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**Innovation, Regulation and Financial Bubbles: *The Evolution of Structured Investment Vehicles***

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Financial bubbles, where asset prices have increased rapidly only to be followed by a subsequent crash, are as old as history. Kindleberger dates the first of “The Big 10 Financial Bubbles” as The Dutch Tulip Bubble of 1636 (Kindleberger and Aliber, 2005, page 9). Reinhart and Rogoff subtitled their book as “Eight Centuries of Folly” and refer to 12th Century China and the European Middle Ages (Reinhart and Rogoff, 2009). In this paper, we briefly review some of the common elements and paths that financial bubbles take with the focus on the interplay of leverage, innovation and regulation as bubble enablers. It will then use the recent experience of Structured Investment Vehicles (SIVs) as a case study to illustrate these points.

A Brief Tour of *S****ome*** Historic Financial Bubbles

Tulips were a new import from Turkey and the Ottoman Empire around 1600 and were a luxury item popularized in still-life paintings of the time. By the 1630’s several unique varietals, with distinctive coloration patterns due to infection by a tulip virus, were recognized and they could only be propagated by the buds formed on existing tulip bulbs. Bulbs planted in September would flower in May and then could be harvested for new buds during the summer months. During the fall of 1636, Dutch speculators began to purchase bulbs at community markets for delivery the following summer and made contracts to purchase at increasingly high prices. These were no-money-down futures contracts with neither initial or variation margin paid, so the buyer of bulbs used extensive leverage in the purchases. By February of 1637, prices began to plummet and in late February the Dutch Parliament passed a law ruling that all futures contracts were to be considered options contracts and only required payment of 1/30th of the purchase price (Mackay, 1841).

So here we have one of the earliest examples of an innovative new technology, propagating rare and unique tulip bulbs, combined with market activity and leverage to create a speculative financial bubble that burst and was followed by a government bailout with new regulations applying to existing contracts.

Another round of leverage, financial innovation and governmental policy changes sparked the famous bubble in shares of the South Sea Company. In 1711, Britain’s Lord Treasurer Robert Harley needed to finance Britain’s war debt with Spain and established a joint stock trading company known as the South Sea Company that would take on British debt and convert it to a long-term low interest perpetuity in return for exclusive trading rights in South and Central America. The government planned to fund their perpetuity payments by charging tariffs on the goods arriving from South America. This transaction created one of the earliest known examples of “off balance sheet” financing vehicles.

In 1719, a new round of debt to equity conversion was proposed. The British government would convert illiquid short-term debt into long-term low interest debt plus shares of the South Sea Company. With a fixed conversion price, investors were induced to participate if the share price was high. Shares were sold to politically prominent and influential investors for about £100 per share in late 1719, but they were not required to put any money down at the time. They would be able to profit when share prices rose and rise they did. South Sea Company shares rose when Parliament passed a law to limit new joint stock companies to ones created either by an Act of Parliament or Royal Charter. With a pool of prominent investors talking the stock up and a series of rumors floated about the future value of the South American trade, South Sea Company shares traded near to £1000 per share in August 1720. Unfortunately, in August the first of the installment payments became due and many investors could only afford to pay if they sold shares. Liquidity was further constrained by the collapse of the French Mississippi Company organized by John Law and shares of the South Sea Company tumbled back to the £100 level. Bankruptcy and scandal followed and many British Royals were ruined.

Financial innovation where the British government converted illiquid debt into highly leveraged tradable equity combined with the creation of new regulations on publicly traded stock companies and high expectations for new trading profits created a speculative bubble in South Sea shares. In the aftermath, the estates of the directors were confiscated and bankers were vilified (Mackay, 1841).

Later bubbles in the United States, including the US Railroad Speculations of the 1880’s and the US Stock Market Bubble of 1927-29 exhibited many similar characteristics. Real estate booms in Japan, 1985-89, and the US, 2002-2007, were also fueled by leverage combined with waves of regulatory changes and financial innovation. In thecurrent popular press, bubbles are frequently cited. Indeed recent references have been made to a “Golf Bubble” (NY Times Magazine, 28 March 2010) and an “Education Bubble” (Wall Street Journal, 3 August 2011). It is easy to speculate that there may be a bubble in Shanghai real estate today.

Minsky Paradigm

Hyman Minsky was an American Economist who recognized that financial markets were fragile and that there was a natural life cycle for an economy. Minsky was a student of Joseph Schumpeter when he got his Ph.D. in Economics at Harvard in the 1940’s and Schumpeter was an expert in economic disequilibrium who understood that economic growth was based on “creative destruction” where new innovations overtook old market realities. Market participants typically fail to identify bubbles as they develop because they believe that “This time is different”. Minsky recognized that there seemed to be a common critical path as markets moved from financial stability to crisis.

Minsky identified four phases of a financial bubble. He named them as Displacement, Euphoria, Overtrading, and Revulsion. Innovation is often at the heart of financial bubbles because new innovations lead to the new investments that are the initial displacements that move markets out of their steady equilibriums. Examples include the New Tulip Varietals cited above and often include New Territories and Frontiers like South America in the early 1700’s. More recently new technology like Railroads, Biotechnology, or the Internet have beencatalysts to displace markets. New financial technology like Sub-Prime Mortgages, Credit Default Swaps, or Structured Investment Vehicles are also market destabilizing.

It must be noted that new innovations are not bad and often lead to economic growth andlong-term economic productivity improvements. Financial innovations like credit/debit cards, electronic funds transfers, and ATM machines have simplified financial dealing for many. Even when bubbles induce overinvestment in promising new technologies, there may be long-term economic benefits. Today, centuries after the Tulip Mania, Holland is the world center for cut flowers, possibly due to the horticultural investments made during the 1600’s. The chaotic system of overbuilt railroads from the turn of the century are the lowest cost form of freight transport today and the English Channel Car/Rail Tunnel, the Chunnel, is a terrific success despite having the initial company declare bankruptcy. Biotechnology overinvestment from the 1980’s may have allowed the US to become the world’s dominant pharmaceutical center. Overinvestment in fiber optic cable capacity during the 1990’s has created the opportunity for new broadband products and services today.

A common element to nearly all bubbles seems to be leverage. This is where one can participate in a market without being required to pay the full investment price upfront and ***i***s seen in the examples cited above. Bubbles are built on leverage and financial innovations like derivatives are often used to create leverage, but leverage is also part of the normal life cycle for people. It would be a shame if every new young family had to wait until they had saved the full purchase price before being able to buy their first home. Leverage allows them to borrow money from the future and use it to purchase their first house while their baby is still young. Similarly students borrow money, using leverage to acquire education that will allow them to earn more money in the future. It would be an unfair world where only the already rich could afford education. So we cannot say that leverage is bad, only that too much or misused leverage is bad. In Minsky’s parlance it can lead to Euphoria.

The forward trading in tulip bulbs, the no-money-down purchases of shares in the South Sea Company and more recently the small down payment subprime mortgages with low teaser rates were extreme forms of leverage. These transactions allowed market participants to bid up prices without requiring any resources upfront. Typical market participants develop future expectations based on recent observations, so with new innovations leading to new investments and increasing prices, they predict future increases. With strong expectations of future price increases, it only makes sense to buy now and the incremental purchases become self-fulfilling with the new purchases driving prices still higher. Extreme leverage eliminates the constraint of current resources and euphoric price increases result.

Stock speculation that leads to euphoric stock markets has often been based on extreme leverage. The 1907 Bank Panic in NYC was in part based on “bucket shop trading” where investors traded with brokers who operated like gambling bookies who took the bets and laid off none of the risk. They assumed that markets would go up and down normally so that their trades would balance out over time. But when the markets all fell precipitously, the brokers went bankrupt and could not pay off investors as expected. The 1929 Stock Market Crash was in part based on “margin trading” where investors could trade with little or no money down. In both cases there was a severe economic contraction or recession following the bubble bursting. As is often the case the government responded after the fact to create new regulations to make sure that “that couldn’t happen again”, but new innovations create new situations and market participants continue to believe that “This time is different”.

One possible counter example is from the Dot Com Bust of 2001. While there was unquestionably a bubble in Internettechnology companies and investors in many new Internet companies certainly lost money, the overall economy was relatively stable and there was no immediate recession as a result of the bubble bursting. It seems apparent that the rapid pace of new Initial Public Offerings (IPO’s) and rapid growth of Venture Capital Funds during the late 1990’s represented the Overtrading phase identified by Minsky. So why was the Revulsion and market price drop not followed by another economic contraction?

One reasonable hypothesis is that the stringent stock market regulations that followed the Great Depression limited leverage. Under Regulation T, stock investors must put up at least 50% of the stock price upfront if they want to invest. Investors in Internet technology companies knew that they were taking a risk and should have known not to invest more than they could afford to lose, but the regulations limited their investments to no more than double their available cash. Hence, with extra liquidity provided by the Federal Reserve, the broader economy was able to avoid a contraction at that time. Unfortunately less than a decade later, the financial markets would fail again and the Great Recession of 2007-2009 would result in which extreme leverage did play the major role, one form of which was SIVs.

Structured Investment Vehicle (SIV) Case Study 2007-09

What caused the financial system meltdown of 2007-2009? While there are many contributors, we will focus on the interplay of leverage, financial innovation, and government regulation all of which have been important in previous bubbles and their subsequent collapse. There were many new financial innovations that played a role, including Sub-Prime Mortgages, Credit Default Swaps, Collateralized Debt Obligations, and Structured Investment Vehicles (SIV’s), but we will focus on SIV’s. Government regulation played a critical role too, but in the run up to the crisis, it was mostly in termsof deregulation. The Gramm-Leach-Bliley Act of 1999 ended the Depression era Glass-Steagall Act and caped nearly two decades of financial market deregulation. Where most 1950-1970 era mortgages were funded by regulated Savings and Loan Institutions, by 2005 independent, unregulated mortgage brokers were arranging most mortgages. Bankers and financial market participants were seeking greater freedoms to allow them to make more profits, so they convinced US political leaders that the Depression era failures would never happen again because they had learned their lessons and, “This time is different”. The results speak for themselves.

Within a short period (1985-2000), a blizzard of new financial innovations were created. While these included many excellent improvements that enhanced economic growth and productivity, many new financial innovations were unfettered by regulation and untested by difficult market conditions. Ultimately we now know that some unregulated innovations had unforeseen consequences that were disastrous for our financial system. In a process that Minsky might have recognized, seemingly reasonable financial innovations combined and evolved into critical weaknesses for our financial system.

SIV’s did not exist before 1988 and over the next two decades SIV assets grew to over $400 billion and once represented nearly 5% of the US corporate debt market. Yet by the end of 2009, SIV’s had become virtually extinct. What is a SIV and what happened? SIV’s are offshore investment companies that are not displayed on a bank’s balance sheet (off-balance-sheet- entities). Typically they are sponsored by a bank or hedge fund that manages them and take fees as profits. SIV’s invest in complex asset-backed credit market instruments that were traditionally funded on a bank’s balance sheet. Examples include credit card receivables, car loans, boat loans, accounts receivable loans, inventory loans, and home equity loans. In theory, these are high quality assets, but in practice they are illiquid and hard to value. While a bank would normally fund these assets by taking in deposits, unregulated SIV’s could not take deposits so they issued AAA rated asset-backed commercial paper and medium term notes. SIV sponsors earned management fees based on the difference between the interest rate the assets earned and the cost of financing or interest paid on the asset-backed commercial paper they issued.

In essence, SIV’s were unregulated companies that engaged in the banking business. Without regulatory oversight, the market was unable to make sure that they were carefully managed and ultimately they failed. Since they could not take deposits and were unregulated, the commercial paper investors were not covered by FDIC insurance. As soon as there was a problem, or even the rumor of a problem, the commercial paper investors withdrew their funding. This rapid loss of funding is analogous to the “bank runs” that used to exist before deposit insurance existed.

Prior to the establishment of deposit insurance, the financial system endured periodic bank panics that caused many banks to fail and for depositors to lose their money. When depositors heard that a bank might be in trouble, they lined up to withdraw their deposits to make sure they were safe. Even a mere rumor of a bank in trouble could lead to the self-fulfilling prophesy of a bank failing. After the Great Depression, with the advent of the Federal Deposit Insurance Corporation, depositors no longer feared for their safety of their funds since they knew that the U.S. Government guaranteed the safety of their deposits, so bank runs became rare. So why then were Structured Investment Vehicles created and allowed to recreate the potential for bank runs?

The First SIV

The post WWII growth of international trade created a corresponding need for international banks that could move money globally. In order to harmonize international banking regulations across countries, the Bank for International Settlements brought together governmental finance leaders to discuss the problem and to facilitate international banking standards. During the 1980’s leaders from the largest countries met in Basel Switzerland to establish standards that each country would adopt and their agreement became known as the Basel Accords. In their core requirement, they required banks to maintain an equity capital ratio of at least 8 percent of their risk-weighted assets. While some assets like cash and government bonds were exempted, the requirement was to maintain an equity buffer to cushion a bank against unexpected losses so that depositors and trade counterparties would not bear too much risk.

By 1988, when the regulations were required in the U.S., most banks already met the 8 percent capital ratio standard, but one bank was different. While most U.S. banks of the time were predominantly doing business in only one state, Citibank had established an international franchise and was taking deposits and making loans in many different countries. As a result, Citibank’s portfolio was much more diverse than most other U.S. banks and regulators had allowed them to operate with a much lower capital ratio.

In 1983, Citibank only maintained 4.8 percent of total assets as equity capital and in order to meet the new Basel standards, they were faced with two stark choices. Either they had to raise more capital and thereby dilute the return on equity for existing shareholders, or they had to reduce their total assets and forego profitable new loan opportunities and tell existing clients that they could not get new loans. However, in 1988 Citibank found a third option. Two astute Citibank bankers, Nick Sossidis in New York and Stephen Partridge-Hicks in London, noticed a loophole in the Basel capital requirements and they created a new type of investment that they called a Structured Investment Vehicle (Ehrlich, Anadarajan and Chou, 2009).

SIV Structure

In order to create a SIV, the bankers needed to establish a new type of special purpose corporation. They chose the lightly regulated and tax advantaged location of the Cayman Islands to create an off-balance sheet bankruptcy remote corporate entity. It was allowed to be bankruptcy remote because Citibank owned only a small part of the equity and the majority was controlled by a Cayman based attorney, however the management and control of the entity was retained by Citibank. Since the legal ownership was not Citibank, it could be left unconsolidated on Citibank’s balance sheet and would be off-balance sheet and therefore invisible to the Basel capital requirements.

The bankers were then able to transfer a wide variety of high quality assets from Citibank’s balance sheet into the new entity. By working closely with the rating agencies, they were able to develop parameters of diversification and overcollateralization that would satisfy the requirements for an AAA rating. As a crucial requirement, the rating agencies required Citibank to maintain a 100 percent liquidity support guarantee for up to 360 days for the new entity. This meant that if the entity ever needed cash, they could rely on Citibank for almost a full year, so Citibank was acting as the backup for the SIV in a similar way that the Federal Reserve provided funding support to Citibank.

With an AAA rating in place, the SIV liabilities were considered to be of comparable risk to U.S. Treasury Bills and could be purchased by money market funds and other conservative investors. The new SIV could issue top rated commercial paper (CP) and medium term notes (MTNs) and use the proceeds to pay Citibank for the assets that were transferred.

From an investor’s perspective, the CP and MTNs with maturities of less than 360 days were secured by both the assets in the SIV and also by Citibank. So there was no need to worry about a rapid funding loss or “run on the bank” because Citibank stood behind the SIV with available cash. From a regulatory perspective, Citibank had transformed their balance sheet exposure from secured loans (with a 100 percent risk capital weight) to a variety of corporations to a secured line of credit to their new SIV. The value of this transaction came from the Basel loophole that exempted secured lines of credit of up to one year from any capital requirements. At the end of the day, Citibank was able to keep control of the assets, fund the assets, keep the earnings from the assets as management fees and to eliminate the capital requirements for the assets. Over time, Citibank could replace maturing assets, add new assets and maintain the AAA rating as long as they followed the guidelines established with the rating agencies.

The regulatory agencies were aware of the new SIVs and must have given tacit approval. In essence, the SIV transaction was a regulatory arbitrage that allowed Citibank to maintain the economics of their business in the face of new regulatory requirements. The regulators had been comfortable with the lower capital ratios for Citibank earlier and presumably still were. Citibank was able to manage their business in the same way they had been. Since they had both control (in the form of a management contract rather than direct ownership) and responsibility (in the form of their agreements with the rating agencies and their liquidity backup) for the SIV assets Citibank bankers managed the SIV assets with their traditional lending standards to control risk.

SIV Growth

By the mid 1990’s other banks like Industrial Bank of Japan and Dresdner Bank began to recognize the benefit of creating an inexpensive funding vehicle for complex asset backed loans and created their own SIV’s. At this time, SIV assets were a diverse group and included car and boat loans, credit card receivables, business loans backed by accounts receivable and inventory, home equity loans and other similar assets. While these assets were too complex to sell into traditional capital markets, when bundled together and rated AAA, they could be bought by nearly any investor. The team that created the first SIV left Citibank and established a non-bank entity, Gordian Knot, to manage a new SIV. A non-bank manager could purchase backup lines of credit from a regulated bank to meet the requirement for a liquidity support guarantee.

By 2001, there were 10 SIV’s managed by five institutions. With the growth in thenumber of participants, the SIV liabilities became known as asset backed commercial paper (ABCP) and a new market was established. This new market was a public good and benefited both issuers and investors. As the availability of funds grew, the demand for secured loans grew and spreads began to shrink, reducing the funding costs for corporations. At the same time, money market investors were able to earn returns on their AAA rated ABCP that were higher than returns from comparable Treasury Bills, so investment returns improved. The only constraints on SIV growth was the challenge of finding enough high yielding high quality assets and the increased demand for liquidity support.

The 1998 failure of the hedge fund, Long Term Capital Management (LTCM) exposed the systemic risk of the leveraged hedge fund model that was also employed by Gordian Knot and their SIV, Sigma. The SIV structure was funded by CP and MTN’s that typically were 30 to 180 days to maturity, but the SIV assets were 3 to 4 year average life loans. As with LTCM, there was a potential for “mark-to-market” unrealized losses that could unsettle the market and scare some CP and MTN buyers away. Under the rating agency rules, the SIV would be required to sell assets and realize losses to maintain their rating, but this could cause a liquidity spiral with “fire sale” liquidations causing more mark-to-market losses. Regulated banks would not be subject to these “bank run” style funding losses, but a non-bank SIV manager like Gordian Knot could be forced out of business.

The Gordian Knot managers, inventors of the SIV, again worked with the rating agencies to mitigate this risk. With a decade of operating experience to demonstrate that SIV’s were profitable and very low risk, they were able to convince one of the largest rating agencies, Moody’s, in late 1999, to allow the SIV to issue 10 year capital notes that would be junior to the commercial paper and medium term notes that would cover about 8 percent of the SIV’s value, giving them a similar capital buffer to the Basel standards. The CP and MTN’s retained their top AAA ratings and the capital notes were awarded an investment grade rating of BBB. The capital notes would earn the low interbank rate of LIBOR, but would also share in the management fees earned by the SIV’s***,*** which could add another 2-3 percent. Since comparable BBB corporate bonds were only yielding LIBOR plus 1 percent, the new notes were popular with investors who were looking for investment grade securities with higher yields.

Innovation Shifts Incentives

The incremental addition of the innovation of SIV capital notes had some unexpected results. The benign regulatory arbitrage that supported Citibank at the outset was replaced by a ratings arbitrage that put third party investors at risk and ultimately led to the meltdown of 2007. Under the original Citibank structure, the objective was to maintain their banking practices but to avoid the new regulatory charges. Citibank was left in the “first loss” position of bearing the cost of initial SIV losses, so they managed the SIV assets prudentially. The adoption of the SIV model by other firms created a vibrant market for asset backed commercial paper that funded a wide range of hard to finance assets. But with the shift to capital note investors, who took over the “first loss” position of the SIV’s, the SIV capital base was supplied by rating and yield focused investors who had little understanding of the SIV assets. Without the risk of losses, and without any “skin in the game”, incentives for prudential management by a SIV manager like Citibank was eroded.

Where the original SIV model had the sponsor bear both the losses and the gains from the SIV assets, they sought SIV assets that were of high quality and low risk. The constraints imposed by the rating agencies for hedging and diversification were not binding since the SIV managers were already investing carefully. With the advent of capital notes, the SIV sponsor was now sharing some of their fees with the capital note holders and in return the capital note holders took over the “first loss” position. For a SIV manager to maximize his or her bonus, they needed to maximize the fee income received by their bank or hedge fund. Since some of the fees were now going to pay the capital note holders, the incentive for the SIV manager became to increase the size of the SIV and to increase the yield of the assets. As they looked for high yielding, highly rated assets that would fit into the SIV within the rating agency model, they quickly found sub-prime mortgages. Even if a SIV manager believed that sub-prime mortgages were risky, they were induced to add them since they increased the fee income and if there were a loss, the capital note holders would bear it. Under the rating agency’s new capitalization rules, new SIV sponsors entered the market to take advantage and a pattern of unhealthy SIV growth emerged.

The limits to SIV growth were no longer based on the SIV sponsor’s ability to find a bank to provide liquidity support or by the manager’s ability to acquire good quality high yielding assets. Rather it was now based on the ability to find investors in capital notes. Without any “skin in the game” the SIV manager was no longer a banker with a fiduciary responsibility to the bank but was a hedge fund manager who was only interested in maximizing fee income. They did not care about the long run view of expected return of the assets in the portfolio, only whether they fit the rating agency model that allowed the SIV to maintain an AAA rating. While not every SIV reduced their lending standards and some traditional bank sponsored SIV’s behaved prudentially, the new entrants who were predominantly hedge fund managers were prepared to “game the system” and take advantage of the established rating agency rules.

In 2002 there were 16 SIV’s managed by 10 institutions with less than $100 billion in total assets. By mid 2007, there were 36 SIV’s and SIV hybrids that were managing nearly $400 billion in total assets. The sole focus on high yielding assets drove portfolio selection toward sub-prime assets. There was a special SIV hybrid known as SIV-lites that were exclusively invested in sub-prime mortgages. The non-bank hedge fund sponsors showed little compunction to game the system and SIV growth was heading for a crash.

The rating agencies that created the rules that allowed for unhealthy SIV growth had no incentive to change their policies. By the middle of 2007 over half of their earnings came from ratings on structured products like SIV’s and SIV’s were especially profitable since they earned fees every month, not just at the inception as with a typical bond issuance. Rating agencies justified their ratings by their risk estimates, but their data was all backward looking and for many new products, the time series was relatively short. Investors who relied on the AAA ratings had little interest or understanding of the underlying assets. The SIV model, which was static***,*** might have been altered as the market shifted, but rating agency managers felt it would be unfair to change the model in midstream. The revealing part of this is that the “customers” who would be unfairly hurt by a model change were the SIV managers, not the ultimate investors and risk bearers. Errors in assessing the risk of new securities like sub-prime mortgages compounded the SIV risks, but even if sub-prime mortgages were priced correctly, there was always going to be some asset class that was mispriced and whatever was mispriced was going to be what SIV managers sought for their portfolios.

Sub-Prime Crash of 2007

In early 2007, prices inthe U.S. housing market began to decline and the key assumption underlying sub-prime mortgage valuation disappeared. Sub-prime defaults began to rise rapidly as housing prices dropped. The first victims were the Bear Stearn’s hedge funds that held a leveraged portfolio of sub-prime collateralized debt obligations (CDO’s). The Bear Stearns’ funds lost their funding in June 2007 and within one month they failed. Sophisticated investors began to question the SIV net asset valuations.

As the market began to establish new lower valuations for sub-prime assets, the value of SIV holdings began to fall. The net asset value (NAV) of a SIV is the amount by which the market value exceeds the senior AAA rated debt level divided by its capital***,*** which is mostly capital notes. Since the rating agency rules were inflexible, as NAV’s fell, SIV’s were forced to sell assets to maintain their ratings and with the asset sales, prices fell further and NAV’s declined again. When the CP investors saw the NAV’s declining, they began to question the assets behind their ABCP and they began to withdraw from the market. As SIV NAV’s fell, the rating agencies forced them to either raise new capital or liquidate assets.

By August of 2007, there were 30 SIV’s and 6 SIV-lites with $412 billion of assets. Over half of the SIV managers were hedge fund sponsors and the losses from ABCP were disproportionately related to hedge fund sponsored SIV’s. Many large bank sponsors of SIV’s supported their SIV’s and eventually took the SIV assets back onto their own balance sheets in order to protect their reputations. For the hedge fund sponsors, taking the assets back was not an option and they were less concerned about their reputations.

Implications and Lessons Learned

SIV’s were a newly created financial market innovation that combined leverage and regulatory relief. This innovation was facilitated by the “for-profit” rating agencies that earned substantial fees based on the assets in SIV’s. SIV investors got a false sense of security from the rating agencies. Both the liquidity and credit risk were misunderstood and relying on the AAA ratings was a major mistake.

Incentives matter and the banks, hedge funds and rating agencies had their own agendas. In this case, a seemingly reasonable series of innovations combined and became toxic when they shifted incentives for their managers over time. The rating agencies gave no consideration to the management incentives when issuing their ratings and their risk estimation was entirely backward looking. It was therefore primarily based on the experience of the more prudently managed bank sponsored SIVs. The hedge fund managers entered the SIV market late to take advantage of the game where they could earn fees if all went well, but would leave the capital note and CP holders with the losses if anything went wrong. Thus their experience had relatively little input into the rating agencies’ models.

The public good that was created by the advent of SIV’s and the ABCP market could not be maintained in an unregulated free market. When investors could not understand the assets behind their securities and could not differentiate between “good” ABCP and “bad” ABCP, the whole market froze and failed to work well. As part of the collateral damage, banks are now less willing to lend against complex assets since they must now be maintained on their own balance sheets. Further investors are now stuck with low yielding Treasury Bills in their money market accounts that provide a very poor return on their available cash balances.

Some of the various lessons learned include:

Beware of new products without much history.

Look carefully at the incentives motivating the people behind the products.

Watch out for changes in rules and regulations that can change incentives.

Buyers must understand the regulatory environment to reduce asymmetric information.

Regulators, including rating agencies, need to be more proactive in developing and modifying rules for new investments to maintain healthy markets and not rely on historical data when the markets generating those numbers materially change.

Litigation

While learning something from a financial crisis is certainly useful as can also be legislation aimed at preventing another similar event in the future, it does not get one’s money back and tens even hundreds of billions of dollars were lost in the recent crisis, many through investment in SIV related assets. Therefore access to the courts and the assets of anyone still standing is a logical outcome and indeed is a common aspect after crashes and is prominently noted by Kindleberger, Aliber, and Minsky.

However since generally it was sophisticated investors and financial participants that were involved in both sides of the SIV transactions, these cases have not been easy to win unless there was a clear breach of a statute such as ERISA or a fiduciary duty of prudence and care. A brief review of some of the more prominent cases indicates what is involved and the types of parties to these disputes.

These cases cover the Bear Stearns SIVs mentioned above, Cheyne Finance, Sigma Finance, Rhinebridge, STEP and Core USA while the defendants include the major rating agencies plus major financial institutions such as JPMorgan Chase, Citibank, Bank of NY Mellon, Morgan Stanley, Northern Trust and IKB Deutsche Industriebank. The plaintiffs are also generally large financial players such as Calpers or the Abu Dhabi Commercial Bank Co.

Specific Cases

In August 2011 Fitch Ratings Ltd. settled negligence claims brought by the [California](http://mobile.bloomberg.com/topics/california/) Public Employees’ Retirement System’s over ratings it gave structured investment vehicles that later collapsed. It agreed to provide Calpers with documents from a similar lawsuit pending in New York. However, under the settlement Fitch made no payment to Calpers, the biggest U.S. pension fund.

Calpers sued Fitch, Moody’s Investors Service Inc. and Standard & Poors over ratings for three SIVs -- Cheyne Finance LLC, Stanfield Victoria Funding LLC and Sigma Finance Inc. where Calpers had invested $1.3 billion. Fitch will provide Calpers with a copy of its deposition taken in February and other documents it produced in a pending investor lawsuit against Moody’s and Standard & Poor’s filed by Abu Dhabi Commercial Bank over the Cheyne Financie SIV.

AFTRA, Sigma and JPMorgan

According to the New York Times, a group of JPMorgan's clients, the AFTRA retirement fund, invested $500 million in one of these SIVs, Sigma. The group's lawsuit against JPMorgan alleges even though Sigma was so deeply in debt it could not afford to issue any more commercial paper, JPMorgan fed it money so it would stay afloat and keep generating fees for JPMorgan through repo transactions. The repo transactions would earn JPMorgan $2 on every $1 it invested if Sigma defaulted.

The plaintiffs argue that in the summer of 2007, as the first tremors of the coming financial crisis were being felt, top executives at JPMorgan Chase were raising red flags about a troubled investment vehicle based in London called Sigma. But the bank chose not to move out $500 million in client assets that it had put into Sigma two months earlier. The lawsuit thus asserts JPMorgan profited from its collapse a year later.

According to the suit while clients lost nearly all their money, JPMorgan collected nearly $1.9 billion from Sigma’s demise because as Sigma’s troubles worsened, JPMorgan lent the vehicle billions of dollars and received valuable assets in security deposits.

BNYM Securities Lending Litigation

On December 19, 2008, CompSource Oklahoma, The Children's Hospital of Philadelphia Foundation, and The Children's Hospital of Philadelphia, Individually and in its Capacity as Fiduciary of The Children's Hospital of Philadelphia Defined Benefit Master Trust, and Board of Trustees of the Electrical Workers Local No. 26 Pension Trust Fund, in its Capacity as Fiduciary of the Electrical Workers Local No. 26 Pension Trust Fund, on behalf of themselves and all others similarly situated have filed a suit against BNY Mellon, N.A., and The Bank of New York Mellon in a United States District Court in Oklahoma.

Plaintiffs represent an alleged class of persons and entities who were participants in Defendants' securities lending program and, through one or more of the collective investments vehicles managed by Defendants or its affiliates, incurred losses relating to investments in medium-term notes of Sigma Finance, Inc. ("SFI"), though BNY Mellon Corp. has been voluntarily dismissed based on its representations it was merely a holding company and not involved with the securities lending program.

Specifically, Plaintiffs seek to represent a proposed Class of persons and entities that participated in Defendants' Securities Lending Program through which Defendants invested cash collateral, either directly or through a collective investment vehicle, in one or more SFI medium-term notes ("MTNs") and continued to hold those MTNs as of the close of business September 30, 2008

Plaintiffs argue that under these Securities Lending Agreements, Defendants loaned securities owned by the Class Members to third-party borrowers in return for cash collateral but then invested, at their sole discretion, the cash collateral in an effort to earn an investment return on the cash collateral in excess of the rebate paid to the third-party borrowers. As compensation, Defendants received a percentage of the revenues generated for each Class Member.

According to the Securities Lending section of BNY Mellon's website, the stated purpose for its Securities Lending Program is "...generating returns and managing risk." Given that the funds Defendants invested for Class Members consisted of collateral that was required to be returned to borrowers upon repayment of the underlying securities loans, Defendants were required to invest the cash collateral conservatively and prudently. As alleged in the Complaint, each Securities Lending Agreement (and the investment mandates for each of the collective investment funds) required Defendants, among other things, to (a) safeguard principal, (b) maintain adequate liquidity, and (c) discharge its duties with respect to the investment of the collateral with care, skill, prudence, and diligence.

Despite these objectives and duties, it is argued BNY Mellon invested and lost a substantial portion of the cash collateral provided to Class Members MTNs issued by SFI, a Delaware corporation organized for the sole purpose of issuing debt securities for its Cayman Islands parent company, Sigma Finance Corporation ("Sigma"). The debt securities - in this case MTNs - were secured only by a "floating lien" on the assets of Sigma that weresubordinated to the lien interests of Sigma's other creditors.

Shortly after Defendants purchased a substantial amount of Sigma MTNs using the cash collateral held by Class Members, analysts following Sigma and other structured investment vehicles ("SIVs") like Sigma warned about the lack of liquidity in the credit market and sharp declines in the market value of assets backing many SIVs, threatening their viability.

IKB Deutsche Industriebank AG

A federal lawsuit is proceeding as the judge has rejected a German bank’s request to dismiss U.S. lawsuits accusing it of fraudulently creating a risky debt vehicle it knew was likely to default, resulting in several hundred million dollars of investor losses. The lawsuits contend that IKB sponsored the creation of a structured investment vehicle, Rhinebridge, in June 2007 to dump investment losses onto unsuspecting investors and save itself from possible bankruptcy.

The same judge has rejected requests by rating agencies Moody's Investors Service and Standard & Poor's to dismiss them as defendants.The lawsuits were filed by Washington state's King County, which includes Seattle and manages accounts for more than 100 public agencies, and the Iowa Student Loan Liquidity Corp.

The German bank is also a main investor in ABACUS 2007-AC1, the synthetic collateralized debt obligation that was the subject of a U.S. Securities and Exchange Commission fraud lawsuit against Goldman Sachs Group Inc.

In the Rhinebridge case, the plaintiffs accuse IKB of misrepresenting the risks of Rhinebridge and its "triple-A" credit ratings when it was holding risky, subprime mortgage-backed assets. They called Rhinebridge "the shortest-lived 'triple-A' investment fund in the history of corporate finance." It was wound down in August 2008, costing investors 45 percent of a $1.1 billion investment. The earlier ruling is significant because it represents one of the first times a court has refused to uphold First Amendment protections for ratings assigned by a rating agency to an investment product, potentially holding the agencies responsible for losses suffered by investors relying on the rating when the rated investments quickly failed.

Abu Dhabi Commercial Bank

In 2004, Abu Dhabi Commercial Bank and King County, Washington State purchased SIVs packaged, sold and rated by the defendants Morgan Stanley and two rating agencies, Moody’s and Standard & Poor’s. The plaintiffs claim common law fraud, negligent misrepresentation, breach of fiduciary duty and contract, and unjust enrichment.

The plaintiffs primarily allege the defendants worked together to package and sell SIVs while knowing the ratings assigned were false and misleading. They argue SIVs especially are dependent upon high ratings because not only is the SIV itself assigned a credit rating which is supposed to convey to investors its creditworthiness, but the collateral assets underlying the SIV are also given ratings.

Because of this the plaintiffs argue they were deliberately misled because Morgan Stanley and the rating agencies knew the SIV’s underlying capital, partially comprised of residential mort- gage backed securities, did not warrant a high rating.

Northern Trust

On January 29, 2010 the Chicago Teachers Pension Fund and the Atlanta City Firefighters Fund filed a class action lawsuit against Northern Trust. The lawsuit charges Northern Trust, which had a reputation as a conservative bank, during the recent financial crisis, engaged in highly risky securities lending and lost millions of client dollars in the process. The lawsuit argues Northern Trust, instead of investing Pension Fund money in conservative investments, placed the funds at risk through investments in activities such as those that brought down the financial system in 2008.

"The STEP portfolio included hundreds of millions of dollars in exotic, unregistered securities issued by “structured investment vehicles” or “SIVs” — entities that were recently identified in hearings before the congressional Financial Crisis Inquiry Commission as one of the “causes of the financial crisis” that “served no good or productive purpose in the financial system” — and millions more in securities backed by risky residential mortgages and other consumer loans. Both STEP and Core USA held hundreds of millions of dollars of securities backed by mortgages and other consumer loans, and billions more in securities issued by banks with massive exposure to mortgages and consumer loans...." Losses to the pension funds are in the hundreds of millions of dollars.

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