

## **THE IMPACT OF THE 2008 FINANCIAL CRISIS ON THE GLOBAL ECONOMY: A REVIEW**

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### **ABSTRACT**

This review of the literature on the 2008 crisis covers the underlying factors, the effects on developing and developed countries, and the policy measures taken all over the world to tackle the crisis. The Housing Crisis may have occurred in 2008 but the underlying factors causing the housing bubble to burst started appearing at the start of the millennium.

The 2001 brief global recession, led to a relatively stable period of growth for US and other developed nations fueled by expansionary monetary policy due to the Fed's fund rate dropping the interest rates 27 times from 6.5% to 1.0% between January 2001 and July 2003.

This fast recovery from the recession increased the value of the housing market which soon turned into a housing bubble. During 2002-07 the developing countries were developing at a rapid pace as a result of low inflation and relatively stable macroeconomic policies. The developing countries started this period of growth because of the high demand for exports and increasing commodity prices resulting in developing countries along with increased FDI increasing exports as a share of their GDP from 29% in 2000 to 39% in 2007. The collective GDP of these countries was growing at a rate of 5% during this period compared to 3.4% annual growth in the past 2 decades.

The paper also covers the measures taken by developed countries to tackle the effects of the crisis. The efforts taken by the Fed could be split in 2 ways chronologically- steps taken before September 2008 and after September 2008 because of the announcement of \$ 700B which later came into effect known as TARP to primarily aid the companies affected by the crisis.

## **Introduction**

### **Causes Of The Crisis**

#### **A. The US Housing Market**

Houses in the US doubled in price from 1998 to 2005 increasing at a rate higher than average incomes. (Cecchetti 2008) Yale economist and Nobel Prize winner, Robert J. Shiller in his book *Irrational Exuberance* stated that the prices of houses from 1899 to 1995 adjusted for inflation were relatively consistent. From this point onwards the prices continued to increase causing Shiller to predict the collapse of the housing bubble. (Shiller 2005)

#### **Reasons For The Creation Of The Housing Bubble**

##### **Lower rates of Interest for Subprime Mortgages**

Because of the way the Mortgage system worked, the lenders were no longer incentivized to charge higher rates of interest as can be shown by the difference in prime and subprime mortgages decreasing from 2.8 to 1.3%. (Taylor, *The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong* 2008)

The mortgage lender never faced the downside of lending to risky homeowners since most mortgages were sold to investment bankers who then sold them as safe securities due to default rates for subprime mortgages being lower than historically recorded.

##### **Political Pressures**

A Bipartisan Push was made in the early 2000's by politicians to increase home ownership as a method to combat growing wealth inequality. This included initiatives to lower credit requirements, relaxing underwriting standards all leading to riskier mortgage lending

One of the main reasons for increased rates of ownership was due to the Bush and Clinton Administrations pressured Government Sponsored Enterprises (GSEs) mainly Fannie Mae and Freddie Mac to take more non-standard mortgages and to lower standards for low-income families in order to foster a home ownership centric society. This led to increased demand for homes hence inflating home prices and leading to housing bubble.

The business of these GSEs is primarily insuring mortgages so the buyers of their securities can do so without risk of default on those mortgages compared to securities issued by other intermediaries where there is no such insurance are known as Asset Backed Securities (ABS).

Compared to 1990's where around 70% of mortgages were being pooled by GSEs. In 2004, only accounted for 10% of mortgages while the alternatives of ABS accounted for 40% this was due to concerns regarding credit quality and debt serviceability by the homeowners.

At the behest of the government in mid-2005 Fannie and Freddie severely increased their subprime lending.

### **Role Of The Financial Industry In The Housing Bubble**

Since the Start of the 1990's due to financial innovations the industry has gone through has allowed it to separate risk and income streams compared to in the past when they were part of a parcel. Now, they can be separated into income and risk any way the financial institute desires. The Allocation of risk meant that now it was sold separately to institutions best suited to handle it. (Cecchetti 2008)

This separation of risk and income also was extended to consumer lending. Debts such as student loans, Mortgages, credit card debt, and automobile loans were grouped together and sold as Asset Backed Securities or ABS.

Due to these innovations, the financial industry in the early 2000's was able to use a complex process known as securitization to sell the mortgages as a security.

### **Securitization Process**

During the first stage the homeowner takes a mortgage out on their home from a Mortgage lender. An interest rate is assigned to the mortgage which the homeowner is expected to pay the lender which is decided by the credit history and score, a higher Rate of interest is shown in mortgages assumed to be riskier. The rate of interest may be fixed or variable.

In this new process, the mortgages were sold to Investment bankers for a profit. Traditionally they were first sold to GSE's such as Fannie Mae who acted as underwrites for these loans but this approach was on a decline in the early years of the 21<sup>st</sup> century.

The Investment Bankers would now organize the mortgages into a "structured product" because of the ability to slice and dice any financial instrument into a desirable payment stream and risk appropriate for the product with the purpose of being sold to the investor for profit.

The purchased mortgages would be pooled into MBS or CDO. Then they are cut into tranches with different credit ratings defining the risk of default in each category such as AAA tranches being composed of prime mortgages and having the least risk of default or senior tranches which

are paid first and eventually there is the equity tranche made that is paid last and hence suffers the first default.

The ratings given to these tranches were decided by Credit Rating Agencies (CRAs) mainly the big three of Moody's, Standard and Poors and Fitch together they held 94% of the global market of Risk Assessment.

Rating is important as without an AAA rating the better-quality tranches such as equity lose their value because of the perceived risk. It was found that 80% of MBS containing subprime mortgages were rated AAA while at least 95% were rated A. In reality, this did not show the correct picture of these securities as explained by then S&P CEO Deven Sharma as "events have demonstrated that the historical data we used and the assumptions we made significantly underestimated the severity of what has actually occurred" in testimony to US House Committee on oversight and Government Reform.<sup>1</sup>

## **Literature Of Review**

### **Bursting Of The Housing Bubble**

It can be said that the housing bubble burst at the onset of the sub-prime crisis combined with decreasing home values meant that those who were unable to pay mortgages were unable to refinance or restructure their loans.

According to some economists, delinquency rates were usually correlated to increases in jobs which meant that as long as the jobs were growing the delinquency rate would remain low as can be seen from the period of 2001 to 2005. However, this approach may have been overly optimistic as it failed to take into account pricing on houses and the fact that this approach was built on low-interest rates of the early 2000s so when interest rates increased this could not predict the subprime crisis.<sup>2</sup>

### **The Decrease In Housing Prices**

The Housing prices had reached their peak in 2006 Q2 and only declined 2% in value till the 4<sup>th</sup> quarter of 2006.

The demand for housing was decreasing but the supply which had been increased to meet previous years' demand meant that there was a now excess of Houses

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<sup>1</sup> Testimony of Devan Sharma, US House Committee on Oversight and Government Reform, Hearing on The Credit Ratings Agencies and the Financial Crisis, 22 October 2008.

<sup>2</sup> Azhar Iqbal & Mark Vitner, 2013. "Did Monetary Policy Fuel the Housing Bubble?," Journal of Private Enterprise, The Association of Private Enterprise Education, vol. 29(Fall 2013), pages 1-24

A decrease in the prices of houses also followed suit. The declining value of houses alongside rising interest rates meant that interest rates rose to 5.25%. This led to a decrease in ARMs being issued and reduced the number of non-prime buyers further widening the gap b/w supply and demand. (Marshall 2009)

The decrease in house prices meant that existing buyers are now unable to refinance their mortgages or sell those houses and combined with increasing interest rendered a lot of homeowners incapable of paying interest leading to foreclosure or delinquencies. Foreclosure rates increased by 43% in the last 2 quarters of 2006 and by a whopping 73% in 2007 compared to 2006. In 08 the rate of foreclosure increased another 81% to 2.3m (a 225% increase over 2006), It was estimated that 8.8m homes were facing a problem of negative equity during this time Foreclosing of a house seems to have a chain reaction of decreasing the value by 0.9-8.7% of nearby properties although this effect is found to be diminishing in nature.

The main culprit behind such massive increases in foreclosures were subprime mortgages which increased from 4.5% in the 2<sup>nd</sup> quarter of 2006 to 8.3% in 2007 the main contributor being variable rate subprime mortgages which increased from 5.6 to 13.4% during the same period of time a stark contrast to fixed-rate prime mortgages which remained under 1% the whole crisis. While subprime fixed-rate mortgages went from 3.2 to 3.8%.

When the number of foreclosures started increasing the financial products built upon them the numerous CDOs and MBSs started collapsing due to the financial system lending money to risky mortgages and then classifying them as safe investments. Ultimately wiping off 1tr\$ of US wealth

### **Financial Crisis**

Due to the ever increasing no of defaults in this period, the financial products based upon them by the financial sector due to their newfound ability to dice and slice risk and payment streams become unstable as they only expected the lower tranches to be affected not the higher tranches such as AAA and the senior tranches.

This led to the CRAs reducing the rating of these securities causing a nationwide credit crunch. Now you may ask why the securities were rated so highly in the first place especially considering that the underlying assets are the highly risky mortgages. (Marshall 2009)

Considering that the credit rating market was only controlled by three companies and that it required two of them to rate security. It was no longer a race of quality; they gained nothing competing on that; instead the main factor was the quantity of ratings being done. They stood to gain a fair bit of money while engaging in such activities, CRAs would advise their clients on

how to organize their securities in such a way that they get the highest possible ratings, forming an obvious conflict of interest.

The nature of their work meant that all players in the Securitisation process relied upon these ratings to assess risk of mortgage defaults; their failure in predicting the high amount of defaults in securities meant that private insurance companies like AIG had to increase their capital requirements. (Taylor, *The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong* 2008) CDSs which they dealt in did not require any sort of collateral at all as per the Commodity Futures Modernization Act of 2000 classified CDSs as not insurance, future contracts or securities.

The only caveat being that to be eligible to sell CDS without putting collateral was to be AAA rated which AIG was no longer. This ultimately led to AIG needing an 85\$ billion dollars in government assistance to meet its increased capital requirements. The whole financial system was incentivized to look for short term gains even if it meant disparaging the firm's long term growth such as Mortgage Brokers being encouraged to have more lenient standards for mortgages because of the knowledge that investment bankers could sell any MBS on the market regardless of the underlying mortgages. Furthermore, the formulas being used by the CRAs were not an appropriate representation of the time period they are in. The formulas being used by CRAs failed to take into account the possibility of a recession and the belief that increase in home prices will persist over long periods of time along with low interest rates and an expansionary monetary policy.

It was found that analysts had found problems with the current formulas and for some reason it was decided to not use updated and more complex formulas that could differentiate b/w categories of mortgages. Other activities at CRAs were also severely handicapped in order to avoid downgrading their securities. The rating surveillance department did not use advanced techniques in surveying the securities in order to avoid such a situation.

A large number of problems during this time stemmed from the lack of regulation surrounding financial derivatives such as CDS and CDO which led to a lot of firms increasing their leverage to risky amounts. At one point in 2008 when Fannie Mae and Freddie Mac were taken over by the federal government it was noted that the leverage ratio of the GSEs had reached 20:1 and 70:1 respectively.

## **Policy Measures Taken By The Government**

### **Before 2008**

#### **Change In Interest Rates**

During the summer of 2007 the interest rate was set at 5.25% and it was lowered to 2% as a way to solve the ongoing credit crunch. Similar measures were taken by the Fed in other institutions by lowering the funds rate and discount rate.

These changes in Interest rates would be very different and would seem less drastic if the Taylor rule had been followed as similar strategies have worked in past recessions. Taylors rule which gave a formula from which interest rates could be calculated by plugging actual GDP and inflation rates and was proposed by John B Taylor himself in 1992.

Fed also lowered discount rates to 25bp in March 2008 a decrease of 75bp from August 2007. This however had a negative impact as it led to the depreciation of the dollar and a sharp increase in oil prices. During the same period of time, the price of the oil barrel increased by 50% from 70\$ in August to 105\$ in March 2008 before crashing in the 4<sup>th</sup> quarter of the year due to a decrease in global demand for oil. (Taylor, *The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong* 2008)

This is backed by empirical evidence from a study by the First Deputy Managing Director of the IMF John Lipsky who said: "Preliminary evidence suggests that low interest rates have a statistically significant impact on commodity prices, above and beyond the typical effect of increased demand. Exchange rate shifts also appear to influence commodity prices. For example, IMF estimates suggest that if the US dollar had remained at its 2002 peak through the end of 2007, oil prices would have been \$25 a barrel lower and non-fuel commodity prices 12 percent lower."

A study by John B. Taylor and John Williams found a strong correlation b/w their measure of counterparty risk and LIBOR OIS Spread which explains that the cause of the crisis was related to risk not to Liquidity concerns. This is contrary to the Federal approach which was focused on alleviating the liquidity problem faced by many firms. (Taylor and Williams, *A Black Swan in the Money Market* 2009)

After the failure of this approach, the Fed introduced the Term Auction Facility (TAF) on 12 December 2007 as a way to offer short-term liquidity needs for firms. It was a way to receive money from permitted depository institutions underwritten by various collaterals by way of anonymous bidding. From December 2007 auctions were held every month in amounts varying from \$20B to \$50B. TAF was a joint strategy done by the Swiss National Bank, Bank of England, European Central Bank, and Bank of Canada.

Another use of the TAF program was for banks to get rid of their now junk securities by pledging them to the funds as collateral. As a result, the bank over-collateralized by a factor of two as it was the best value possible for some of its assets at the time. Giving them much-needed

liquidity and time to evaluate their assets. On 30<sup>th</sup> July 2008, the Fed extended the TAF period to 84 days.

Another scheme, the Term Securities Lending Facility (TSLF) , was announced on 11 March 2008. A similar programme has existed for multiple years allowing treasury dealers to receive Treasury bills from the government on an overnight basis as treasury dealers often promise bills they do not own This allows them to get bills in an urgent method for which a fee is charged and they are supposed to be returned the next day.

TSLF deviates from this scheme in mainly 2 ways. First, the lending period was changed from 1 day to 28 days. Another was allowing a broader range of securities as collateral such as AAA/Aaa-rated MBS securities which were not on review for downgrade.

Both TSLF and TAF allowed the Fed to inject liquidity into the market while preserving the size of their balance sheet. While TAF was designed to promote interbank lending, the TSLF was to alleviate the problems caused by the reluctance of investors to buy MBS again.<sup>3</sup>

Major Legislation was taken before September 2008 The Housing and Economic Recovery Act of July 2008 the act guaranteed up to 300 billion dollars in subprime mortgages if the lender agrees to revalue the mortgage at 90% of their current value. It also injected capital into the GSEs allowing and allowing the treasury to purchase their debt obligations.

Second the Economic Stimulus Act of 2008 was enacted on 13 February 2008 as a way of reversing the sharp decline in prices and to stimulate demand in the market at a cost of \$152B. The act focused on providing tax rebates for lower income families incentivizing business investment and lastly expanding the range of mortgages that could be done by Fannie Mae and Freddie Mac. According to an analysis by Broda and Parker, a 3.5% rise in spending was seen in households signifying that most of the incentives led to increased spending.

### **Policies undertaken after September 2008**

On 20<sup>th</sup> September George W Bush, then president of the United States announced a proposal worth 700 billion USD for purchasing illiquid assets deemed toxic waste mainly MBS. George Bush stated the consequences of doing nothing outweighed the risks that come with the package. He assured that over time a lot of the money spent will be received back. This was seen with extreme optimism by the markets as the Dow Jones index rose by 3.69% just based on rumors of the package the day before. (Marshall 2009)

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<sup>3</sup> Markus Brunnermeier, "Deciphering the Liquidity and Credit Crunch 2007–2008", *Journal of Economic Perspectives* 23:1 Winter 2009



The program would have been federally regulated and would employ asset managers to look after the purchased assets until maturity with the hopes that at least most of the money invested would be recouped by the sale of these assets. The program would function on a reverse auction basis with the intent of including as many banks as possible.

Criticism includes that for a plan this size the lack of detail was astounding from which assets to be bought and how the size of the package was decided. A treasury spokeswoman responded to the latter criticisms by saying that the number was decided upon because they wanted to choose a “big number”. Another criticism of the bill was that it mainly focused on rescuing Wall Street firms and not the common man facing home foreclosure. The fact that it allowed the imbursement of 700 billion dollars without much oversight and without a court of law overseeing the proceeds. Since much of this plan had so few details revealed it also added uncertainty into the market. Some criticism from Luigi Zingales included that the bailout plan issued by Paulson was too lenient and that restructuring in exchange for equity was the appropriate decision much fairer to taxpayers.

Taking all this criticism into account on 28 September a week after negotiations in Congress Troubled Asset Relief Program (TARP) was announced. However, the bill was voted down in the house, crashing the Dow Jones by 777 bps almost 1tr\$ in value.

Another bill, the Emergency Economic Stabilization Act of 2008 (EESA) was passed in the house on October 1 2008. The TARP portion of the bill stipulated that out of 700 billion Dollars only 250 may be freely deployed 100 upon presidential certificate and 350 required a veto from Congress.

It also stated no golden parachutes should be available to the firms partaking in EESA and that compensation can be taken back in case of providing inaccurate statements and also tried to disincentivize excessive risks.

However, on 14 October 2008, the US Treasury announced that \$250 B allocated for TARP would now be used for capital injections into firms under a Capital Purchase Program (CPP) for purchasing preferred shares in banking institutions. Terms offered to banks in the US under CPP were far more generous than those offered under similar programs to Banks in the UK Belgium and the Netherlands. Banks such as JPMorgan, Citigroup, and Wells Fargo received a maximum of \$25B including a total of 9 banks that received payments of \$125B. Furthermore, it was announced on 12 November 2008 Paulson announced that purchasing toxic assets would not be done under TARP. A list of firms in which an equity stake was purchased under CPP is available on the treasury website.

On 25 November \$200bn Term Asset-Backed Securities Loan Facility (TALF) was announced by the Fed. TALF used TALP funds to underwrite the loans provided under the scheme. Initially, TALF provided those loans to exchange MBS securities which were AAA rated in order to prevent interest rates in illiquid assets. It was expanded to include assets with longer maturity dates and in 2009 it started giving credit to households and small businesses.

### **Conclusion**

To summarize the entire crisis was a result of federal mismanagement of fiscal policy going back to the start of the millennium. This coupled with greed for short term profits by Investment banks and CRAs led to a crisis never seen since the great depression. Loose regulations meant that banks could get away with giving riskier and riskier mortgages to buyers because they were able to sell those mortgages anyway to investors who thought that the record low levels of delinquency and foreclosure rates would continue forever. The crisis was worsened exponentially by the plethora of securities built upon subprime mortgages and riskier lending erased 19.2 trillion dollars of household wealth.

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