HONORS THESIS

THE UNITED STATES FINANCIAL CRISIS OF 2007: WHERE WE'RE HEADED NOW

BY

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ABSTRACT

The United States Financial Crisis of 2007 hit the economy hard, and left it reeling for years to come. This paper will discuss the factors leading up to the crisis in the United States, with a focus on the shadow banking system, and the steps the United States government took during an after the crisis.

Shadow banks are financial intermediaries that are not regulated, which creates direct competition for traditional banks. The Dodd-Frank Act was implemented after the recession and its impact on the current economy will be explored. What we take away from the events that occurred leading up to, during, and after the financial crisis can potentially help avoid this occurrence in the future.

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INTRODUCTION

1988 marked the first Basel I Capital Accord, which was created to strengthen the stability of the international banking system and implement a consistent system among these banks. Basel II was based on three pillars: minimum capital, supervisory review, and market discipline. Credit, market, and operational risks were recognized under the Basel II Accord, which made the markets more risk sensitive. The first two accords focused primarily on the level at which banks were required to hold for losses (Nayak, 2013). The Basel III Accord targets improving the banking sector's ability to react to shocks in the market from economic stress and improve their risk management. Basel III includes some key requirements such as: capital requirements, leverage ratio, and liquidity requirements. Basel Accords are part of the Basel Committee on Banking Supervision's continuous effort to enhance the regulatory framework[1] (Bank for International Settlements, 2013). The third Accord was made in response to the lack of regulation during the financial crisis.

In 2007, the United States economy faced one of their worst downturns since the Great Depression. No one factor can garner the blame for the recession that took place, but rater a multitude of factors came into play. The housing market bubble burst due to the lack regulations allowing subprime mortgages to be lent to under qualified buyers. Too-big-to-fail banks were a common belief that if a bank was large enough it could not fail. This led to risky investment practices. Some institutions acted to cut out intermediation that was done by traditional banks, known as shadow banks, were not regulated, took no deposits and contributed to high risk investments. Due to no deposits, shadow banks had

[1] See Figure 1 in Appendix for more detailed banking supervision reforms

to make their profits quickly, and used two main sources: commercial paper and repurchase agreements.

In attempt to combat the issues arising in the market, the government and Federal Reserve tried to assuage the impact. They created the a number of new organizations and bailed out some large financial institutions previously believed to be 'too-big-to-fail.' At the conclusion of the financial crisis the Dodd-Frank Act was proposed. This Act provided an extensive and detailed description of how to reduce and predict the systematic risk in the market. The complexity of it has caused issued to arise. Currently looking at the market there are conclusions to draw from where we are headed in regards to the United States financial market. The employment rate, yield curve, and overall outlook will be examined. After the analysis of where we are, where are we going to go if we continue the track we're on?

CAUSES OF THE FINANCIAL CRISIS

GSE's Affordable Housing Mission

The financial crisis of 2007 did not begin when the problems first started to surface; there were issues deep within the framework. There is no one factor that is to blame, but rather a culmination of many entities. To start off, in 1934 an agency entitled the Federal Housing Administration (FHA) was created to enhance the level of homeownership in the United States by providing mortgage insurance. The goal was to provide a safeguard for investors during times of economic stress by ensuring continually available mortgage credit for qualified homebuyers. In 1965 the Federal Housing Administration became a

part of the Department of Housing and Urban Development (HUD) (Financial Crisis Inquiry Commission[2], 2011).

Leading up to the financial crisis, there was a decline in the FHA's mortgage market, which started to slip in 2000. The decline in their lending was due to the capital markets maturing in the United States and the large competition from private subprime lenders as well as government-sponsored enterprises. These competitors offered more attractive high-risk mortgages to homebuyers. In order for the FHA to stay competitive with these mortgages offered, they would need to modify their mortgages. In order for them to release a new contract a Congressional agreement must be made. The FHA is slow to change to market conditions, so any amendments they would make would take a fair amount of time before change was seen. Consequently the FHA did not modify their mortgages. With no changes set in place, this created a market that was disproportionate in regards to mortgages. Since the FHA kept their mortgages at higher levels, the subprime lenders and GSEs had an advantage with their lower levels, creating a divide in the mortgage market (Jaffe, 2010).

The Federal National Mortgage Association (FNMA or Fannie Mae) and the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac) were the two major government-sponsored enterprises (GSEs) that played a role in the financial crisis as well as competitors to the Federal Housing Administration (FHA) (Owens, 1998). Fannie Mae and Freddie Mac were created by Congress to support the mortgage market. Fannie Mae was established after the Great Depression period ended in 1938 to buy mortgages insured

[2] To be known as FCIC for future citing

by the FHA in order to support the mortgages with loans after the Great Depression (FCIC, 2011). Fannie Mae was able to buy mortgages that followed FHA's underwriting standards, which created mortgage credit for banks and thrifts to extend to homebuyers. There was a problem, however, in the way Fannie Mae bought mortgages through borrowing. Fannie Mae primarily held mortgages in its portfolio, sometimes reselling them to thrifts, insurance companies, or other investors. In 1968, the Government National Mortgage Association (GNMA or Ginnie Mae) was created as a split off of Fannie Mae. Ginnie Mae only handled securities that were backed by the full faith of the United States government and may only purchase federally insured Federal Housing Administration and Veterans Administration non-conventional mortgages (FCIC, 2011).

Freddie Mac was created later, in 1970, officially named Federal Home Loan Mortgage Corporation, to help thrifts sell their mortgages. Freddie Mac was developed to compete with Fannie Mae in order to create a competitive and efficient market. Primarily, Freddie Mac was created to provide a secondary market for conventional mortgages. The Emergency Home Act of 1970, enacted to create a secondary market for home mortgages, approved Freddie Mac (Owens, 1998). At that time, there was no secondary market for the loans. The creation of this secondary mortgage market increased the supply of money available for mortgage lending and money available for home purchases. It also allowed Fannie Mae to purchase private mortgages. Though Freddie Mac had a large presence in the secondary market, the total holdings were understated because of its primary function: a mortgage guarantor (Padhi, 2002). The purchases of mortgages from financial institutions place the mortgages in a trust and then issue mortgage-backed securities to investors funded by the interest payments for the mortgages. Since the mortgages are in a trust, the

mortgage-backed securities and the mortgages are not on their balance sheet. New legislation allowed these GSEs, Fannie Mae and Freddie Mac, to securitize mortgages, in which a lender would assemble a pool of mortgages, and then issue securities backed by the mortgage pool. Freddie Mac would collect fees from lenders to guarantee payment of principal and interest (Pozsar et al, 2010).

Both Fannie Mae and Freddie Mac focus on supporting the mortgage market and maximizing returns for shareholders. These GSEs have special privileges, such as exemptions from state and local taxes. GSEs only needed to have a little capital on hand to protect them from losses, about .45% for their guarantees of mortgage-backed securities and 2.5% to back the mortgages in their portfolios, whereas banks and thrifts have capital requirements of 4% of mortgages assets under capital standards. Due to these privileges, investors and creditors began to accept the lower returns of GSE-guaranteed mortgage-backed securities and debt obligations because it was as if the government was virtually guaranteeing the securities and debt (FCIC, 2011). The GSEs seemed, to investors, to be a safe investment with no risk associated.

Community Reinvestment Act

Regulators began to question if an insured bank was serving the needs of the whole community, which brought on the establishment of the Community Reinvestment Act (CRA) in 1977. It was first created to offset "redlining" by banks—denying credit to people in certain neighborhoods without regard to their creditworthiness. This act was not very heavily enforced until 1992, when the Boston Federal Reserve Bank conducted a study that concluded loan officers allocated more of their mortgage funds to people of Caucasian

descent. Due to this, the Clinton administration decided to implement major reform to the CRA regulations. In 1995, new rules were established to loosen the examination of buyers and borrowers. Banks had to show they met a number of loans to LMI borrowers; they had to create more flexible lending practices to meet the credit of the LMI borrowers (Wallison, 2009).

Under Tittle XIII of the Housing and Community Development Act of 1992, more commonly referred to as the Federal Housing Enterprises Financial Safety and Soundness Act or the GSE Act, the Office of Federal Housing Enterprise Oversight (OFHEO) was created. This agency was formed to ensure the financial safety of Fannie Mae and Freddie Mac (Wallison, 2009). President George Bush stated during the signing of the GSE Act that, "The regulatory burden that the Congress has placed on our banking system has reached a staggering level that prevents banks from providing the credit that is necessary to assure economic growth. By reducing the regulatory burden, this bill will assist banks, borrowers, and the economy as a whole" (Bush, 1992). This obligated the Federal Government to provide any funds necessary to these GSEs as reimbursements or otherwise guarantee additional obligations or liabilities. In other words, these organizations were backed by the full faith and credit of the United States Government. It also set up a plan to reduce traditional underwriting standards over time in order for low-and-moderate income borrowers to have more accessible homeownership.

Underwriting is when a bank or financial institution receives payment for their willingness to cover a potential risk. Risk-based capital standards were based on economic stress tests and an addition of on-site examination programs to ensure the safety of the GSE

Act. The affordable housing goals steadily increased from the inception in 1992. Mortgage purchases started out at 30 % of purchases, then in 1995, it rose to 42%, 50% in 2000 and in 2008 it was at 56% (FCIC, 2011).

In 1995, President Bill Clinton had the goal to boost homeownership from 65.1% to 67.5% of families by 2000. This boost was extended under George W. Bush who introduced the "Zero Down Payment Initiative." Fannie and Freddie were promoting mortgage lending while trying to maximize returns to shareholders. This affordable housing mission permitted Congress to subsidize LMI (low- and moderate-income) borrowers without any funds, creating a large number of nontraditional and sub-prime mortgages (FCIC, 2011).

Fannie and Freddie avoided more regulation from Congress, such as restrictions on mortgage portfolios, by arguing that if Congress did so they would not be able to subsidize affordable housing: the new mission of Congress. In 1997, Fannie offered 97% loan-to-value mortgage and in 2001, it was offering no down payment. Finally, in 2007 Fannie and Freddie showed that 55% of their mortgage purchases were LMI and 38% of all purchases came from underserved areas, or inner city areas (FCIC, 2011). The increased demand for GSEs drove up the value of subprime mortgages, resulting in many marginally qualified or unqualified Americans to have their applications accepted. Competition for the mortgage borrowers caused underwriting standards to decline and increased the number of weak and high-risk loans (Wallison, 2009).

Since the CRA encouraged looser lending standards throughout the banking industry, it encouraged banks to lend to borrowers they may have previously denied credit to. After its enactment, conventional mortgages in the United States fell from 57.1% in

2001 to 33.1% in 2006. Also subprime loans rose from 7.2% to 18.8 % and Alt-A loans rose from 2.5% to 13.9% during the same time period. Alt-A loans are not an A Paper best rate loans, but they are rated higher than subprime loans[3]. Though it cannot be proven that the CRA had a cause-and-effect relationship with these loan strategies, the numbers are hard to ignore (FCIC, 2011).

Best Practices Initiative

Around the same time period as the GSE Act was being implemented, the Department of Housing and Urban Development (HUD) set up an organization titled the Best Practices Initiative in 1994. This program aimed to lessen the underwriting standards in order to increase access by low-income borrowers to mortgage credit. Thus far, we have seen that Fannie Mae, Freddie Mac, FHA and banks under the CRA have all been competing for the same mortgages. With all of these programs competing, it would be unlikely for all of them to find borrowers who met the mortgage lending standards set by the GSEs, Fannie Mae and Freddie Mac (FCIC, 2011). Underwriting standards had also declined because all of the entities they were trying to meet an obligation imposed by the government. These underwriting standards declined because all of the programs quickly tried to acquire the low quality mortgages they were allowed to give (Pozsar et al 2010).

By 2008, government programs had a large role in the number of subprime and other high-risk mortgages in the United States financial system. Government agencies, or programs under government control (such as CRA and HUD), held or guaranteed 19.2 million mortgage loans that were outstanding, whereas only 7.8 million were distributed to

[3] See Figure 2 in Appendix for a graphical representation of the subprime loans

investors through private mortgage-backed securities[4]. The efforts to increase homeownership did work within this time frame, with around 64% in 1994 to over 69% in 2004 (FCIC, 2011). All of these factors are working together, cumulating and building up the housing bubble. With the housing prices rising, subprime borrowers who may have defaulted prior to these government agencies were able to refinance their mortgages. As the housing prices were rising, borrowers were seeking riskier mortgages in order to pay for the higher monthly payments. The government programs hid the delinquencies and defaults that would have become apparent after only a few years, but ended up lasting ten years.

The Financial Services and Modernization Act was created in 1999, and played an integral part in the financial crisis of 2007 (Sherman, 2014). This act allowed companies in the financial industry to integrate with operations and invest within other institutions in the industry. It also removed some of the restrictions put in place by the Glass-Steagall Act of 1933. Glass-Steagall limited commercial banks' participation in the securities markets[5]. It also created the FDIC to insure bank deposits, prohibited banks from dealing with most types of securities, and kept them from dealing with securities firms. The Modernization Act of 1999 (also known as the Gramm-Leach-Biley Act) removed the part of the Glass-Steagall Act that barred the affiliation between banks and securities firms, which in turn led banks to securitization. Securitization is where different types of contractual debt, such as mortgages and debt obligations, are pooled together for various investors. Another way to

[4] See Figure 3 in Appendix
[5] See Figure 4 in Appendix for commercial bank activity versus shadow bank activity

look at it would be the practice of taking illiquid assets and converting them into a security (FCIC, 2011).

Too-Big-to-Fail

Big banks also contributed to financial instability within the United States. Starting in 1991 legislation was put in place to limit the too-big-to-fail principle by passing the Federal Deposit Insurance Corporation Improvement Act (FDICIA) wherein the federal regulators would have to intervene early when a bank or thrift was in trouble. The 11 largest money center banks were not be allowed to fail, dubbed "too big to fail" banks. Institutions that are too-big-to-fail are so large and interconnected with other financial institutions, or very important in financial markets such that their failure will cause losses spread to others. This improvement act had two loopholes in it. One was that the Federal Deposit Insurance Corporation (FDIC) was exempted from the least-cost constraint. Basically, if the FDIC, U.S. Treasury and Federal Reserve did not think that the failure was a systemic risk, then they would not have to bail the institution out (FCIC, 2011).

Deciding on what makes a firm too big can be tricky, and rests in the minds of the policymakers. Too-big-to-fail relies on risk of the market. When there is a direct financial link between two firms and one causes the other to fail, this is known as the risk of contagion. That risk is determined by policymakers: if they fear the contagion enough that they do not want the firm to go bankrupt, then that firm is determined too-big-to-fail and will be bailed out (FCIC, 2011). The too-big-to-fail policy was not truly tested until 2008 and the collapse of Lehman Brothers, one of the largest financial institutions (U.S. House of Reps, 2013). The other ambiguity in the legislation was that Wall Street firms were able to

lobby for an amendment to the FDICIA to authorize the Federal Reserve to be a lender of last resort to investment banks by giving loans collateralized by the investment banks' securities (U.S. House of Reps, 2013).

The large banks grew from the mid-nineties until 2007 because their creditors' perceptions were that they were too-big-to-fail, even if they were not. In 1994, the Reigle-Neil Interstate Banking and Branching Act allowed bank holding companies to acquire banks in every state (Medley, 1994). This led to "megamergers" where banks with assets of more than $10 billion each were apart of the merger (FCIC, 2011). Since large banks were viewed as being too-big-to-fail, there was pressure to remove all barriers to growth, which was allowed. From 1998 to 2007 the combined assets of the five largest U.S. banks tripled from $2.2 trillion to $6.8 trillion. Due to these mergers, the U.S. financial sector became more concentrated with only a select few large institutions (FCIC, 2011). These large firms placed a large responsibility on regulators regarding their oversight.

Each of these establishments, programs and entities did not single-handedly create the financial crisis that occurred in 2007. However, they are not blameless in the matter either. With regulations that government entities had to abide by, such as GSEs, CRA and HUD programs, borrowers and investors started to turn towards other institutions that offered mortgages and other loans with less restrictions and more attractive offers. These institutions that are not regulated because they do not accept deposits are known as shadow banks, and they create direct competitions for traditional banks.

SHADOW BANKS

Shadow Banks: Defined

Mark Carney, the governor of the Bank of England and the head of the Financial Stability Board, identified the greatest danger to the world economy as shadow banking in the emerging markets. Shadow banking accounted for over $70 trillion in assets in the global financial system. Shadow Banking is a term that was created by Paul McCulley in 2007 during a speech at the financial symposium that refers to nonbank financial institutions that engage in maturity transformation. Normal, or commercial, banks take on maturity transformation when they use deposits to fund loans (Kodres, 2013). Shadow banks, on the other hand, raise short-term funds in the money markets and use those funds to buy longer-term maturities. Since these shadow banks are not commercial banks, they are not subject to the same regulations. On the flip side of that, they cannot borrow from the Federal Reserve in an emergency or have their funds covered by insurance.

The rise in shadow banks was established through their increasing involvement in the home mortgages, transforming the mortgages into securities. The securitization chain started off with a mortgage that was bought and sold by a financial entity in order for it to become a part of a package of mortgage loans. This package was then used to back a security that was then sold to investors. The security's value was based off of the accumulation of each mortgage loan's value in the package. Interest of securities was paid from the interest and principal that the homeowners paid on their mortgage loans (Kodres, 2013).

Shadow banks borrow short term in debt markets and lend or invest in longer-term liquid assets. They do not have access to the safety nets that other banks do, which is a deposit insurance and lender of last resort by the central banks. Ways to provide credit through securitization include asset-backed commercial paper (ABCP), asset-backed securities (ABS), collateralized debt obligations (CDOs), and repurchase agreements (repos) (Kodres, 2013).

In 2009, China attempted to offset a potential global financial crisis by encouraging a credit boom. The credit was used for constructions and infrastructure to help China grow 45% leading into 2013 and the financing outstanding rose to almost 200%. $13 trillion in increased bank loans and nonbank financing. Two-thirds of the increase came from nonbank financing (Boone and Johnson, 2014). This shows that shadow banking is not only coming from the United States.

What Are Shadow Banks Composed Of?

Shadow banks are composed of finance companies, asset-backed commercial paper conduits, structured investment vehicles (SIVs), credit hedge funds, money market mutual funds, securities lenders, limited-purpose finance companies (LPFCs), and the government-sponsored enterprises (GSEs) (Pozsar et al, 2012).

Credit through shadow banks reduced the cost of borrowing up until the financial crisis, where the instability of the cost of credit became known. The shadow banking system shifts its systematic-risk and return trade-off to a cheaper credit intermediation during economic success and more expensive intermediation during downturns. Credit

intermediation involves borrowing and lending through credit instruments and consists of credit, maturity and liquidity transformation (FCIC, 2011).

Shadow banks and traditional banks differ in their credit intermediation process; they each conduct intermediation through a multistep process[6]. For shadow banks, intermediation is not performed under the same roof as it is with commercial banks. Shadow banks have to follow a strict order in which their intermediation is performed. First step is loan origination, such as leases, performed by varying finance companies that are funded with commercial paper and medium-term notes. Loan warehousing is conducted next, where single- and multi-seller conduits are funded by asset backed commercial paper (Pozsar et al, 2010).

Conduit financing is a pathway for money to get from investors to borrowers so they can gain the money as a long-term loan or mortgage (Reuters, 2007). After that is asset-basked security issuance, where asset backed broker-dealers' syndicate desks pooling issue securities and structuring loans into term securities. Syndicates are a group of banks, typically investment banks, that act together temporarily to loan large amounts of money in a bank credit. The asset-backed securities are warehoused through trading books using funds from repurchase agreements (repos), total return swaps, or hybrid repurchase conduits. Asset-backed collateralized debt obligation (CDO) issuance occurs by the pooling and structuring of asset backed securities into CDOs. Broker-dealers' syndicate desks also do this. The asset-backed securities are then intermediated by structured investment vehicles, credit hedge funds and other limited-purpose finance companies. The last step of

[6] See Figure 5 in Appendix for a chart representation of the credit intermediation process

this process is wholesale funding. Money market intermediaries and direct money market investors fund all of the activities conducted by wholesale funding markets (Pozsar et al, 2010).

Through the intermediation process, shadow banks took money from the savers and gave it to the borrowers. With a chain of intermediation, problems could arise from the unregulated system and spread to traditional banks. Since it is not regulated and is short-term, investors can quickly pull their money out. Collateral intermediation was also used to help reduce inter-system risks and secure transactions. However, this can cause high levels of financial leverage. High leverage can lead to the quick spread of risk across the market and banking industry. To fund the credit intermediation, short-term deposits were turned into long-term assets in the shadow banking markets principally from investors-money market funds, commercial paper and repo markets- investment banks (Pozsar et al, 2010).

In early 2008, shadow banks recorded a high in the amount of liabilities they had, around $20 trillion, as apposed to traditional banks who had around $11 trillion. However, shadow banks are hard to measure because they are not regulated, so their liabilities could be much greater than what was reported. In 2011, it was believed to have grown to levels between $60 and $67 trillion (Schwarcz, 2013). This caused the market to look into these institutions and discover that most of them made a majority of toxic loans, resulting in many closures, failures, and mergers with larger banking institutions.

The money market funds, or money market mutual funds, used by shadow banks are open-ended mutual funds that invest in debt securities, like Treasury bills and commercial paper; in order to pay higher interest rates than banks and thrifts were

allowed to. These firms became prominent after the Securities Exchange Commission (SEC) discarded fixed commissions on stock trades in 1975. Consumers were able to buy and redeem shares daily at a stable value. The funds promised to keep $1 net asset value of a share on hand, so they would not 'break the buck' (FCIC, 2011). Depositors and investors believed because of this promise that the funds were as safe as deposits to a bank or thrift. This less regulated market for capital boomed leading up to the financial crisis, beginning at $3 billion in 1997 and skyrocketing to $1.8 trillion in 2000 (Wilmarth, 2002).

Money market mutual funds mainly used commercial paper and repo markets as funding. With these services presenting cheaper financing and better returns for consumers and institutional investors, people were excited to join the funds (Brunnermeier, 2008). However, their popularity hurt the banks and thrifts. Commercial banks and thrifts were at a disadvantage because regulatory constraints capped the interest rates that they could pay depositors and imposed capital requirements. This prevented them from competing against the investment banks and their money market mutual funds. Merrill Lynch, Morgan Stanley and other Wall Street mutual funds provided short-term financing to large corporations (FCIC, 2011).

Banks started to use money from capital markets and mutual funds in order to make loans by putting them into securities packages to sell to investors (Brunnermeier, 2008). They started this as a way to copy what the shadow banks were capable of doing without their regulatory framework. These banks had to use securitization in order to compete, changing their practices of taking money from deposits to make loans and holding them to maturity to creating the package of securities from the mutual funds. Moving their loans off

the books reduced how much capital they needed to hold against their losses, which improved their earnings and made their company look strong than it really was (Brunnermeier, 2008).

Money market funds were not highly leveraged like banks; they relied on short-term financing by their investors and competed for these investors' savings. In order for them to compete with the banks, they were promising higher than market returns on their liquid and safe investments by putting a percentage of their assets into illiquid, toxic and risky securities (FCIC, 2011). When the market started to turn down, investors started to panic because they did not know which funds had toxic assets since they were not recorded correctly.

Structured Investment Vehicles, or SIVs, are a type of commercial paper program that invested mainly in AAA securities, financing with debt. SIVs are funds that borrow for the short-term to invest in the long-term assets, such as asset-backed securities and mortgage-backed securities (Brunnermeier, 2008). They were funded through commercial paper programs, with the main type of funding coming from medium-term notes, or bonds that mature anywhere from one to five years (Brunnermeier, 2008). The SIVs had many highly liquid assets and market them either daily or weekly to allow themselves to operate without a specified liquidity amount from their investors (FCIC, 2011).

To borrow from an SIV there is a fixed term, usually between 30 to 270 days, to obtain the money. The SIVs invested about a quarter of their money in mortgage-backed securities, but only six percent of that was in sub-prime mortgages. When the sub-prime mortgages began to fail, investors quickly took their money away from these vehicles. Since

the SIVs rely on longer-term assets, they have to roll over their liabilities. However, they did not have 100% of their outstanding commercial paper covered (Brunnermeier, 2008). This provided the SIVs with a liquidity risk, where their out-payments for the long-term become due before the in-payments (FCIC, 2011).

Special Purpose Entities (SPEs) were a helpful tool used by banks for securitization. They are legal entities, usually a trust, that fulfill specific objectives. Banks take on a great deal of risk. One way to try and diminish some of it was to put some their assets off the balance sheet and link them to the capital markets through the SPEs. Then they would put them back on the balance sheet once the perception of risk in the market changed (Basel Committee, 2009). Many of these assets happened to be collateralized debt obligations and residential mortgage-baked securities, which were very risky and contributed to the housing market bubble.

The use of SPEs was very attractive to banks because it enabled them to reduce the regulatory capital reserve they needed to hold. The banks kept most of the revenues generated by these special purpose institutions by making them pay fees for services to the sponsoring bank. Some of the services could be: the selection of assets the SPE should buy, the collection of revenue from the assets held by the SPE, or paying interest to investors. So all of the business activities of the firms were outsourced to the bank. The return on equity for banks improved from this off-balance sheet activity (Basel Committee, 2009). Since there was this desirability, many banks with poor margins used SPEs to manipulate their earnings and regulatory capital requirements.

Another aspect in the industry is hedge funds, which only account for approximately .2% of the shadow-banking sector (Estenssoro, 2013). A hedge fund is an investment partnership with the intent to maximize investor returns and eliminate risk. The aim is to make money regardless of how well the market was doing by either going long, investing in a security that is prospering, or selling short. Investors are always looking for high returns, so they would invest in mortgage-backed securities in anticipation of getting returns as high as 30%. They are also engaged in commercial real estate trough the acquisition of residential mortgage-origination (FCIC, 2011).

Non-bank financial institutions (NBFI) do not have full banking licenses or are not supervised by a national or international regulatory agency. Some of the most recognizable institutions are insurance companies and investment banks. They act as a channel between funds who lend and those who need the funds. The funds of the investors who borrow are pooled in order to lend. There is usually a periodic interest payment, in the form of a service charge fee. The purpose of non-banks is to intermediate the funds between the original investors to the banks accounts of the borrowers. Some of the market-based non-bank institutions lent with traditional banks and created a complex intertwined web of non-bank and bank lending (Carmichael and Pomerleano, 2002).

Instruments Used By Shadow Banks

Shadow banks use a variety of lending instruments, but the two main mechanisms that involved short-term lending were commercial paper and repurchase agreements. Commercial Paper is an unsecured corporate debt that it is backed only by the corporation's promise to pay, not by a pledge of collateral or insurance of the debt. The

loans were all less than nine months, and some were less than one day. They were then rolled over when the loan was due. Only financially stable companies are able to give out commercial paper, creating the perception that it was a very safe investment. Mutual funds were ne of the largest buyers of commercial paper because they could earn investors a solid return. Commercial paper has been around before the 19th century, yet it did not become popular until 1960 (FCIC, 2011).

In 1970 the commercial paper market was strengthened when Penn Central Transportation Company filed for bankruptcy. They were the sixth-largest nonfinancial company in the United States. When this happened the commercial paper market almost shut down because it showed that this was not an entirely safe investment like investors believed. The Federal Reserve came in to support the commercial paper market with $600 million worth of emergency loans and interest rate cuts (Mishkin, 1991). Issuers of commercial paper set up lines of credit with major banks in case there was another shock to the market. These actions reassured investors that it was safe to invest in commercial paper. By 2000, commercial paper accounted for $1.8 trillion (Wilmarth, 2002).

Asset-backed commercial paper came into popularity around 1998 to fund the mortgage market, growing from about 25% to 50% of commercial paper sold from 1997 to 2001 (FCIC, 2011). Asset-backed commercial paper was the main source of outstanding commercial paper at the start of 20066 (Brunnermeier, 2008). Commercial banks used commercial paper because they could keep those assets off the balance sheet and lessen the amount of capital charge. The banks had to provide liquidity support for these programs,

which meant that the bank would purchase any commercial paper that investors did not want to buy when it was time for renewal at a previously established price (FCIC, 2011).

The fall of Enron put a halt to the asset-backed commercial paper market because their failure was due to off-balance-sheet earnings reports. The problem with off-balance-sheet earnings reports is that it sets banks up for funding liquidity risks (FCIC, 2011). This liquidity risk is the possibility that investors could stop buying the asset-backed commercial paper, which in turn would prevent firms from rolling over their short-term debt.

The other instrument used by shadow banks was the agreement to repurchase the securities for a slightly higher price than they were sold. This is commonly referred to as a repo, or repurchase agreement. Repos were much like commercial paper; they were renewed frequently because lenders could quickly move in and out hoping to find the highest returns. In 1982, the repo market ran into difficulties, with two major borrowers defaulting on their obligations, creating losses for lenders. The Fed loosened the lending terms for the securities firms to combat this. Many investors involved with repos switched to tri-party arrangements wherein a bank would act as an intermediary between borrower and lender-essentially a shadow bank institution (FCIC, 2011).

Investors in tri-party repos tend to run instead of gain the capital that they've lent against, which means that collateral itself is not sufficient when an institution gets in trouble. If the repo market defaults, then the money market funds, a segment of shadow banks, will seize collateral that they cannot legally own (Garbade, 2006). This included

long-term securities and mortgage-backed securities. Therefore, if a fund comes into possession of one of these securities, then they will liquidate it immediately.

Regulatory changes to the repo markets created increased reliance on mortgage-backed securities, collateralized debt obligations, and derivatives (FCIC, 2011). The repo market was a primary source of funding to the securitized banking industry, where the banks create structured bonds from bank loans, such as mortgages, used as collateral for the repo (Brunnermeier, 2008). Before the crisis, buyers of securitized bonds would receive protection form the seller by a repurchase agreement. This way the bank buys back what the investor purchased at some set agreed upon amount in the future. What the investor gains from the repo is made up for by the interest rate on the deposit known as a repo rate.

The repo market grew tremendously through a process known as overnight repos, where banks lend their reserves to each other in order to meet the central bank's reserve requirement[7]. What they borrowed had to be renewed every day. Total investment bank assets financed from overnight repos doubled from 2000 to 2007 (Brunnermeier, 2008). Due the increase in overnight repos, investment banks had to roll over a large part of their funding daily.

A measure of risk on repos was the "haircut" on loans, or the amount of extra collateral that lenders required for their loans. When lenders started to worry about the money they could lose on the securities, the haircuts started to increase (Copeland, 2010). When the subprime real estate market started to weaken in 2007, repo market buyers

[7] See Figure 6 in Appendix for repo market borrowing graph

began to feel anxious about the securitized assets they were purchasing (Bernanke, 2009). The market fears started to increase to new highs and repo haircuts spiked resulting in massive withdrawals from the banking system (Brunnermeier, 2008).

Since lenders could quickly move in and out of these investments in hopes for the highest returns, they went to the riskier forms of funding, such as commercial paper and repurchase agreements[8]. Firms were relying too heavily on short term funding and failed to anticipate how restricted both commercial paper and repos could become. When investors started to panic by taking money out of the short term funding, the funding that was rolled over daily (which consisted of tens of billions of dollars), had the possibility to disappear without warning.

During the Crisis

The Bail Out of Bear Stearns

The repo market started to show its cracks in early 2007, when Bear Stearns started to get into trouble. Bear Stearns' repo lenders required them to give more collateral and pay higher interest rates when their finances started to come under question (Brunnermeier, 2008). In July 2007, two Bear sponsored hedge funds declared bankruptcy; leading to concerns regarding Bear's company. Bear increased their tri-party repo borrowing with the help of JP Morgan, a daytime repo lender (FCIC, 2011). In the fall of 2007, Bear Stearns was taken off the list of approved commercial paper counterparties,

[8] See Figure 7 in Appendix for graphic representation of the increase in commercial paper and repo agreements to fund shadow banking

meaning that it was not a company that could be trusted to issue commercial paper (Federated, 2011).

In the fourth quarter of 2007, Bear reported their first loss, in the sum of $379 million. The SEC saw no evidence for deterioration in the firm's liquidity position and concluded that the liquidity pool remained stable (SEC, 2008). Bear was able to fund its balance sheet with the help of repo loans. The interest rates on these loans were rising and the amount the firm had to pay increased. Even with the losses posted, Bear paid 58% of revenues even though in previous years of gains they only paid 50% (Alix, 2011).

Early in 2008, and internal accounting error showed that Bear Stearns had lass than $5 billion in liquidity. Investors and customers became reluctant to put their money in the company and it showed: their mortgages, mortgage-backed securities, and asset-backed securities fell almost $10 billion from November 2007 to February 2008 (Eichner, 2008). Over two-thirds of those securities were subprime of Alt-A mortgage-backed securities and CDOs. However, even with these issues, the SEC found that there were no significant issues when they inspected Bear Stearns in March (SEC, 2008).

The week following the SEC findings, Moody's downgraded multiple mortgage-backed securities issued by Bear and investors started to panic. The repos were still being rolled over, but it became apparent that this likely would not continue (Bear Stearns Board of Directors, 2008). Then the Federal Reserve jumped in to announce they would lend to investment banks and other primary dealers with the Term Securities Lending Facility (TSLF). TSLF would have $200 billion in Treasury securities and would accept GSE mortgage-backed securities and non-GSE mortgage-backed securities that were rated

triple-a as collateral (FCIC, 2011). The goal was to get lenders to lend to investment banks with Treasuries being used as collateral as opposed to other highly rated securities that were now under scrutiny[9] .The Fed also lengthened the amount of time repos could be rolled over from overnight to 28 days (FCIC, 2011).

However, even though the Fed implemented the TSLF, it would not launch for another two weeks after Bear ran into serious trouble. It was clear that Bear Stearns would not make it to that point. Repo lenders were hesitant to roll over their funding and some stopped lending all together, even with the Treasury collateral that would be offered (New York Federal Reserve Personnel, 2010). Over the course of one week, Bear Stearns stated that they would not be able to operate normally on Friday (SEC, 2008).

Alan Schwartz, the CEO of Bear Stearns called Jamie Dimon, the CEO of JP Morgan to ask for a $30 billion credit line on Thursday night. Dimon said JP Morgan would not give help unless there was government support (Dimon, 2010). That's when the New York Fed made a $12.9 billion loan to Bear through JP Morgan on Friday morning (FCIC, 2011). When Friday was over, Bear was out of cash and it's stock fell by 47% to below $30. The stepping in by the New York Fed signaled that there was a fatal illness within the company. On Sunday, the Federal Reserve Board stated that with the "unusual and exigent circumstances" they would purchase the $29.97 billion of Bear's assets off the books. The assets, which mainly included mortgage-backed securities, would now be under the control of the New York Federal Reserve (Federal Reserve, 2008). Due to the government sponsorship JP Morgan agreed to buy Bear Stearns for $2 a share on Sunday. JP Morgan

[9] Mostly consisted of mortgage-backed securities

also had to purchase Washington Mutual because of the FDIC. Washington Mutual was a large thrift institution, and with their collapse caused deposit withdrawals. With these large institutions under JP Morgan, their franchise grew to the largest in nationwide deposits (FCIC, 2011).

The chairman of the Fed Ben Bernanke said that the $2.8 trillion tri-party repo market began to breakdown and as the fear increased, the short-term lenders demanded more collateral. Bernanke saw the failure off Bear Stearns as a threat to the repo market (Parker, 2010). Bear was so involved within the repo market that its failure would have brought down the market and the contagion risk would affect other firms.

Fannie Mae and Freddie Mac Conservatorships

Before the market spiraled downward, Fannie Mae was modeling loan fees higher than the fees that were actually charged because of the growing market and the competition with other financial institutions. The GSEs made the decision to compete for market share and increase profits to satisfy the need of the federal regulators by purchasing and guaranteeing sub-prime loans. In August of 2008, Fannie was not able to borrow against its securities to raise cash in the repo market, which drove down their stock price. Fannie asked the Federal Reserve for help and was granted emergency loans "should the lending prove necessary…to promote the availability of home mortgage credit during period[s] of stress in financial markets" come up (Federal Reserve Board, 2008).

Congress also passed the Housing and Economic Recovery Act (HERA), giving the Federal Housing Administration the ability to lend secure lines of credit to the GSEs, allowed them to purchase GSE mortgage securities, and to insert capital into the GSEs. It

also raised the federal debt ceiling by $800 billion to provide funds to the GSEs if they were put into a conservatorship (where the United States Government would take financial responsibility for the GSEs). This also created the Federal Housing Finance Agency (FHFA), a successor of the Office of Federal Housing Enterprise Oversight (OFHEO) and the Financial Housing Board (Bureau of Consumer Financial Protection, 2013).

On August 22, the Federal Housing Finance Agency (FHFA) stated that they were concerned about Fannie Mae's capital, and if the market continued to decline, they would be in serious trouble. On September 4, the FHFA and U.S. Treasury agreed that the GSEs needed to be placed in a conservatorship and two days later both Fannie Mae and Freddie Mac they were (Bureau of Consumer Financial Protection, 2013). The FHFA decided to put them into this because their failure could have been detrimental. China and Russia were major GSE security holders who owned more than half a trillion dollars and the banks in the U.S. had more than $1 trillion (Staff of the Federal Reserve System, 2008).

After they entered into a conservatorship, the Treasury bought up to $200 billion of preferred stock and extended them short-term secured loans. The Treasury also pledged to buy their mortgage-backed securities up until 2009. The GSEs gave the Treasury warrants to purchase 79.9% of their shares outstanding, which essentially depleted their existing shareholders (Nash, 2010). Many banks held securities in the GSEs and with the purchases by the Treasury; the stock price went down, resulting in losses for the banks. It resulted in the failure of 10 financial institutions. It was believed that this action would stop the housing market decline and provide some confidence in the market. It did not, and the next day Lehman Brothers started to struggle (Nash, 2010).

The Failure of Lehman Brothers

On September 15, 2008 Lehman Brothers went bankrupt. The Fed and the U.S. Government have said that they will save institutions if they perceive its failure as a contagion to the market. Lehman had no willing buyer; the government tried to facilitate transactions with possible purchasers for months. Without a buyer, the Fed had to decide if they should provide an uncapped loan to Lehman while they searched for a buyer without any liquidity. The Fed could only provide secured loans. Letting Lehman fail was the only way to provide credibility to the statement that a financial institution was too-big-to-fail (Bernanke, 2010). Lehman was twice the size of Bear Stearns.

The failure of Lehman showed the weaknesses that lied within investment banks. Their poor regulatory oversight, risky trading (securitization and over-the-counter derivatives dealings), high leverage, and relying on short-term funding were all pitfalls. The massive amount of over-the-counter derivatives complicated their bankruptcy through their interconnections with other derivative counterparties and other financial institutions contributed to the interconnectivity of the market.

The Federal government decided not to save Lehman because there was a no firm willing to buy them, uncertainty around their potential losses, concerns of political hazard, and the assumption that Lehman's failure would have an impact on the financial system (Baxter, 2010). They defended their decision to not bail Lehman out because they stated the Federal Reserve did not have the legal authority to rescue them. However, the inconsistency of their decision (such as rescuing Bear Stearns and not Lehman) added

uncertainty and panic into the market. Then the Fed went back and rescued AIG from bankruptcy, leading to confusion as to why Lehman was not saved. (FCIC, 2011)

Prevention of AIG Sudden, Disorderly Failure

When AIG needed help, the Treasury stepped in to bail them out to prevent sudden and disorderly failure. AIG was a seller of credit default swaps to many large financial institutions and there was a fear that their failure would force counterparties to replace them and cause a chain-reaction of failures. Credit default swaps allowed the collateralized-debt obligation (CDO) managers to create synthetic CDOs quicker than cash CDOs and enabled investors to transfer the risk of default to the issuer of credit default swaps (FCIC, 2011). The Fed stated that a "disorderly failure of AIG could add to already significant levels of financial market fragility and lead to substantially higher borrowing costs, reduced household wealth, and materially weaker economic performance" (Federal Reserve Board of Governors, 2010).

The Fed tried to organize banks to lend money to AIG amounting to about $75 billion (Baxter, 2010). Later that day, the ratings for AIG came out, with AIG's falling by as much as three notches by some rating agencies. This triggered their stock to fall from $145.84 in the week prior to $4.76 (FCIC, 2011). The banks the Fed tried to organize to save AIG did not agree to the deal. AIG told the New York Fed it was not able to access the sort-term commercial paper market. The Federal Reserve decided to enact the Federal Reserve Act, as they did with Bear Stearns, to bail out the company (Dahlgren, 2010). In the past eight years AIG profits totaled $66 billion, and n 2008 alone the lost $99.3 billion. The Fed decided to loan $85 billion for AIG to meet their immediate obligations. However, this

proved to not be sufficient and the Treasury had to add $49.1 billion under their Troubled Asset Relief Program (TARP) (Congressional Oversight Panel, 2010).

Some of the determining factors for AIG's bailout was their default would trigger write-downs on firms' balance sheets. They were also important in providing a line of business to insure consumer and business activities that would have been fallen through with their default, interlacing them with bank and non-bank institutions in the market (FCIC, 2011). That could have shocked the already stressed market further.

Assistance to Citigroup

One of the leading banks that issued collateralized debt obligations was Citigroup. They were exposed to potential losses in this market, but had superior ratings for their CDOs for many years. From 2000 to 2010 Citigroup made as much as $7 billion in warehouse lines of credit available to mortgage originators and was a large player in the asset-back commercial paper market (Prince, 2010). In November of 2007, Citigroup reported losses on its CDO portfolio. As the sub-prime market started to fall apart, Citigroup reported losses from mortgages, mortgage-backed securities, and mortgage related CDOs totaling $58 billion (FCIC, 2011).

When the Federal Reserve assessed Citigroup they found that it was not a strong firm, but determined that it was only one firm and others like it were fine. Citigroup was already borrowing collateral from the Fed's liquidity programs, but in late November of 2008, the FDIC recommended a systemic risk exception be made under the FDICIA due to fact that their failure would hurt business and household confidence (Geithner, 2010). Regulators feared that the failure of one of the largest U.S. banks, Citigroup, would

destabilize the financial system that was just enacted by the TARP. It could also lead to the failure of banks connected to Citigroup (FCIC, 2011). The Treasury agreed to provide them with $20 billion in TARP funds for preferred stock with 8% dividend ("Joint Statement," 2008). There was also a loss-sharing agreement with Citigroup and the federal government that amounted to $306 billion (FCIC, 2011).

The United States Government, along with the Federal Reserve and Treasury, had to decide upon which institutions it deemed necessary to save. They found that Bear Stearns, AIG and Citigroup could have potentially detrimental effects on the financial market it they were allowed to fail. While Lehman Brothers was allowed to fail because they did not fear it would hurt the market as fatally. The inconsistencies with the bailouts led to confusion with investors and caused the already stressed market feel unsure of what firms the government would help. So while the action they took was successful in some cases, such as with Citigroup, the unpredictability caused additional strain to the financial markets.

What Happened After the Crisis

The Implementation of the Dodd-Frank Act

The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) was passed by Congress in 2010 in attempt to reform and strengthen the oversight of financial services firms and to join consumer protection responsibilities to the Bureau of Consumer Financial Protection. It was signed into law in July 2010 and included 2,300 pages with over 400 new rules and mandates (General Accounting Office[10], 2012).

[10] To be known as GAO in future citing

Some of the efforts that went into creating the bill included 65 hearings to identify the legislative solutions needed for economic recovery and heard 370 testimonies related to Dodd-Frank from individuals from both the public and private sector (Committee on Financial Services, 2014). The Act requires federal agencies to issue regulations to their reforms because of the lax regulations implemented prior to the crisis (Davis Polk and Wardwell, 2010).

The Act is segmented by sixteen titles and requires regulators to create 243 rules, conduct 67 studies, and issue 22 periodic reports. All of these steps are in aim to promote financial stability of the United States. It also hopes to eliminate the idea of a firm being too-big-to-fail, protect tax dollars by ending bailouts, and to end abusive financial services practices (Davis Polk and Wardwell, 2010).

One of the main problems with the financial crisis was the regulation of risk in the market. In the first title, one of the steps the Dodd-Frank Act takes is to create systematic risk regulation through the Financial Stability Oversight Council (FSOC). They are meant to serve as an early warning system that identifies risks in firms and markets and synchronizes standards across agencies. What the FSOC is trying to do is to identify non-bank financial companies to bring them under regulation by the Federal Reserve. The FSOC consists of 15 members, 10 voting and 5 nonvoting, which conduct quarterly meetings wherein the council meets with the Treasury Secretary and a majority vote system is in place. They mainly try to find the risks imposed on the U.S. financial market stability that could come from financial failure, or from ongoing activities of interconnected bank and non-bank companies. The FSOC also is meant to impose discipline in the market that was in

place prior to the crisis due to the lax regulations. Another entity created in Title I is the Office of Financial Research (OFR), whose main duty was to provide administrative budget analysis to the FSOC. The council can ask for reports through the OFR to assess the financial stability of a company (GAO, 2012).

Title II of the Dodd-Frank Act created the Securities Investor Protection Corporation (SIPC) to include coverage of insurance companies and non-bank financial institutions that were not previously covered. When the FDIC receives an organization the secretary must report to Congress within 24 hours, and after 60 days there must be a report to the general public discussing the state of the company, the impact of their default, and the proposed actions they will take. The liquidation authority provides regulators with new authorities to manage the failure of large financial companies in such a way that they will avoid taxpayer-funded bailouts (Davis Polk and Wardwell, 2010).

In Title VII, also known as the Wall Street Transparency and Accountability Act of 2010, regulation of the counter swaps market is outlined. This includes credit default swaps and credit derivatives. As stated earlier, AIG, among many other companies, was a seller of credit default swaps to large financial institutions. These swaps allowed the CDO managers to create synthetic CDOs quicker than cash CDOs and enabled investors to transfer the risk of default to the issuer of credit default swaps. The Act requires that derivatives and swaps that are traded over the counter be cleared though exchanges such as the Securities and Exchange Commission and Commodity Futures Trading Commission (CFTC). The SEC and CFTC work in conjunctions with the Federal Reserve regarding regulation for swaps and security-backed swaps. With the swaps meeting the regulation

provided, no Federal assistance will be afforded to any swap entity. The derivative market is also being reformed to establish a comprehensive regulatory framework so that financial institutions will not have to be bailed out by taxpayer dollars (Morrison and Foerster, 2010).

Title VIII of the Dodd-Frank Act (Payment, Clearing, and Settlement Supervision Act of 2010) attempts to promote stability within financial institutions while reducing their systematic risk. It requires the Federal Reserve to create standards for the management of risks by enhancing the supervision role of the Fed. This enhanced role will help with risk management for systematically important financial institutions as well as strengthen the liquidity of them. The enhanced supervision written in the Dodd-Frank Act required the Fed to impose mediation requirements on systematically important financial institutions with $50 billion or more in consolidated assets to try to alleviate risks. This was meant to reduce the market expectations of future federal bailouts of large, interconnected firms. The Federal Deposit Insurance Corporation was given liquidation authority to help a troubled financial firm who could threaten the market with their risk on contagion (H.R. 4173, 2010).

Challenges started to arise when the identification of what systematic risk is and how it can be measured was not clear. Systematic risk is the un-diversifiable, volatile risk that is the market. Though the Act and the FSOC put into place steps into how to measure this risk, such as constant supervision trough quarterly meetings, and regulation recommendations and implementations, there is no way to truly predict the market risk (GAO, 2012). These are steps that can help lessen the impact of a future financial crisis or

economic downturn, but systematic risk is something that cannot be 100% accurately measured and avoided.

An orderly liquidation authority under Title II of the Act gives the Treasury Secretary the authority to appoint the FDIC the receiver of a financial company if there are certain conditions (GAO, 2012). The new liquidation authority replaced the previous Bankruptcy Code and other laws that were previously in place regarding the bankruptcy of financial companies. This authority was created to discourage bailouts, ensure due process, protect the customers, and to reduce the stress on the market if a financial institution were to fail. Its goal is to balance bankruptcy and customer protection laws with restoring financial stability (Davis Polk and Wardwell, 2010).

The Investor Protections and Improvements to the Regulation of Securities, otherwise known as Title IX or the Investor Protection and Securities Reform Act of 2010, revises the structure of the SEC, credit rating organizations, and the relationships between investors and brokers and advisors (H.R. 4173, 2010). There are Subtitles A through J that outline the structure of this Act.

In Subtitle A it provides provisions to increase investor protection. The SEC is to impose regulations regarding the fiduciary duty—or the trusting relationship between an investor and financial institution— broker-dealers need to have with their customers. The SEC is to study the how well a company is providing their customer and report to Congress within 6 months. Subtitle A sets in place improvements to the regulation of credit rating agencies, including nationally recognized statistical rating organizations. The credit rating agencies provided overly optimistic ratings of some institutions, such as Lehman and Bear

Stearns, and then quickly lowered them once they realized the severity of their financial situation. This greatly affected market confidence during the financial crisis. It requires the SEC to research the credit rating agencies and provide guidelines to prevent conflicts of interests and also instructs them to create an Office of Credit Ratings (OCR) to be in charge of the oversight of the credit rating agencies (H.R. 4173, 2010).

Subtitle D specifies improvements to the asset-backed securitization process. The asset-backed security can include fixed-income of security collateralized by self-liquidating assets, specifically collateralized mortgage obligations and collateralized debt obligations. Credit risk regulations outlined to be 5 percent of the risk that was retained. The SEC determined separate rules for securitization classified asset classes (H.R. 4173, 2010). Classifying asset-backed securities was intended help to encourage the correct risk management practices and improve the access of consumers to credit with reasonable terms.

The SEC issued rules to prohibit listing securities of an issuer that does not adhere to the requirements of the compensation section under Subtitle E, or the Accountability and Executive Compensation section. The purpose is to let shareholders know if any employee or stakeholder can purchase financial instruments that can offset a decrease in equity (H.R. 4173, 2010). Companies need to be upfront with their investors and not try to hide their losses, such as was the case with many financial institutions in 2007 resulting in failures and bailouts.

Dodd-Frank Act, Section 619: The Volcker Rule

To recognize the importance of coordination section 619, also referred to as the Volcker Rule, requires that banking agencies (FDIC, Federal Reserve) and the regulation commissions (SEC, CFTC) consult with each other so that the regulations are set in place to cooperate with one another (Davis Polk and Wardwell, 2010). The Volcker Rule requires regulators to limit banks from owning more than 3 percent of their ownership in a hedge fund or private equity fund. The intention is to limit the risk-taking that many financial institutions have been involved with and force them to rethink their trading activities. The rule prohibits banks from short-term proprietary trading and acquiring or maintaining a private equity fund (covered fund). A potential impact on profits could net as much as $10 billion in profits from the eight largest banks in the US. The rule was finalized on December 10, 2013 (Morrison and Foerster, 2010).

The Volcker Rule was created as an attempt to separate commercial banking from investment banking and to return to the traditional banking model with a regulatory divide. Logic behind the rule lies in the fact that the proprietary trading distracted banks from their obligations to clients and from providing long-term credit to families and businesses (Morrison and Foerster, 2010). In other words, banks were not acting in the best interest of their clients, but rather in the attempt to benefit themselves and their revenue.

The Volcker Rule allows exemptions on certain activities that were prohibited in the Dodd-Frank Act[11]. There are rules that limit the exemptions if they have a conflict of interest, exposure to high-risk assets or trading strategies, or create a threat to the safety of

[11] See Figure 8 in Appendix for activities within the scope of the Volcker Rule

the U.S. financial stability and banking entities. For proprietary trading, banking entities have exemptions for the following: underwriting, market making-related activities, risk-mitigating hedging, trading in government obligations, trading activities of foreign banking entities and a select few other permitted activities (Davis Polk and Wardwell, 2014).

For the underwriting standards, the entities that act as an underwriter (or accept the liability and guarantee payment if there are losses) for public and private offerings need their position to not exceed the expected demands of the customers. In the market making-related activities the expectation of customer demands is found through the research on historical demand and market factors. Entities can avoid the risks of these activities under this exemption while they are still prepared to purchase and sell financial instruments. Risk-mitigated hedging exemptions are meant to reduce the identifiable risks of individual or cumulative positions of a banking institution. The institution needs to conduct analyses, usually correlation based, to support their hedging strategy so that there is not too much risk involved. Government obligation rules allow the banks to keep their trading within the U.S. government, agency, state, and municipal obligations. Trading activities with foreign banking entities is not prohibited but the decisions need to account for principal risks that could occur due to the securities being held outside the United States. Other allowed activities exempt trading of a customer in fiduciary trades and activities for a general or separate account (Davis Polk and Wardwell, 2014).

Covered funds (private equity funds) are not to be owned by banking institutions. However, they have exemptions as well that include: entities with more general corporate purchases such as subsidiaries, joint ventures, and acquisition vehicles, SEC-registered

investment companies, foreign funds publicly offered abroad, loan securitizations, insurance company separate accounts, and public welfare investments (Davis Polk and Wardwell, 2014). A banking entity can invest or sponsor a covered fund that is associated with the exemptions mentioned above for proprietary trading. They are allowed to invest in covered funds if it is acting on the side of an agent, broker or trustee through a deferred plan or collecting debt that was previously contracted (Morrison and Foerster, 2010).

Compliance requirements are based upon the amount of activities conducted so that the smaller banking institutions are not under a greater burden than the large and complex institutions. Large institutions are required to have an internal program to ensure that they comply with the requirements, such as CEO testimonies, metrics reporting to monitor trading activities, and documentation that monitors their activities so that evasion would be detected (Davis Polk and Wardwell, 2014).

On June 30, 2014 banking entities with $50 billion or more in trading assets and liabilities were required to have a quantitative measurement report. Entities with at least $25 billion need to have the report by April 30, 2016 and entities with at least $10 billion are required to have a report by December 31, 2016. The Federal Reserve, the Office of the Comptroller of the Currency, the FDIC, the SEC and the CFTC will review the data collected. However, lobbyists still ask the Federal Reserve for extensions on the deadlines contracted (Morrison and Foerster, 2010).

CURRENT STATE OF THE ECONOMY

Employment

The unemployment rate always has its fluctuations, but during the early 1990s the rate was at a steady decline. Looking at the rate in regard to citizens of the United State 16 years and older, do not live in institutions and are not on active duty. Around May 1992, the unemployment rate 7.7% and in June 2000 the rate had fallen to 4.0%. The rate rose during the economic downturn that took place in 2001 to 5.7% in 2002. It fell again to just above four percent and then the financial crisis of 2007 occurred. The unemployment rate skyrocketed to 10.0% in October of 2009. This is the highest it has been since the recession that took place in 1981, where the rate jumped to 10.8% in December 1982. After the end of 2009, the unemployment rate has been steadily declining with the creation of new jobs the Obama administration has put in place. The latest rate of unemployment as of writing this paper was 5.8% in October of 2014[12] (Federal Reserve Economic Data[13], 2014).

In accompaniment with the unemployment rate, the Federal Reserve Bank of St. Louis also collects data on the employment to population ratio. In the early 1990s 63% of the population was employed. In 1992 the rate dipped 2% to 61.2% of the population. The ratio peaked in April of 2000 hitting 64.7% and then fell to 62% in 2003. The rate was right around 63% in 2008 before the effects of the crisis hit. By January 2010 the employment to

[12] See Figure 9 in Appendix for Civilian Unemployment Graph
[13] To be known as FRED in future citing

population ratio was 58.5% and the ratio has hovered around that ever since. As of October 2014, the ratio was 59%[14] (FRED, 2014).

Yield Curve

The yield curve shows us how people feel about the economy. It is a graphical representation of the investments taken on bonds with the same risk, but different yield to maturities. The yield is the percentage of interest rate that the bonds pay back. If individuals are investing more in the short-term than the long-term, then they do not have a positive outlook of the economy because they want to pull their money out faster rather than invest for the long term (Sherman, 2014). This is known as an inverted yield curve and is downward sloping. On the other hand, if people invest in the long-term more than the short-term, then the curve is upward sloping and is referred to as a normal yield curve, with the outlook generally more positive because there is faith in the market (Prudential Investments, 2013).

In 1990, when the unemployment rate was on the decline and the economy was looking upbeat, the yield curve was normal upward sloping. For the three-month securities the yield was around 7.4% and the 30-year securities were just below 9%. It was still generally flat, which can indicate that there are expectations for future inflation to fall. Flattening also occurs when there is an anticipated lag in economic growth[15]. Heading into 1992, when the unemployment rate went up, the yield curve became more normal because it was not as flat. The three-month securities were just under 3% and the 30-year securities were above 7%. The curve was now upward sloping and not flat, indicating the yields for

[14] See Figure 10 in Appendix for Employment to Population Ratio Graph
[15] See Figure 11 in Appendix for Yield Curve Graph for years 1990 and 1992

short-term bonds were falling while the long-term yields stayed the same (U.S. Department of the Treasury, 2014).

The year 2000 was when the unemployment rate fell to 4.0% and the yield curve was flat and slightly inverted. The three-month rate was about 6.3% and the 30-year yield was just under 6%[16]. With an inverted curve, there is usually a recession coming. This is because investors will allow there to be short-term rates higher than long-term rates because they believe the rates will fall lower in the future. There was a view of economic growth slowing down because it had been on a high. In 2002, when the economy took its last downturn before the financial crisis in 2007, the three-month yield was right around 1.5% (the lowest it had been since this paper observed the rates in 1990) and the 30-year yield was around 4.8% (U.S. Department of the Treasury, 2014). The yield curve returned to its normal curve, but all of the rates were lower than in 2000. As the inverted curve usually indicates, a period of recession follows, which is what happened in 2002. The short term-and long-term rates both fell, showing investors had overall less confidence in the market.

When the financial crisis started to take root, in October of 2007, the yield curve did not yet reflect what was to come. For the three-month yield the rate was just under 4% and the 30-year rate was around 4.8%[17]. The curve was relatively flat, but was still upward sloping, and the rates were not lower in relation to how they appeared in years past. Then in 2009, towards the end of the recession the short-term rates fell creating a curve that was more normal, but with lower rates. For the three-month maturity bonds the yield was

[16] See Figure 12 in Appendix for Yield Curve Graph for years 2000 and 2002
[17] See Figure 13 in Appendix for Yield Curve Graph for years 2007 and 2009

barely above 0% and the 30-year rates were 4% (U.S. Department of the Treasury, 2014). Both the short-term and long-term yields fell, indicating that there was less confidence in the market. Presumably from the crisis and the outlook of coming out of it unscathed was not really probable because of the bailouts and failures of some financial institutions.

Currently, as of October 2014, the yield curve looks similar to that of 2009, just flatter. The three-month yield is still around 0%, but lasts longer than in 2009, and the 30-year yield is just above 3%[18] (U.S. Department of the Treasury, 2014). This tells us that the market is less optimistic about the market. Investors do not want to invest as much in the long-term because they are uncertain about how the economy will look. They want to be able to invest short term so they can get their money out quickly in case the market takes a turn for the worst (Sherman, 2014).

Economic Outlook

According to The Conference Board, a publisher of indicators of the United States and international economies used by investors and policy makers, has predicted a probably GDP growth of 2.2% and has forecasted it to moderately rise to 2.6% in 2015 in an economic forecast released on November 12, 2014. They state that interest rates could rise for both short- and long-term interest rates because of the possibility that the Federal Reserve will raise these rates. Currently, at the end of 2014, consumer confidence is slightly rising due to the lower gas prices (national average at $2.90 per gallon), lower unemployment rate and job gains[19]. Consumers want faster wage gains however, and businesses are concerned with the labor market shrinking. There are possibilities for the

[18] See Figure 14 in Appendix for Yield Curve Graph for years 2009 and 2014
[19] See Figure 15 in Appendix for projections given for 2015 by The Conference Board

GDP to grow greater than predicted if the housing market improves faster than anticipated, but if it does not then there could be lowered investments and cost-cutting to supplement it (Conference Board, 2014).

The outlook of the economy is difficult to predict; any combination of factors could affect it either negatively or positively. As of the moderate predict, it seems the economy will grow a little but nothing extraordinary will happen. This will add to the pessimistic outlook of the economy that was portrayed in the yield curve. Even if it is growing, for many of the American people, it is not growing quickly enough. The gap between the rich and the poor is still an issue, with the United States having the greatest gap compared to any other developed country. With a moderate growth in the American economy there is some positive response, but it is not as great of a growth as people want.

Lessons to Take Away

The financial crisis that the United States endured during 2007 could have been avoided, not necessarily a recession, but there were steps that could have been taken to avoid the severity of it. One of the largest factors was the lack of regulation on non-bank financial institutions (or shadow banks) and their role with competing with banking entities. Without the same regulations, the shadow banks were able to undermine the banks and create an environment where the only way to compete was to take on sub-prime and high-risk investments. The Dodd-Frank Act and Volcker Rule put many restrictions and regulations in place, however, it was after the fact and there are still some issues that need to be worked out.

When President Clinton enacted the Community Reinvestment Act, he opened up the opportunity for sub-prime and Alt-A mortgage loans to be more readily used. In order for the mission of more houses to be bought, there needed to be looser restrictions on the loans given out. This lead to less than desirable loans and set up banks and financial institutions for failure, should the housing bubble burst—which it did. The Community Reinvestment Act went hand-in-hand with the Best Practices initiative, which lessened the underwriting standards for lower-income families. Basically this let families get loans to buy houses that they should have never gotten and would not be able to afford. What can be taken away from this is this: just because there is an initiative to get more people and families homes does not entail banks or financial institutions to give out subprime loans. These loans contributed to the crisis and it is imperative that standards defining what a prime loan is so that subprime loans are not given out to the extent they were in the early 2000s.

There the too-big-to-fail ideal that was common before the crisis came under scrutiny as to its validity. This proved to be false when big banks started to fail and the government had to step in. And to make matters worse for the already stressed market, they did not stand firmly one way or another on the issue of bailing out institutions. Once the crisis was underway the government should have taken a stance, either bailout every failing financial institution or none of them. Since they bailed-out out some and didn't for others, it caused confusion in the market and led to many investors pulling out of the market due to uncertainties in regards to the possibility of more institutions failing.

The issuance of commercial paper and repurchase agreements was a major player in the crumbling of the financial industry. The reason they were so detriment was because they were traded so quickly, that if there was fear in the market they could snatch them back and money could disappear within a day. Companies that previously had assets on hand would now start to struggle to run operations because of the lack of fund from the commercial paper and repos.

The Financial Services and Modernization Act was created in 1999 allowed companies in the financial industry to integrate their operations and invest within other institutions in the industry. It also removed some of the restrictions put in place by the Glass-Steagall Act of 1933 that limited commercial banks' participation in the securities markets. The Modernization Act of 1999removed the part of the Glass-Steagall Act that barred the affiliation between banks and securities firms, which in turn led banks to securitization. Securitization intertwined the banking and financial institutions that made a failure even more volatile because when one went down, it would take the others. The regulations set in place by the Glass-Steagall Act should not have been removed, merely amended.

In order to help keep the economy more stable, certain regulations of shadow banks have to occur. There needs to be less leverage, asset risk, and maturity transformation. What needs to happen is the framework for regulation needs to be more defined. Though the Dodd-Frank Act outlines some positive regulations, it is very extensive and has ongoing revisions. It is not clear-cut what can be regulated and what is exempt and what is not. There needs to be clear and concise rulings on what can and cannot be allowed. The Act,

along with the Volcker Rule, is trying to eliminate all possible causes of risk. This is not plausible and causes confusion.

CONCLUSION

The downturn in the economy during 2007 did not happen all of the sudden, there were several factors that contributed. While some can name any number of factors, this paper focuses on the housing market and how the sub-prime loans and mortgages were a major contributing factor. The Government-Sponsored Entities, such as Fannie Mae and Freddie Mac, appealed to investors because they did not have the same regulations banks did. Without these, investors could gain higher interest rates without the risk, or so they though, which turned out not to be the case. The Community Reinvestment Act and Best Practices initiative made it so subprime loans and mortgages had to be dealt out by banks to meet the standards but in place to get higher homeownership. In order to do so meant lowering regulations. Too-big-to-fail was an ideal that an institution could be too big that it was not possible to fail, and with this thought in mind, many institutions were not careful about the health of their company.

Shadow banks are institutions that are not regulated by commercial banks and do not take deposits. Some examples would be money market mutual funds, structures investment vehicles, hedge funds, special purpose entities, and non-bank financial institutions. All of these entities are not regulated by the government and are able to undermine the traditional banks that need to abide by them. Shadow banks mainly use commercial paper and repurchase agreements as their funding instruments. Commercial

paper is where an unsecured corporate debt it is backed only by the corporation's promise to pay. The loans were all less than nine months, and some were less than one day. Repurchase agreements are the agreement to repurchase the securities for a slightly higher price than they were sold. Both of these instruments were short-term, so when the market started to fear the health of the companies they were investing in, massive withdrawals occurred, and the market took a hit.

When financial institutions started to fall apart the government took certain actions to try and alleviate the damage to the market. When Bear Stearns started to fail they bailed them out, but when Lehman failed they did not, then they bailed-out AIG. The inconsistency added additional stress to an already frazzled market because people were unsure what determined an institution worthy of a bailout. Fannie Mae and Freddie Mac were also put into a conservatorship in hopes to soften the housing market crash, but it did not have the desired effect with Lehman Brothers failure the next day.

In 2010, the Dodd-Frank Act was enacted in attempt to resolve issues and keep a crisis from happening to the extent it did in 2007. However, the complexity and sheer length of it adds confusion to the issue. It attempts to take the systematic risk out of the market by eliminating all the possible way that it can happen, and that is just not a possible and practical undertaking. Even if all of the risk was eliminated from past actions, there is no way to predict future risk. That is why it is known as the risk of the market. The Volcker Rule tries to separate the commercial banks from other non-bank entities and get them back on the track of lending to people who qualify for loans. It attempts to un-twine the

interconnectivity that was a factor in the crisis. However, untangling institutions is not an easy feat and the Rule is complex just like the Dodd-Frank Act that it is apart of.

Lessons can be taken away from what has taken place that revolve around the regulation, or lack thereof, of financial institutions. Defining who qualifies for loans and mortgages is important in creating less subprime loans. Even if there are housing goals on the agenda, that quota should not just be met by numbers, but by quality. In the pre-recession when Clinton called for housing numbers, banks should not have been loaning out mortgages just to meet the numbers, but should have been checking that they qualified for them. There needs to be less leverage, asset risk, and maturity transformation. The framework for regulation needs to be more defined and less complex.

The way the United States is headed is bleak. Unemployment has fallen, but only because the percentage of people in the workforce has also dropped. The yield curve shows investors who have less and less faith in the market. The 30-year yield has dropped where it was just a year ago, when the market had climbed out of the recession. Outlook on the economy can never be fully predicted, but it does not seem like the GDP will grow as much as a healthy economy should. With that expectation, there is faith that the U.S. economy is out of the recession, but not healthy to the extent that investors have a positive outlook on where it will go in 2015.

How can all of this information be put together in a way that it can be utilized? Well, with the regulation of financial institutions through the Dodd-Frank Act as slow going as it is, it is unlikely that any major changes will occur quickly. In the Act, there is no mention of the GSEs Fannie Mae and Freddie Mac, who played a contributing part in the crisis. As of

October 2014, a total of 115 out of 280 rulemaking requirement have passed their deadline and 165 of them have been met with finalized rules. With all of these proposed regulations of the Act are attempting to remove all of the risk seen in the market and some that has not, but it is not possible to regulate every type of risk. The Act is taking so long because there is so much proposed regulations. With it come muddled, confusing and extensive rules that are difficult to understand. That can cause confusion and possibilities for loopholes.

Shadow banks were the unregulated and unknown factor in the financial crisis that took place in the United States, however, it did not and does not only occur in the U.S. China's shadow banking sector is growing alarmingly fast, with $4.39 trillion in assets (about one-fifth of their banking sector). The size has quadrupled since 2007. If China's shadow banking sector were to be damaged, this could impact the world growth and damage the prospective growth of their country.

Now, even with the regulations, banks are still interconnected. With that connectivity, if one of them were to fall it would still take others down with it. The problem of too-big-to-fail still haunts regulators. If a large firm, such as JP Morgan, were to get into trouble, there would be no one to buy them out because they are one of the biggest. That would cause the government and Federal Reserve to jump in and save them from taking down all of the other large banks and institutions.

Dodd-Frank rulings have tried to set regulations in place, but Wall Street has continued the risky practices they have prior to the crisis. It seems that even with the rulings set in place, the ethics on Wall Street have not been remedied. These institutions have the money and power to overwhelm the regulatory process. The focus is still on

bettering the business instead of the welfare of the customer. Shadow banking has grown to $75 trillion in 2014 as of October; the New York Stock Exchange has a margin of debt at an all-time high. High margin debt can speed up a crash in the market. With large debt in the market, there is an increased risk of another financial crisis. All of these signs indicate that there could be another financial crisis due to the shadow-banking sector. Even with the regulations set in place, there are not enough actions to halt it. Shadow banks are still growing; systematic risk cannot be removed from the market, and the overall outlook of the market is not overwhelming. If amendments are not made to the Dodd-Frank Act, or better yet, a different ruling on regulations that is clear-cut, then another financial crisis can be expected.

APPENDIX

Figure 1: Basel Committee on Banking Supervisions Reforms: Basel III

<table>
<tr><th></th><th colspan="4">Capital</th><th>Liquidity</th></tr>
<tr><th></th><th colspan="3">Pillar 1</th><th>Pillar 2</th><th>Pillar 3</th><th></th></tr>
<tr><th></th><th>Capital</th><th>Risk coverage</th><th>Containing leverage</th><th>Risk management and supervision</th><th>Market discipline</th><th>Global liquidity standard and supervisory monitoring</th></tr>
<tr><td>All Banks</td><td>Quality and level of capital
Greater focus on common equity. The minimum will be raised to 4.5% of risk-weighted assets, after deductions.

Capital loss absorption at the point of non-viability
Contractual terms of capital instruments will include a clause that allows – at the discretion of the relevant authority – write-off or conversion to common shares if the bank is judged to be non-viable. This principle increases the contribution of the private sector to resolving future banking crises and thereby reduces moral hazard.

Capital conservation buffer
Comprising common equity of 2.5% of risk-weighted assets, bringing the total common equity standard to 7%. Constraint on a bank's discretionary distributions will be imposed when banks fall into the buffer range.

Countercyclical buffer
Imposed within a range of 0-2.5% comprising common equity, when authorities judge credit growth is resulting in an unacceptable build up of systematic risk.</td><td>Securitisations
Strengthens the capital treatment for certain complex securitisations. Requires banks to conduct more rigorous credit analyses of externally rated securitisation exposures.

Trading book
Significantly higher capital for trading and derivatives activities, as well as complex securitisations held in the trading book. Introduction of a stressed value-at-risk framework to help mitigate procyclicality. A capital charge for incremental risk that estimates the default and migration risks of unsecuritised credit products and takes liquidity into account.

Counterparty credit risk
Substantial strengthening of the counterparty credit risk framework. Includes: more stringent requirements for measuring exposure; capital incentives for banks to use central counterparties for derivatives; and higher capital for inter-financial sector exposures.

Bank exposures to central counterparties (CCPs)
The Committee has proposed that trade exposures to a qualifying CCP will receive a 2% risk weight and default fund exposures to a qualifying CCP will be capitalised according to a risk-based method that consistently and simply estimates risk arising from such default fund.</td><td>Leverage ratio
A non-risk-based leverage ratio that includes off-balance sheet exposures will serve as a backstop to the risk-based capital requirement. Also helps contain system wide build up of leverage.</td><td>Supplemental Pillar 2 requirements.
Address firm-wide governance and risk management; capturing the risk of off-balance sheet exposures and securitisation activities; managing risk concentrations; providing incentives for banks to better manage risk and returns over the long term; sound compensation practices; valuation practices; stress testing; accounting standards for financial instruments; corporate governance; and supervisory colleges.</td><td>Revised Pillar 3 disclosures requirements
The requirements introduced relate to securitisation exposures and sponsorship of off-balance sheet vehicles. Enhanced disclosures on the detail of the components of regulatory capital and their reconciliation to the reported accounts will be required, including a comprehensive explanation of how a bank calculates its regulatory capital ratios.</td><td>Liquidity coverage ratio
The liquidity coverage ratio (LCR) will require banks to have sufficient high-quality liquid assets to withstand a 30-day stressed funding scenario that is specified by supervisors.

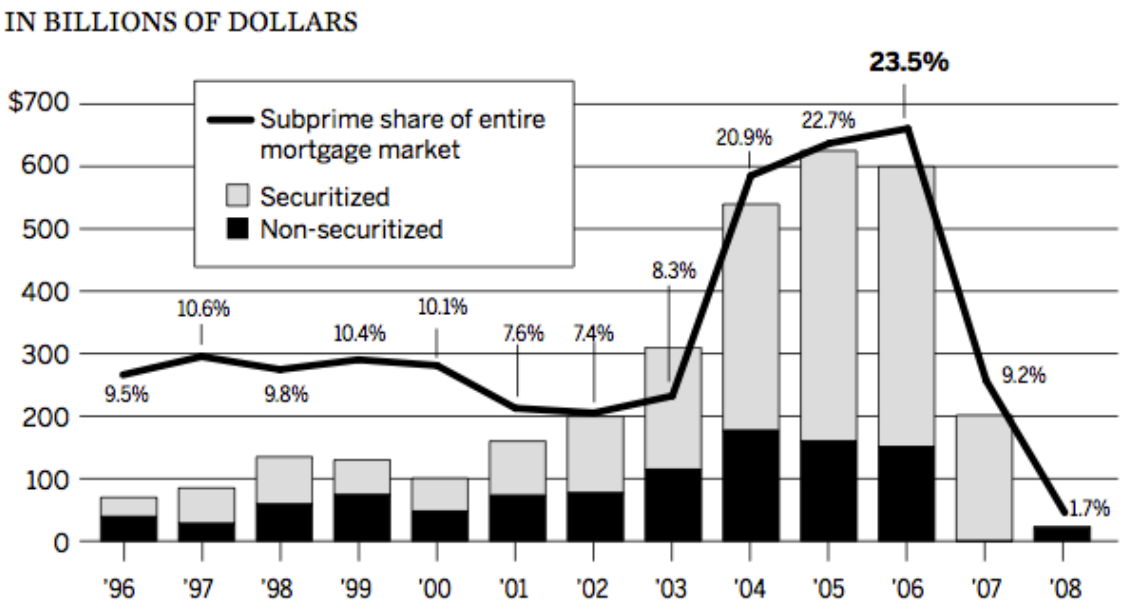
Net stable funding ratio
The net stable funding ratio (NSFR) is a longer-term structural ratio designed to address liquidity mismatches. It covers the entire balance sheet and provides incentives for banks to use stable sources of funding.

Principles for Sound Liquidity Risk Management and Supervision
The Committee's 2008 guidance Principles for Sound Liquidity Risk Management and Supervision takes account of lessons learned during the crisis and is based on a fundamental review of sound practices for managing liquidity risk in banking organisations.

Supervisory monitoring
The liquidity framework includes a common set of monitoring metrics to assist supervisors in identifying and analysing liquidity risk trends at both the bank and system-wide level.</td></tr>
<tr><td>SIFIs</td><td colspan="5">In addition to meeting the Basel III requirements, global systemically important financial institutions (SIFIs) must have higher loss absorbency capacity to reflect the greater risks that they pose to the financial system. The Committee has developed a methodology that includes both quantitative indicators and qualitative elements to identify global systemically important banks (SIBs). The additional loss absorbency requirements are to be met with a progressive Common Equity Tier 1 (CET1) capital requirement ranging from 1% to 2.5%, depending on a bank's systemic importance. For banks facing the highest SIB surcharge, an additional loss absorbency of 1% could be applied as a disincentive to increase materially their global systemic importance in the future. A consultative document was published in cooperation with the Financial Stability Board, which is coordinating the overall set of measures to reduce the moral hazard posed by global SIFIs.</td></tr>
</table>

Figure 2: Subprime Mortgage Originations

In 2006, $600 billion of subprime loans were originated, most of which were securitized. That year, subprime lending accounted for 23.5% of all mortgage originations.



NOTE: Percent securitized is defined as subprime securities issued divided by originations in a given year. In 2007, securities issued exceeded originations.

SOURCE: Inside Mortgage Finance

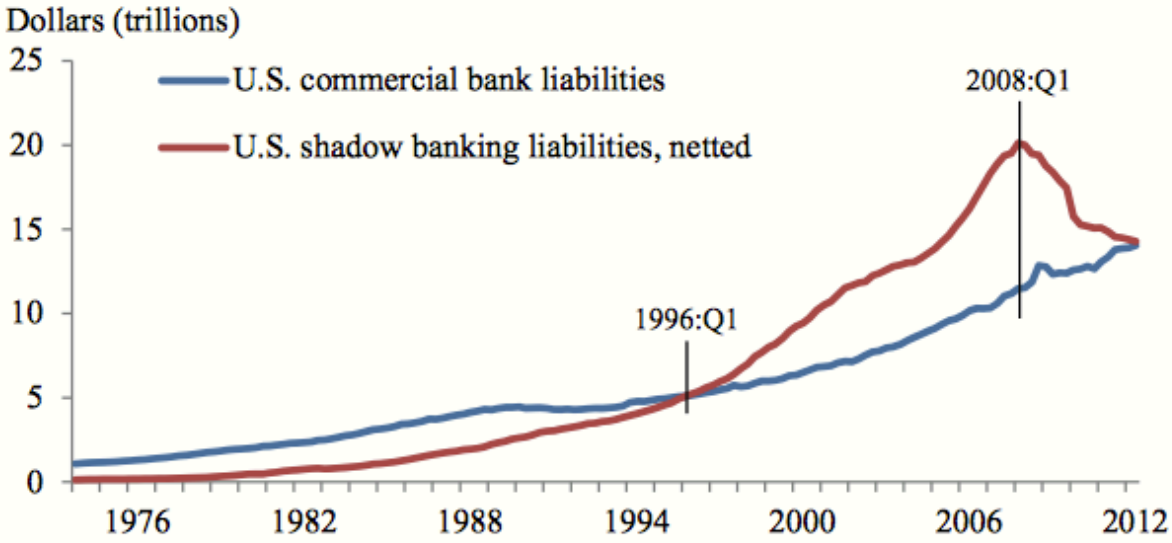
Figure 3: Subprime Loans Given to Government Entities

Entity	No. of Subprime and Alt-A Loans	Unpaid Principal Amount
Fannie Mae and Freddie Mac	12 million	$1.8 trillion
FHA and other Federal*	5 million	$0.6 trillion
CRA and HUD Programs	2.2 million	$0.3 trillion
Total Federal Government	**19.2 million**	**$2.7 trillion**
Other (including subprime and Alt-A PMBS issued by Countrywide, Wall Street and others)	7.8 million	$1.9 trillion
Total	**27 million**	**$4.6 trillion**

*Includes Veterans Administration, Federal Home Loan Banks and others.

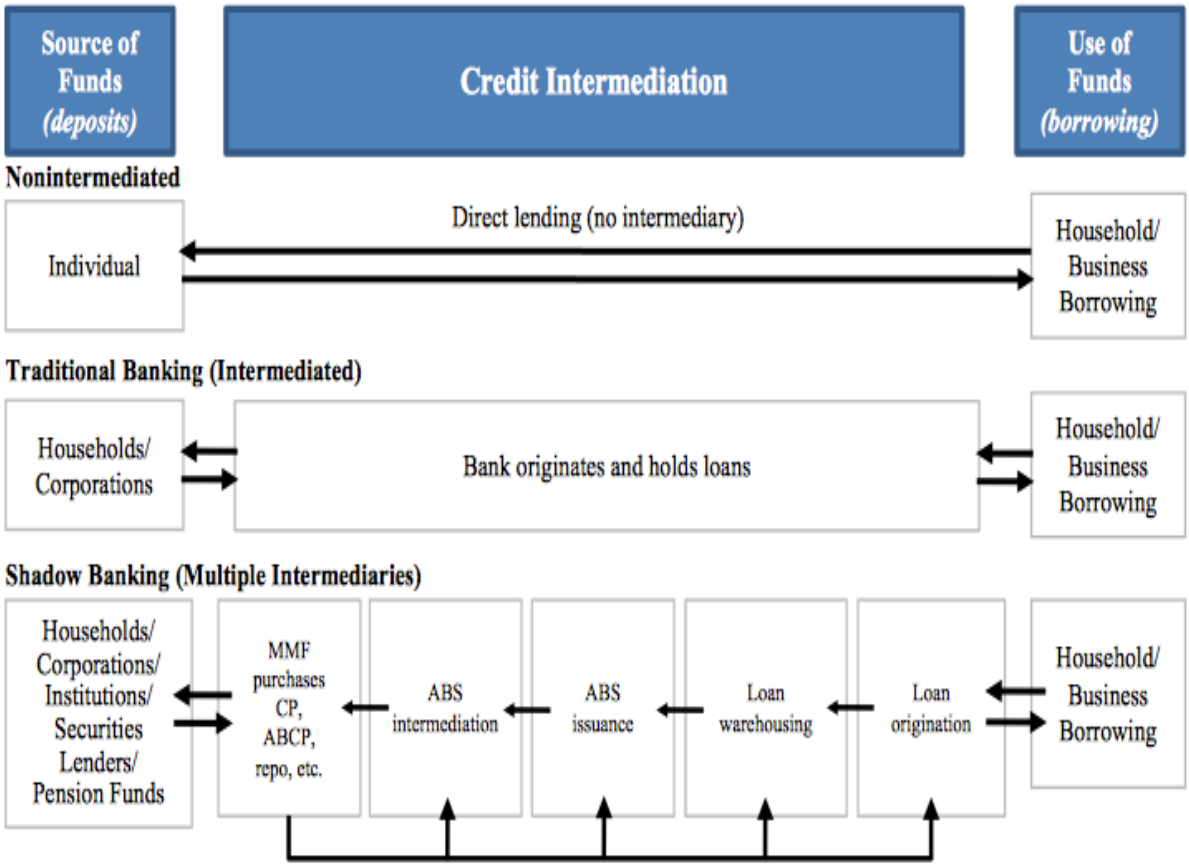
Figure 4: Shadow Banking vs. Commercial Banking

Shadow Banking Exceeds Commercial Banking Activity



NOTE: U.S. shadow banking liabilities equal the sum of the following liability items from the flow of funds accounts: CP, repos, borrowed securities, agency- and GSE-backed securities, mortgage pools, ABS, and MMFs, minus commercial banks' federal funds (excess reserves), repos, and CP. See Glossary for definitions.
SOURCE: Federal Reserve flow of funds; defined by Pozsar, Adrian, Ashcraft, and Boesky (2012).

Figure 5: Channels of Intermediation

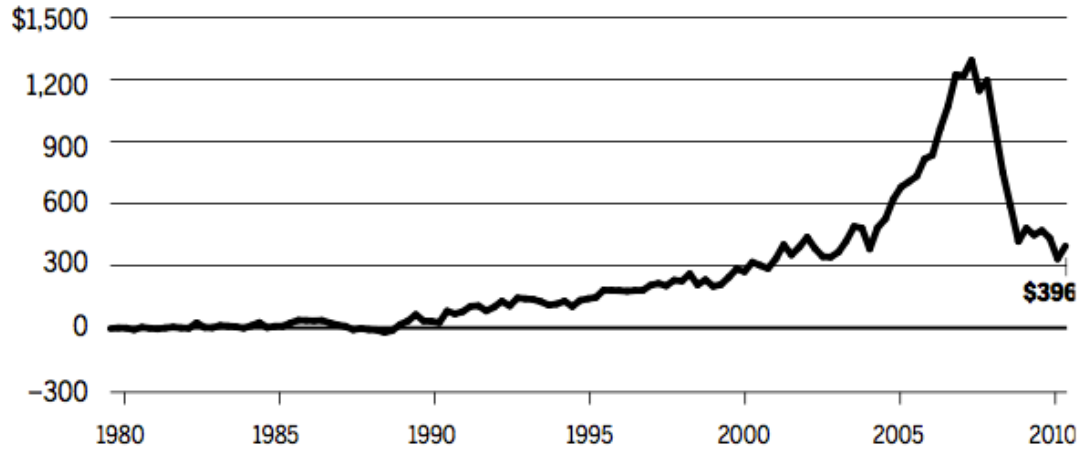


NOTE: MMF is money market mutual fund, CP is commercial paper, ABCP is asset-backed CP, repo is repurchase agreement, and ABS is asset-backed securities. See Glossary for definitions.

Figure 6: Repurchase Agreement Borrowing

Broker-dealers' use of repo borrowing rose sharply before the crisis.

IN BILLIONS OF DOLLARS

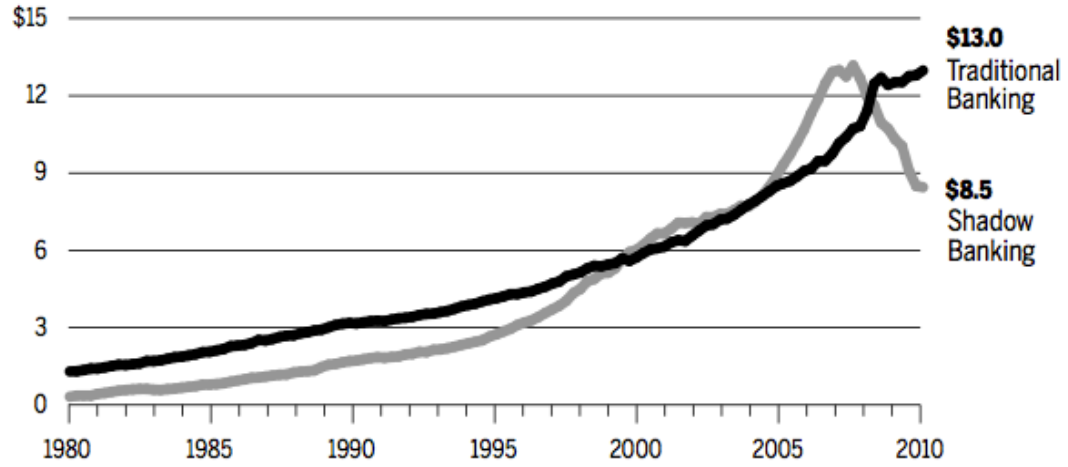


NOTE: Net borrowing by broker-dealers.
SOURCE: Federal Reserve Flow of Funds Report

Figure 7: Traditional and Shadow Banking System Funding

The funding available through the shadow banking system grew sharply in the 2000s, exceeding the traditional banking system in the years before the crisis.

IN TRILLIONS OF DOLLARS



NOTE: Shadow banking funding includes commercial paper and other short-term borrowing (bankers acceptances), repo, net securities loaned, liabilities of asset-backed securities issuers, and money market mutual fund assets.

SOURCE: Federal Reserve Flow of Funds Report

Figure 8: Scope of Volcker Rule Flow Chart

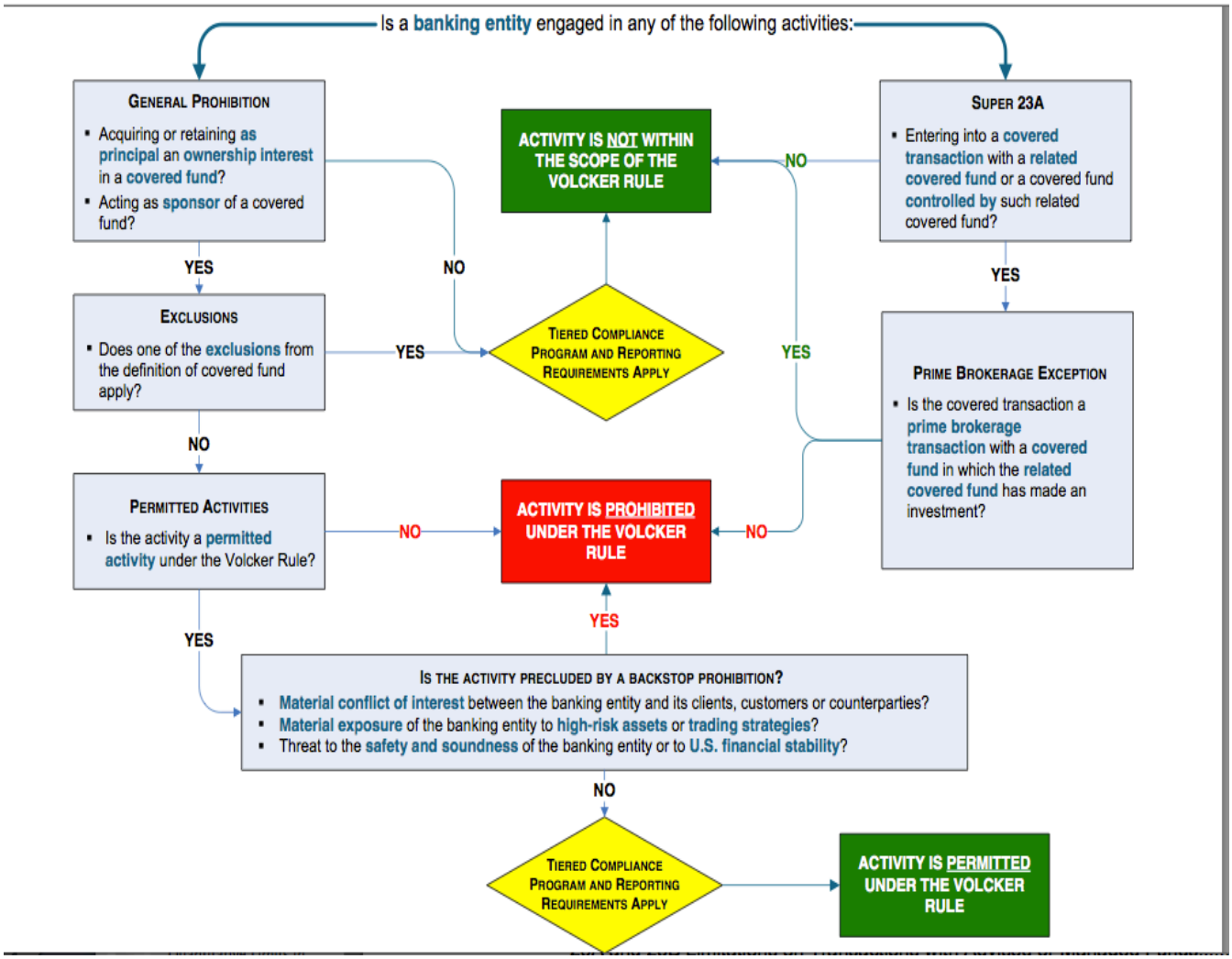


Figure 9: Civilian Unemployment Rate: 1980-2014

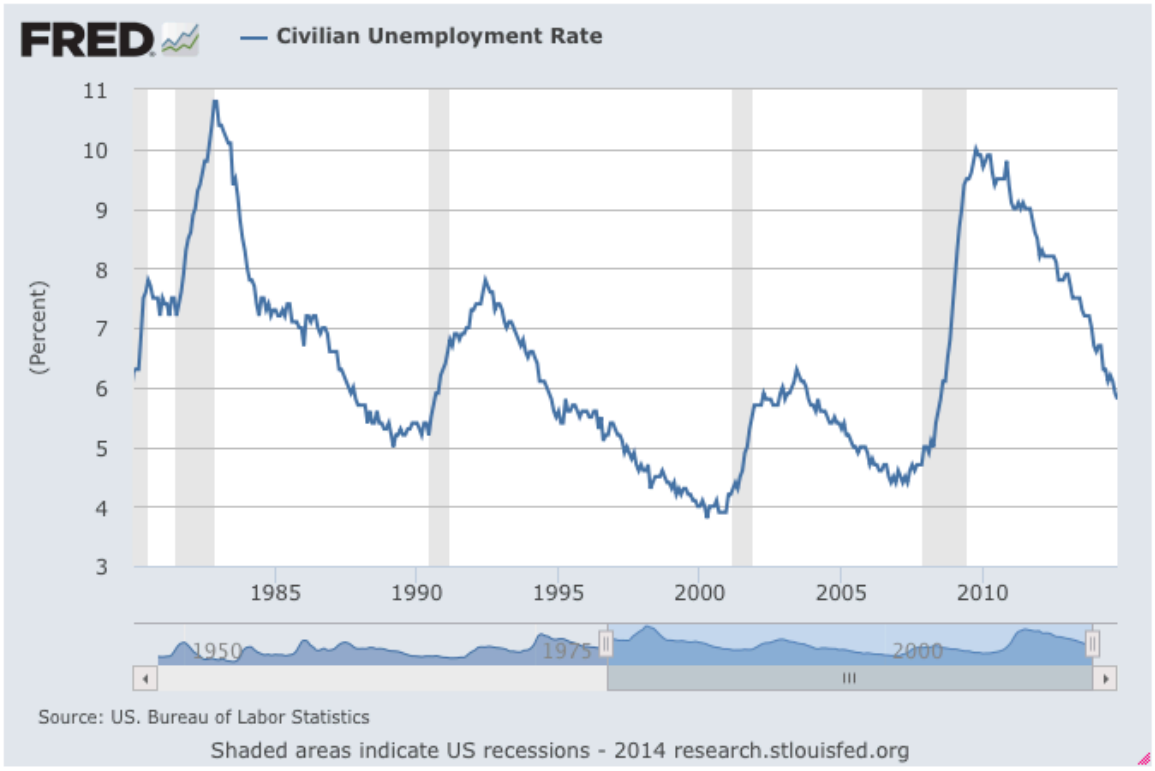


Figure 10: Civilian Employment-to-Population Ratio: 1980-2014

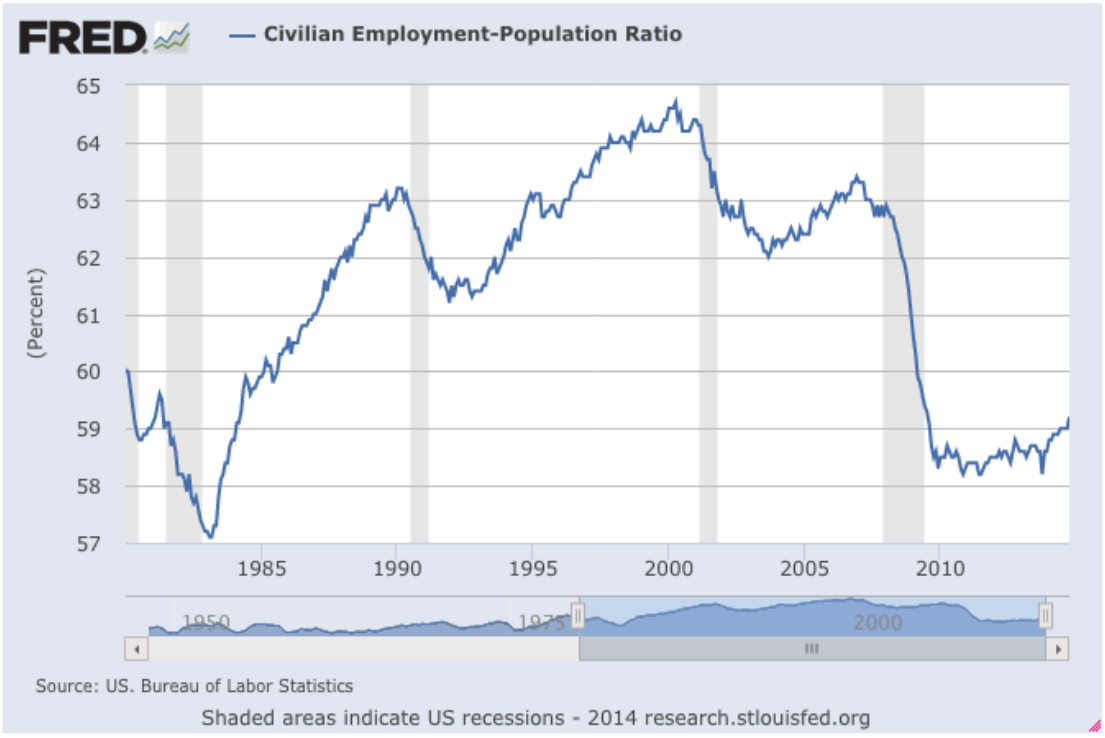
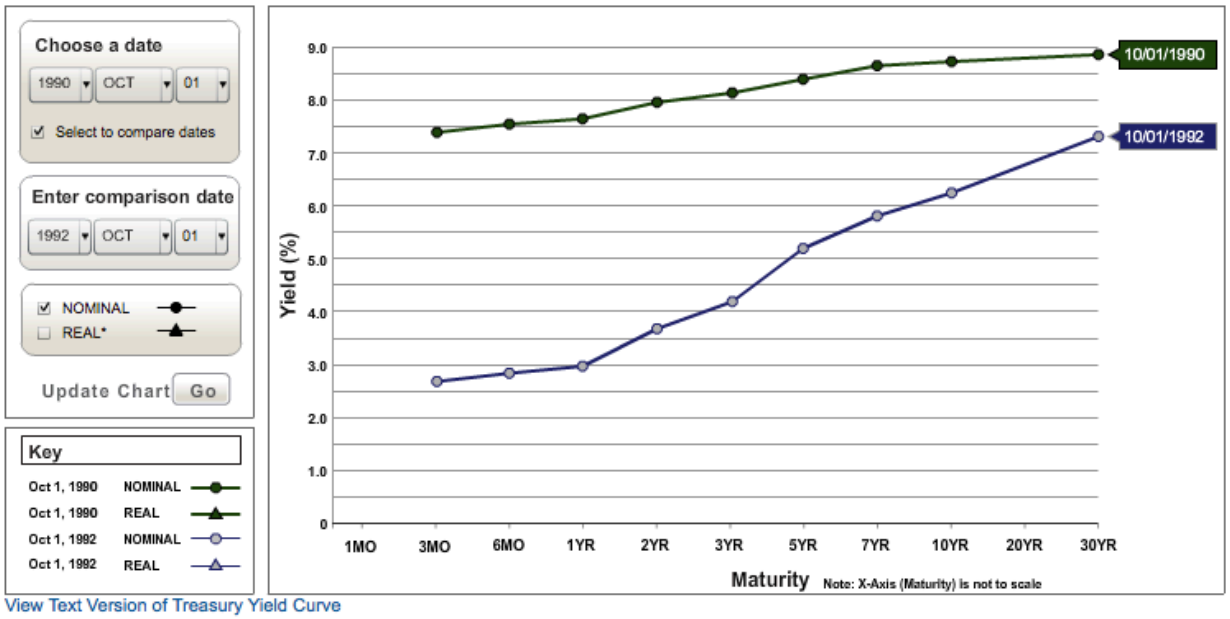
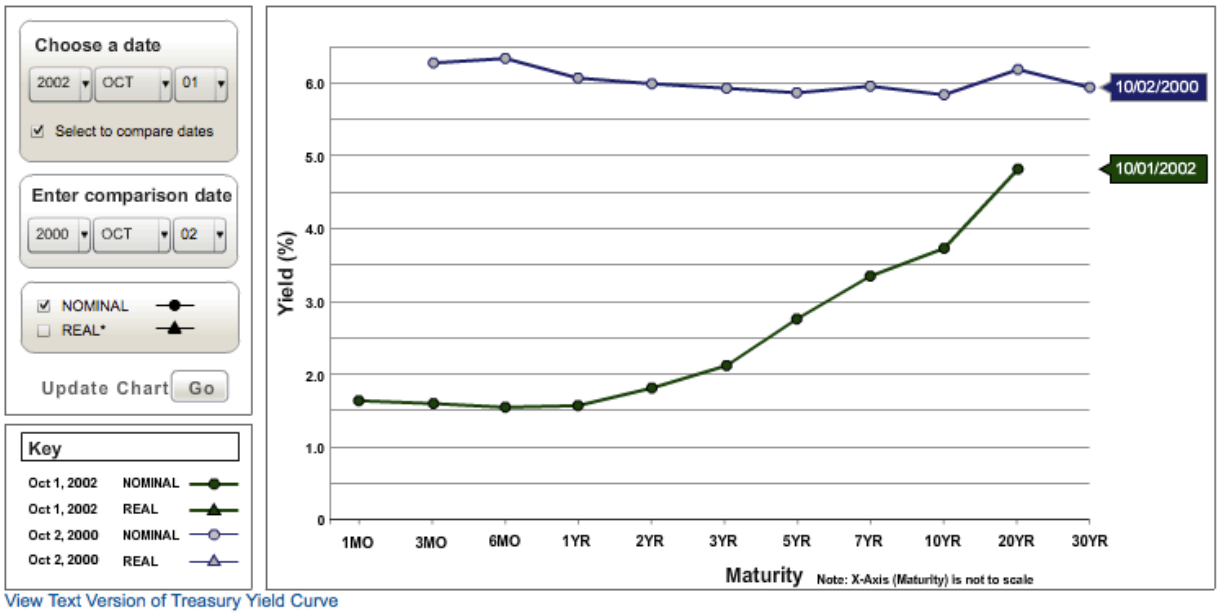


Figure 11: Treasury Yield Curve: 1990 vs. 1992



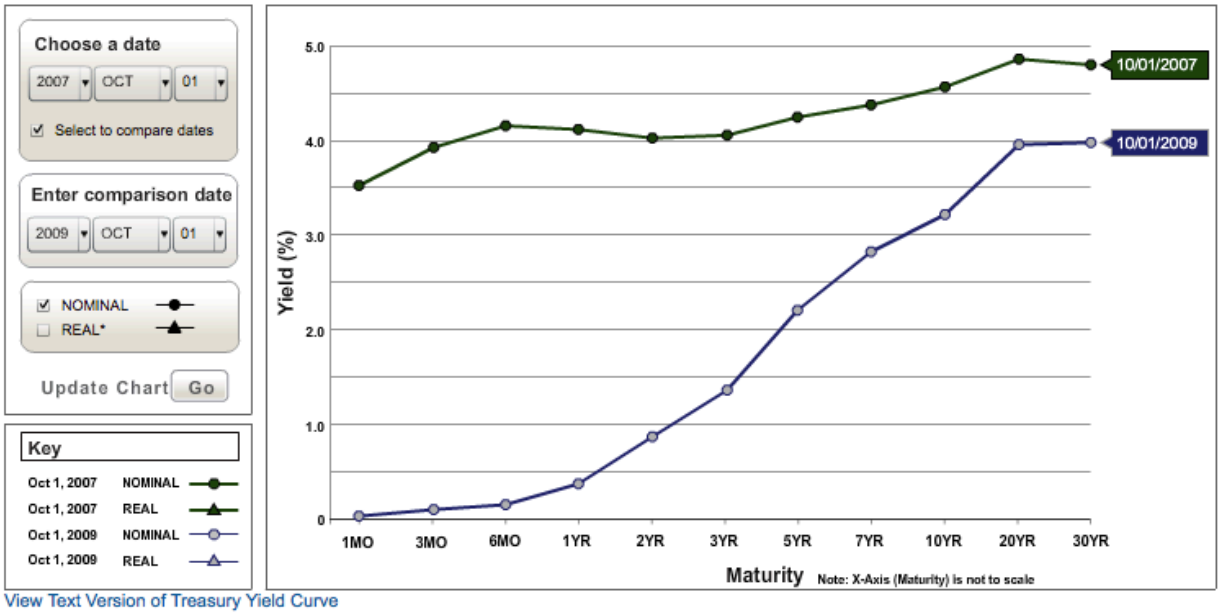
View Text Version of Treasury Yield Curve

Figure 12: Treasury Yield Curve: 2000 vs. 2002



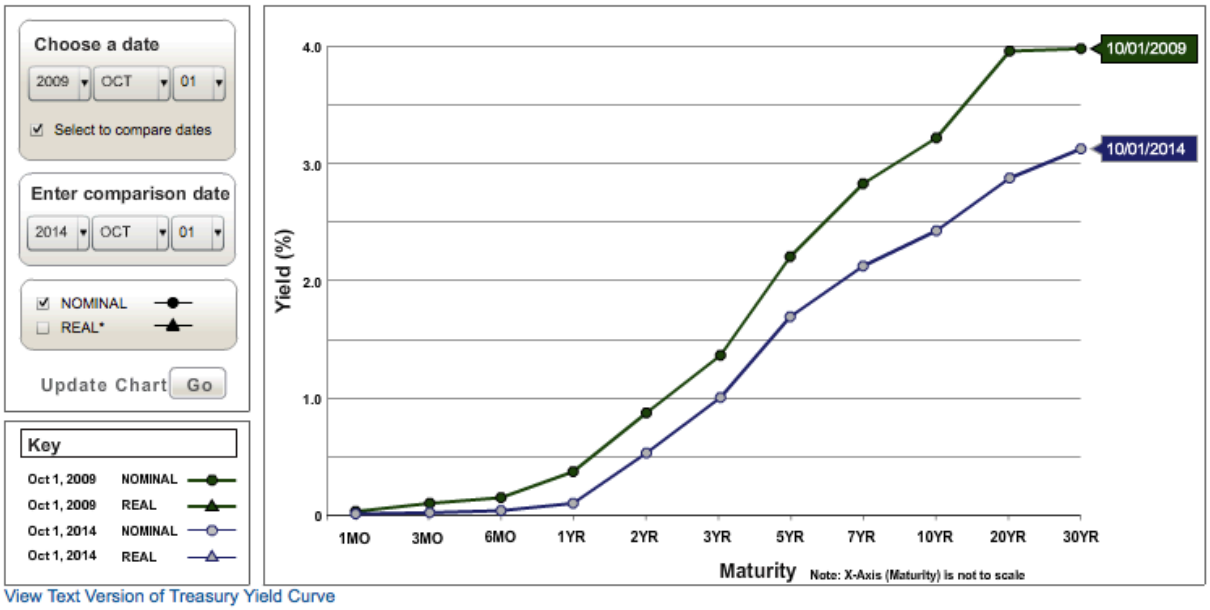
View Text Version of Treasury Yield Curve

Figure 13: Treasury Yield Curve: 2007 vs. 2009



View Text Version of Treasury Yield Curve

Figure 14: Treasury Yield Curve: 2009 vs. 2014



View Text Version of Treasury Yield Curve

Figure 15: Projections For 2015 U.S. Economy

	2014		2015			2013	2014	2015
	III Q	IV Q	I Q	II Q	III Q	Annual	Annual	Annual
sumer Measures	3.5	1.9	2.5	2.4	2.5	2.2	2.2	2.6
Real Consumer Spending	1.8	2.5	2.6	2.5	2.5	2.4	2.2	2.5
Housing Starts mil. Units	1.02	1.09	1.13	1.18	1.22	0.93	1.01	1.20
Real Capital Spending	5.5	3.4	4.9	4.8	4.7	3.0	5.8	4.9
Net Exports Bill	-409.9	-423.8	-428.0	-433.0	-436.9	-420.5	-435.3	-435.0

* Actual Value

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