

## **PRUDENT INVESTING? THE CREDIT CRISIS OF AUGUST 2007, MAINSAIL II SIV-LITE, AND THE STATE CASH INVESTMENT POOL**

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### **Abstract**

This paper reviews the period leading up to and including the credit disruption of August 2007 and then examines one failed structured finance issue and one investor in that issue. The investor was a financially conservative U.S. state treasury and the issue, Mainsail II, a little-known esoteric structure known as a SIV-Lite. The pairing of these two entities is part of the story of the financial crisis and tells us much about the excesses of the markets at that time and the lack of investment discipline. The paper explains the structure of a SIV-Lite as well as a collateralized debt obligation (CDO), a structured investment vehicle (SIV), and an asset-backed commercial paper conduit. It explores the role of the broker and rating agencies in the investment decision.

**Keywords:** financial crisis, SIV-Lite, asset-backed commercial paper, investment decision, cash investment pool

**JEL Classification:** G01, G11, H79

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### **Introduction**

In August of 2007 the credit markets in the U.S. and much of the world came suddenly and calamitously to a near halt. Amongst the casualties was the asset-backed commercial paper (ABCP) issued by a relatively unknown financial structure—a SIV-Lite—called Mainsail II which was frozen by its trustee on August 20, 2007. Among the many investors in Mainsail II was the state of Maine in the U.S. The Maine Treasurer's office had purchased \$20 million worth of Mainsail II commercial paper just twelve days earlier on August 8, 2007 for its Cash Investment Pool. The Cash Pool is a short-term investment portfolio of highly rated securities.

Commercial paper (CP) is rated by one or more rating agencies and highly rated issues were considered very liquid and very safe; the U.S. market is very large, over \$1 trillion outstanding at this time. CP is short-term debt, generally limited to a maturity of less than

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365 days (the maximum maturity is 270 days in the U.S. and 364 days in Europe).<sup>1</sup> In practice most CP has a much shorter maturity. ABCP is a form of senior secured, short-term borrowing in contrast to corporate CP which is senior unsecured short-term debt. The name ABCP derives from the fact that ABCP is backed by the assets of the issuing structure, rather than an ongoing firm. Yet when revealed to the media several months later, this investment in highly-rated ABCP was characterized as a risky investment in subprime mortgages. The opposition political party called the investment ‘hasty,’ ‘careless,’ and a ‘fiscal blunder’” (Cover, 2007).

The pairing of these two entities—a financially conservative short-term state cash investment portfolio and an esoteric, relatively unknown security—is part of the story of the financial crisis. What is a SIV-Lite and why did this state Treasury (as well as others) invest in this security? What weaknesses in the processes of the investor, the broker, and the rating agencies created the circumstances for this pairing of investor and investment? Understanding the answers to these questions will aid us in responding to the crisis through new regulations, and also understand the limitations of such approaches.

### **1. The Events of August 2007**

Even before August, 2007 had been a rough year in the capital markets. The primary area of concern was weakness in the U.S. housing markets. According to William Poole, President of the U.S. Federal Reserve Bank of St. Louis, sales of new single-family homes began to decline following the peak in July 2005 and by late 2006 housing starts had declined to a three-year low (Poole, 2007). At the same time, mortgage foreclosures also began increasing in 2006, climbing above 0.5% for the first time in the 35 year history of the data. January 2007 was the first month in ten years to show a twelve month decline in nationwide residential property values.

Mortgage problems first surfaced in the subprime segment. Janet Yellen, President of the U.S. Federal Reserve Bank of San Francisco, explained what occurred:

*“With the benefit of hindsight, it is now apparent that underwriting standards slipped substantially in the United States as house prices soared. For example, permissible combined loan-to-value ratios edged up during 2005 and 2006. And no- or low-documentation loans—so-called “stated income” loans—became more prevalent. Such loans might have performed reasonably well if house prices had continued to rise, but once house prices leveled off and then began to decline, the stage was set for trouble”* (Yellen, 2008).

With little attention, in February 2007 HSBC and New Century Financial announced larger than anticipated losses from rising defaults of subprime mortgages in the United States (Barker, 2007). By March 2007 the housing bubble, as we now view it, had burst—home prices started to noticeably decline and over 20 subprime lenders were bankrupt or close to it (over 100 would fail or cease operating over the year). In mid-June, two Bear Stearns

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<sup>1</sup> CP is exempt from the registration requirements of the U.S. Securities Act of 1933 based on (a) Section 3(a)3, which requires the proceeds (with a maturity not to exceed 9 months) to be used to finance current transactions, or (b) section 4(2), if the CP is sold only to accredited investors, or (c) section 3(a)2, if it is fully supported by a bank guarantee.

hedge funds collapsed due to the mortgage crisis (eventually to declare bankruptcy on August 1, 2007). In mid July, Standard & Poor's (S&P) and Moody's each downgraded over 400 or more residential mortgage backed security (RMBS) classes (Stein, 2007). Significantly, Moody's had downgraded 558 total RMBS by this point of 2007, which were held in 294 collateralized debt obligations (CDOs; see discussion later about CDOs). On July 24 the largest American mortgage originator (as of 2006) Countrywide Financial Corporation announced that subprime mortgage problems had spread to its prime mortgages. On July 30, a German Bank IKB Deutsche Industriebank had to be bailed out because of mortgage problems, illustrating the global nature of these markets. Fed President Poole estimates that foreigners held as much as \$150 billion in securities backed by subprime mortgages (Poole, 2007).

Despite the market jitters entering August 2007, the U.S. Federal Reserve Board's Federal Open Market Committee (FOMC) on August 7 did not make any adjustment to the Fed Funds target rate, keeping it at 5.25%. While its statement that day referred to volatile financial markets, tightening credit, and a housing "correction," it expected the economy to continue a moderate expansion, "supported by solid growth in employment and incomes and a robust global economy" (FOMCa, 2007). But a day earlier American Home Mortgage, the tenth largest U.S. mortgage lender, had filed for Chapter 11 protection. On August 9 another large American mortgage lender, American International Group, echoing Countrywide earlier, announced that mortgage defaults were spreading beyond the subprime market. French bank BNP Paribas suspended three investment funds worth 2 billion Euros, citing U.S. mortgage problems: "It said it was 'impossible to value certain assets' in an uncertain market" (BBC News Online, 2007). This news roiled markets and the Fed was forced to act. Two days after it had referred to the "robust global economy" it began pumping billions of dollars into the economy. The August 10, 2007 FOMC statement said: "The Federal Reserve will provide reserves as necessary through open market operations to promote trading in the federal funds market at rates close to the Federal Open Market Committee's target rate of 5-1/4 percent" (FOMCb, 2007).<sup>2</sup> Such interventions were also undertaken by central banks in Europe and elsewhere.

The rating agencies announced a series of substantial downgrades of highly rated tranches of subprime MBS as delinquencies increased. "These downgrades raised concerns not only about mortgage-backed securities themselves, but also about the quality of rating agencies' evaluations of risk in other structured credits. As a result, investors grew wary, as they had trouble knowing what risks were embedded in these instruments, how to price the risks, and who would ultimately bear the risks. The consequence is that the markets for many such assets are now highly illiquid and all but closed for new business" (Yellen, 2008).

The commercial paper market, usually considered a low-risk, highly liquid market, was virtually drying up overnight. As evidence, consider that outstanding CP dropped over 16% in about two weeks and 25% by mid-October, reflecting the lack of new paper to replace maturing paper. Investors were dumping all mortgage-related assets, not just subprime issues. As Stuart Graham of Merrill Lynch would say in a note to clients: "We believe that investors and bank managers themselves are suffering from a crisis of confidence. Put

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<sup>2</sup> The federal funds market is the market for borrowing and lending overnight between large financial institutions. The Fed also emphasized the availability of its discount window, referring to loans made directly to banks by the Fed.

simply, nobody knows where the subprime problems are buried. Banks are worried what dangers lurk in each other's books. As such, the dispersion of risk—which we had hoped would be a good thing—has come to be seen as a major cause of the current problems" (quoted in Kennedy, 2007).

The entities that funded primarily with commercial paper, in particular SIVs, SIV-lites, and bank conduits (see discussion later) were particularly hard hit; all fund long maturity assets with short-term commercial paper. Banks were hard hit as well. The conduits and SIVs are separate legal entities, but banks often support them with backup lines of credit or liquidity facilities, and also often manage the assets. If the assets of the SIV or conduit cannot be sold (as in the environment of August 2007), the bank will have to fund the line of credit or the liquidity facility. In many cases, as explained by Federal Reserve Bank of San Francisco President Yellen, banks are concerned about reputational capital: "When the SIVs were in danger of failing, the banks were concerned about reputational effects and decided to rescue them by taking the underlying assets back onto their own balance sheets. Furthermore, as investors have pulled back from the markets for asset-backed securities, the value of these securities and CDOs has fallen dramatically, so banks and other financial institutions have had to write down their values, which has shrunk their capital" (Yellen, 2008).

A sharp contraction in the ABCP market is a significant event. The ABCP market is huge, representing the majority of the CP market. The U.S. ABCP market hit its all-time peak the week ending August 10, 2007, with \$1,173.4 billion in outstandings. This represented 54% of total CP outstanding.<sup>3</sup> In addition to ABCP, the CP market consists of financial CP and non-financial CP. Financial CP is issued by firms like auto-finance companies. Non-financial CP, what we consider standard corporate CP, represents a bit less than 10% of total CP. ABCP outstanding had stood at \$630.5 billion in August 2004; thus it had almost doubled in three years. The European ABCP market also had grown rapidly, from Euro 50 billion in 1998 to Euro 550 billion in 2007, equivalent to about \$748 billion (Kennedy, 2007).

On August 16, S&P issued a warning about possible rating downgrades of several CP issuers, Countrywide Financial drew down its credit lines after being unable to raise funds in the markets, and the Fed reduced the discount rate by 50 basis points (bp) to 5.75% (it did not change the Fed Funds target rate).<sup>4</sup> In the ongoing flight to quality by money market managers in particular, yields on Treasuries dropped reflecting increased demand, while required yields on CP and subprime debt soared. One-month T-bill rates declined 145 bp by August 16. But rates on ABCP rose to levels not seen since September 11, 2001. The high end of the spread to 1 month LIBOR was 5 bp on August 3, widened to 35 bp by August 10, 50 bp by August 17, and 65 bp by August 31 (Credit Suisse Securities, 2007). The spread of ABCP to CP also increased; the spread on top rated 1 month ABCP over top rated financial CP was 6 bp at the end of July; by August 24 it was 72 bp and by August 30 it was 96 bp (Weisman and Greenlaw, 2007).

<sup>3</sup> In 1995, that percentage was about 15% (Credit Suisse Securities, 2007).

<sup>4</sup> A basis point (bp) is 1/100<sup>th</sup> of a percent. 100 bp equals one percent. The discount rate is the rate the Fed charges for (usually) overnight loans made to banks; the Fed Funds rate is the rate banks charge each other.

In the midst of this increasingly volatile and illiquid market, Mainsail II SIV-Lite ran into trouble. On August 20, Mainsail II was unable to raise sufficient funds in the ABCP market and it announced it may have to sell assets. Mainsail II's manager Solent Capital "said in a regulatory statement that funding difficulties in the CP market meant Mainsail II had been forced to draw on liquidity facilities from banks, which were expensive and 'may cease to be available'" (Davies and Politi, 2007). The backup liquidity funding consisted of a total of \$556 million from Barclays, which was insufficient, and unfortunately there was little interest in the market in purchasing Mainsail II's U.S. mortgage related assets. A statement from Mainsail II said: "Current market volatility and lack of market liquidity with respect to sub-prime lending markets have caused adverse conditions with respect to the liquidity and market risk exposures on the Company's underlying portfolio of investments" (Solent Capital, 2007). The inability to raise funds in either the U.S. or Euro commercial paper markets coupled with the inability to sell assets caused a market value coverage test to fail, which was a trigger or enforcement event that signaled a wind-down of the structure. A wind-down means that the collateral manager will redeem outstanding liabilities as they become due and cannot issue new CP or notes. Mainsail II's trustee, the Bank of New York, froze the assets on August 20. Mainsail II had thirty days to liquidate its portfolio. This contractual arrangement is designed to protect the investors, but it depends on a ready market for the portfolio assets. The wind-down also requires a closing out of hedge positions possibly at a loss. The lack of buyers in the ABCP market affected other firms on August 20. Thornburg Mortgage Company of the U.S. and HBOS (the largest mortgage lender in the UK) also could not roll over CP that day.

Shortly thereafter, on August 22, ratings were cut on Mainsail II securities to junk status. Its highest rated mezzanine notes fell from AAA to CCC+, the tier 2 notes to CCC, and the capital notes to CCC- (by S&P). The ABCP was dropped by Moody's from Prime 1 (P 1) to "not prime," its short-term non-investment grade. S&P dropped the ABCP to A-3. One day later S&P further lowered the ratings, to B (junk status) for the ABCP, and CC for the mezzanine notes and capital notes. The securities, such as the ABCP held by the State of Maine, were unsellable and would not mature as scheduled on August 31, 2007.

## 2. The SIV-Lite Structured Credit

Mainsail II is characterized as a SIV-Lite, a type of structured credit product. Structured credit is "the process of taking plain vanilla credit instruments and 'structuring' them to meet certain [investment] goals" such as diversification, payment redistribution, hedging, profiting from the yield curve, and many others (Mahadevan, et al., 2006). In 2007 SIV-Lites were relatively recent financial structures (the first SIV-Lite was Wharton Asset Management's \$2 billion issue H2 Finance in 2004) and relatively rare—as of August 2007 only five SIV-Lites had been launched (Davies, 2007).

A SIV-Lite bears similarities to other structured products such as a SIV (structured investment vehicle), an ABCP Conduit and a CDO but there are important differences as well. All of these structures perform a similar act of intermediation—buy assets funding primarily with some sort of debt, usually commercial paper. At the center of the structure, as with all securitizations, is a special purpose vehicle (SPV), set up to be "bankruptcy remote" to insulate the structure from problems in the originator of the securities it purchases. The SPV is a limited purpose company (limited to issuing CP and purchasing

assets), organized as a corporation (the most common structure), trust, limited liability corporation or partnership, or a limited partnership (Bate, et al., 2003). Some of the SPVs have a defined limited life; others have no maturity but instead are continuous operating companies. See Table no. 1 for a summary of the structures.

**Table no. 1: Structure Characteristics**

<b>Structure</b>	<b>ABCP Conduit</b>	<b>SIV</b>	<b>CDO</b>	<b>SIV-Lite/ Mainsail</b>
Limited Purpose SPV?	√	√	√	√
Limited Life?			√	√
Maturity Mismatch/ABCP a Primary Source of Funding	√	√		√
Implicit Sponsor Guarantee	Probable	Perhaps		
Liquidity Facility	100%	5-10%	Not necessary/ typically no ABCP	30%
Credit Enhancement	About 7% in the form of a letter of credit, overcollateralization, etc.	Capital notes provide credit enhancement (absorbs first loss).	Creates tranches differing by credit rating; lower rated tranches provide credit protection for higher rated tranches. Equity notes take the first loss.	Capital notes provide credit enhancement (absorbs first loss).
Size of Market in early 2007	\$967 billion	\$400 billion	\$2 trillion	\$13 billion

In the case of ABCP financing of these structures, there is a liquidity facility, ranging from 5% to 100% of the CP liabilities. A liquidity facility is a commitment to lend to the SPV or purchase assets from the SPV if funds are needed to repay maturing commercial paper. This is normally to protect against a timing problem, when new CP sales have not settled in time to repay the maturing CP issues. Liquidity facilities typically will not advance against

defaulted assets (those default are covered by credit enhancement). Credit enhancement can be external (e.g., a letter of credit) or internal (subordinate or lower rated tranches which face the first losses) and can be as high as 100%, but is typically much lower. All these structures have some sort of investor protections that are “triggered” by one of several negative events (such as a value test where value of assets falls below value of liabilities, a cash flow test where incoming cash flow cannot service liability interest requirements, or a quality test where the diversification and credit quality of the portfolio is insufficient). The trigger may signal a redirection of cash flows, portfolio trading restrictions, or even a wind-down of the structure as with Mainsail II.

The distinctions among the structures can be separated into: asset/liability structure, liquidity coverage and credit enhancements, defined life of the SPV, and sponsorship. There is no clear line between any of these structures, thus Mainsail II is referred to as a SIV-Lite and a cash CDO. Because all of these structures are not fully understood and because of their similarities and differences, it is worth reviewing them.

An *ABCP conduit* is a bankruptcy remote SPV—the conduit—that issues ABCP to fund the purchase of various assets such as trade receivables, auto leases, equipment leases, consumer loans, and sometimes mortgages. The conduit has an ongoing, indefinite life. Generally, ABCP conduits are sponsored by a bank or other financial institution, which often also administers the conduit. An institution is a “sponsor” if it has a financial stake in the program, although it does not own the program (Office of Thrift Supervision, 2005). A conduit is a way for a bank to provide alternative funding for clients, as a way to move assets off balance sheet (which can improve capital ratios), and as a way to profit from a yield curve spread. A single-seller conduit buys assets from one seller, a multi-seller conduit deals with more than one seller, and a securities-backed conduit (also known as a securities-arbitrage conduit) buys publicly rated securities (AAA to AA-) including asset-backed, mortgage-backed, and corporate securities.

ABCP conduits were first established in the mid 1980s and have survived the crisis due to their liquidity facilities and (often) an implicit sponsor guarantee. At year-end 2007 there were estimated to be 320 active ABCP conduits with CP outstanding of \$967 billion (Fitch Ratings, 2008). ABCP conduits have 100% liquidity facilities to ensure the timely repayment of CP in the event that the conduit cannot issue or refinance its CP. However, the liquidity facility will not protect investors against assets in default. ABCP conduits usually have up to 7% credit enhancement in the form of a letter of credit by the sponsor, overcollateralization, loss reserves, or a third-party guarantee. “Therefore conduit investors are exposed to the default risk on the underlying assets but are not exposed to the market value (or price) risk of those assets” (Fitch, 2007).

A *structured investment vehicle (SIV)* also consists of a bankruptcy remote special purpose vehicle, also with an indefinite life. It is similar to a securities-arbitrage ABCP conduit in that it invests in highly rated securities and makes income by arbitraging short-term, cheaper funding with long-term higher yielding assets. However, the SIV is funded with a combination of CP, medium term notes (MTNs), and capital notes, with the majority CP. The CP and MTNs are highly rated (P-1 or F1<sup>5</sup> for the CP and AAA for the MTNs). The capital notes provide the credit enhancement for the senior investors.

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<sup>5</sup>The top CP rating for each rating firm is P1 Moody’s, A1 S&P, and F1 Fitch.

SIV investments consist of AAA/AA structured securities, corporate and sovereign bonds, and subordinated bank debt with on average a weighted average life of four years, versus a weighted-average life of the liabilities of one year (Fitch, 2008). Note that most SIVs operate with the support of a 5-10% liquidity facility, unlike the 100% facility in a conduit structure.<sup>6</sup> The bank or investment company that manages the SIV does not necessarily provide any liquidity support or credit enhancement (such as we find with conduits). During illiquid periods such as August 2007, there was an inability to issue new CP to fund maturing CP. ABCP conduits were able to draw on their liquidity facilities and all conduit ABCP was repaid when due. SIVs, on the other hand, did not have 100% liquidity facilities. When the SIVs were unable to roll over their CP, they were forced to sell assets at a loss. Moreover, the market value declines of the assets caused them to breach market value tests (and some liquidity tests), thus triggering an enforcement event which froze the structure.

The first SIVs were developed in the late 1980s. As of mid 2007 there were 28 SIVs with assets totaling about \$400 billion. By late 2007 seven of those SIVs had entered an enforcement state and assets under management had dropped to \$190 billion.

While a SIV is similar to a security-arbitrage ABCP conduit, it can also be seen as a form of a market-value *CDO (Collateralized Debt Obligation)*. A CDO is an SPV which purchases a group of assets (securities, not pools) and issues securities (such as bonds) to finance the assets. The typical CDO funds longer-term than the other structures examined here. The assets can consist of investment grade or high-yield corporate loans, investment grade or high yield bonds, commercial real estate debt, and structured finance securities such as RMBS (real estate mortgage-backed securities), CMBS (commercial mortgage-backed securities), CMOs (collateralized mortgage obligations), ABS (non-mortgage asset-backed securities), and other CDOs. Well over 50% of the assets of CDOs purchased in the few years before 2007 were in structured assets (SIFMA, 2008). CDOs that invest in other CDO securities are dubbed CDO-squared, and if a CDO invests in CDO-squared, it is dubbed CDO-cubed. A CDO funds by issuing securities with similar maturity characteristics as the underlying collateral. The liabilities are credit "tranching" (senior, junior, equity) with equity notes taking the first loss, then junior notes, and only then senior notes.<sup>7</sup> The first CDO was issued in 1987, arranged by Drexel Burnham Lambert. At year-end 2006 the market was estimated at \$2 trillion outstanding world-wide.

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<sup>6</sup> S&P says: "Unlike other areas of structured finance, in SIV transactions 100% liquidity facilities are not required as the SIV is subject to many stringent tests and constraints and benefit can be given to the liquidity of the assets that it holds" (S&P, 2002). In an SIV, the liquidity lines are generally to address the normal mismatch of timing between repayment of liabilities as they fall due and issuing of new liabilities. "Standard & Poor's considers it important that each SIV have an appropriate mix of liquidity lines from external providers and internal liquidity to be able to repay some level of its short maturing liabilities when they fall due." The "many stringent tests" include weekly surveillance reports to the rating agencies with the various test results and portfolio characteristics.

<sup>7</sup> There are many types of CDOs. A "cash" CDO implies that the SPV owns actual cash assets like bonds and loans and the investors are paid principal and interest from the asset cash flows. A "synthetic" CDO instead invests in derivatives like credit default swaps. Some tranches in a synthetic CDO may be "funded tranches" implying that they are collateralized by extremely low-risk assets such as Treasury bonds. This is similar to a credit-linked note. A cash-flow CDO pays liabilities with the interest and principal cash flows from the assets. A market value CDO supports liabilities



A SIV-Lite like Mainsail II has similarities to all the structures discussed. Like a SIV, a SIV-Lite buys high quality assets while funding with cheaper CP and MTNs. Because most of the liabilities are short-term CP with maturities less than the assets, the SIV-Lite attempts to profit from the maturity mismatch (also similar to a securities-arbitrage ABCP conduit). However, unlike a SIV or a conduit, a SIV-Lite has a fixed quantity of liabilities and a finite life. A SIV and a conduit are operating companies which continuously purchase assets and issue liabilities. Thus in its limited life a SIV-Lite is similar to a cash CDO; however, CDOs fund longer-term. Both SIVs and SIV-Lites operate with less than 100% liquidity facilities covering their short-term liabilities, unlike a conduit.

What all this means is that while a SIV-Lite does have some similarities with somewhat older, more familiar structures; it is the next step in an evolution to more risky structures. It has a serious mismatch problem between the longer maturity assets and shorter maturity liabilities; as we will see in the Mainsail structure it operates with a small liquidity facility and limited credit enhancement; there is no sponsor or manager guarantee, implicit or otherwise.

### 3. The State of Maine Cash Pool and the Investment in Mainsail II

Among the many functions of the Office of the Treasurer of the State of Maine is cash collection and management, including short-term investment of funds not needed to pay bills.<sup>8</sup> The investment component is through the Treasurer's Cash Pool Portfolio, where excess state revenues are invested for the short-term. Because funds in the cash pool must be available to pay state expenses, desired investments are short term and conservative (low risk). The investments are governed by both state statute and an investment policy. The statute (Title 5, Part 1, Chapter 7, §135) limits investments to deposits in highly rated banks and to safe and liquid securities such as U.S government and U.S. government agency securities, prime commercial paper, and corporate bonds rated "AAA," none of which can have a final maturity of more than 36 months (most of the investments are for much shorter time periods).

The investment policy more specifically identifies the securities and specifies the investment objectives, in descending order of priority: preservation of capital and protection of investment principal; maintenance of sufficient liquidity to meet anticipated cash flow needs; diversification to avoid unreasonable market risks; attainment of a competitive rate of return. Clearly safety and liquidity are important objectives; however, the yield on the portfolio provides additional revenue to the state and thus return is also a factor when choosing investments. In the previous fiscal year (2006-2007) the pool earned the state \$34 million. At the end of July 2007 the portfolio had a market value of \$719,013,105. The weighted average maturity of the portfolio was 83 days; 82% of the

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through the value of the collateral, requiring more frequent trading. For more information see Mahadevan, et al., 2006.

<sup>8</sup> The office of the Treasurer performs other varied duties, including important operational functions such as management of 37 State of Maine bank accounts, receipt of all State revenues, and distribution of over two million vendor and payroll checks, as well as 506,000 electronic payments each year. The Treasurer also issues the state's general obligation bonds and coordinates Maine's presentations to bond rating agencies.

portfolio had a maturity less than 90 days and only 9.39 % had maturities above 1 year (Table no. 2).

**Table no. 2: Cash Management Portfolio composition (7-31-08)**

Asset Class	Fair Value	% of Portfolio	Weighted average maturity (days)	Weighted average yield (%)
Cash and Equivalents	\$377,000,000	52.5	1	5.32
Repurchase Agreements	2,310,000	0.3	318	3.04
Commercial Paper	207,880,094	28.9	13	5.41
Certificates of Deposit	13,400,000	1.9	244	4.49
U.S. Treasury	5,223,374	0.7	136	5.03
U.S. Instrumentality	86,349,653	12	506	5.00
Corporate	26,849,984	3.7	308	5.37
Total	\$719,013,105	100	83	5.28

*Table Notes: Cash and cash equivalents consist of interest bearing deposits at two banks; Repurchase agreements are with the Farm Credit of Maine and are collateralized with U.S. Treasuries (this is a part of the "Linked Investment Program for Agriculture"); CP consists of 20 separate investments in high rated asset backed commercial paper. By policy, no single CP investment can exceed 20 million; there are 24 CDs with 14 banks, all either headquartered in Maine or with offices in the state; U.S. Treasuries consist of two Treasury notes maturing in 3 and 6 months; U.S. instrumentalities consist of securities issued by GSEs (Government Sponsored Enterprises) (e.g., FHLMC (Federal Home Loan Mortgage Corp) known as Freddie Mac, Federal National Mortgage Association (FNMA), Federal Home Loan Banks (FHLB), Federal Farm Credit Banks (FFCB); the corporates are all issued by GE Capital or Toyota Credit; all securities are rated AAA, A-1, or A-1+.*

CP (which includes ABCP), which made up 29% of the portfolio in late July, had been a significant part of the cash pool portfolio for decades, according to state Treasurer, David

Lemoine. There does not appear to have been any prior CP default in the portfolio. Treasurer Lemoine refers to CP investing as a “3-tiered investment screening process” (Lemoine, 2007). By this he means that any CP investments are made under the guidance of the investment advisor (MBIA Asset Management Group), suggested and transacted by a limited group of eleven approved broker dealers, and must have the highest CP rating available by 2 of the 3 rating agencies (Moody’s, S&P, Fitch). The investment advisory firm, MBIA Asset Management Group, had no role in this investment. They did provide a market report dated July 31, 2007 which expressed concern about the “struggling U.S. housing market” but gave no inkling of the crisis in the credit markets to come (MBIA, 2007). The broker recommending and completing the Mainsail II transaction was Merrill Lynch.

The investment in Mainsail II appeared to meet the investment standards of the statute and the investment policy—highly rated, short-term, small in proportion to the total portfolio. The \$20 million investment represented less than 3% of the pool. At the time of purchase, it was rated P1 (Prime 1) by Standard and Poor’s and A1+ by Moody’s, the commercial paper equivalent of a triple-A rating. It was short-term—the paper was scheduled to mature on August 31, 2007 for \$20,000,000, just 23 days after its purchase. In addition, this was a somewhat familiar security. On July 31, 2007 Treasury had invested \$4 million overnight in Mainsail II, with the principal and interest being paid in full on August 1.

The paper had a promised yield, on an annualized basis, of 5.45%.<sup>9</sup> As a point of reference, the yield on a 1-month T-Bill was 5.04% when Mainsail II was purchased on August 8, 2007 (Table no. 3). The discount yield on the 23 day Mainsail II investment offers an 18 basis point (bp) premium to one-month financial and nonfinancial CP as reported by the Federal Reserve, 5.45% to 5.27%. Note that ABCP always sells at a premium to non-ABCP. Poole indicates that rates on ABCP had increased only a few basis points prior to August 9 (Poole, 2007). On August 3 Credit Suisse reported that typical ABCP was yielding 5.35-5.4% (Credit Suisse Securities, 2007). Thus Mainsail II offered a somewhat attractive return but not one out of the ordinary.

**Table no. 3: Selected Interest Rates (% annualized) on 8-8-2007**

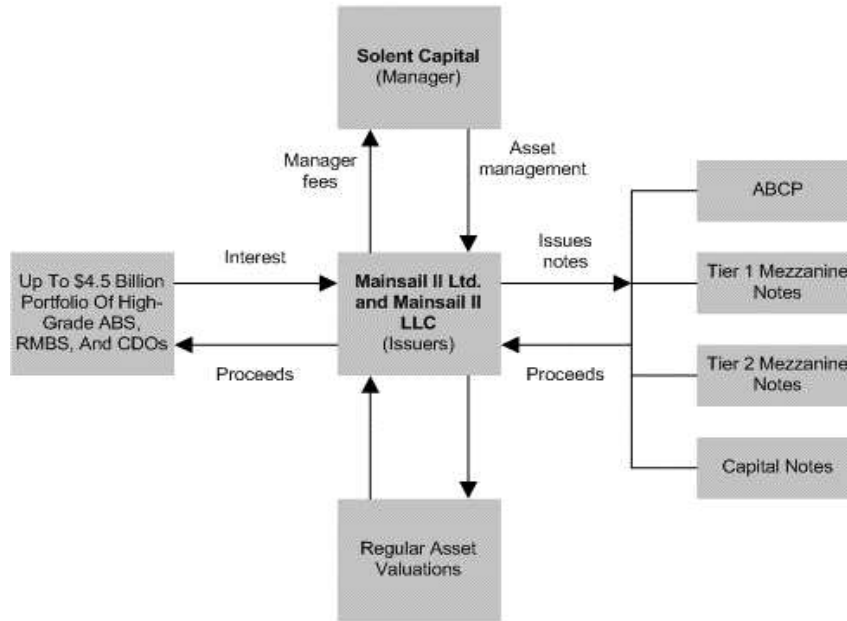
Mainsail II Discount Yield (23 days to maturity)	5.45
1 month CP Non-Financial AA	5.27
1 month CP Financial AA	5.27
1 month ABCP (high end)	5.40
1 month Jumbo CD	5.36
1 month Eurodollar deposit	5.37
1 month U.S. Treasury Constant Maturity	5.04
1 month dollar Libor	5.35
Fed Funds Rate (target)	5.25

*Table Notes: All rates except as indicated following are from Federal Reserve available at <http://research.stlouisfed.org/fred2/>.*

<sup>9</sup> Commercial paper yields are expressed on a discount basis assuming a 360 day year. This discount yield is equivalent to a bond equivalent yield of 5.545%.

*AA CP is the Fed's indication of highly rated CP, that is, programs with no ratings less than A-1. LIBOR rate is from CLP Structured Finance available at [www.swap-rates.com](http://www.swap-rates.com). CP yields and T-Bill yields are on a discount basis assuming a 360 day year. Financial CP does not include ABCP.*

Mainsail II had first been issued in July, 2006. Its assets are entirely composed of asset-backed securities (ABS, securities backed by other securities) including RMBS and other CDOs. The Mainsail structure is illustrated in Figure no. 1.



**Figure no. 1: Mainsail II SIV-Lite Transaction Structure**

Source: Standard & Poor’s Cash CDO Of ABS Presale Report: Mainsail II Ltd. And Mainsail II LLC, 6-13-2006

The securities are issued by two special purpose vehicles, limited liability companies established in the Cayman Islands (Mainsail II Ltd.) and Delaware (Mainsail II LLC). The sole purpose of these SPVs are to acquire the portfolio assets and issue commercial paper and notes. The transactions and the SPVs are managed by Solent Capital (Jersey) Ltd, established in Jersey, an off-shore financial Center located off of Normandy but a dependency of Britain. Solent Capital Limited is in turn advised by Solent Capital Partners LLP, a British entity. Solent Capital Partners was founded in 2003 by Jonathan Laredo (formerly responsible for European and Asian structured finance at JP Morgan Chase), Geoff Smailes (formerly responsible for trading and capital allocation at Credit Suisse First Boston), and Tim Gledhill (formerly responsible for structured trading credit at Merrill Lynch).

Mainsail II had an allowable maximum portfolio size of \$4.519 billion (the "platform") to be funded by commercial paper and notes (Table no. 4). At the time of issue the asset size of the fund was about \$1.5 billion, with a ramp-up to about \$2 billion in 12 months to follow. While the CP could be issued in varying maturities, in practice the goal was to issue CP with approximately 30 day maturities to match the repricing on the variable pricing assets. The medium term notes had an initial five-year maturity, with a plan to refinance those notes with another five-year issue. There is a maximum investment period of eight years (after which wind-down begins). Investments must be made in AAA or AA rated RMBS, ABS, CMBS, or CDOs of ABS (CDOs that have invested in ABS). At least 45% of these securities must be rated AAA. Note that no more than 25% of the portfolio can be in other CDO securities (Table no. 5). It is possible for the asset portfolio to be almost entirely in tranches (securities) from pools backed by low rated securities even if most of those securities are rated AA or higher because the maximum concentration in B/C RMBS is 90%. The actual assets of Mainsail II as of 2008 after the structure was frozen are listed in the appendix. It is clear that most of the investments are from subprime mortgage-backed RMBS. The rest are in CDOs and alt-A mortgage related assets (an alt-A mortgage is between a sub-prime and a prime mortgage).

**Table no. 4: Proposed Funding Composition (Presale Report)**

Class	Rating	\$ (mill)	% of portfolio	Credit support %	Weighted-average life	Final maturity
Commercial paper	A 1+	4000	88.5%	11.5	0-364 days	na
Tier 1 mezzanine notes	AAA	271	6.0%	5.5	5 years	2016
Tier 2 mezzanine notes	AA	136	3.0%	2.5	5 years	2016
Capital notes	BBB-	112	2.5%	0	na	2020

Source: Standard & Poor's Cash CDO Of ABS Presale Report: Mainsail II Ltd. And Mainsail II LLC, 6-13-2006

**Table no. 5: Maximum Allowable Concentrations (%) by Asset Value**

RMBS B/C	90
ABS Home equity loan securities	60
MBS Agency securities, RMBS A	50
CMBS conduit securities, CMBS credit tenant lease securities, CMBS large loan securities, CMBS single asset securities	30
CDO Securities	25
ABS equipment leasing, ABS equipment leasing, ABS equipment leasing, ABS trade receivables securities, Auto ABS, Credit card securities, Dealer floor plans, Student loan securities	10

Source: Standard & Poor’s Cash CDO Of ABS Presale Report: Mainsail II Ltd. And Mainsail II LLC, 6-13-2006.

As of July 31, 2007, Mainsail II had a \$2.024 billion portfolio with 49.22% in AAA equivalent assets. The portfolio was concentrated in residential real estate with 77% in residential B/C MBS, 8.17% in residential A MBS, and 0.44% in Agency MBS (Table no. 6). All concentrations were within allowable limits. Thus although the securities were rated AAA or AA, the vast majority of them were backed by mortgages from less than prime borrowers (45% of the residential B/C securities were rated AAA, 55% AA). The entire portfolio was U.S. based. The portfolio was funded by \$2.214 billion in CP, \$333.93 million in Tier 1 mezzanine notes, \$174.28 in Tier 2 mezzanine notes, and \$72.51 in junior capital notes. The structure had passed all stress tests.

**Table no. 6: Mainsail II Portfolio Composition July 31, 2007**

<b>Structured Finance</b>	<b>US\$ (mill) (book value)</b>	<b>%</b>
Residential B/C Mortgage Securities	1564.66	77.28%
CDO Securities	210.5	10.40%
CMBS Conduit Securities	75	3.70%
Residential A Mortgage Securities	8.81	0.44%
MBS Agency Securities	165.36	8.17%
Cash	0.32	0.02%
<b>Total</b>	<b>2024.65</b>	<b>100.00%</b>

Source: Mainsail II Investor Report, July 31, 2007.

The maturity mismatch is substantial—the assets mature in years and the liabilities in weeks or months. This maturity mismatch is supported by a liquidity facility of 30% of the CP and "the inherent liquidity of the underlying assets to repay maturing CP" (Euroweek, 2006). The liquidity facility is a commitment to lend to, or purchase assets from the SPV if funds are needed to repay maturing commercial paper. The facility is provided by Barclay’s. The issue will wind-down early if any of a list of triggers is breached, including a market value coverage test (if the market value of the assets falls), a cash flow flow-out test, interest rate sensitivity tests, and currency sensitivity tests.

**4. A Prudent Investment?**

Thus in early August 2007 the Treasury of the State of Maine made a \$20 million investment in ABCP rated the equivalent of AAA (P-1), the highest rating available. This was a decision similar to thousands made by other institutional investors at this time. The list of other municipalities which invested in Mainsail II demonstrates that Maine was not alone. In the U.S. Connecticut, Florida, Montana, and Washington’s King County also invested in Mainsail (Herbst-Bayliss, 2007). In addition, the California Earthquake

Authority's (CEA) investment portfolio had \$60 million (of a \$3.2 billion portfolio) invested in Mainsail II (dBusinessNews, 2007).

Despite the excellent company, was it a prudent investment? The investment did meet the rating requirements of the governing statute and investment policy. Commercial paper is an approved security, and this paper was highly rated and within all investment guidelines. However, those guidelines make no distinction between traditional corporate commercial paper and asset-backed commercial paper, which are quite different. While standard corporate commercial paper is issued by an ongoing firm with diverse assets, ABCP is issued by a limited purpose entity and backed only by the assets owned by the entity. Normally this is an acceptable arrangement, unless there is a liquidity crisis and those assets are not convertible into cash at anything close to the original value. Further, it is clear that asset-backed commercial paper can vary quite a bit, from the ABCP conduit paper (with 100% liquidity facility) to SIV-Lite commercial paper. That the Treasurer and perhaps his staff did not fully understand the particular characteristics of the investment is clear from the Treasurer's remarks in December 2007, where he chastises the broker Merrill Lynch for not indicating "that Mainsail was a structured investment vehicle which arbitrages between short-term and long-term debt" (Lemoine, 2007). The Treasury also did not know that the assets of Mainsail II were primarily securities backed by pools of sub-prime mortgages. It could be argued that the Treasury staff depended on the recommendation of Merrill Lynch along with the top ratings from the credit rating agencies without additional research or sufficient questions. Clearly this was common among all types of investors in the investment environment prior to the August 2007 meltdown.

Thus the Treasury Department made an investment in something it did not understand, depending instead on the input of others—its broker and the rating agencies. There is fault there as well. It is questionable whether Merrill Lynch should have been promoting such investments to conservative and possibly understaffed public entities. In fact, by the end of 2007 and into 2008 Merrill Lynch was the target of several investigations and potential lawsuits. The *Wall Street Journal* points out that "local governments usually lack the staff and resources to make informed decisions on complex instruments" (Karmin, 2008). Because municipalities are relatively resource-restricted, governments potentially rely on their advisors and rating agencies to a greater degree than other large institutional investors and therefore may be more vulnerable. As State Treasurer David Lemoine of Maine said: "We relied on professional advice from our brokers and rating agencies" (Bel Bruno, 2007). In this case it is clear that the broker was profiting from the sale of a security it should not have been selling to this client. On August 14, 2008 the State of Maine filed a lawsuit against Merrill Lynch. According to the lawsuit, Merrill was more than just selling inappropriate investments, it knew of troubles with Mainsail II and did not disclose them. It had identified (internally) Mainsail II as "liquidity challenged" on July 26, 2007, indicating Mainsail was having trouble selling new CP; it had decided not to hold any Mainsail II in its own account; it was able to place Mainsail II CP only overnight in most cases; and it was now the only U.S. dealer of Mainsail II after the withdrawal of Morgan Stanley as a dealer. (The complaint in the case was for securities fraud.)

But even if the broker Merrill Lynch was at fault, the security was rated as prime by the rating agencies. What role did the rating agency play? The weakness of the rating agency approach is captured in the analysis done by S&P prior to the Mainsail II launch, in its Pre-Sale Report that went to potential investors. In it, S&P does an admirable job of explaining

the strengths of the structure (highly rated asset criteria, adequate credit support by the subordinate notes, and a risk model that measures the risk of the portfolio using Monte Carlo simulation techniques.) It raises a list of potential concerns (market risk, event risk, currency risk, active management trading, and potential diversion of cash flows) but one by one finds the concerns effectively addressed in the issue's structure and policies.

However, the weakness of S&P's analysis, and the weakness when creating the structure, was a reliance on a risk modeling system predicated on historical data ("The Model's assumptions have been calibrated based on stressed historical data" says S&P) and concerned with interest rate shocks and rating changes (S&P, 2006). S&P didn't conceive of, perhaps couldn't conceive of an entire market (ABCP) drying up virtually overnight. *Business Week* says that the odds of a bond going from AAA to CCC in a year is 1 in 10,000, but that happened twice on August 21, 2007 (all quotation in this paragraph are from Henry, 2007). Prices fell by a "magnitude 10 to 15 times greater than any time on record." Paul Kerlogue of Moody's said "We've never seen anything like it in structured finance. Things just behaved in a way that we were not able to predict." S&P added in a written statement to *Business Week*, "Our original ratings were based on the best available data at the time." In addition, the rating agencies apparently didn't understand the new dynamics of the SIV-Lite structure and the changing characteristics of mortgage bonds in 2007—backed by more adjustable rate and subprime mortgages and backed by homes whose prices had recently run-up. Janet Tavakoli of Tavakoli Structured Finance sums it up: "They were looking at historical data in a brand new ball game with brand new products."

Was this prudent investing? Because all of the guidelines were met it was an allowable investment. It was typical investing. The state Treasury purchased this paper because it had a top rating but delivered a return in excess of Treasury. But it was not prudent. There was a lack of understanding of the investment and an over-reliance on ratings and the broker. A basic rule of investing is to understand your investment. As the previous discussion makes clear, a SIV-Lite as well as the other structured credit vehicles (CDO, SIV, Conduit) are complicated structures and the risks are not easily assessed. There were ample warnings prior to August 2007 about problems in the mortgage markets and the effects this could have on mortgage related securities.<sup>10</sup> Clearly Merrill Lynch should not have been selling ABCP from a structure like Mainsail II without explaining the underlying collateral and the structural maturity mismatch. And the rating agencies failed to correctly model and assess the risks of these securities. Had any one of these parties—the investor, the broker, the rating agency—better done their job this investment would not have been made.

### Conclusions

This paper reviews the period leading up to and including the credit disruption of August 2007 and then examines one failed structured finance issue and one investor in that issue. The investor was a financially conservative state investment portfolio and the issue,

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<sup>10</sup> Just one academic example: Mason and Rosner presented a paper on February 15, 2007 to the Hudson Institute in which they said: "Our findings imply that even investment grade rated CDOs will experience significant losses if home prices depreciate."



Mainsail II, a little-known esoteric structure known as a SIV-Lite. The fact that this investor was buying a security from this issuer tells us much about the excesses of the markets at that time and the lack of investment discipline.

New regulations in the market and new investment policies for the portfolio are surely needed, but it is also clear that regulations cannot prevent all bad investments and all complicated, hard-to-understand issues. The brokers must better match the needs of their clients with potential investments and rating agencies must better model and assess the risks of those investments. But regulation and policy cannot cover all possibilities, nor can a rating, and there is a responsibility by the investor to understand the investments and perform sufficient due diligence.

The Treasurer in fact did immediately form a new advisory group, the State of Maine Treasurer's Cash Pool Investment Design Committee, to review the investment policies and the relevant State statutes and suggest revisions. A new investment policy was approved by mid-2008. A permanent advisory committee, the State of Maine Treasurer's Cash Pool Investment Advisory Committee, was formed to advise the Treasury and review the portfolio. The author of this article serves on both committees. An investment consultant, PFM Asset Management, was hired to provide advice only (it will not profit from any transactions).

In April 2008, KPMG was appointed to put the Mainsail II investment vehicle into receivership. Investors in the lower ranking securities (mezzanine notes and capital notes) lost their entire investment. Goldman Sachs completed an auction of the remaining Mainsail II assets in September 2008, reportedly averaging 21 cents on the dollar.<sup>11</sup> ABCP outstanding, after hitting its high in August 2007 at \$1,173.4 billion, dropped continuously and stood at \$572.6 billion as of June 2009 (SIFMA, 2009).

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<sup>11</sup> The Cash Pool received its entire \$20 million investment back after filing a lawsuit against Merrill Lynch.

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#### Appendix: Mainsail II in Receivership (Portfolio Assets 2008)

##### CDOS:

ACA AQUARIUS 2006-1 ABS CDO

CAMBER 5 ABS CDO; CAMBER 7 ABS CDO  
 DIVERSEY HARBOR ABS CDO  
 DUKE FUNDING HIGH GRADE IV ABS CDO  
 FAB 2006 ABS CDO  
 HIGHGAGTE ABS CDO  
 HOUT BAY 2006-1 ABS CDO  
 KLEROS PREFERRED FUNDING ABS CDO  
 PLETTENBERG BAYABS CDO  
 RIDGEWAY COURT FUNDING ABS CDO  
 SCORPIUS ABS CDO  
 TAZLINA FUNDING CDO ABS  
 JER CRE CDO 2006-2 CRE CDO  
 MARATHON REAL ESTATE CDO 2006-1 CRE CDO  
 MESA WEST CDO 2007-1 CRE CDO

**ALT-A MORTGAGE RELATED:**

CWABS ASSET-BACKED CERTIFICATES TRUST 2006-ABC1 RMBS ALT-A  
 DEUTSCHE ALT-A SECURITIES MORTGAGE LOAN TRUST, SERIES 2007-AR2  
 RMBS ALT-A  
 GSAA HOME EQUITY TRUST 2006-11 RMBS ALT-A; 2006-14 RMBS ALT-A; 2006-  
 16 RMBS ALT-A; 2006-17 RMBS ALT-A; 2006-3 RMBS ALT-A; 2006-9  
 RMBS ALT-A; 2006-2 RMBS ALT-A; 2006-2 RMBS ALT-A  
 LUMINENT MORTGAGE TRUST 2005-1 RMBS ALT-A  
 MERRILL LYNCH MORTGAGE INVESTORS TRUST SERIES 2005-A8 RMBS ALT-A  
 STRUCTURED ASSET SECURITIES CORPORATION SERIES 2006-2 RMBS PRIME;  
 2006-4 RMBS PRIME  
 WACHOVIA MORTGAGE LOAN TRUST SERIES 2006-AMN1 RMBS ALT-A  
 WELLS FARGO ALTERNATIVE LOAN TRUST 2005 - 02 RMBS ALT-A

**SUB-PRIME MORTGAGE RELATED:**

ACE SECURITIES CORP, HOME EQUITY LOAN TRUST, SERIES 2007-WM1 RMBS  
 SUB-PRIME  
 AAMES MORTGAGE INVESTMENT TRUST 2006-1 RMBS SUB-PRIME  
 AMERQUEST MORTGAGE SECURITIES, INC. 2005-R10 RMBS SUB-PRIME  
 BEAR STEARNS ASSET-BACKED CERTIFICATES, SERIES 2005-HE111 RMBS  
 SUB-PRIME  
 C-BASS MORTGAGE LOAN ASSET-BACKED CERTIFICATES, SERIES 2006 CB8  
 RMBS SUB-PRIME; SERIES 2006 CB1 RMBS SUB-PRIME; SERIES 2006-  
 CB3 RMBS SUB-PRIME; SERIES 2006-CB4 RMBS SUB-PRIME; SERIES  
 2006 CB5 RMBS SUB-PRIME; SERIES 2006 CB8 RMBS SUB-PRIME  
 CWABS ASSET-BACKED CERTIFICATES TRUST 2005-14 RMBS SUB-PRIME;  
 2006-18 RMBS SUB-PRIME; 2006-BC2 RMBS SUB-PRIME  
 FBR SECURITIZATION TRUST 2005-4 RMBS SUB-PRIME  
 FFMLT TRUST 2005-FF11 RMBS SUB-PRIME  
 FIRST FRANKLIN MORTGAGE LOAN TRUST 2005-FF5 RMBS SUB-PRIME ; 2006-  
 FF11 RMBS SUB-PRIME; 2006FF13 RMBS SUB-PRIME; 2006-FF6 RMBS  
 SUB-PRIME; 2006-FF9 RMBS SUB-PRIME; 2007-FF1 RMBS SUB-PRIME;  
 2007-FF2 RMBS SUB-PRIME

FREMONT HOME LOAN TRUST 2005-D RMBS SUB-PRIME; 2006-1 RMBS SUB-PRIME

GE-WMC ASSET-BACKED PASS-THROUGH TRUST, SERIES 2006-1 RMBS SUB-PRIME

GSAMP TRUST 2005-HE5 RMBS SUB-PRIME; 2006-FM2 RMBS SUB-PRIME; 2006-HE2 RMBS SUB-PRIME; 2006-HE3 RMBS SUB-PRIME; 2006-HE6 RMBS SUB-PRIME; 2006-NC2 RMBS SUB-PRIME; 2007-FM2 RMBS SUB-PRIME

HSI ASSET SECURITIZATION CORP TRUST 2006-HE1 RMBS SUB-PRIME; 2006-HE2 RMBS SUB-PRIME

IXIS MOR CAP TR 2005-HE4 RMBS SUB-PRIME

IXIS REAL ESTATE CAPITAL TRUST 2006-HE2 RMBS SUB-PRIME; 2006-HE3 RMBS SUB-PRIME

J.P. MORGAN MORTGAGE ACQUISITION CORP. 2006-CW1 RMBS SUB-PRIME; 2006-FRE1 RMBS SUB-PRIME; 2006-FRE2 RMBS SUB-PRIME; 2006-HE1 RMBS SUB-PRIME; 2006-HE2 RMBS SUB-PRIME; 2006-NC1 RMBS SUB-PRIME; 2006-RM1 RMBS SUB-PRIME; 2006-WMC1 RMBS SUB-PRIME; 2006-WMC2 RMBS SUB-PRIME; 2006-WMC3 RMBS SUB-PRIME

LONG BEACH MORTGAGE LOAN TRUST 2005-WL3 RMBS SUB-PRIME; 2006-1 RMBS SUB-PRIME; 2006-2 RMBS SUB-PRIME; 2006-7 RMBS SUB-PRIME; 2006-WL2 RMBS SUB-PRIME; 2006-WL3 RMBS SUB-PRIME

MASTR ASSET BACKED SECURITIES TRUST 2005-FRE1 RMBS SUB-PRIME; 2005-NC2 RMBS SUB-PRIME; 2006-FRE2 RMBS SUB-PRIME; 2006-WMC1 RMBS SUB-PRIME; 2006-WMC2 RMBS SUB-PRIME

MERRILL LYNCH MORTGAGE INVESTORS TRUST, SERIES 2006-HE4 RMBS SUB-PRIME; 2006-RM1 RMBS SUB-PRIME; 2006-RM2 RMBS SUB-PRIME; 2006-RM5 RMBS SUB-PRIME

MERITAGE MORT LOAN TRUST 2005-3, AS-BKD CERT SERIES 2005-3 RMBS SUB-PRIME; 2005-3, AS-BKD CERT SERIES 2005-3 RMBS SUB-PRIME

MORGAN STANLEY ABS CAPITAL I INC. TRUST 2005-HE5 RMBS SUB-PRIME; 2006-HE1 RMBS SUB-PRIME; 2006-HE2 RMBS SUB-PRIME; 2006-HE3 RMBS SUB-PRIME; 2006-HE4 RMBS SUB-PRIME; 2006-HE7 RMBS SUB-PRIME; 2006-NC1 RMBS SUB-PRIME; 2006-NC2 RMBS SUB-PRIME; 2006-NC3 RMBS SUB-PRIME; 2006-NC4 RMBS SUB-PRIME; 2006-WMC2 RMBS SUB-PRIME; 2007-NC1 RMBS SUB-PRIME

MORGAN STANLEY HOME EQUITY LOAN TRUST 2006-2 RMBS SUB-PRIME

NOVASTAR MORTGAGE FUNDING TRUST, SERIES 2006-1 RMBS SUB-PRIME

NOMURA HOME EQUITY LOAN TRUST, SERIES 2005-HE1 RMBS SUB-PRIME; 2006-FM1 RMBS SUB-PRIME; 2006-HE1 RMBS SUB-PRIME; 2006-HE1 RMBS SUB-PRIME; 2006-HE2 RMBS SUB-PRIME; 2006-HE2 RMBS SUB-PRIME

OPTION ONE MORTGAGE LOAN TRUST 2006-1 ASSET-BACKED CERTIFICATES, SERIES 2006-1 RMBS SUB-PRIME

OWNIT MORTGAGE LOAN TRUST, SERIES 2006-1 RMBS SUB-PRIME; 2006-2 RMBS SUB-PRIME; 2006-3 RMBS SUB-PRIME; 2006-5 RMBS SUB-PRIME

SECURITIZED ASSET BACKED RECEIVABLES LLC TRUST 2006-FR2 RMBS SUB-PRIME; 2006-WM2 RMBS SUB-PRIME; 2007-HE1 RMBS SUB-PRIME

STRUCTURED ASSET INVESTMENT LOAN TRUST 2006-3 RMBS SUB-PRIME; 2006-BNC1 RMBS SUB-PRIME

STRUCTURED ASSET SECURITIES CORPORATION (SASCO) 2006 - BC1 RMBS  
SUB-PRIME  
SG MORTGAGE SECURITIES TRUST 2006-FRE1 RMBS SUB-PRIME; 2006-FRE2  
RMBS SUB-PRIME  
SOUNDVIEW HOME LOAN TRUST 2006-2 RMBS SUB-PRIME; 2006-OPT3 RMBS  
SUB-PRIME  
WELLS FARGO HOME EQUITY ASSET-BACKED SECURITIES 2006-1 TRUST  
RMBS SUB-PRIME

Source: Provided by KPMG, receiver of Mainsail II. Multiple issues (series) by the same sponsor are separated by a semi-colon.