

Case Study

Role of Too Big to Fail Companies in the Financial Crisis

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The subprime mortgage crisis of 2007 in the US snowballed into the biggest financial meltdown the world has seen since the Great Depression of 1930s. There have been various reasons cited for this crisis—commonly known as Global Financial Crisis—like deregulation, derivatives, out of control market, greed, undisclosed conflict of interest, bonus culture and credit rating agencies. This case aims to make a connection between the crisis and a handful of companies which are considered as the major contributor to or reason for the crisis. These companies commonly referred to as too big to fail which are so large and interconnected that their failure could prove disastrous for the economy. This phenomenon is most commonly found in the financial sector, especially banks. Here an attempt has been made to examine these too big to fail companies, their perceived benefits and the role they played not only in causing but also exacerbating the global financial crisis. With the benefit of hindsight this case sheds light on what went wrong and more importantly provides recommendations on avoiding a similar crisis in the future.

1. Introduction

Conventional wisdom suggests bigger is usually considered better; growth is always seen as a positive sign and achieving economies of scale is the target for every organization. The benefits of size if not kept in check can be substantially mitigated by the increase in risks related to becoming bigger, especially if they become too big to be allowed to fail. A company when becomes too large and interconnected that its failure would prove disastrous for the economy it is said to be a too big to fail (TBTF) organization.

The Global Financial Crisis of 2007 was the biggest financial crisis the world has seen since the great depression in the late 1920s. This case study aims to explore the reasons that led to this crisis. Many analysts consider inadequate risk management policies of large interconnected financial institutions as primary reason while some believe the free market and lack of regulation by the US Government led to the crisis.

Either way the large financial organizations were at the heart of this crisis and this paper aims to make the connection between the crisis and these organizations. Section one focuses on the rationale for becoming too big to fail and the perceived benefits. Section two introduces the terms central to the crisis, financial contagion and systemic risk. Also, this section presents a brief historic account of major financial crises since the 1980s highlighting the role of systemic risk and contagion. A more detailed discussion of the Global Financial Crisis of 2007 is done in section three with a critical analysis of the role played by TBTF. The last section of this study provides recommendations on how to proceed forward and strengthen the financial system to avoid a similar incident in future.

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2. What and Why of Too Big To Fail

Before addressing the reasons for becoming TBTF a brief discussion of the term needs to be done. What is considered too big? Is it exceeding a particular value in assets, revenue or profits? Or exceeding a particular number of employees hired? Or does big refer to geographically big, by having operations in different countries and continents? It could most likely be the combination of all these factors. However, the most important element is the fall out of the failure of a company on the economy as a whole. If a company is too interconnected, central and integral that its failure may prove disastrous for the economy then such company can be considered to be so big that it cannot be allowed to fail.

This phenomenon is most commonly found in the financial sector more specifically, banks. Banks are central to the functioning of a modern economy as functions of deposit taking and issuing loans that the banks provide are of paramount importance for any business to operate. The transfer of funds from deficit to surplus units is a basic but a fundamental process of the economy. Without this function the economy would come to a standstill, investors would not have opportunities to invest while businesses with potential but lacking capital would not have access to investors. In an unfortunate incident where a large bank is struggling and a possibility of its failure looms the central bank would try and rescue it if the bank is of substantial size. Bank failures were not that common up till 2006 the most high profile was Barings Bank, which due to its huge losses on future contracts was unable to honour its obligations. The debacle was blamed largely on careless and at times illegal trading by one of their traders, Nick Leeson. The collapse of First Republic of Texas and American Savings and Loan Bank was a result of the savings and loan crisis (S&L crisis) of 1980s and 1990s in the US. Continental Illinois National Bank and Trust's failure in 1984 was mainly down to losses arising from an ill-advised acquisition of Penn Square Bank (Petersen, 1990). Due to the size of Continental Illinois the regulators were not willing to let it fail. The Federal Reserve and Federal Deposit Insurance Corporation (FDIC) feared a failure could cause widespread financial trouble and instability. To prevent such a disaster the FDIC injected \$4.5 billion to rescue the bank. These rescue attempts by the regulators were the first signs of a TBTF issue.

From the point of view of these banks if they know they would be rescued in a critical situation it leads to a sense of security at one end while it also gives rise to moral hazard which gives rise to even more carelessness and reckless risk taking. However, it is clear that the banks have a distinct advantage of firstly, growing in general like any other company to increase business, revenue, profits and achieve economies of scale, and secondly, to aim to cross the threshold that would in the eyes of the market make them TBTF. Achieving such status would result in various different benefits ranging from reduced regulation costs to increased goodwill in the market.

There has been a debate on whether the US banking sector receive favorable regulatory benefits compared to other industries, solely for the reason Kane (2000) describes that these organizations are too big to discipline adequately. However, Brewer and Jagtiani (2007) highlight that equitable treatment of different sizes and types of financial institutions is claimed to be the objective of financial regulation

Brewer and Jagtiani (2007) presented in their study that becoming too big results have cleared

perceived benefits from lower regulatory costs to even increased chances of receiving regulatory forbearance among other benefits. Analyzing data collected from the period of 1991 to 2004 during which several big mergers took place. Out of the total 412 merger transactions 9 resulted in the acquiring banking organization becoming TBTF, they noted that at a total of \$14 billion was paid out in premiums in these transactions. This reflects the value of becoming TBTF along with benefits relating to size for example, eliminating the risk of being an acquisition target and hostile takeovers. The \$14 billion premium was the aggregate amount paid for the 9 mergers which resulted in the acquiring organization's asset base of at least \$100 billion, a threshold for TBTF assumed by Brewer and Jagtiani. The methodology used by them was to study the purchase premiums paid by acquiring banks in instances when the acquisition results in achieving the size considered by the market as TBTF and when it does not and to report on any discrepancies on the two observations. The premium taken was a simple difference between the price offered per share to acquire and the market price before the date of announcement. This model is an adaptation of the model of Benston, Hunter and Wall (1995), who studied the mergers of banking organizations in 1980s using the changes in net cash flow of the combined organization (target + acquirer) and the change in deposit insurance of the combined organization against the purchase premium. In line with the results of the empirical study of Brewer and Jagtiani they believe a strong case for becoming TBTF as there are clear perceived benefits of it.

An events study by O'Hara and Shaw (1990) examined the changes in the market following the announcement by the Comptroller of the Currency in 1984 that some banks are TBTF and guaranteed total deposit insurance to be covered for these institutions. If the announcement is to be taken in isolation, the results of their study fully justify the paying of premiums by banking organization to become TBTF. The banks which were TBTF experienced positive average abnormal return of 1.3% following the announcement where as other banks which were not considered as TBTF had median return of -0.22 % on the same day. It is interesting to note the banking institutions which were under the threshold of TBTF suffered the most with the most negative returns on the day; a clear indication of the value perceived of TBTF, especially in terms of market standards.

More evidence of optimism by investors following the announcement of Comptroller of Currency is provided in the works of Morgan and Stiroh (2005) with rating agencies elevating the bond ratings of the companies identified as TBTF. In their study, Schmid and Walter (2006) studied whether functional diversity by conglomerates create or destroy economic value in the financial sector, they specifically tested the theory of TBTF in their sample of 4060 observations and found no instance of a discount for conglomerate discount and a significant premium was detected for the biggest of the sample firms, again the threshold used was assets size in excess of \$100 billion. This clearly supports the earlier works of Brewer and Jagtiani suggesting a perceived value by the market of being TBTF.

Another supportive argument on a favorable reaction by markets of TBTF is provided by Yu (2002) presenting stock price changes following the passing of the Gramm-Leach-Bliley Act, or the Financial Services Modernization Act of 1999, which allowed commercial banks, investment banks, securities firms and insurance companies to consolidate. The market reacted favorably indicating its expectations of gains arising from the consolidation between these companies and ultimately by TBTF guarantees.

In another study to examine the affects of TBTF on the credit ratings, Rime (2005) finds that banks with the status of TBTF have a considerable positive impact on its credit ratings. The paper by Rime uses a sample of banks from 21 industrialized countries. By regressing the issuer rating on the bank's financial strength rating as well as external support factors which affect the capacity to repay the debt.

Similar to the results of O'Hara and Shaw (1990), the works by Penal and Unal (2004) studying the bond returns from 1991 - 1998. Their study shows banks who are in the middle, between small and TBTF, acquire other company the existing bond holders benefit greatly by improved returns and credit spreads decline after mergers. The reason for this increased returns are attributed to medium sized banking organization becoming or getting close to TBTF which highlights a clear value to the bond holders of banks becoming TBTF.

The above-mentioned literature provides ample evidence of the perceived benefits by becoming TBTF with positive returns in the market to lower regulatory cost and to most importantly the safety net of the central bank to fall back on in troubled times. The \$14 billion in premium paid out for the 9 mergers clearly highlights in monetary term the willingness of companies to achieve the status of TBTF, on average acquiring companies were willing to pay in excess of \$1.5 billion more than the value of the target company if that enabled them to become TBTF. However, there have been research studies which refute the claims of the existence of a TBTF problem and also challenge the perceived advantages of TBTF.

All mergers and acquisitions were not solely motivated by becoming TBTF according to Benston, Hunter and Wall (1995) as they show from their model that the mergers between 1980 and 1989 were motivated more by earnings diversification rather than to gain the benefits of increased deposit insurance guarantees of FDIC. Following the Savings and Loans crisis Federal Deposit Insurance Corporation Improvement Act (FDICIA) was passed which required adopting of least costly method available in resolution of bank failure, also assigning insurance premiums in relation to the risks and enforcing new capital requirements. It was considered the most significant banking legislation in a long time. In the paper by Angbazo and Saunders (1997) they analyzed the impact of the FDCIA's reform on the TBTF policy on bank systematic risk, cost of funds, and stock market values. The systematic risks for large banks declined drastically after the legislation which resulted in depositors being more careful and sensitive to the financial soundness of the banks they would invest in, a similar trend was not to be witnessed in smaller banks.

Flannery and Soresco (1996) found strong market discipline in the post FDICIA period compared to pre FDICIA in their examination of the market discipline in the subordinated debt market which suggests no evidence of TBTF. The problem of TBTF was highlighted by Boyd and Gertler (1994) by examining the relationship between bank performance and asset size in the late 1980s. Ennis and Malek (2005) adopting the same methodology used that by Boyd and Gertler a decade ago, found little to no evidence of TBTF after the passing of FDICIA, the period considered for their study was from 1991 to 2003.

Despite some studies challenging the existence of a TBTF problem in the economy, the recent financial crisis of 2007 has not only confirmed the existence of such institutions, the crisis was in fact an eye opener for the potential destructive affects they have to the economy. As discussed up till now companies given a choice would aim to become TBTF at every

opportunity, the market sees institutions which are TBTF very favourably as proved by reviewing various literature above. However in the eyes of many the benefits of these companies in becoming TBTF are heavily outweighed by the negative impacts it has on the economy, case in point being the biggest financial crisis since the 1920s.

3. Problems with Too Big to Fail

The TBTF situation has been referred to as a ‘problem’ for the economy in almost every literature and research study. To understand why it is considered a problem and the challenges posed by TBTF two concepts need to be explained: Financial contagion and systemic risk. Contagion is derived from the word contagious since it has the nature of catching on similar to a disease. The disease it refers to is the occurrence of any unexpected event which is harmful for the financial health of a particular company, industry, economy or a country. The event, shock or a crisis could be small in nature and look unrelated at first but could spread quickly with deadly affects to other companies, industries and economies.

One of the major causes of a financial crisis is the systemic nature of the financial system, the interdependencies and inter-linkages in market play a vital role in exacerbating a small failure of a single financial institution into a complete full blown collapse of the financial market. A different approach to defining systemic risk by not focusing on the liability structures of the bank Acharya (2001) defines systemic risk as the joint failure risk arising from the correlation of returns on asset-side of bank balance-sheets.

Hendricks (2009), in his paper ‘Defining Systemic Risk’ proposed a more theoretical definition of the term “A systemic risk is the risk of a phase transition from one equilibrium to another, much less optimal equilibrium, characterized by multiple self-reinforcing feedback mechanisms making it difficult to reverse.”

Kaufman and Scott (2003), also discuss the correlation or co movements highlighted by Archarya (2001), they define the systemic risk as “Systemic risk refers to the risk or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by co movements (corelation) among most or all the parts.”

If world history is to be observed and major crises to be highlighted since the Wall Street crash of 1929, which plunged the world in to a depression also referred to as The Great Depression, the world economy has seen considerable and consistence growth on a whole avoiding any significant crises up until the late 1980s.

Widely referred to as the Black Monday, on 19th October 1987 a stock market crash started in Hong Kong spread all over Europe and America resulting in the largest percentage decline in stock market history on a single day. Trading electronically using computer programs were heavily criticized in exacerbating the initial crash.

From 1987 the crises became more frequent with the Savings and Loan Crisis in the 1989 and 1999 in US resulting in banking failures across U.S. The real estate financial bubble was formed in Sweden in 1990 because of increased lending by financial institutions. The reduction in taxes coupled with economic downturn resulted in the bursting of that bubble with Government taking over a major chunk of the banking assets.

Few years later the in 1994 Mexico was hit with a financial crisis known as Tequila or Peso crisis where the currency, Mexican Peso lost most of its value as a result of uncertain political conditions, high government spending and poor financial policies. The fixed exchange rate system against the US dollar fuelled the crises with foreign exchange reserves drying up and investors unwilling to invest in the economy, inevitably the government defaulted on its debts.

The Asian markets were next, with a crisis spread to several countries all over Asia in 1997. Originating from Thailand it quickly spread to most of the Asian markets. Stats from Asian Development Bank showed a fall of \$9.2 billion in the US dollar Gross Domestic Product (GDP) of the Association of South East Asian Nations (ASEAN) from 1997 to 1998. The Asian crisis triggered another crisis, Russia this time defaulting on its debts in 1998 and simultaneously devaluing the ruble, this crisis is also known as the Ruble Crisis or the Russian virus.

The dotcom bubble was the only major crisis in the 2000s until 2007, when the Subprime Crisis led to the global financial crisis in 2007. Nouriel Roubini, professor of economics and international business at New York University, Kenneth Rogoff, professor of economics and public policy at Harvard University, and Nariman Behravesh, chief economist and executive vice president for IHS Global Insight, all agreed that this is the worst financial crisis since the Great Depression.

The presence of a risk of complete collapse of the financial system is evident from the list of financial crises to occur in the recent history. The cause of most of these financial meltdowns was the systemic nature of the financial sector and by transmitting contagion from one entity to another. Keeping the risks in mind a failure of a bigger company would have far greater destructive spillover effects to the rest of the industry than a smaller company. The failure of Continental Illinois Bank in 1984 which was at that time the seventh biggest bank in the United States and estimated 2,300 banks held deposits or loaned to Continental Bank, Kaufman and Scott (2003). Because of its size and the interconnectedness with other financial institutions it was feared that its failure would cause widespread financial trouble and instability. The term TBTF was used to describe such an institution by Stewart B. McKinney in light of the rescue attempts by the government to protect the bank from a collapse. Adverse shocks in the financial sector are transferred more rapidly compared to other sectors since banks are interconnected through interbank loans, deposits and other transactions. Furthermore universal banks operate in different countries and that brings more risks to the whole sector as they are all connected through a chain.

More recently the chairman of the Federal Reserve Ben Bernanke used the term systemically important for these large interconnected financial institutions while the current President of the United States, Barack Obama used Tier 1 Financial Holding Companies to describe the same institutions.

A study conducted by Demirgüç-Kunt, Asli and Huizinga (2009) examined the implications of bank activities and short-term funding strategies on its risks and returns. The study used the period from 1994 taking a sample of 1334 banks from 101 countries. They found that the larger and faster-growing banks had a greater involvement in nontraditional activities,

produced higher percentages of fee income, and relied more heavily on wholesale (non-deposit) funding. The conclusion was that overall, banking strategies that rely prominently on generating non-interest income or attracting non-deposit funding are very risky, which is somewhat consistent with the recent demise of the U.S. investment banking sector.

As financial industry is very systemic in nature and failure of a single institution could lead to a chain reaction bringing the whole system down it is imperative that the government should try to address these issues to safeguard the economy and the interest of the public at large.

4. Too Big To Fail and the Global Financial Crisis

The 2007 crisis was one of the most severe financial crisis the world economy faced, Ben Bernanke the chairman of the United States Federal Reserve acknowledged this in a speech at the Council on Foreign Relations in 2009. The bubble which had been building since the way for financial instruments like derivatives were cleared by the regulators, not only refusing to regulate them but by introducing the Commodity Futures Modernization Act in 2000 effectively banning the regulation of derivatives. Derivatives as shown later would be at the heart of the financial crisis.

A look at some of the numbers presented in various reports relating to aftermath of the financial crisis is frightening. According to International Monetary Fund Economic Outlook Report in 2009, for the first time since the World War II the global economic product was predicted to fall to ½ % in 2009. The stock market value globally lost. A report by Asian Development Bank showed a fall of \$50 trillion in global financial assets in 2008 alone. The report highlights the financial services sector with banks and other financial institutions recording losses and write downs of \$1.2 trillion. Almost \$35 trillion of value has been wiped off the global stock market in 2008 and early 2009 alone. Unemployment rate has increased drastically in US and other economies with 8.5 million jobs lost in US alone since the crisis pushed the economy in recession according to statistics of Bureau of Labor. The real estate market which was the primary reason for the initiation of the crisis lost almost \$6 trillion in value from 2006 to 2008 according to reports from Zillow.com.

Half of the total losses of \$1.2 trillion by the banks and financial institutions are related to the seventeen large complex financial institutions, or universal banks. Twelve of these 17 universal banks suffered serious damage including 3 placed under government life support while six were taken over by the government to prevent them to fail (Wilmarth, 2009). Wilmarth, in his paper, do not sympathize with these institutions which accounted for the majority of losses as he believes that they were the catalysts for fueling the credit boom and real estate bubble which led to this crisis.

Robert Merton in a post-crisis documentary defined crisis as not a large move but by something happening outside the box. However, many economists believe that the financial crisis was not an accident and there were clear signs which were pointed out to the regulators as early as early 2000 CTFC chairman Brooksley Born saw the potential damage of derivatives and proposed to regulate it, prominent economists like Raghuram Rajan of IMF in an economic forum highlighted the flaws in the bonus culture and felt the financial development has made the world riskier, while Nouriel Roubini, nicknamed Dr. Doom showed similar concerns regarding the health of the financial system. The regulators choose to ignore these signs and put their belief in the markets to regulate themselves.

The financial sector in US, UK and Europe has grown at a rapid rate since 1990s with constant deregulation in the name of growth. The growth was evident with US, UK and EU nations all experiencing high growth rates with financial services the most improved sector. However, this growth came at a very cost which the world realized as this crisis unfolded. The growth was not based on advancement in technology, or some ground breaking innovation but it was based solely on taking more risks than before since in modern finance the only way to increase profits is to increase risks. The tools which were developed with the intention of reducing risks like derivatives were used to increase risk by speculating. The banking sector became more like a casino with traders gambling with public funds on almost anything.

After the Great Depression the US financial industry was very strictly regulated but from 1980s the industry has been continuously deregulating in favor of prosperity in the economy. The first causality of this was the savings and loan companies which were deregulated in early 1980s which effectively allowed these companies to invest the money of their depositors in high risk high return investments. The result was the infamous Savings and Loan crisis in late 1980s which led to the failure of many financial institutions including banks and savings and loans companies. The S&L crisis was very costly for the government as well with FDIC paying out millions.

The most crucial mistake was to allowing banks and other institutions to consolidate and merge together. The Glass Steagal Act of 1934 which explicitly prohibited deposit taking banks to engage in risky investment banking activities like investing in the capital market. However the U.S. regulators in 1999 allowed Citi Bank to merge with the largest financial services company in the world of that time, Travelers. The Glass Steagal Act was later replaced by Graham Leach Biley Act in 2000 which allowed such mergers in the future. By 2007 sixteen large complex financial institutions collectively dominated the market for debt and equity securities, syndicated loans, securitization, and structured finance products and over the counter (OTC) derivatives. These involved the 4 largest US retail banks Bank of America, Citigroup, Wachovia and Chase, the 5 largest US investment banks Merrill Lynch, Morgan Stanley, Lehman Brothers, Goldman Sacs and Bear Stearns and the seven major foreign universal banks HSBC, Credit Suisse, RBS, BNP Paribas, Societe Generale, Deutsche Bank (Wilmarth, 2009).

From 2000 onward these financial institutions grew enormously which was down to three reasons.

1. Access to more money, traditionally investment banks were a private partnership agreement and the capital was the personal investment of the partners. Until 1970, the New York Stock Exchange prohibited public incorporation of member firms but after the rules were relaxed to allow joint stock firm membership, investment-banking concerns organized as partnerships or closely-held private corporations went public in waves, with Goldman Sachs (1999) the last of the bulge bracket banks float. Morrison and Wilhelm (2008). By going public, these firms had greater access to public funds and could expand with entering into new business activities. Furthermore to avoid an extended slump and to revive the flagging US economy after the incident of 9/11 and the dotcom bubble the US Federal Reserve slashed the interest rates continuously throughout 2001 from 6.5% at the start of the year 1.75% at the end of 2001. One of the avenues they went into which brought the most profit was investing in capital markets.

2. The perceived benefits of achieving TBTF status lured institutions to merge together. Discussed in detail earlier in the report. The TBTF guarantee greatly reduced the fear of failure which led to even further risk taking. Chief Economist of Citigroup, Willem Buiter cited banks become bigger to gain monopoly power & lobbying power but most importantly they know when they are too big they will be bailed out.
3. With easy and cheap access to money along with the sense of security of a government safety net it was only one thing that could've controlled the flow of the market, stricter regulation. But the US regulators encouraged growth in this industry and adopted policy of a light touch regulation and letting the markets regulate themselves.

Wallstreet, the financial market of the United States, has been of the view that growth is good for the financial stability of the economy thus always resistant and even lobbied against reforms, but as it proved the market was responsible for plunging the economy in to the worst recession for decades.

The banks traditionally make money by the difference in interest rates between the rate at which they borrow and the rate at which they lend. With the interest rates by the government reduced significantly in early 2000 there was an enormous supply of cash which subsequently made borrowing cheaper for everyone. That led to an increase demand for credit with various types of loans issued the banks increased revenue through issuing more loans than ever. Since the banks were making a lot of money on issuing loans with very little cost they significantly relaxed the criteria for issuing loan. Loans like No Income No Job no Asset (NINJA) loans were issued which was another type of subprime loan. These loans had a very high credit and default risk to them so to compensate, the interest rate on these were also high. These types of loans were very profitable for banks and other financial institutions in the short run and employees were paid massive commission and bonuses for selling more of these. To entice the borrower further the interest rate the beginning was set very low but which would gradually increase with time.

Apart from loans bank borrowed money and used it to invest in complex financial products like asset backed securities (ABS), collateralized debt obligation (CDO) and other over the counter (OTC) derivatives and these securities were bundled together and traded among banks and other investors. The process of bundling the securities is referred to as securitization, first used in 1970 to transforming collection of debt obligations into a bond which would transfer the risks and returns from the debt to the bondholder. To initiate securitization a Special Purpose Vehicle needs to be created which is separate from the company legally and transferring the assets to that vehicle through selling. Securitization has distinctive benefits to both investor and the issuer. A company with low rating but with high cash flow rating could still be able to borrow at higher rating rate on the basis of the strength of the underlying asset collateralized. This could reduce the borrowing cost significantly for a company.

Financial institutions have been subject to regulatory requirements on the leverage and capital to asset ratio. Securitization is a quick solution in such a scenario when company is facing regulatory trouble. The risk of uncertainty regarding future profits from an investment can be eliminated by selling the asset through the SPV. The profits are realized and the risk is no longer with the issuer. Also, other risks like liquidity and default risk could be transferred to investors who are willing to accept them. Investors benefit by potentially earning high rate

of return on these investments also conservative investors could find variety of top rated bonds to invest in. Also it helps to diversify their portfolio since the returns from bonds created through securitization are largely uncorrelated to other securities.

According to Professor Steven M. Davidoff, University of Connecticut School of Law: The rise of securitization and derivatives has allowed capital and risk to be allocated differently and more efficiently. In the process, finance has become more accessible and cheaper. Companies can obtain more funds to spur further growth and, consequently, there has been a productivity growth in our American economy. This includes the \$1.2 billion invested in green technology in the second quarter of 2009 alone, according to Greentech Media.

However, securitization carries a lot of risks to the investor as all the risks are transferred from the issuer. If the investor is an entity considered to be TBTF it has risks to the entire financial system. From the point of the view of the economy in isolation the use of securitization may not be seen as a problem since its between two independent parties and both entering into the transaction willingly and fully aware of the consequences and who have complete knowledge of the financial products involved in the transaction. Or do they? The lack of knowledge of these complex financial products which the investors were getting into fuelled the panic which followed the crash of the real estate market and turned the drop in house prices in America into a global financial catastrophe.

The banks, on the one hand, issue subprime loans to individuals who they feared would struggle to repay the interest payments in future insured their investment using credit default swaps (CDS). CDS were in essence transferring the risk of default to the insurance company or to whomever that writes these contracts in exchange for a premium. CDS became a very profitably business with no cost in front and only an obligation to pay if the company or individual goes bankrupt. As of the end of 2007, credit default swaps had grown to roughly \$60 trillion in global business. The credit rating agencies also helped worsen the bubble by rating these products very highly. Most of these products received AAA ratings by all of the major rating agencies.

With excess supply of loans particularly home loans the real estate market started to lose value in 2006 foreclosures increased as individuals could not keep up with the interest rates on their loans in subsequent years. Banks and other institutions that bore the risk of default took over the houses but as time went by these foreclosures increased drastically and the real estate value started to go down. The housing prices were at their peak in 2006 and continued to decline from there since becoming toxic assets. The insurance companies like AIG who had underwritten credit default swaps had to pay out as a result of growing defaults. The demand for securitized mortgages started to drop and over in UK, unable to raise capital from the money market through securitization Northern Rock became the first casualty of the subprime crisis.

Northern Rock which was heavily reliant on borrowing from the international money market and using the funds to issue mortgages and then to sell those back in international markets. With reduced demand Northern Rock struggled to repay the money borrowed from the money markets. The public became aware of these issues and started to fear for their savings, panic set in and people queued outside the bank to withdraw all their saving. This is known as a run on the bank when a large number of bank customers withdraw their deposits in fear of

bank becoming insolvent. The bank run itself causes more liquidity problems for the bank and increased the likelihood of a collapse. Bank runs were cited as a prime reason for causing the Great Depression. The share prices plummeted following the liquidity crisis and in early 2008 the UK Government intervened and nationalized the bank. Northern Rock compared to other 5 major banks in the UK was a very small bank in market value and assets but even then the Government rescued the bank after numerous takeover bids failed. The reason for Northern Rock's demise was its risky business model as three quarters of its funding comes from the wholesale credit markets. Meanwhile in US similar difficulties were experienced by American investment bank Bear Stearns at the time it was the seventh largest U.S. securities firm.

Similar to Northern Rock Bear Stearns was a huge issuer of asset backed securities with the subprime crisis leading to losses the company increased its exposure to these markets to cover the losses. The investment bank required emergency funds to stay afloat and the Government negotiated a deal with JP Morgan to buy Bear Stearns at a substantially reduced price, the government also provided a loan of \$30 billion to JP Morgan to assist in this transaction.

Ben Bernanke the Chairman of the Federal Reserve in defending the decision to rescue Bear Stearns "With financial conditions fragile, the sudden failure of Bear Stearns likely would have led to a chaotic unwinding of positions in those markets and could have severely shaken confidence". He further added "The adverse effects would not have been confined to the financial system but would have been felt broadly in the real economy through its effects on asset values and credit availability".

Northern Rock and Bear Stearns belong to different economies and different regulators, but similar policy adopted by both. The reason for the demise in both the companies was basically poor risk management but the threat to the economy and to other similar institutions forced the government to intervene. The same governments did not intervene in the bankruptcy of Circuit City, an American retailer since 1949 or the UK high street retail giant Woolworth Group in 2009. Both were big companies in their right but were allowed to fail since they did not pose a risk to the economy. In a nutshell the problems in these companies were not contagious and no evidence of systemic risk.

The same year in September 2008 the subprime mortgage crisis started to show the true damage from it with two of the biggest mortgage companies in US Fannie Mae and Freddie Mac were taken over by the US Treasury to rescue the firms from failing but perhaps the biggest blow to the world economy came when the crisis hit Lehman Brothers, the fourth largest investment bank in USA with operations all over the world. Lehman Brothers rapid growth was fuelled by excessive borrowing with one of the highest leverage ratio among the other investment banks. The leverage ratio which is defined as total assets divided by total shareholder's equity is a measure of for every single unit of currency how much has the company borrowed. The leverage ratio of Lehman Brothers rose from 24:1 in 2003 to 31:1 by 2007. The company made enormous profits with borrowed money on various investments for many years, but when the market started going down the losses were even bigger. Lehman was the biggest underwriter of mortgage backed securities which was the main component of the growing losses. The company lost 94% of its value in 2008 alone. Merrill Lynch

survived the bankruptcy only just by managing to merge with Bank of America. Lehman Brother was unable to secure a buyer and the government on this occasion made a bold move and did not step in to save a supposed TBTF bank.

The financial fallout from the bankruptcy were much worse than expected, with Lehman having business with worldwide banks and financial institutions it affected most of the developed economies. All leading global stock markets began to fall on a daily basis since the announcement of Lehman's failure with confidence within the banks extinguished and the credit markets froze. The banks stopped lending to each other and all businesses started to suffer with lack of liquidity in the market. Companies like General Electric one of the biggest and most profitably companies in the world was unable to fund its day to day operations. The biggest insurance company AIG was next which had insured so many credit default swaps in the years leading to the crisis. AIG being an insurance company did not diversify their risks enough to protect themselves. AIG losses were even bigger than those of Lehman and Bear Stern's but AIG's failure could've been catastrophic for the world economy. The Federal Reserve had no option but to rescue AIG with a \$40 billion injection of cash into the company through purchase of preferred shares. The AIG rescue was also part of a much wider rescue plan by the US Government introducing the Troubled Asset Relief Program (TARP) with the aim of unfreezing the credit market in the short run and strengthen the financial market as a whole in the long run. The program cost the government \$700 billion but it did achieve in ending the credit crunch. The UK government soon followed with a similar plan worth 850 billion to protect the banks in the country with the major chunk going in saving Royal Bank of Scotland, one of the oldest and prestigious banks from collapsing which is now owned 58% by the UK Government while Lloyds Banking Group has a minority 43% Government interest following the crisis.

The financial crisis were not the consequence of one single cause it was a list of events happening one after another which played a role in forming of the bubble. The origin of such an event can be traced back to 1980 when investment banks were allowed to go public followed by a period of continuous deregulation, to the abolishment of Glass Steagal Act and allowing big companies to become even bigger and stronger. The over reliance and lack of accountability from the credit rating agencies and to the unsupervised use of derivatives excessively all combined had a trickle down effect on world economy.

The regulators are to be blamed surely for their part in not taking action quickly enough but what about these large financial institutions? Did they not play a very telling part in the whole crisis? Were they not the private sector catalyst for the crisis?

Considering how all the major events happened it became clear these institutions had enormous power in influencing regulators some of whom were even ex senior member of these firms (for e.g Treasury Secretary Hank Paulson was the CEO of Golman Sachs before moving to government) also they were very reckless in their investment decisions and even unethical at times. Their policies and practices led to the real estate crisis, with issuing billions in loans to people who they knew would struggle to pay but did so anyway while safeguarding their own investment against a default and also selling those loan mortgages which were somehow rated very highly to investors at lucrative rates. In doing so they knowingly were putting the insurance companies and the investors and even the whole economy at a huge risk.

Investment banks and other similar institutions argue that taking risk is the only way to increase profitability but the larger the bank the larger the loss potential. This theory is supported by Taleb and Tapiero (2009) in their paper using an example of rogue trading concluded that size of economies of scale have commensurate risks that mitigate the advantages related to size.

Arthur Wilmarth one of the sternest critic of TBTF companies in his paper summarized the role played by these institutions, which he refers to as Large Complex Financial Institutions (LCFI). He believed these LCFI's inflated the credit boom which precipitated the financial crisis in three ways, firstly by using securitization to originate risky loans and distributing hazardous securities from these loans, strategy he refers to as OTD (originate to distribute), secondly the question of why were these securities bought if they were very risky is answered by the role played by credit rating agencies. The LCFI's paying the credit rating agencies highly to rate them generously is thought to be the main reason behind most of the structured finance securities receiving AAA ratings. The LCFI's promoted this unsustainable credit boom by continuing their activities which set the stage for the financial crisis.

Even during the crisis LCFI's Wilmarth believes that LCFI's could've reduced their exposure to the many risky financial products. But with regulations assigning very low risk weights to these securities the LCFI's kept the lucrative AAA rated securities on their balance sheets. Wilmarth acknowledges other factors that were also responsible for the crisis most notably the Federal Reserve Board and its policies over the years but holds the LCFI's as the most important private sector catalyst for the crisis. The bailouts of these institutions prove the TBTF status which Wilmarth believes intensifies systemic risk and moral hazard in the financial markets.

5. Conclusion and Recommendations

The financial crisis highlighted significant weaknesses in the financial system of US, UK and other European economies. To call it a blessing in disguise would be far-fetched statement but some lessons could be taken from this disaster. The regulators, investors, banks and other financial institutions can ensure such an event should not be allowed to happen again by taking appropriate measures. To be able to do that the weaknesses in the system have to be fully acknowledged by all concerned, the idea of self-regulation is deeply flawed, and it will not work when there is potential for so much money to be made. Greed is in human nature and if same scenario is to be repeated banks, investors, credit agencies would all do the same thing again.

Staying within the laws companies would not generally miss an opportunity to make money as they would argue their purpose is to increase profitability and their shareholders wealth. This is where the regulatory body needs to be strict with the laws as their fiduciary duty is to protect the interest of the tax payers. In dealing with the crisis the U.S. federal government alone provided \$6 trillion of assistance to financial institutions while also guaranteeing the survival of the largest nineteen banks and the largest insurance firm. The U.K. and European Nations also had similar bailout packages in excess of \$4 trillion combined. This was all tax payers' money, and could've utilized in other more productive ways if there were stronger regulations to begin with. Stucke (2010) shows in U.S. there has been growing anger and

decrease in trust within the general public towards these institutions and the government following the crisis.

One of the main reasons as identified through this study was the TBTF companies, a policy directed towards discouraging companies becoming TBTF would be a major step in the right direction. Also, the existing TBTF or more appropriate too big to regulate companies should also be tried to broken up so regulating them in the future could be easier.

A variety of options are proposed in various literatures of both handling as well as preventing such an event in the future, to review some of them briefly, Kane and Klingebiel (2004), studied the response of central bank policies in twelve major banking crises in the last 2 decades believed that closing down insolvent banks quickly and providing liquidity to more viable ones is an effective way of mitigating the negative impact of a banking crises. Taleb and Topiero (2009) discussion goes towards discovering the hidden risks in the big companies referring to the potential losses through rogue trading and believe greater awareness of these risks will mitigate as well the presumption of TBTF and the moral hazard they have contributed to. The Swedish model of becoming 100 percent share holders in the struggling banks was discussed in Ergungor (2007) which showed a recovery of 58% of the value of assets initially bought was done. Wilson (2009) in his paper about the debt overhang in troubled banks suggests purchasing of toxic mortgages and common stock is the most efficient way to bail out a bank with liquidity and credit crisis. While showing that recapitalizing of preference shares are the least efficient as these shares worsen the debt problem. However he argued that for this policy to work certain condition must accompany the purchase prohibiting paying out dividend, repurchasing of shares or cash acquisition until the bank is financially stable again. The suggested solution is most relevant for complex TBTF organization whose bankruptcy would pose serious systematic risk. Freixas et al. (2007) proposes a larger capital base for financial conglomerates for a longer term solution to the problem.

Wilmarth, (2010) outlined a reform program to prevent a similar crisis in the future, he proposed growth of existing regulation on limiting the growths of LCFI's, a special resolution process for managing restructuring or liquidation of systemically important financial institutions (SIFI's) and also creating special capital requirements for these institutions. To deal with the cost of rescuing these institutions in time of distress Wilmarth proposed creating a fund systemic risk insurance fund (SRIF) that would be funded by premiums from these organizations. The fund should be independent from the deposit insurance fund (DIF) as DIF is not formed for bailing out failed banks. The last proposal was to break up the banks in to two tiers one for traditional banking services which would be prohibited to engage in securities dealing or underwriting, derivatives trading and insurance underwriting. The second tier would be the non traditional banking organization which would be allowed to engage in securities, derivatives market but should operate as narrow banks.

Some of these proposals discussed have been either implemented or are under consideration, the Dodd-Frank bill in USA Project Merlin in UK the reintroduction of Volcker Rule and the Basel accords are some of the recent developments aimed at strengthening the financial system which was badly exposed in the financial crisis. However the problem of TBTF still exists even more so now since the financial crisis led to further consolidations among systemically important banks with Merrill Lynch and Bank of America merging together,

Barclays expanded by taking over the offices of Lehman Brothers in U.S., JP Morgan Chase acquiring Bear Sterns in a fire sale also took over all assets of the failed Washington Mutual Bank.

With the benefit of hindsight and observing the practices of these TBTF firms, this paper finds them the most critical factor in causing and then exacerbating it further. The Originate to Distribute (OTD) strategy as highlighted by Wilmarth is what led to the credit boom and increased the overall riskiness of the system. The regulators were equally culpable in allowing a situation like this but keeping the safe open isn't a bigger crime than actually robbing it.

Stricter regulations are a definite need of time but more accountability from the large banks and financial institutions is also required. A similar crisis could happen again if steps are not taken to minimize the risks posed by these firms and the longer they continue to exist with the current level of dominance the more difficult it becomes to discipline them.

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