

U.S. Subprime Crisis – Market Review

December 12, 2007

Insurance Industry Subprime Exposure¹

% of Net Assets	Number of Companies Surveyed	
	L/H	P/C
0%	10	75
Up to 10%	71	116
10-50%	2	0
>50%	0	0
Total:	83	191

¹ Based on A.M. Best's August 2007 survey of insurers with greater than 35% of bond holdings in structured securities or with direct mortgage loan portfolios exceeding 20% of invested assets.

Source: A.M. Best Co.

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Insurance Industry's Subprime Exposure May Be Modest, But Contagion Is Concern

As the turmoil from the subprime crisis ripples across the global credit and equity markets and threatens the stability of the U.S. economy, several insurers have announced their exposure to mortgage-linked assets in their third-quarter earnings. A.M. Best has been monitoring the industry exposure to the subprime crisis since August 2007.

- Given the diversity of life/health insurers' asset portfolios and their enhanced risk management practices, A.M. Best does not expect, at this time, to take negative rating actions due to the effects of the subprime crisis, with the possible exception of a handful of companies with above average exposure.
- Demand for title insurance products has slowed significantly in recent months, as evidenced by the decline in title insurance revenues which tracks the slowdown in mortgage originations. Some title insurers also face higher claim activity from underwriting exposure on homes financed with subprime mortgages that have defaulted.
- Although the majority of property/casualty insurers' investment portfolios will not be materially affected, A.M. Best believes companies actively writing professional liability coverage are likely to face higher claims activity due to bankruptcies and class-action lawsuits related to the subprime mortgage crisis.
- In the near term, A.M. Best expects the balance sheets of certain insurers to be affected as more clarity is gained regarding how subprime and Alt-A mortgage-linked securities are valued. Another concern is the potential for heightened default risk for adjustable-rate mortgages expected to reset over the next 18 to 24 months.
- A.M. Best also is concerned about the lack of pricing clarity on mortgage-linked securities and its contagion effect on the pricing of other asset classes. Evolving capital market conditions and the potential for increased economic risk and its impact on investment returns will likely remain the dominant investment theme for many U.S. insurers.
- Despite these concerns, A.M. Best remains confident in the overall strength and flexibility of U.S. insurance company balance sheets, observing generally modest exposure to subprime investments that seem to be concentrated in the highest credit quality tranches. A.M. Best will continue to monitor the investment environment and what impact exposure to mortgage-related investments will have on insurers' rates.



How Insurers Relate to Subprime

Over the past several years, U.S. insurers increasingly invested in mortgage-backed securities (MBS) in response to a period of prolonged low interest rates and overall spread compression. This strategy is more common for life and annuity companies, as MBS investments provide a good match for the longer-tailed liabilities. The rationale for investing in these structured securities was predicated upon the ability to achieve above-average investment returns with perceived low levels of credit risk relative to other asset classes.

The industry invested heavily in both government-sponsored enterprises (GSE) and nongovernmental residential MBS. For the former, the industry assumed little risk given the implied governmental guarantee. It is the latter, which includes prime, Alt-A and subprime securities, where the bulk of the risk is incurred. Asset managers sometimes take additional mortgage-related risk through selected hedge fund partnership investments and direct residential loans, although currently the exposure to these asset classes is not particularly meaningful for the majority of U.S. insurers.

While early signs of the pending subprime crisis (see **Appendix** for Subprime Primer) were evident in late 2005, it started simmering in the summer of 2006 when underwriting standards for residential mortgages became practically nonexistent. A.M. Best believes the problems within the subprime market are attributable to the convergence of a number of factors, including a softening housing market (down from its peak in the summer of 2005), lax mortgage underwriting standards and a high consumer debt load as a result of elevated levels of consumer spending, partially exacerbated by the monetization of home equity asset prices.

Initially, the popularity of subprime lending accelerated in the 1990s, fueled in part by the development of credit scoring (which made it easier for lenders to assess and price risks) and the increasing use of securitization (which removed the loans from banks' balance sheets). By the mid 1990s, interest rates were beginning to creep up, causing a dip in the prime market volume. Mortgage

originators looked to the subprime market to maintain their issuance levels, and investors' seemingly insatiable appetite for these higher yielding securities provided them with a willing market. Between 1995 and 2003, subprime lending grew to \$332 billion from \$65 billion, according to *Inside B&C Lending*.

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A.M. Best Assesses Subprime's Impact on Insurers

As the effects of the subprime crisis spread across the U.S. economy, the Federal Reserve Open Market Committee on Dec. 11, 2007, again cut the federal funds rate – its target rate for overnight loans between banks – by 25 basis points to 4.25%. The Fed had already lowered the funds rate by 75 basis points (from 5.25%) since September due to the tightening credit conditions resulting from the crisis in subprime mortgages.

As third-quarter insurance industry results have been announced, several insurance companies have disclosed their exposure to assets linked to subprime and Alt-A mortgages, as well as other losses related to the recent credit crunch.

Since last August, A.M. Best has been monitoring the insurance industry's overall exposure to mortgage-related assets and its potential impact on investment income. Specifically, A.M. Best surveyed U.S. insurers with what it considered to be meaningful exposure to mortgage-related securities. Although these companies may not be representative of the entire industry, A.M. Best believes its survey results are an early indicator of the industry's exposure. The agency's focus is on the effect these instruments are having on the balance sheets of rated insurers, not on the instruments, which have not been rated by A.M. Best.

The survey population was based on two measures: insurers with greater than 35% of bond holdings in structured securities, including those issued by Fannie Mae and Freddie Mac, the two government-sponsored enterprises (GSEs), or insurers with direct mortgage loan portfolios exceeding 20% of invested assets. Survey participants were asked to provide their holdings as of June 30, 2007 across several asset classes. These included their prime, Alt-A, subprime and GSE exposure in direct residential mortgage loans; indirect exposure via structured products (e.g., Residential Mortgage-Backed Securities, RMBS, and Collateralized Debt Obligations, CDO); and indirect hedge fund exposure. Survey participants also were asked to provide their subprime and Alt-A exposure by vintage year – the year that the pool of loans was originated – and rating tranche.

It also is important to note that the ratings of instruments held by the respondents were as of June 30, 2007 and do not reflect the substantial downgrades that have taken place over the past few months.

In addition, under statutory accounting, insurers report loan-backed and structured securities at amortized cost, and these are written down only if they are deemed other-than-temporarily impaired. Hence, the impact of declining market values of subprime securities is not likely to be reflected in companies' statutory capital.

From a GAAP perspective, both unrealized and realized losses resulting from changes in carrying values will affect shareholders' equity (assuming the securities are not designated as "held to maturity"). A.M. Best has observed some disparate accounting treatment as some companies are recognizing impairments through the statutory statements, while others are not. Moreover, it is likely that there will be significant disclosures added to year-end 2007 statutory filings, as there are

Life/Health Subprime & Alt-A Exposure

Exhibit 1 Exposure as % Of Net Invested Assets

	Number of Companies Surveyed*		
	Subprime	Alt-A	Subprime + Alt-A
0%	10	13	2
Up to 10%	71	68	73
10-50%	2	2	8
>50%	0	0	0

Exhibit 2 Exposure as % Of Total Adjusted Capital

	Number of Companies Surveyed*		
	Subprime	Alt-A	Subprime + Alt-A
0%	10	13	2
Up to 10%	44	37	31
10-50%	19	25	30
50-100%	5	6	15
>100%	5	2	5

* Total # of Companies = 83.
Source: A.M. Best Co.

currently no explicit disclosures required for subprime mortgage exposure.

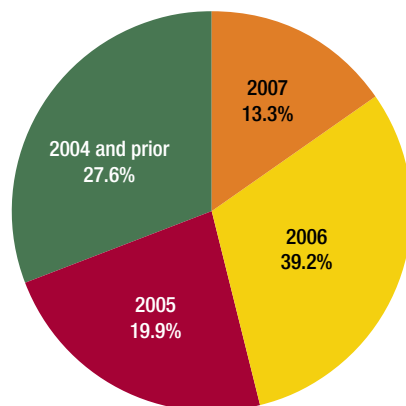
L/H Rating Implications

A.M. Best received survey responses from 83 L/H insurers, consisting of 71 life/annuity writers and 12 health writers. Overall, subprime exposure was determined to be relatively moderate for the survey population. It consisted primarily of investments in structured products such as RMBS – approximately \$39 billion in aggregate – with immaterial exposure to subprime-related direct mortgage loans and hedge fund investments. However, their overall exposure nearly doubled when Alt-A loans, totaling about \$30 billion, were included. It should be noted that default rates for subprime mortgages of roughly four

times those of Alt-A investments are currently being used for modeling purposes by several industry consultants.

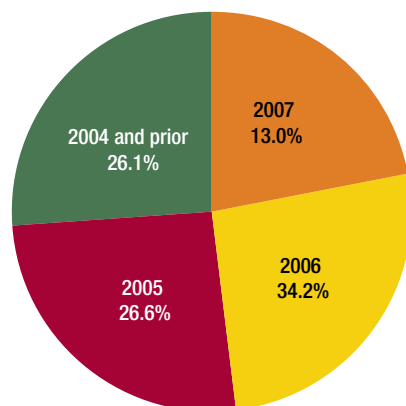
Aggregate exposure to subprime and Alt-A investments, as a percentage of invested assets, was about 5%, with subprime and Alt-A representing 2.8% and 2.2%, respectively. A.M. Best notes that eight of the 83 respondents had greater than 10% of their invested assets exposed to subprime and Alt-A. When measured against total adjusted capital, aggregate exposure was approximately 57% (subprime, 32% and Alt-A, 25%). There were 10 companies with elevated – greater than 50% of total adjusted capital – subprime exposure (see **Exhibits 1 and 2**). In the near term, A.M. Best will closely monitor both the economic and accounting implications of this exposure in determining whether any rating adjustments are necessary.

**Exhibit 3:
Life/Health Subprime
Exposure by Vintage Year**



Source: A.M. Best Co.

**Exhibit 4:
Life/Health Subprime &
Alt-A Exposure by Vintage Year**



Source: A.M. Best Co.

L/H insurers had a fairly high, 60% concentration in subprime and Alt-A assets originated in the riskier vintage years of 2005 and 2006 (see **Exhibits 3 and 4**). Given their origination at the peak of the housing market when underwriting standards were more lax, defaults for these loans have resulted in a substantial number of structured securities being downgraded by the rating agencies.

Of the \$69 billion in total subprime and Alt-A exposure surveyed, approximately 91% of subprime and 96% of Alt-A exposures were invested in tranches rated AAA or AA. The majority of the remaining subprime and Alt-A exposures represented investments in single-A-rated tranches (see **Exhibits 5 and 6**).

In the near term, A.M. Best will continue to monitor the investment environment for L/H insurance companies, maintaining focus on the subprime (and Alt-A) mortgage segments. Companies with above average exposure to the subprime mortgage crisis could experience negative rating actions; however, given the diversity of L/H insurers’ asset portfolios and their enhanced risk management practices, A.M. Best does not expect significant negative rating actions.

Even though initial observations have shown minimal impact on insurance companies’ financial statements, A.M. Best expects the balance sheets of certain companies to be negatively impacted as more clarity is gained

regarding the true economic valuations of these securities.

P/C Rating Implications

The U.S. P/C industry has been relatively unscathed by the developments in the subprime mortgage crisis. Compared with other industry segments, P/C insurers tend to take very little investment risk due to restrictive state regulatory guidelines. They are also reluctant to take on added investment risk, given that their balance sheets already are risk-inherent.

Of the 191 U.S. P/C insurers surveyed, only 2% of invested assets were exposed to subprime and Alt-A securities. Nearly 30% of survey respondents reported their investment portfolios had no exposure. Close to 70% had subprime and Alt-A exposure between 1% and 10% of invested assets. A significant minority (2%) said that their subprime and Alt-A exposure was between 11% and 50% of invested assets (see **Exhibit 7**).

Approximately 4% of the surveyed companies' surplus was exposed to subprime and Alt-A securities. The vast majority (63%) reported exposure between 1% and 10% of surplus, and about 8% had subprime and Alt-A exposure between 11% and 50% of surplus. There was one company that reported total exposure greater than 50% of surplus (see **Exhibit 8**).

Of the approximately \$6.0 billion in total subprime and Alt-A exposure surveyed, approximately 83% of subprime and 98% of Alt-A exposures were invested in tranches rated AAA or AA. The majority of the remaining subprime and Alt-A exposure was invested in single-A-rated tranches.

Although the volatility in the subprime market has spread into the equity and fixed-income markets, less than 1% of the surveyed insurers' invested assets were in various hedge funds with exposure to the subprime mortgage market.

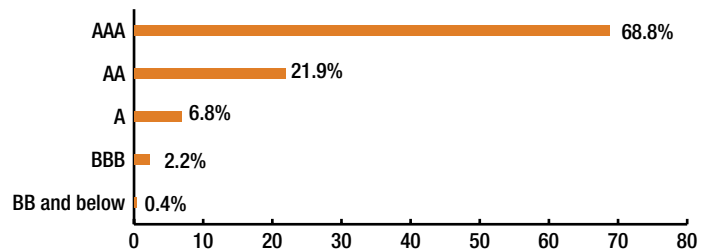
While A.M. Best, to date, has not taken any rating action on a stand-alone U.S. P/C insurer because of subprime-related issues, Swiss Re recently was placed under review with negative implications due to an incurred loss arising from its exposure to two credit default swaps written by its Credit Solutions unit and due to concerns

about potential write-downs given its ongoing exposure. In addition, Catlin Group recently recorded a \$75 million write-down due to its subprime-related assets; however, no rating action was taken. A.M. Best will continue to monitor on an individual company basis this issue as well as any residual effects pertaining to liquidity, changes in interest rates and volatility in the capital markets.

The impact of the subprime crisis on P/C insurers may likely be an increase in directors' and officers' liability (D&O) and errors and omissions (E&O) claims. Insurers affected would include those that provided professional liability coverage to banks, mortgage lenders, trustees and hedge funds that have either filed for bankruptcy or have seen sharp declines in equity values due to the subprime crisis.

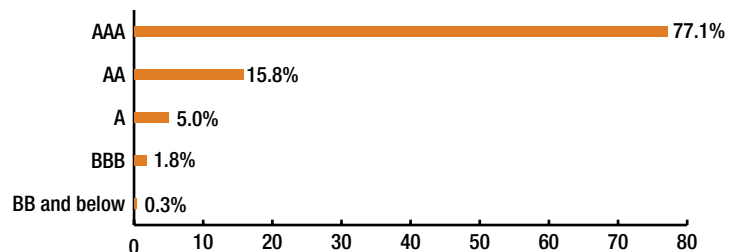
For professional liability insurers, the recent decline in class-action claim frequency appears to have come to an end.

**Exhibit 5:
Life/Health Subprime Exposure
By Credit Rating Category**



Source: A.M. Best Co.

**Exhibit 6:
Life/Health Subprime and Alt-A Exposure
By Credit Rating Category**



Source: A.M. Best Co.

Leading D&O writers will likely be immersed in a new wave of class-action lawsuits as the U.S. trial bar and investors seek restitution.

In September 2007, it was reported that investors, homeowners, shareholders and investment banks were filing lawsuits against hedge funds that collapsed and against mortgage lenders. The SEC was examining accounting and disclosure issues, including the sale of stock by executives of companies embroiled in the subprime crisis. Legal experts expect that this is just the tip of the iceberg, as litigation is expected to cut a much broader path. Already, law firms were assembling special groups to handle the expected onslaught, which some say will go beyond litigation to include securities fraud and regulatory issues.¹

A.M. Best will continue to monitor the emergence of class-action lawsuits and its impact on D&O insurers. With nearly 20 subprime lender securities class-action lawsuits already filed, ultimate loss severity and frequency is far from being realized. Moreover, more bankruptcies may be filed, adding to claims activity for professional liability insurers.

Additionally, the demand for title insurance

Property/Casualty Subprime & Alt-A Exposure

Exhibit 7 Exposure as % Of Net Invested Assets

	Number of Companies*		
	Subprime	Alt-A	Subprime + Alt-A
0%	75	91	55
Up to 10%	116	98	133
10-50%	0	2	3
>50%	0	0	0

Exhibit 8 Exposure as % Of Total Adjusted Capital

	Number of Companies*		
	Subprime	Alt-A	Subprime + Alt-A
0%	75	91	55
Up to 10%	111	93	120
10-50%	5	6	15
50-100%	0	1	1

* Total # of Companies = 191.
Source: A.M. Best Co.

products has slowed significantly in recent months, as evidenced by the decline in title insurance revenues that has closely tracked the slowdown in real estate activity and mortgage originations. Some title insurers also are facing higher claim activity from their underwriting exposure on homes financed with subprime mortgage products that have subsequently defaulted.

Conclusion

For companies with above average exposure, rating considerations will include a qualitative assessment of the company's overall risk management practices, a review of current subprime valuations and unrealized losses, and analysis of capital adequacy and liquidity. A.M. Best expects all companies with noteworthy subprime exposure to provide results of liquidity and capital stress tests under various scenarios. These include assumptions for declining real estate values, higher default rates, rising interest rate resets on ARMs and dislocation in the capital markets.

Despite some concerns, A.M. Best remains confident in the overall strength and flexibility of U.S. insurance companies' balance sheets, observing generally modest exposure to subprime investments that seem to be concentrated in the highest credit quality tranches. It appears that significant lessons were learned from the economic events of 2000 through early 2002, when many insurance companies' asset portfolios took hits due to lack of diversification.

A.M. Best believes that enhanced enterprise risk management practices (ERM) implemented over the past few years will continue to strengthen the industry's toolbox for evaluating, measuring and monitoring its overall investment risk. However, the current turmoil and potential for further dislocation in capital markets marks a true test of these practices. A.M. Best, then, will continue to monitor how effectively insurers utilize the tools of ERM in the context of the current and developing economic environment. To date, A.M. Best believes the proper implementation of ERM practices among industry participants has helped mitigate insurers' overall exposure to subprime.

¹ Tse, Tomoeh Murakami; Johnson, Carrie "Mortgage Mess Unleashes Chain Of Lawsuits," *The Washington Post*, Sept. 11, 2007.

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The drive to maintain business volume led to predatory lending practices and lax underwriting standards, which some say included inaccurate borrower and loan data. This resulted in mortgages with higher risk than initially thought. As the deterioration in the subprime market became clear, underwriting standards became more stringent. Then came the downturn in the housing market, described as the worst nationwide decline in housing since the Great Depression. This, coupled with an uptick in interest rates, led to a rise in defaults and delinquencies as borrowers could not access new funding (due to tightened standards) nor sell their homes to pay off existing loans.

Other factors, such as the resetting of adjustable-rate mortgages (ARM), which in some cases doubled a mortgagee's monthly payment, also are driving up overall default rates. Nearly 2.3 million subprime mortgages are projected to reset at higher rates, and correspondingly higher monthly payments, through the end of 2008. Many fear that those ARM loans will result in additional foreclosures that will create a further drag on property values.

In 2006, the delinquency rate on mortgages, which had been around 4% since the 1990s, had begun to inch upward, with increases noticeably larger for subprime loans.² By the fourth quarter of 2006, the delinquency rate on subprime mortgages jumped to more than 13%, 170 basis points higher than in the same quarter of the prior year, according to the Mortgage Bankers Association.

By midyear 2007, the crisis had erupted, resulting in the evaporation of liquidity in the asset-backed commercial paper market and sharp declines in valuation for instruments backed by subprime loans.

Beginning in early July, on a day now referred to by many as Black Tuesday, and in the weeks that followed, billions of dollars of RMBS were downgraded by U.S. rating agencies due to a growing concern over the continued deterioration of housing market fundamentals and rising interest rates and their potential impact on mortgage defaults. In addition, there was growing discomfort with the risk levels inherent in the complex investment structures as well as the model risk embedded in the market pricing of structured products.

The repackaged securities in a CDO generally are assigned higher ratings because the diversification of the underlying assets lowers the default risk. In recent years, however, lower-rated subprime collateral served as an increasing portion of the collateral.

With regard to CDOs, A.M. Best views these investments as significantly riskier structures, particularly within mezzanine-rated and nonrated equity tranches, since these securities are subject to highly complex valuation metrics. As this document goes to press, the insurance industry's exposure to subprime within CDOs is immaterial, however.

These valuation, risk and economic concerns converged in August as liquidity in the capital markets, particularly within the asset-backed commercial paper market, evaporated. This was accompanied by elevated volatility in the financial markets and a tightened credit environment for many households and businesses – conditions that are likely to continue, particularly on the consumer lending side.

The magnitude of write-downs by banks and brokerage firms in the third quarter of 2007 raises concern that the real impact of subprime on the broader economy and the financial sector may be larger than originally anticipated. This seemingly never-ending litany of write-downs included Citigroup Inc.'s estimated losses of \$11 billion, Merrill Lynch & Co. at \$7.9 billion, Barclays plc (\$2.7 billion), HSBC Holdings plc (\$3.4 billion) and Bank of America Corp. (\$3.3 billion).³ In October, UBS AG downgraded the value of some assets by about \$3.4 billion due to losses from the subprime crisis. In early December, the bank announced that it would write down its U.S. subprime holdings by another \$10 billion, resulting in a loss for the fourth quarter 2007 and possibly for the year.

From a capital markets perspective, investors generally have become more risk averse, and there has been a noticeable flight to quality as many have sought only the highest quality fixed-income securities such as government bonds. Global money market investors have shunned short-term, asset-backed commercial paper and debt issued by structured

² Ho, Calvin T; Agarwal, Sumit "Comparing the Prime and Sub-Prime Mortgage Markets," *Chicago Fed Letter*, August 2007.

³ Stewart, Sinclair; Perkins, Tara "Bank CEO Sounds Alarm," *The Globe and Mail* (Canada), Nov. 16, 2007.

investment vehicles (SIVs), partly because of concerns that subprime mortgages represent a large portion of the collateral backing these securities.

In addition, dislocation of the leveraged buyout (LBO) market is ongoing, with many LBO and structured finance transactions currently warehoused on intermediary balance sheets with significant losses likely to emerge. Moreover, valuation levels for asset-backed securities and CDOs continue to remain cloudy, with large losses even among the highly rated tranches.

Given the continuing risk aversion and widening of credit spreads in recent months, there is concern that other assets may be negatively impacted because of a lack of liquidity or economic developments, including the potential for a recession, as some predict, and higher levels of unemployment. The result could be an increase in defaults and/or market declines among these other asset classes. Asset classes that could be affected include lower rated corporate bonds, securities backed by credit card and auto loan receivables and commercial real estate investments, among others. Already, there have been reports of a rise in auto loan delinquencies in the third quarter. In addition, the commercial real estate market is experiencing some pull back and there is some notable evidence of a credit crunch materializing in the banking industry and in certain segments of the financial markets.

Recently, for example, a group of U.S. banks, including Citigroup, Bank of America and JP Morgan Chase & Co., announced the creation of a "master liquidity enhancement conduit." The plan calls for the establishment of a new structured investment vehicle (SIV), backed by the sponsoring banks, that hopes to raise upwards of \$80 billion and would purchase assets of existing SIVs. Essentially, the fund will purchase other SIV assets to help offset sales of these assets at fire sale prices, and to help stabilize the market as more SIV debt comes due.

SIVs borrow funds by issuing commercial paper and medium-term notes and then buy higher yielding assets of longer duration. They have been experiencing problems rolling over maturing debt in recent months as investors have shunned all but the highest quality short-term debt. Since the market for these securities has essentially become illiquid, sponsors

of several SIVs have had to step in and buy back maturing debt. In late November, HSBC became the first global bank to bail out troubled SIVs. It announced that it would provide liquidity facilities and other funding of up to \$35 billion as existing commercial paper and medium-term notes from two SIVs it sponsors mature. As part of the restructuring, HSBC will consolidate up to \$45 billion in assets from the two SIVs onto its balance sheet.

The recent problems surrounding SIVs and other investment products such as asset-backed commercial paper underscore a number of risk themes that are evolving: market instability and reduced liquidity; the lack of pricing transparency; divergent accounting treatment for impaired securities; and model valuation risk, particularly among lower rated tranches and the riskier CDO structures.

More recently, the subprime crisis has hit the Federal Home Loan Mortgage Corp. (Freddie Mac). On Nov. 20, 2007, it was reported that Freddie Mac recorded a \$2 billion loss for the third quarter as a result of defaults on home loans. The nation's second largest guarantor of home mortgages, which was created in 1970 to expand the secondary mortgage market, said it would have to find additional sources of capital.⁴

A day earlier, Swiss Reinsurance Co. (Swiss Re) announced a \$1.1 billion mark-to-market loss arising from its exposure to two credit default swaps affected by rating downgrades and illiquidity. Subsequently, A.M. Best placed the financial strength rating of A+ (Superior) and the issuer credit ratings of "aa" of Swiss Re under review with negative implications.

European stocks closed out the day with heavy losses, and it was noted that insurance stocks in particular were under pressure; shares in Allianz and Zurich Financial Services fell 2.8% and 3%, respectively. Some said that the news raised questions about insurers where there previously had been none. Moreover, on the day Swiss Re announced its loss, both the benchmark U.S. Treasury 10-year note and the 30-year bond gained in trading, further emphasizing investors' flight to quality.⁵

4 "Freddie Mac Posts \$2 Billion Loss," The Associated Press, Nov. 20, 2007

5 Wines, Leslie "Treasurys Up Again on Credit Worries," Associated Press Online, Nov. 19, 2007.

The problems related to the subprime crisis are likely to worsen before they improve. Significant unrealized losses within the banking and brokerage sectors have the potential to negatively impact subprime asset valuations. Residential real estate prices continue to decline in most metropolitan markets nationwide, delinquency and foreclosure rates are rising and the mortgage banking industry has experienced severe dislocation. A report published in October by the Government Accountability Office found that rates of default and foreclosure are likely to increase through the end of 2007 and into 2008. Fur-

thermore, the magnitude of related write-downs also is likely to accelerate; some estimate collective losses could reach between \$300 billion and \$400 billion.⁶

As a result, A.M. Best expects risk exposures will arise as structured securities experience delinquencies and defaults inconsistent with initial expectations – especially those containing loans closed during the second half of 2005, in 2006 and in early 2007.

⁶ Stewart, Sinclair; Perkins, Tara “Bank CEO sounds alarm,” *The Globe and Mail* (Canada), Nov. 16, 2007.

Appendix: The Subprime Primer

At year-end 2006, the total U.S. mortgage market was estimated at roughly \$10.2 trillion, of which 10% to 15%, or \$1.35 trillion, was subprime, according to the Mortgage Bankers Association. Furthermore, of the outstanding mortgages at year end, about 80% had been originated in the prior three years.

The subprime portion of the mortgage market has experienced significant growth; for example, the percentage of subprime mortgage originations jumped to 20% from 5% about a decade earlier. Several factors contributed to the fast growth of the subprime market, in particular, the rise in securitization.

According to the Mortgage Bankers Association, there were nearly \$2.5 trillion in total mortgage originations in the United States in 2006, of which about three-quarters, or \$1.9 trillion, was securitized. Moreover, a quarter of the securitizations involved subprime loans.

Subprime mortgages, loans made to borrowers with low credit scores or less than sparkling credit histories, originated more than two decades ago. They were made possible with the passage of the Depository Institutions Deregulation and Monetary Control Act in 1980, which pre-empted state interest rate caps, and the Alternative Mortgage Transaction Parity Act in 1982, which allowed the use of variable interest rates and balloon payments. The growth in subprime lending, however, is more related to the passage of the Tax Reform Act of

1986, which increased the demand for mortgage debt by eliminating the deductibility of consumer loan interest but not mortgage interest.⁷

Subprime is one of three general categories of mortgage loans:

- Prime, or conforming mortgages, are of the highest quality as borrowers in this category provide comprehensive documentation and possess strong credit scores.
- Alt-A, or alternative documentation loans (aka A-) are generally viewed as hybrids between prime and subprime loan but as originally designed, were closer to the former than the latter in terms of credit quality. An Alt-A mortgage is underwritten using more liberal standards and requires less documentation of the borrower’s credit profile.
- Subprime, or B-paper, represents borrowers with weaker credit scores and/or no verification of income or assets.

In general, there are two types of subprime mortgages: the traditional fixed-rate mortgage and the adjustable-rate mortgage (ARM). While the former is characterized by rate payments fixed at the loan’s inception, the latter’s rate payments are variable and can be adjusted monthly, semiannually or annually. Many subprime loans are a hybrid of both in that they have an initial

⁷ Chomsisengphet, Souphala; Pennington-Cross, Anthony “The Evolution of the Subprime Mortgage Market,” Review - Federal Reserve Bank of St. Louis, January/February 2006.

period when the rates are fixed, typically the first two to three years, after which they become adjustable. Moreover, these hybrids typically featured an artificially low “teaser” rate during an initial fixed period.

Subprime mortgage lending provides many who would not otherwise qualify with the opportunity to become homeowners. At the same time, it offers substantially higher returns to banks and investors. To compensate for the potential of a greater risk of loss, subprime loans carried interest rates substantially higher than prime loans.⁸

For investors, Alt-A mortgages were attractive as they offered higher yields than traditional mortgages, but were of decidedly better risk than subprime mortgages. As such, their popularity soared in recent years, accounting for more than 13% of all mortgages offered in 2006 compared with 2.1% in 2003. But, with their growth in popularity, some said underwriting standards grew increasingly lax, leading to products that more resembled “Alt-B” products.

Until the 1980s, mortgage debt typically was kept on the books of the lending bank until the loan was repaid. That began to change with the introduction of securitization more than three decades ago when the Government National Mortgage Association (Ginnie Mae) offered investors the first mortgage-backed security (MBS).

Such securitizations increase the amount of capital available to lenders to make loans by creating a security with a broader investor base, which improves the overall liquidity of the mortgage market. Essentially, a securitization involves the creation and issuance of securities in which the cash flows are derived from underlying pools of assets (i.e. typically loans). Two types of securitization products are asset-backed securities (ABS) and mortgage-backed securities (MBS).⁹

Asset-Backed Securities (ABS) are securities that are backed by a discrete pool of self-liquidating financial assets or loans (e.g., credit card receivables, auto loans and leases, or home equity loans). Many ABS carry some form of credit enhancement (e.g., bond insurance) to make them attractive to investors.

Mortgage-Backed Securities (MBS) are a type of ABS in which the loans are usually first mortgages on residential properties. The most basic form is a pass-through MBS in which the homeowners’ payments of principal and interest are passed through from the loan originator to a U.S. government-sponsored enterprise (GSE) or financial institution to investors, which are mostly institutions.

The MBS Creators

MBS are issued by two GSEs: the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corp. (Freddie Mac). Banks and specialty finance companies (e.g., Countrywide Financial Corp., Lehman Brothers Holdings Inc. and Wells Fargo & Co.) also issue MBS, which typically are referred to as private label or nongovernmental.

The GSEs and Ginnie Mae were created by the U.S. government to address perceived deficiencies in the U.S. housing finance market. Their objective is focused on enabling a secondary mortgage market and enhancing the liquidity of such loans.

The two GSEs buy mortgages on the secondary market and create a mortgage pool which is then sold as an MBS to investors on the open market. The GSEs do not receive backing or funding from the U.S. government and their securities do not benefit from any explicit government guarantee.

Ginnie Mae does not buy or sell mortgage loans, nor does it issue MBS. However, private lending institutions approved by Ginnie Mae issue MBS with the Ginnie Mae label. This government agency guarantees for investors the timely payment of principal and interest on MBS that are backed by federally insured or guaranteed loans – primarily those from the Federal Housing Administration (FHA) or the Department of Veterans Affairs (VA). Ginnie Mae securities are the only MBS that offer the full faith and credit guarantee of the U.S. government.

⁸ Chomsisengphet, Souphala; Pennington-Cross, Anthony “The Evolution of the Subprime Mortgage Market,” Review - Federal Reserve Bank of St. Louis, January/February 2006.

⁹ Adelson, Mark (Adelson-Jacob Consulting) “Credit-Rating Agencies And Financial Markets,” *CQ Congressional Testimony*, Sept. 27, 2007.

Fannie Mae and Freddie Mac also provide certain guarantees and, while not backed by the full faith and credit of the U.S. government, have special authority to borrow from the U.S. Treasury. Private-label issuers use various forms of credit enhancement.

The 1934 National Housing Act provided insurance for mortgage loans to facilitate home ownership. One of the provisions of this statute was the chartering of national mortgage associations of which only one was ever formed: Fannie Mae, in 1938. Its founding was part of U.S. President Franklin D. Roosevelt's New Deal to provide liquidity to the mortgage market through secondary trading. Mortgage loans became quite scarce once the housing market collapsed during the Great Depression. The creation of Fannie Mae, operating a lot like a savings and loan institution, led to the development of the secondary mortgage market over which it held a virtual monopoly for the next 30 years.

The 1968 Charter Act split Fannie Mae into two parts. Fannie Mae was privatized and ceased being the guarantor of government-issued mortgages. Its transition to a GSE was completed in 1970. To fill that gap, the remaining part of Fannie Mae became Ginnie Mae, a new government-owned corporation within the Department of Housing and Urban Development.

To break Fannie Mae's monopoly on the market, a second GSE, Freddie Mac, was created in 1970. Freddie Mac was chartered under the Emergency Home Finance Act of 1970, capitalized by the U.S. government and operated under the auspices of the Federal Home Loan Bank Board. Nearly two decades later, it was restructured under the Financial Institutions Reform, Recovery and Enforcement Act of 1989, becoming a privately held entity.

Like Fannie Mae, regulatory oversight of Freddie Mac also is provided by the U.S. government (i.e., HUD and its Office of Federal Housing Enterprise Oversight). Regulatory focus is on the GSE's housing mission and overall financial soundness.

Loans that qualify to be sold to Fannie Mae and Freddie Mac are called conforming loans. These loans meet criteria (e.g.,

debt-to-income ratio limits, documentation requirements and loan size) established by the GSEs annually. Since only conforming loans are purchased by the GSEs and repackaged for the secondary market, they benefit from greater liquidity. For these reasons, non-conforming loans (aka jumbo loans where the amount limit is exceeded) typically cost borrowers a premium historically ranging from one-quarter to one-half a percentage point.

Evolving Product

While all bonds that are supported by mortgages can be classified as MBS, there are further distinguishing characteristics. The most basic type of MBS are pass-through participation certificates that entitle the holder to a pro-rata share of all principal and interest payments made on the pool of loan assets. But there are more complicated structures. These include:

- *Collateralized Debt Obligation (CDO)* is a security that is backed by different types of debt, including bonds and loans, which are placed in tranches according to certain risk and reward characteristics. Each tranche is a distinct security, with the tranche possessing the highest level of risk offering the investor the highest yield.
- *Collateralized Mortgage Obligation (CMO)*, first issued in the early 1980s, is a more complex MBS in which the underlying assets are mortgages that are placed into tranches according to certain criteria, such as repayment time. The multiple-class feature of CMOs was designed to increase the attractiveness of these products to a broader range of investors.
- *Residential Mortgage-Backed Security (RMBS)* is a pass-through MBS backed by mortgages on residential property.
- *Commercial Mortgage-Backed Security (CMBS)* is a pass-through MBS backed by mortgages on commercial property.
- *Real Estate Mortgage Investment Conduit (REMIC)* is a type of multiclass mortgage-related security and the primary private-label securities issued. First introduced in the 1980s, REMICs are customized structures that redistribute cash flows from interest and principal payments into separately traded

securities or tranches, each distinguished by their sensitivity to the prepayment risk, interest rates and maturities.

Still, it was not until the mid to late 1980s that the broader market began to embrace securitized mortgage transactions. One issue inhibiting the growth of this market was whether banks were prohibited from getting involved with securitization

under the Glass-Steagall Act. The matter was subsequently resolved in the courts, which allowed banks to underwrite such securities. By the 1990s, the securitization of mortgage debt, which spread the risk across the broader financial sector, had become widely popular.¹⁰

¹⁰ Norris, James "Rating agencies: heads I win, tails you lose..." *Global Investor*, September 2007.



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