27/1/2006	Issuer	Countrywide	Cusip	12668BJD6		
Monthly data	March-08	February-08	January-08	December-07	November-07	October-07	September-07
Balance (m)	722,761	736,491	754,618	779,788	817,571	848,656	867,421
Delinq. 60+	34.04%	28.71%	23.70%	19.77%	16.95%	14.31%	12.74%
Delinq. 90+	26.13%	21.56%	18.68%	15.74%	13.25%	11.43%	10.31%
Full document	28.31%	28.45%	28.89%	29.20%	29.83%	30.51%	30.60%
Credit score	696	696	696	696	696	697	697
Location	California	California	California	California	California	California	California
1st location %	32.50%	32.30%	32.00%	31.60%	31.10%	30.80%	30.60%
Location	Florida	Florida	Florida	Florida	Florida	Florida	Florida
2nd location %	12.70%	12.60%	12.40%	12.20%	11.90%	11.60%	11.40%
					Source:	Bloomberg	20/4/2008
2006 Alt-A vintage							
Issue date	29/6/2006	Issuer	Bear Stearns	Cusip	073871AA3		
Monthly data	March-08	February-08	January-08	December-07	November-07	October-07	September-07
Balance (m)	507,694	517,503	533,286	546,275	555,105	565,590	581,562
Delinq. 60+	41.48%	40.28%	39.88%	36.00%	34.16%	31.53%	29.40%
Delinq. 90+	38.79%	37.73%	35.98%	32.40%	30.19%	28.63%	25.95%
Full document	12.99%	13.01%	12.74%	12.84%	13.20%	13.33%	13.33%
Credit score	701	701	701	701	701	702	702
Location	California	California	California	California	California	California	California
1st location %	31.20%	31.60%	31.60%	31.10%	31.30%	31.20%	30.80%
Location	Florida	Florida	Florida	Florida	Florida	Florida	Florida
2nd location %	17.90%	17.70%	17.60%	17.50%	17.30%	17.30%	17.80%
					Source:	Bloomberg	20/4/2008

delinquencies at both the 60+ and 90+ day levels. By any historical standards, the 90+ day delinquency rates are staggering across all of the vintages. They are over 20 per cent in four of the six pools and as high as 38.79 per cent in

the 2006 Bear Stearns issue. Although the delinquencies are high across all vintages, it is the 2007 vintage that is deteriorating at the fastest pace. In the last seven months, the 90+ day delinquency rate of the 2007 CMO has

Table 1: continued

2007 Alt-A vintage							
Issue date	27/3/2007	Issuer	WAMU	Cusip	93936HAA4	October-07	September-07
Monthly data	March-08	February-08	January-08	December-07	November-07	October-07	September-07
Balance (m)	152,941	154,366	155,589	156,804	157,976	159,787	161,377
Delinq. 60+	18.55%	17.24%	16.54%	14.06%	10.28%	8.42%	7.76%
Delinq. 90+	15.83%	14.93%	13.00%	8.95%	7.73%	6.13%	3.51%
Full document	11.21%	11.19%	11.70%	11.72%	11.64%	11.52%	11.41%
Credit score	693	693	693	693	693	693	693
Location	Florida	Florida	Florida	Florida	Florida	Florida	Florida
1st location %	14.40%	14.40%	14.40%	14.40%	14.30%	14.20%	14.60%
Location	New York	New York	New York	New York	New York	New York	New York
2nd location %	14.20%	14.40%	14.30%	14.30%	14.20%	14.10%	14.00%
					Source:	Bloomberg	20/4/2008

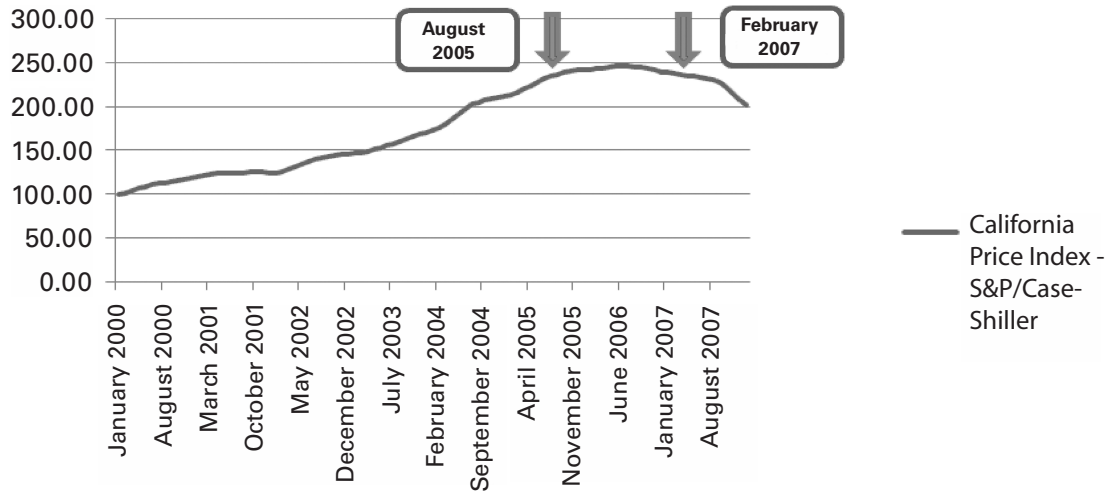
Issue date	25/4/2007	Issuer	Bear Stearns	Cusip	07387RAA6	October-07	September-07
Monthly data	March-08	February-08	January-08	December-07	November-07	October-07	September-07
Balance (m)	433,843	438,318	440,219	443,267	447,569	454,019	458,539
Delinq. 60+	26.90%	23.67%	19.94%	16.34%	14.05%	10.27%	6.11%
Delinq. 90+	22.47%	19.19%	16.16%	13.16%	9.87%	5.45%	3.26%
Full document	7.10%	7.03%	7.00%	7.03%	7.00%	7.42%	7.46%
Credit score	685	685	685	685	685	686	686
Location	California	California	California	California	California	California	California
1st location %	29.90%	30.00%	29.90%	29.70%	29.50%	29.60%	29.50%
Location	Florida	Florida	Florida	Florida	Florida	Florida	Florida
2nd location %	12.50%	12.40%	12.40%	12.50%	12.40%	12.20%	12.40%
					Source:	Bloomberg	20/4/2008

increased 351 per cent in the Washington Mutual pool and a staggering 589 per cent in the Bear Stearns pool, while the 2005 and 2006 vintages have both experienced increases in delinquency rates of around 150 per cent in the Countrywide pools. The exceptional deterioration in the 2007 pools is completely understandable. Even though housing prices peaked in 2006, large price declines did not begin materialising until the first part of 2007. The credit quality of the 2007 loans thus began to experience serious impairment as home prices began to deviate significantly from their appraised values. In addition, it should be noted that 60+ day delinquencies are in all cases higher than 90+ day delinquencies, indicating that more delinquencies are in the offing. The longer these loans are delinquent, the greater the probability that they will end up in foreclosure and lead to more write-offs.

Geographic concentration

The second area of concern is the geographic concentration of the loans in the collateral pools. Figure 1 depicts the trend in home prices for the California and Florida housing markets as measured by the S&P/Case-Shiller Home Price Index.¹ The study considers the California and Florida housing prices for two reasons. Housing price appreciation in both markets was significant for several years. From 2001 to the peak of the housing boom in mid-2006, prices appreciated by about 150 per cent in the California and Florida markets. The steady price appreciation led to massive speculation. A second reason to consider the California and Florida housing markets is because Alt-A loans were the loans of choice for housing speculators. Table 1 indicates that the majority of the Alt-A loans underlying these pools were issued in California and Florida. Several other pools with similar geographic

California Price Index - S&P/Case-Shiller



Florida Price Index - S&P/Case-Shiller

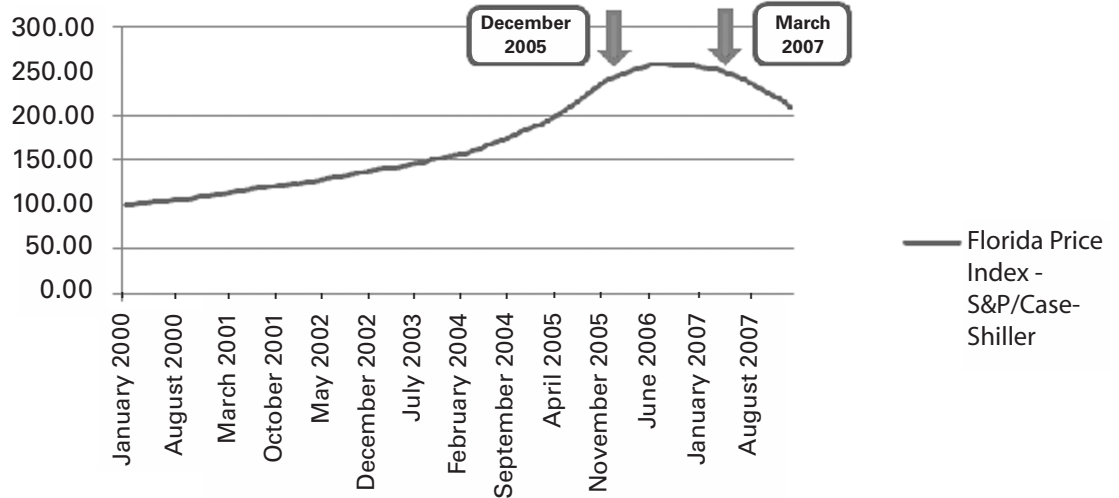


Figure 1: The S&P/Case-Shiller Home Price Index¹

concentrations have also been examined. In most cases, these pools exhibit far higher than average delinquency rates. The heavy concentration of Alt-A pools in the most speculative housing markets is not a good sign for the future performance of these securities.

Loan characteristics

What explains the preference of speculators for Alt-A mortgage loans?

Alt-A loans have historically been used by self-employed individuals and others who have difficulty documenting their income. These loans generally allow borrowers to state income without providing complete mortgage documentation. As underwriting guidelines deteriorated in the housing bubble, Alt-A loans became popular with speculators because they enabled average earners with good credit scores

to leverage multiple purchases and circumvent standard debt ratios by overstating income, leading to the pejorative moniker, 'liar loans'.⁶ The data in Table 1 indicate that, across the six pools in the sample, the average rate of loans with full documentation was only 11.89 per cent, meaning that an overwhelming majority of these loans were clearly provided without the safeguard of complete documentation. The second reason that Alt-A loans were so popular was because many programmes offered teaser rates for speculators. These loans, known as adjustable rate mortgages, have initial negative amortisation to keep monthly payments low. However, once the mortgage rates reset, payments increase substantially. Some of these loans began to reset in 2008 and a large number will reset in 2009. As rates reset, monthly payments will rise significantly, leading to more delinquencies.

Credit scores

The last area of concern is with the credit scores of the loans underpinning the collateral pools. The average credit score of the six pools is 693. This is a very high score, especially when one considers that Fannie Mae underwriting guidelines for conforming prime loans only require a credit score of 620. Alt-A loans were underwritten almost exclusively on the basis of good credit scores while minimising other traditional underwriting standards. The high credit scores underpinning the pools explain the very high credit ratings accorded to these pools by the rating agencies. The rating agencies probably employed historic default ratios based on borrower credit scores without adequately adjusting for the

added risk of overstated incomes and speculation.

THE FUTURE PERFORMANCE OF ALT-A MBS

Technically speaking, Alt-A securities are considered to be of better credit quality than subprime MBS. However, the accelerating credit deterioration in the Alt-A pools is very similar to that in the subprime collateral pools. While the subprime crisis was primarily created by lending to borrowers who were not creditworthy, the Alt-A crisis has its roots in excessive speculation. The primary cause of the impending crisis in the Alt-A market has to do with lending to borrowers with good credit scores who are unable to repay their loan obligations because of excessively leveraged positions and declining incomes in a recessionary economy.

Contributing to the bleak outlook is the fact that the majority of Alt-A loans were concentrated in the most overpriced markets near the peak of the bubble. Based on current collateral performance figures, ultimately the only distinction between subprime and Alt-A MBS will be that losses will take longer to materialise in the Alt-A pools due to the higher credit scores, and thus higher credit cushion, underpinning these pools. By September 2007, much of the subprime damage had already taken place, while only a small percentage of the Alt-A mortgages had begun to experience credit deterioration. Over the last six months, however, the decline in Alt-A securities has been extremely rapid. This trend is likely to get much worse over the next couple of years as adjustable rate mortgages reset.

Due to the similarities in collateral performance between subprime and Alt-

A securities, the potential write-offs in Alt-A securities are likely to be similar. One way of projecting potential losses is to consider actual subprime write-offs in relation to outstanding subprime loans. JPMorgan recently estimated the volume of outstanding subprime and Alt-A loans to be in the region of US\$1.3trn and US\$1trn for subprime and Alt-A loans, respectively.⁷ As of 1st April, 2008, Bloomberg reported that subprime write-downs among the biggest banks and securities firms in the subprime arena were US\$206bn.⁸ Thus, realised write-off for subprime loans is approximately 15.85 per cent, with much more still unrealised. Given an Alt-A market size of US\$1trn, a conservative estimate of Alt-A losses would be in the region of about US\$158bn. It is important to recognise that these numbers account for actual write-offs; they do not take into account potential losses, some of which will almost certainly be realised.

MANAGING THE RISKS OF MBS PORTFOLIOS: CREDIT ENHANCEMENT, LOSS EXPECTATIONS AND VALUE-AT-RISK

By the first quarter of 2008, the market for issuance of non-agency subprime and Alt-A MBS had essentially disappeared. However, agency MBS were still being issued, with Fannie Mae issuing about \$344bn of MBS during the first half of 2008. With astonishing rapidity, however, Fannie Mae collapsed, and by the end of September of 2008 it was placed under government conservatorship.

The collapse of Fannie Mae — the biggest issuer of MBS — contains several cautionary lessons on managing

the risk of MBS portfolios. MBS risks are particularly difficult to assess because credit risk, prepayment risk and interest rate risk are all intertwined. The high credit ratings of MBS are typically achieved through ‘credit enhancement’ (cash-flow prioritisation, over-collateralisation, letters of credit, pool insurance, etc). The collapse of Fannie Mae indicates very strikingly that the credit enhancement of MBS securities, given their underlying risks and loss expectations, was completely inadequate. Below, the paper analyses some of the features that led to the implosion of Fannie Mae.

At the end of 2007, Fannie Mae held investments in Alt-A securities totalling \$32.475bn. The average credit rating of this Alt-A backed mortgage portfolio was AAA, with a weighted average credit enhancement of 23 per cent (implying that the underlying mortgage pools had to experience over 23 per cent in losses before Fannie Mae’s portfolio would be affected). In contrast to Alt-A mortgage investments, Fannie Mae’s subprime investments had an even higher credit enhancement of 36 per cent. Yet despite these levels of credit enhancement, Fannie Mae’s mortgage securities still experienced the staggering losses that led to its ultimate demise.

It is clear in retrospect that the level of credit enhancement in Fannie Mae’s portfolio was insufficient given the underlying loss expectations that were generated by its extreme leverage. At the end of 2007, Fannie Mae had a core capital of \$45.373bn that supported \$882.55bn of total assets, resulting in a leverage ratio of 19.⁵ However, a better indicator of the risks it assumed is to consider the size of its mortgage credit book of business versus its core capital.

At the end of 2007, Fannie Mae's mortgage credit book of business totalled an astounding \$2,888bn, resulting in a leverage ratio of 64. In essence, this degree of leverage implies that \$1.56 of core capital supported a position worth \$100. This is, of course, a simplification as it does not consider netting, offsetting trading positions and diversification benefits. Nonetheless, a leverage ratio of 64 is still an extreme degree of leverage to assume, and implies that even relatively small adverse moves in the market would have constituted a significant threat to Fannie Mae's capital base.

Another way of assessing the risk embedded in Fannie Mae's portfolio is to apply value-at-risk (VAR). A detailed explanation of VAR is beyond the scope of this paper and can be found elsewhere.⁹ In short, however, VAR provides an estimate of potential losses given extreme adverse outcomes that have a low probability of occurrence. It is typically used to assess the probability of loss for a portfolio based on the materialisation of 5 per cent or 1 per cent of the worst outcome (ie 95 per cent or 99 per cent VAR, respectively).

The volatility of the daily, continuously compounded returns on Fannie Mae's stock is described as the daily volatility. One can convert daily to annual volatility by multiplying by the square root of the number of trading days (250). The 99 per cent annual VAR is then given by 2.33 times the standard deviation (SD) of capital. Thus, the daily volatility of Fannie Mae's stock price over 2007 was 3.46 per cent which results in an annualised volatility of $0.0346 \times \sqrt{250}$ or 54.71 per cent. Assuming that Fannie Mae's underlying asset volatility can be approximated by

its equity volatility, the 99 per cent annual VAR is then equal to:

$$0.5471 \times \$45.373\text{bn} \times 2.33 = \$57.84\text{bn}$$

Clearly, the potential loss of \$57.84bn would have been more than sufficient to wipe out Fannie Mae's core capital of \$45bn.

It could be argued that an annual VAR is unrealistically high given that the potential loss of \$58bn would be expected to occur once every 100 years. Here it is important to consider the credit rating of Fannie Mae's subprime and Alt-A portfolios. Fannie Mae's 2007 Annual Report indicates that 99 per cent of its Alt-A and subprime securities were rated AAA (Aaa). Historical default ratings provided by Moody's indicate that the one-year marginal probability of default for Aaa bonds is 0.009 per cent — a 9 in 100,000 probability event, or a 3.75 SD event. A credit rating such as that received by Fannie Mae implies a capital coverage equivalent to:

$$0.5471 \times \$45.373\text{bn} \times 3.75 = \$93\text{bn}$$

Fannie Mae's core capital of \$45bn was thus less than half the amount required to support its credit rating.

LESSONS AND RECOMMENDATIONS

The implosion of the Alt-A MBS market offers several lessons — some of which are applicable to the management of risk in general and some of which are specific to risk management in the MBS market. In addition to the obvious lessons that lending standards and capital requirements need to be considerably tightened, several other suggestions are presented below.

Eliminating mispricing and misallocation of risk in mortgage pricing

The current credit crisis represents the emergence of long-suppressed risks in the mortgage market. Mortgages in the USA have for several years now been mispriced in relation to their risk. A standard, 30-year mortgage has a fixed rate and no pre-payment penalties. When rates go up, the present value of mortgage portfolios decreases, thus negatively impacting the balance sheets of financial institutions. However, if rates decrease, there is no symmetric, positive balance-sheet effect as borrowers are free to refinance at new lower interest rates with no prepayment penalties. In addition to this non-symmetric risk sharing, borrowers can default on home loans with no significant penalties as 'non-recourse laws' protect borrowers from having their personal effects seized. The net effect of long-term fixed rates, no prepayment penalties and non-recourse laws means that financial institutions have a short option position on their mortgage portfolios — small upside return and significant downside risk.

Perhaps the most important overall lesson that one can derive from the credit crisis is that financial risk, like mass in physics, is not destroyed but merely transmuted. The risks in the subprime and Alt-A mortgage markets were never really destroyed but merely suppressed because of governmental guarantees. These risks are now finally becoming transparent. The major lesson here is that public policy should be so designed that economic risks should be made transparent and appropriately priced by removing governmental intervention in the operation of markets.

How should such risks be made transparent? This is addressed in the next recommendation.

Enhancing price discovery in the mortgage market

The sustained creation of a bubble in the housing market may never have occurred if a liquid, well-functioning real estate futures market had been well established. By allowing contrarians to assume short positions, the precipitous declines in the housing market could have been anticipated by price declines in the housing futures market. The S&P/Case-Shiller Home Price Index futures contracts traded on the Chicago Mercantile Exchange could have played this role. Unfortunately, trading in Case-Shiller Index futures began in 2006 when the housing market was already beginning to show weakness. As of October 2008, the longest dated futures contract on the Case-Shiller Housing Composite Index indicates even more price declines. Liquidity in this market is, however, problematic. If a liquid, well-functioning, housing futures market could take root, it might serve to prevent future bubbles.

Restructuring incentives in the mortgage market

The agency problem in economic theory refers to the manner in which incentives are structured, resulting in conflicts of interest between economic agents. As the fees earned by mortgage brokers are dependent only on the number of loan originations, the agency problem was particularly acute in the mortgage market where mortgage brokers had every incentive to dispense loans, even to the detriment of weak borrowers. Similarly, the financial institutions that

securitised the loans and offloaded the risks to investors had no incentive in performing due diligence on the credit worthiness of borrowers. The solution is to restructure the incentives in the market by linking a portion of the fees to the future performance of the mortgage or devising a system that rates the mortgage broker according to the future performance of his loan originations.

As described previously, there is non-symmetric risk sharing between mortgage providers and borrowers caused by 'non-recourse laws'. This is in fact another type of agency problem in the mortgage market created by the misalignment of incentives. The solution is to amend the non-recourse law so that there is more balanced risk sharing between borrower and lender.

Reforming the credit ratings industry

There is no doubt that credit rating agencies performed abysmally in identifying the true risk of many of the subprime and Alt-A mortgage pools. The rating agencies had little incentive to price risk accurately as bond issuers, who paid the rating agencies, had a vested interest in maintaining high ratings. Unless the relationship between rating agencies and issuers is fundamentally changed, credit ratings will carry little credibility. One method of achieving this is to create an industry-wide system of ratings through a user fee system administered by the Securities Exchange Commission. Bond issuers would pay to use the system, thus eliminating the direct link between issuer and rating agency. The user fee system would also make the rating agencies ultimately answerable to creditors.¹⁰

Introducing transparency through centralised clearinghouses

The crisis in the MBS and the larger CDO market is the logical outcome of an almost completely unregulated market in which standard protection features of exchange-traded derivatives markets such as initial and variation margins, marking to market, margin calls, etc do not exist. A centralised clearinghouse would greatly reduce counterparty risks by imposing standardised collateral requirements, monitoring exposures and imposing an overall netting system for the market.

CONCLUSION

In 2007, for the first time in more than half a century, US homeowners held less than a 50 per cent equity stake in their homes. The sustained decline in home values that began in 2007 led to the subprime mortgage crisis. While the deterioration of the subprime MBS market has received a great deal of attention, the implosion of the Alt-A MBS market has received far less attention. The outstanding amount of Alt-A securities poses a significant systemic risk that is already becoming evident.

This paper has identified the underlying causes for the deterioration of Alt-A MBS pools. While the deterioration in the subprime mortgage market was caused by lending to borrowers with poor credit, the Alt-A crisis was caused by lending to borrowers with fairly good credit who assumed excessively speculative, leveraged positions in overvalued housing markets. In a sense, the Alt-A crisis is nothing new — it is simply the most recent incarnation of investor mania, a phenomenon famously explored by Charles Mackay.¹¹

It is important for risk managers to recognise that the credit crisis is not a subprime mortgage crisis alone, but is in fact related to the entire ABS market. A major reason for pessimism regarding the Alt-A market is that the majority of the Alt-A loans were concentrated in the most overpriced housing markets near the peak of the bubble. Ultimately, the only distinction between subprime and Alt-A backed securities is that losses will take longer to materialise in the Alt-A pools due to the higher credit scores and the resulting higher credit cushions underpinning these pools. As many of the Alt-A loans are adjustable-rate mortgages that will reset in the next couple of years, more delinquencies and write-offs are almost certainly in the offing. Unless the housing markets and the broader US economy regain substantial momentum, it is almost certain that write-offs in the Alt-A markets will grow larger. Risk managers who recognise this and implement appropriate remedial actions will be acting prudently during a time of financial uncertainty.

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