Contents

INTRODUCTION ......................................................................................................................................... 3

Introduction to Sub Prime Crisis ............................................................................................................. 7
Background and Timeline of Events........................................................................................................ 8
Timeline: Sub-prime losses .................................................................................................................... 10
Sub Prime Mortgage Models:- ............................................................................................................... 25
THE NEW MODEL OF MORTGAGE LENDING ............................................................................. 26
What went wrong in the above model? .................................................................................................. 27
THE RISE OF THE MORTGAGE BOND MARKET MORTGAGE BOND MARKET ................. 28
THE CRISIS GOES NATIONWIDE ................................................................................................... 29
HOUSING AND THE ECONOMY ...................................................................................................... 31
CREDIT CRUNCH .................................................................................................................................... 33
BANK LOSSES ........................................................................................................................................ 34
BOND MARKET COLLAPSE .................................................................................................................. 34
OTHER SHOCKS TO THE GLOBAL ECONOMY ..................................................................................... 35
REVIEW OF LITERATURE ...................................................................................................................... 37
Global Financial and Economic Crisis ................................................................................................. 39
The Impact of the Global Financial Crisis on Asia and Asia’s Responses ......................................... 39
SIGNIFICANCE OF THE STUDY ....................................................................................................... 41
LIMITATIONS OF THE STUDY ........................................................................................................... 44
OBJECTIVES, SCOPE AND RESEARCH METHODOLOGY ....................................................... 45
PLAN OF THE STUDY ........................................................................................................................ 49
List of Figures
Figure 1: Mortgage Lending Model ............................................................................................................. 26
Figure 2: What is wrong with the Mortgage Model? .................................................................................. 27
Figure 3: Raise of mortgage Bond Market ................................................................................................. 28
Figure 4: Mortgage Bond Market ............................................................................................................... 28
Figure 5: Growth of Subprime Lending ..................................................................................................... 29
Figure 6: US Foreclosures ......................................................................................................................... 29
Figure 7: US House Price Trends ............................................................................................................. 30
Figure 8: US Economic Growth .................................................................................................................. 31
Figure 9: US Housing Construction ......................................................................................................... 32
Figure 10: Credit Crunch ............................................................................................................................. 33
Figure 11: Potential Bank Liabilities ......................................................................................................... 34
Figure 12: Current Index Value of Mortgage Bonds ................................................................................. 35

List of Tables
Table 1: Credit Losses of Banks & Financial Institutions ............................................................................. 11
INTRODUCTION

Subprime is the cause of World Economic Slow Down, which has its origins in USA. It has become very serious than expected. It has caused more damage to the Financial Markets World Wide including India. Some experts compare this disaster with the 1930 Economy slow down in the USA.

Also known as the U.S. subprime mortgage crisis, it was one of the first indicators characterized by a rise in subprime mortgage delinquencies and foreclosures, and the resulting decline of securities backed by said mortgages.

The ratio of lower-quality subprime mortgages originated rose from the historical 8% or lower range to approximately 20% from 2004–2006, with much higher ratios in some parts of the U.S.

A high percentage of these subprime mortgages, over 90% in 2006 for example, were adjustable-rate mortgages. These two changes were part of a broader trend of lowered lending standards and higher-risk mortgage products. Further, U.S. households had become increasingly indebted, with the ratio of debt to disposable personal income rising from 77% in 1990 to 127% at the end of 2007, much of this increase mortgage-related.

After U.S. house sales prices peaked in mid-2006 and began their steep decline forthwith, refinancing became more difficult. As adjustable-rate mortgages began to reset at higher interest rates (causing higher monthly payments), mortgage delinquencies soared.
Securities backed with mortgages, including subprime mortgages, widely held by financial firms, lost most of their value. Global investors also drastically reduced purchases of mortgage-backed debt and other securities as part of a decline in the capacity and willingness of the private financial system to support lending. Concerns about the soundness of U.S. credit and financial markets led to tightening credit around the world and slowing economic growth in the U.S. and Europe which had its cascading effect on the rest of the world including India.

The cause or trigger of the crisis was the bursting of the United States housing bubble which peaked in approximately 2005–2006. High default rates on "subprime" and adjustable rate mortgages (ARM), began to increase quickly thereafter. Lenders began originating large numbers of high risk mortgages from around 2004 to 2007, and loans form those vintage years exhibit higher default rates than loans made either before or after.

An increase in loan incentives such as easy initial terms and a long-term trend of rising housing prices had encouraged borrowers to assume difficult mortgages in the belief they would be able to quickly refinance at more favorable terms. Additionally, the increased market power of originators of subprime mortgages and the declining role of Government Sponsored Enterprises as gatekeepers increased the number of subprime mortgages provided to consumers who would have otherwise qualified for conforming loans. The worst performing loans were securitized by private investment banks, which generally lacked the GSE's market power and influence over mortgage originators.

Once interest rates began to rise and housing prices started to drop moderately in 2006–2007 in many parts of the U.S., refinancing became more difficult. Defaults and foreclosure activity increased dramatically as easy initial terms expired, home
prices failed to go up as anticipated, and ARM interest rates reset higher. Falling prices also resulted in 23% of U.S. homes worth less than the mortgage loan by September 2010, providing a financial incentive for borrowers to enter foreclosure. The foreclosure epidemic, of which subprime loans are one part that began in late 2006 in the U.S. continues to be a key factor in the global economic crisis, because it drained wealth from consumers and eroded the financial strength of banking institutions.

In the years leading up to the crisis, significant amounts of foreign money flowed into the U.S. from fast-growing economies in Asia and oil-producing countries. This inflow of funds combined with low U.S. interest rates from 2002–2004 contributed to easy credit conditions, which fueled both housing and credit bubbles. Loans of various types (e.g., mortgage, credit card, and auto) were easy to obtain and consumers assumed an unprecedented debt load. As part of the housing and credit booms, the amount of financial agreements called mortgage-backed securities (MBS), which derive their value from mortgage payments and housing prices, greatly increased.

Such financial innovation enabled institutions and investors around the world to invest in the U.S. housing market. As housing prices declined, major global financial institutions that had borrowed and invested heavily in MBS reported significant losses. Defaults and losses on other loan types also increased significantly as the crisis expanded from the housing market to other parts of the economy. Total losses are estimated in the trillions of U.S. dollars globally.

While the housing and credit bubbles were growing, a series of factors caused the financial system to become increasingly fragile. Policymakers did not recognize the increasingly important role played by financial institutions such as investment
In addition to banks and hedge funds, also known as the shadow banking system. Shadow banks were able to mask their leverage levels from investors and regulators through the use of complex, off-balance sheet derivatives and securitizations. These instruments also made it virtually impossible to reorganize financial institutions in bankruptcy, and contributed to the need for government bailouts. Some experts believe these institutions had become as important as commercial (depository) banks in providing credit to the U.S. economy, but they were not subject to the same regulations. These institutions as well as certain regulated banks had also assumed significant debt burdens while providing the loans described above and did not have a financial cushion sufficient to absorb large loan defaults or MBS losses. These losses impacted the ability of financial institutions to lend, slowing economic activity. Concerns regarding the stability of key financial institutions drove central banks to take action to provide funds to encourage lending and to restore faith in the commercial paper markets, which are integral to funding business operations. Governments also bailed out key financial institutions, assuming significant additional financial commitments.

The risks to the broader economy created by the housing market downturn and subsequent financial market crisis were primary factors in several decisions by central banks around the world to cut interest rates and governments to implement economic stimulus packages. Effects on global stock markets due to the crisis have been dramatic including India.

Between 1 January and 11 October 2008, owners of stocks in U.S. corporations had suffered about $8 trillion in losses, as their holdings declined in value from $20 trillion to $12 trillion. Losses in other countries have averaged about 40%.
Losses in the stock markets and housing value declines place further downward pressure on consumer spending, a key economic engine.

Leaders of the larger developed and emerging nations met in November 2008 and March 2009 to formulate strategies for addressing the crisis. A variety of solutions have been proposed by government officials, central bankers, economists, and business executives. In the U.S., the Dodd–Frank Wall Street Reform and Consumer Protection Act was signed into law in July 2010 to address some of the causes of the crisis.

As the events of Sub Prime Crisis Unfolded, it had huge ramifications on the Global Banking system leading to credit and liquidity crunch, several banks went bust worldwide and the evil effect of sub prime crisis had its toll on Indian Economy also.

**Introduction to Sub Prime Crisis**

In the US, borrowers are rated either as prime indicating that they have a good credit rating based on their track record or as sub-prime meaning that their track record in repaying loans has been below par.

Loans given to sub-prime borrowers, something banks would normally be reluctant to do are categorized as sub-prime loans. Typically, it is the poor and the young who form the bulk of sub-prime borrowers. In roughly five years leading up to 2007, many banks started giving loans to sub-prime borrowers through subsidiaries. They did so because they believed that the real estate boom, which had more than doubled home prices in the US since 1997, would allow even people with dodgy credit backgrounds to
repay on the loans they were taking to buy houses. The government also encouraged lenders to lend to sub-prime borrowers arguing that the young and poor will be able to buy houses. With stock markets booming and the system flush with liquidity, many big fund investors like hedge funds and mutual funds saw sub-prime loan portfolios as attractive investment opportunities. Hence, they bought such portfolios from the original lenders. This in turn meant the lenders had fresh funds to lend. The sub-prime loan market thus became a fast growing segment. Since the risk of default on such loans was higher, the interest rate charged on sub-prime loans was typically about 2% points higher than that of prime loans. This of course only added to the risk of sub-prime borrowers defaulting. The repayment capacity of sub-prime borrowers was in any case doubtful. Also the higher interest rates meant higher EMIs than that of prime loans, further raising the risk of default. Further, lenders devised new instruments to reach out to more sub-prime borrowers. Being flush with funds they were willing to compromise on prudential norms. In one of the instruments devised they asked the borrowers to repay only the interest portion to begin with and the repayment of the principal portion was to start after 2 years.

**Background and Timeline of Events**

The housing boom in the US started petering out in 2007. One major reason was that the boom had led to a massive increase in the supply of housing. Thus house prices started falling. This increased the default rate among sub-prime borrowers, many of whom were no longer able to or willing to pay through their nose to buy a house that was declining in value. Since in home loans in the US, the collateral is typically the home being bought, this increased the
supply of houses for sale while lowering the demand, thereby lowering prices even further and setting off a vicious cycle. This coincided with a slowdown in the US economy and the matter became worse. Estimates are that the US housing prices dropped by almost 50% from their peak in 2006. The declining value of the collateral means that lenders are left with less than the value of their loans and hence have to book losses. Another reason for the crisis is that the original lenders had further sold their portfolios to other players in the market. There were also complex derivatives developed based on the loan portfolios, which were also sold to other players, some of whom then sold it on further and so on. As a result, nobody is absolutely sure what the size of the losses will be when the dust ultimately settles down.

Global banks and brokerages have had to write off an estimated $512 billion in sub-prime losses so far, with the largest hits taken by Citigroup ($55.1 bn) and Merrill Lynch ($52.2 bn). A little more than half of these losses have been suffered by US based firms, $227 billion by European firms and a relatively modest $24 billion by Asian ones. Apart from this, there are two major ways in which the effect is felt across the globe. First, the US is the biggest borrower in the world since most countries hold their FX reserves in dollars and invest them in US securities. Thus any crisis in the US has a direct impact on other countries particularly those with large reserves like Japan, China, India, etc. Also, since global equity markets are interlinked through institutional investors, any crisis affecting these investors sees a contagion effect.

The crisis, which erupted in mid-2007, has had far-reaching and still evolving consequences. The shock has forced significant write downs at some of the world's largest financial institutions and required, in some cases, significant capital
injections from existing and new shareholders, including sovereign wealth funds. Central banks have responded by lowering policy interest rates and by amending the terms of their usual lending facilities to provide much-needed liquidity to interbank markets. Financial regulators too are re-examining the extent to which existing prudential norms and regulations may need to be amended.

Notwithstanding these responses, the impact of the crisis is likely to be protracted and most forecasters, including the IMF, have scaled back their estimates of growth.

Timeline: Sub-prime losses

MAY 2008

15 May: Barclays takes a further £1bn write-down on assets.

12 May: HSBC reveals a further $3.2bn of losses linked to the US sub-prime market.

APRIL 2008

22 April: The UK's second largest bank, RBS, reveals £5.9bn in write downs from the credit crunch, and asks its shareholders for an additional £12bn to rebuild its capital base.

18 April: Citigroup reveals another $12bn in sub-prime losses, bringing its total to $40bn, the most of any bank. It cuts 9000 jobs amid a quarterly loss of $5bn, down from $9.8bn in the previous quarter.
**MAIN CREDIT LOSSES**

<table>
<thead>
<tr>
<th>Bank/Financial Institution</th>
<th>Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citigroup</td>
<td>$40.7bn</td>
</tr>
<tr>
<td>UBS</td>
<td>$38bn</td>
</tr>
<tr>
<td>Merrill Lynch</td>
<td>$31.7bn</td>
</tr>
<tr>
<td>HSBC</td>
<td>$15.6bn</td>
</tr>
<tr>
<td>Bank of America</td>
<td>$14.9bn</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>$12.6bn</td>
</tr>
<tr>
<td>Royal Bank of Scotland</td>
<td>$12bn</td>
</tr>
<tr>
<td>JP Morgan Chase</td>
<td>$9.7bn</td>
</tr>
<tr>
<td>Washington Mutual</td>
<td>$8.3bn</td>
</tr>
<tr>
<td>Deutsche Bank</td>
<td>$7.5bn</td>
</tr>
<tr>
<td>Wachovia</td>
<td>$7.3bn</td>
</tr>
<tr>
<td>Credit Agricole</td>
<td>$6.6bn</td>
</tr>
<tr>
<td>Credit Suisse</td>
<td>$6.3bn</td>
</tr>
<tr>
<td>Mizuho Financial</td>
<td>$5.5bn</td>
</tr>
<tr>
<td>Bear Stearns</td>
<td>$3.2bn</td>
</tr>
<tr>
<td>Barclays</td>
<td>$3.2bn</td>
</tr>
</tbody>
</table>

Source: Bloomberg and company reports

Table 1: Credit Losses of Banks & Financial Institutions

**17 April**: US investment bank Merrill Lynch reveals an additional $4.5bn in credit write downs and a loss of nearly $2bn in the first quarter of the year.

**1 April**: Swiss bank UBS reveals a further $19bn of asset write downs. This came on top of the $18.4bn which it announced for 2007.

**1 April**: Germany's Deutsche Bank warns of credit losses of $3.9bn in the first three months of 2008.

**MARCH 2008**

**31 March**: US Treasury announces major package to reform regulation of US financial markets and prevent future financial crises. The plans are criticized by consumer groups but generally praised on Wall Street.

**18 March**: Wall Street investment banks Goldman Sachs and Lehman Brothers reveal that their first quarter profits have been halved by the credit crunch.

But stocks rise on the news that their results have not been as bad as expected.
**17 March:** Wall Street investment bank Bear Stearns is acquired by JPMorgan Chase for $240m, a fraction of its share price, in deal backed by $30bn in Fed loans.

The bank got into trouble over its huge exposure to sub-prime mortgage-backed securities.

**14 March:** Bear Stearns receives emergency funding, after its exposure to mortgage-backed investments undermined confidence in the bank.

**14 March:** Investment fund Carlyle Capital fails as the credit crisis spreads from sub-prime related products to other mortgage-backed investments.

**11 March:** Central banks make another coordinated attempt to ease conditions in the credit markets, by announcing $200bn of new emergency lending for banks.

**7 March:** The former bosses of Merrill Lynch and Citigroup are questioned by a Congressional panel over their bumper pay - despite huge, sub-prime related bosses at their banks.

**6 March:** A £1bn hedge fund run by Peloton Partners collapsed, after it struggled to meet interest payments due to the credit crisis.

**5 March:** France's biggest retail bank Credit Agricole announced a fourth quarter loss hit by a 3.3bn euro charge at its investment banking boss, Calyon.

**3 March:** HSBC announced a $17.2bn (£8.7bn) loss after the decline in the US housing market hit the value of its loans.

**FEBRUARY 2008**

**14 February:** Commerzbank, Germany's second-biggest bank, cuts $1.1bn off the value of investments linked to the sub-prime mortgage crisis and warns its losses could worsen.

Swiss investment bank UBS confirms it has made a loss of $4bn in 2007 after cutting the value of investments by $18.4bn.

**13 February:** Britain's Bradford & Bingley cuts the value of its sub-prime mortgage-related investments by £144.4m ($284.5m). A few weeks earlier it had said it did not expect to suffer any write-downs.
Japan's financial watchdog says Japanese banks suffered losses of $5.6bn by the end of 2007. These have more than doubled in the last three months of the year.

12 February: Swiss bank Credit Suisse says losses on sub-prime investments were $1.8bn, less than originally expected.

10 February: Leaders from the G7 group of industrialized nations say worldwide losses from the US mortgage crisis could reach $400bn.

8 February: Deutsche Bank announces $3.2bn of sub-prime write-downs in the third quarter of the financial year and predicts there is not much more to come.

7 February: US Federal Reserve boss Ben Bernanke expresses concern about bond insurers that guarantee against defaults on mortgage loans.

6 February: Wall Street sees its worst share losses in almost a year, amid fears that the worst US housing slump in 25 years is crippling the wider economy.

5 February: US financial firm GMAC, which owns sub-prime lender Residential Capital, says it has made a $2.3bn loss in 2007, compared with a $2.1bn profit the year before.

JANUARY 2008

31 January: Bond insurer MBIA announces a $2.3bn loss, it's biggest yet for a three-month period. It was hit by declines in the value of US mortgage-backed debt, which it guarantees against.

30 January: The US Federal Reserve cuts interest rates to 3% from 3.5%. It is the second cut in nine days. US economic growth slows.

29 January: The US Federal Bureau of Investigation launches an investigation into 14 companies involved in the sub-prime mortgage crisis.

Pub chain owner Mitchells & Butlers loses £274m when a property deal falls through due to the credit crisis.

28 January: Belgian bank Fortis warns its losses connected to bad US mortgage debt could be as high as $1.47bn.
25 January: Barclays Capital predicts banks will need to raise as much as $143bn to weather the credit crisis.

23 January: The Bank of China dismisses rumors it was about to unveil massive losses caused by its exposure to the US sub-prime mortgage market.

22 January: The US Federal Reserve cuts interest rates by half a percentage point to 3.5%, its biggest cut in 25 years.

21 January: Global stock markets, including London's FTSE 100 index, suffer their biggest falls since 11 September 2001.

21 January: German Bank WestLB warns investors that it expects to write down $1.45bn of investments and make a net loss of a similar amount.

18 January: Scottish Equitable introduces delays for investors wanting to withdraw money from its commercial property funds, citing recession and sub-prime worries.


Investment bank Lehman Brothers cuts 1,300 jobs as it scales back its US mortgage lending business.

16 January: US bank JP Morgan Chase says it has cut the value of its mortgage-related investments by $1.3bn. Profits for the last three months of 2007 fall by a third.

15 January: Citigroup, the largest bank in the US, reports a $9.8bn loss for the fourth quarter and writes down $18bn in sub-prime losses. It also announces further investments in the group by Kuwait and Saudi Arabia.

11 January: Swiss investment bank UBS warns that is still does not know the scale of its total losses from the sub-prime crisis and says it might make a loss in 2007 when it reports its full results.

Federal Reserve boss Ben Bernanke says that the outlook for the US economy is deteriorating among continuing worries about the sub-prime crisis.
The largest mortgage lender in the US, Countrywide, which pioneered sub-prime mortgages, is bought by Bank of America for $4bn after its shares plunge 48%.

9 January: Bear Stearns boss James Cayne steps down after the firm reveals $1.9bn in sub-prime losses, the largest in its history.

World Bank says that world economic growth will slow in 2008 due to credit crunch, but strong performance in China and India will cushion impact.

7 January: President George W Bush admits that the credit crunch could slow the US economy in 2008, but says it is still fundamentally strong.

US economists urge government action to ease looming US economic slowdown as a result of credit crunch.

4 January: US unemployment rises sharply as job report sparks fall in stock market

DECEMBER 2007

19 December: Morgan Stanley writes off $9.4bn in sub-prime losses and sells a 9.9% stake in the company to the Chinese state investment company CIC for $5bn to rebuild its capital.

18 December: The US Federal Reserve Bank tightens rules on sub-prime lending, requiring mortgage companies to check more carefully on customers' income and give full disclosure of the cost of the loan.

ECB lends European commercial banks $500bn over the Christmas period to help ease the credit crisis.

Bank of England makes £10bn available to UK banks to ease credit crunch.

17 December: US central bank, the Federal Reserve, makes $20bn available to commercial banks at auction to help ease the credit crunch.

Former Fed chairman Alan Greenspan urges the US government to give direct aid to homeowners hit by the sub-prime crisis.
14 December: Citigroup takes $49bn worth of sub-prime debts back on its balance sheets, effectively closing seven structured investment vehicles (SIVs) which had relied on money market funding.

13 December: World central banks agree coordinated action to inject at least $100bn into short-term inter-bank credit markets to restore confidence.

11 December: US central bank, the Federal Reserve, cuts interest rates for a third time to 4.25% to ease the credit crunch.

10 December: Swiss bank UBS reports a further $10bn write-down caused by bad debts in the US housing market.

Lloyds TSB reveals that bad debt linked to the US sub-prime mortgage crisis will cost it £200m.

6 December: President George W Bush outlines plans to protect more than a million homeowners hit by the US housing slump.

Royal Bank of Scotland warns it will write off about £1.25bn because of exposure to the US sub-prime market.

The Bank of England cuts UK interest rates for the first time since 2005, amid signs that the economy is slowing.

The European Central Bank keeps interest rates in the euro zone at their current level of 4%.

4 December: US mortgage giant Fannie Mae is to issue $7bn of shares to cover losses linked to the housing market.

Canada cuts interest rates for the first time since April 2004 amid credit fears.

The future of the UK mortgage industry remains bright, despite the current funding crisis, say lenders.

UK mortgage lenders should prepare for the global credit crunch to get much worse, the City watchdog says.

3 December: Credit agency Moody's widens its debt review, having already earmarked $116bn of debt for downgrading.
November 2007

30 November: US construction spending falls sharply, led by a large fall in the building of private homes.

Morgan Stanley co-president Zoe Cruz is to retire, seen as the latest casualty of the US sub-prime crisis.

29 November: Bank of England governor Mervyn King warns that growth in the UK economy may slow and inflation is likely to rise.

The US lowers its 2008 economic growth forecast amid ongoing housing and credit market problems.

27 November: US mortgage guarantor Freddie Mac is selling $6bn of shares to cover further bad debt losses.

US house prices dropped sharply in the third quarter, falling at their biggest rate in 21 years, a survey shows.

Citigroup agrees to sell shares worth $7.5bn to an investment fund owned by Abu Dhabi.

23 November: The US Christmas shopping season gets under way, with shoppers braving the cold to look for bargains.

22 November: UK lender Kensington Mortgages withdraws its entire range of sub-prime mortgages because of market conditions.

The Nationwide, the UK's largest building society, benefits from being seen as a haven from troubled banks.

20 November: US mortgage guarantor Freddie Mac sets aside $1.2bn to cover bad loans and reports a $2bn loss.

The US Federal Reserve cuts its 2008 growth forecast citing credit and housing market woes.
UK buy-to-let mortgage lender Paragon sees its shares fall nearly 40% after revealing funding difficulties.

Construction of new US homes in October remains sharply lower than a year earlier, figures show.

19 November: Northern Rock says bids to buy bank are "below current market value."

Swiss Re expects to lose $1bn on insurance a client took out against any fall in the value of its mortgage debt.

16 November: Goldman Sachs forecasts sub-prime losses for entire financial sector at $400bn (£200bn).

Northern Rock's boss resigns

Nationwide warns of no UK house price growth in 2008

15 November: Barclays says it had written down £1.3bn ($2.6bn) in sub-prime losses.

US House of Representatives passes Predatory Lending and Mortgage Protection Act by lopsided majority.

14 November: HSBC raised its sub-prime bad debt provision by $1.4bn (£670m) to $3.4bn.

Bank of England says that credit crunch caused by sub-prime lending will lead to a sharp slowdown in UK growth

Mizuho, Japan's second largest banking group, saw a 17% drop in first-half net profits and cut its full-year operating profit forecast by 13%, largely as a result of sub-prime-related losses at its securities arm.

13 November: Bank of America writes off $3bn in sub-prime losses.

12 November: The three biggest US banking groups - Citigroup, Bank of America and JPMorgan Chase - agree a $75bn superfund to restore confidence to credit markets.
9 November: US’s fourth largest lender Wachovia revealed a $1.1bn loss due to decline in value of its mortgage debt plus $600m to cover loan losses (total $1.7bn, £829m).

8 November: Morgan Stanley unveiled a $3.7bn loss from its US sub-prime mortgage exposure.

BNP Paribas (after temporarily freezing hedge funds with $2.1bn in assets under management in August) revealed it had written down 301m euro ($439m, £214m) because of credit problems, including $197m related to US sub-prime and home builder lending.

6 November: Bank of England governor Mervyn King defends his role in Northern Rock crisis in exclusive interview with BBC Business Editor Robert Peston

5 November: Banking giant Citigroup announces fresh losses of between $8bn and $11bn because of exposure to the US sub-prime market. Chief executive and chairman Charles Prince resigns.

1 November: Credit Suisse revealed a $1bn write-down on bad debts.

October 2007

31 October: Federal Reserve delivers second rate cut to boost markets

Deutsche Bank revealed a 2.16bn Euros ($3bn, £1.6bn) write-down on bad debts.

30 October: Merrill Lynch takes a $7.9bn hit following exposure to bad debt. Its chief executive, Stan O’Neal, resigns.

17 October: Further falls in US house building signal bad times for builders.

IMF warns that credit crunch will hit world growth.

16 October: Northern Rock executives defend role at Treasury Select Committee
US Federal Reserve chairman Ben Bernanke warns sub-prime crisis and housing slump will be significant drag on US economy

Confidence among home builders falls to record low.

**15 October**: Citigroup writes down additional $5.9bn on exposure to the US sub-prime market.

Japanese bank Nomura announced the closure of its US mortgage-backed securities business and takes a $621m (£299m) hit.

**14 October**: US banks holding secret talks at US Treasury float idea of a new super-fund to revive the frozen credit markets.

**9 October**: Bank of England and FSA defend role in Northern Rock crisis

**5 October**: Investment bank Merrill Lynch reveals $5.6bn sub-prime loss

**1 October**: Swiss bank UBS revealed losses of $3.4bn in its fixed income and rates division, and in its mortgage-backed securities business, while Citigroup admits $.31bn in losses.

**September 2007**

**26 September**: Commercial banks shun Bank of England rescue fund

**22 September**: UK Chancellor Alistair Darling suggests government will consider boosting deposit savings guarantee to £100,000.

**20 September**: Deutsche Bank boss Josef Ackermann warns of losses from sub-prime exposure.

Bank of England governor Mervyn King defends his role in Northern Rock crisis to House of Commons Treasury Select Committee

US Federal Reserve Chairman Ben Bernanke says the losses from the sub-prime mortgage crisis are higher than expected

Goldman Sachs makes a profit by betting that mortgage-backed securities will fall despite $1.5bn exposure.
19 September: Bank of England in U-turn on bank lending

18 September: The US Federal Reserve cuts interest rates to 4.75% from 5.25% to try to energize financial markets.

Savers return to Northern Rock after the government guarantees all savings.

15 September: Thousands of depositors queue outside Northern Rock branches to try and get their money out.

14 September: Shares in Northern Rock plummet after news of its Bank of England rescue is announced.

13 September: The BBC revealed that Northern Rock had asked for and been granted emergency financial support from the Bank of England, in the latter's role as lender of last resort.

11 September: ECB president Jean-Claude Trichet blames rating agencies for sub-prime crisis but says EU economy sound.

US Treasury Secretary Hank Paulson says mortgage lenders are to blame for sub-prime crisis.

6 September: ECB injects fresh cash into markets as credit fears intensify. Total intervention has now reached 250bn Euros ($300bn, £150bn).

4 September: Bank of China reveals $9bn in sub-prime losses but Chinese government says its foreign exchange reserves will not be affected.

Overnight bank lending dries up as banks fear defaults from each other.

3 September: German regional lender IKB recorded a $1bn loss as a result of exposure to the US sub-prime market.

August 2007

31 August: President Bush, flanked by Treasury Secretary Hank Paulson and Fed chief Ben Bernanke, pledges to ease sub-prime lending crisis.

30 August: German Chancellor Angela Merkel criticized credit ratings agencies for not spotting problems on the market.
28 August: The German regional bank Sachsen Landesbank is rapidly sold to Germany's biggest regional bank, Landesbank Baden-Wuerttemberg. It came close to collapsing under its exposure to sub-prime debt. It received a 17bn euro lifeline.

23 August: Leading sub-prime lender Countrywide gets $2bn cash injection from Bank of America.

Shares slump after Countrywide warns that mortgage slump is getting worse.

Leading US and European banks borrow $2bn from Federal Reserve

21 August: Sharp raise in US home repossessions as sub-prime borrowers default.

Capital One cuts jobs as sub-prime crisis bites.

20 August: Countrywide cuts jobs as sub-prime crisis hits.

US mortgage lender sells assets

UK sub-prime lenders tighten up lending terms.

17 August: The US Federal Reserve cut the interest rate at which it lends to banks (the discount rate) by half a percentage point to help banks deal with credit problems.

BNP Paribas says sub-prime losses in hedge funds will not impact on quarterly profits.

16 August: Countrywide draws on its entire $11.5bn credit line as liquidity crisis looms. Australian mortgage lender Rams also admits liquidity problems.

15 August: Shares plunge in largest mortgage lender Countrywide on fears it will go bankrupt

13 August: Wall Street giant Goldman Sachs said it would pump $3bn into a hedge fund hit by the credit crunch to help shore up its value.

The European Central Bank pumps 47.7bn Euros into the money markets, its third cash injection in as many working days. Central banks in the US and Japan also topped up earlier injections.
10 August: Global stock markets stayed under intense pressure over sub-prime fears. London's FTSE 100 index had its worst day in more than four years, closing 3.7% lower.

The ECB provided an extra 61bn Euros of funds for banks. The US Fed said it would provide as much overnight money as would be needed to combat the credit crunch.

9 August: Short-term credit markets freeze up after French bank BNP Paribas suspends three investment funds worth 2bn Euros, citing problems in the US sub-prime mortgage sector. BNP said it could not value the assets in the fund, because the market had disappeared. The European Central Bank pumps 95bn Euros into the euro zone banking system to ease the sub-prime credit crunch. The US Federal Reserve and the Bank of Japan take similar steps.

6 August: American Home Mortgage, one of the largest US independent home loan providers, filed for bankruptcy after laying off the majority of its staff. The company said it was a victim of the slump in the US housing market that had caught out many sub-prime borrowers and lenders.

3 August: Shares fall heavily on fears of sub-prime losses and global credit crunch.

July 2007

31 July: Bear Stearns stopped clients from withdrawing cash from a third fund, saying it has been overwhelmed by redemption requests. The lender also filed for bankruptcy protection for the two funds it had to bail out earlier.

27 July: Worries about the sub-prime crisis hammered global stock markets and the main US Dow Jones stock index slipped.

26 July: Bear Stearns seized assets from one of its problem-hit hedge funds as it tried to stem losses. Shares fell 4.2% in five sessions, its worst weekly decline in almost five years.

24 July: Rising defaults on sub-prime loans hit profits at Countrywide, largest mortgage lender.

20 July: Federal Reserve chairman Ben Bernanke warned that the crisis in the US sub-prime lending market could cost up to $100bn.
19 July: Fed comments shake global shares

18 July: Bear Stearns told investors that they will get little, if any, money back from the two hedge funds that the lender was forced to rescue.

13 July: US industrial firm General Electric decided to sell the WMC Mortgage sub-prime lending business that it had bought in 2004. "The mortgage industry has greatly changed since the purchase of WMC," said its chief executive, Laurent Bossard.

10 July: Independent market analyst Data monitor said UK sub-prime mortgages were set to grow faster than mainstream mortgages, with the market worth some £31.5bn by 2011.

4 July: The UK's Financial Services Authority (FSA) said it would take action against five brokers selling sub-prime mortgages, claiming they offered loans to people who should not be given them.

June 2007

29 June: Bear Stearns fires its head of asset management and hires Jeffrey Lane find out what went wrong at its hedge funds.

22 June: Bear Stearns revealed it had spent $3.2bn (£1.5bn) bailing out two of its funds exposed to the sub-prime market. The bailout of the fund was the largest by a bank in almost a decade.

14 June: Senior US legislator Barney Frank says Fed could lose its authority to regulate mortgage business.

May 2007

30 May: UK sub-prime lender Kensington agrees takeover

21 May: Business economists forecast US economic slowdown due to sub-prime crisis

3 May: GM finance unit loses heavily on sub-prime mortgages

UBS closes its US sub-prime lending arm, Dillon Read Capital Management.
April 2007

17 April: US government-backed lenders try to tackle sub-prime crisis

2 April: US home sales fall sharply

New Century Financial filed for Chapter 11 bankruptcy protection after it was forced by its backers to repurchase billions of dollars worth of bad loans. The company said it would have to cut 3,200 jobs, more than half of its workforce, as a result of the move.

March 2007

16 March: US-based sub-prime firm Accredited Home Lenders Holding said it would sell $2.7bn of its sub-prime loan book - at a heavy discount - in order to generate some cash for its business.

13 March: Wall Street hit by sub-prime fears

12 March: Shares in New Century Financial, one of the biggest sub-prime lenders in the US, were suspended amid fears it might be heading for bankruptcy.

8 March: Biggest US house builder DR Horton warns of huge losses from sub-prime fall-out.

February 2007

22 February: HSBC fires head of its US mortgage lending business as losses reach $10.5bn.

Sub Prime Mortgage Models:-
The US sub-prime mortgage crisis has led to plunging property prices, a slowdown in the US economy, and billions in losses by banks. It stems from a fundamental change in the way mortgages are funded.
THE NEW MODEL OF MORTGAGE LENDING

Traditional model

1) Bank grants mortgage
2) Homebuyer pays bank

Bank

- Home valuation
- Income check

Sub-prime model

1) Bank sells mortgage bond
2) Bank grants mortgage
3) Homebuyer pays bank
4) Bank pays bondholders

Mortgage bond market

Key:

- Flow of money
- Bank checks
- Independent checks

Figure 1: Mortgage Lending Model
What went wrong in the above model?

Traditionally, banks have financed their mortgage lending through the deposits they receive from their customers. This has limited the amount of mortgage lending they could do.

Between 2003 and 2007, banks have moved to a new model where they sell on the mortgages to the bond markets. This has made it much easier to fund additional borrowing,

But it has also led to abuses as banks no longer have the incentive to check carefully the mortgages they issue.
THE RISE OF THE MORTGAGE BOND MARKET

Between 2003 and 2007, the private sector has dramatically expanded its role in the mortgage bond market, which had previously been dominated by government-sponsored agencies like Freddie Mac.

They specialized in new types of mortgages, such as sub-prime lending to borrowers with poor credit histories and weak documentation of income, who were shunned by the "prime" lenders like Freddie Mac.

They also included "jumbo" mortgages for properties over Freddie Mac's $417,000 (£202,000) mortgage limit.

The business proved extremely profitable for the banks, which earned a fee for each mortgage they sold on. They urged mortgage brokers to sell more and more of these mortgages.
Now the mortgage bond market is worth $6 trillion, and is the largest single part of the whole $27 trillion US bond market, bigger even than Treasury bonds.

THE CRISIS GOES NATIONWIDE
Sub-prime lending had spread from inner-city areas right across America by 2005. By then, one in five mortgages were sub-prime, and they were particularly popular among recent immigrants trying to buy a home for the first time in the "hot" housing markets of Southern California, Arizona, Nevada, and the suburbs of Washington, DC and New York City.

House prices were high, and it was difficult to become an owner-occupier without moving to the very edge of the metropolitan area.

But these mortgages had a much higher rate of repossession than conventional mortgages because they were adjustable rate mortgages (ARMs).
The payments were fixed for two years, and then became both higher and dependent on the level of Fed interest rates, which also rose substantially. Consequently, a wave of repossessions is sweeping America as many of these mortgages reset to higher rates.

And as many as two million families were evicted from their homes as their cases make their way through the courts. The Bush administration was pushing the industry to renegotiate rather than repossess where possible, but mortgage companies are being overwhelmed by a tidal wave of cases.

THE HOUSING PRICE CRASH

Figure 7: US House Price Trends
The wave of repossessions had a dramatic effect on house prices, reversing the housing boom of the last few years and causing the first national decline in house prices since the 1930s.

There was a glut of four million unsold homes that depressed prices, as builders have also been forced to lower prices to get rid of unsold properties.

And house prices, which declined at an annual rate of 4.5%, and there was an expectation at that time that, they are expected to fall by at least 10% kind of stories went around in areas like California and Florida which had the biggest boom.

**HOUSING AND THE ECONOMY**

The property crash also affected the broader economy, with the building industry cut its output by half, with the loss of between one and two million jobs.
Many smaller builders went out of business, and the larger firms suffered huge losses.

The building industry makes up 15% of the US economy, but a slowdown in the property market hit many other industries, for instance makers of durable goods, such as washing machines, and DIY stores, such as Home Depot.

Economists expected the US economy to slow in the last three months of 2007 to an annual rate of 1% to 1.5%, compared with growth of 3.9% till then.

During the economic boom time, Many US consumers have spent beyond their income by borrowing on credit, and the fall in the value of their homes made them reluctant to continue the same pattern of life.
CREDIT CRUNCH
One reason for the economic slowdown was the estimates that USA Economy could get further worse and banks and other lenders started cutting back on credit. They started rejecting more people who apply for credit cards, insisting on bigger deposits for house purchase, and looking more closely at applications for personal loans.

![Figure 10: Credit Crunch](source)

With the above, the mortgage market has been particularly badly affected, with individuals finding it very difficult to get non-traditional mortgages, both sub-prime and "jumbo" (over the limit guaranteed by government-sponsored agencies).

The banks have been forced to do this by the drying up of the wholesale bond markets and by that, ‘the effect of the crisis on their own balance sheets’.
BANK LOSSES

The banking industry started facing huge losses as a result of the sub-prime crisis. Banks have announced $60bn worth of losses and as many of the mortgage bonds backed by sub-prime mortgages have fallen in value. The losses could be much greater, as many banks have concealed their holdings of sub-prime mortgages in exotic, off-balance sheet instruments such as "structured Investment vehicles" or SIVs.

Although the banks say they do not own these SIVs, and therefore are not liable for their losses, under prudential norms, they had been forced to cover any bad debts that they accrue.

BOND MARKET COLLAPSE

Also Bond Holders, suffered huge losses, such as pension funds, who bought sub-prime mortgage bonds.
These have fallen sharply in value, and depleted in their valuation which then were worth between 20% and 40% of their original value for most asset classes, even those considered safe by the ratings agencies.

If the banks are forced to reveal their losses based on current prices, they will be even bigger.

It was estimated that ultimately losses suffered by financial institutions could be between $220bn and $450bn, as the $1 trillion in sub-prime mortgage bonds, revalued.

OTHER SHOCKS TO THE GLOBAL ECONOMY

The effect of the global financial crisis was worsened by rising global energy and commodity prices which pushed up inflation.
Emerging and developing countries have particularly experienced strong rises in prices reflecting the high weight of food in their consumption baskets.

The burst of the US mortgage bubble, in August 2007, was pointed out as the moment when international financial markets were stroked by the subprime crisis, notwithstanding the almost generalized interventions by central banks, suggesting that the impact could be global, until then the effects of the crisis were somewhat confined to the US.

After the first liquidity injection by the European Central Bank, taking place on the 9th of August 2007, the supply of funds by central banks became almost a rule. By providing low cost money, monetary authorities wanted to ensure that commercial banks could maintain a normal level of activity, in spite of the increasing difficulties faced in the interbank money market. In fact, commercial banks were lending each other less frequently and at higher costs, either following an anticipation of losses and the consequent need to maintain adequate levels of reserves, or reflecting the turmoil in the financial system, motivated by the uncertainties on the real dimension of the crisis.

The latter was to some extent supported by the president of the Federal Reserve, who, in a speech delivered on the 15th of October 2007, stated that the developments of the relatively small US subprime market were having a large impact upon the global financial system. In fact, losses associated with the subprime crisis have been incurred by institutions all over the developed world, including the G7 countries. The Citigroup, in the US, the Credit Agricole in France, the HSBC in the United Kingdom, the CIBC in Canada, or the Deutsche
Bank in Germany, are examples of banks reporting large losses associated with the subprime crisis. Following this, in the 9th of February 2008, members of the G7 met in Tokyo to discuss joint crisis control measures.

These episodes suggest that the burst of the US mortgage bubble was, in fact, affected developed and started affecting developing markets also. Contagion effects were visible in stock market indices, and empirical assessments of financial contagion often focus on the dependence amongst stock market indices in turbulent periods.

The impact of the global crisis has been transmitted to the Indian economy through three distinct channels, viz., the financial sector, exports, and exchange rates. On the financial front, the Indian banking sector was not overly exposed to the subprime crisis. While exports of both goods and services, still account for only about 22 percent of the Indian GDP, their multiplier effect for economic activity is quite large as the import content is not as high as for example in the case of Chinese exports. Therefore, an export slump will bring down GDP growth rate in this year. The third transmission channel is the exchange rate, as the Indian Rupee has come under pressure.

REVIEW OF LITERATURE

An Overview of Theoretical and Empirical Literature Survey:
Literature review provides no evidence of any similar study done on, “IMPACT OF SUB PRIME CRISIS ON WORLD AND INDIAN ECONOMY & REMEDIAL MEASURES”. 
However to make the research direction more definite and specific and to serve as a stimulus to the advance of the researcher’s own thoughts and ideas, Literature review has been conducted extensively and the findings of the literature review are mentioned as below:-

*Asia and the Subprime Crisis, Chi Lo (Palgrave Macmillan: UK, 2009), is a publication* which makes a comparison between Asian Currency Crisis and Sub Prime Crisis, where in the Author has observed in the book that, the epicenter of the crisis has changed from Asia (Asian Financial Crisis of 1997) to Europe and the USA. The buzzwords have also changed, from currency pegs, excessive corporate borrowing and foreign debt in the Asian crisis to securitization, subprime mortgages, and collateral debt obligations in the subprime crisis. However, it is properly clarified that the causes and symptoms of the subprime crisis are quite similar to those of the Asian crisis.

**Contagion effects of the US Subprime Crisis on Developed Countries 2008-09**
*Published by Paulo Horta, CMVM – Comissao do Mercado de Valores Mobiliarios, Carlos Mendes, UNINOVA – DEE, Faculdade de Ciencias e Tecnologia, Universidade Nova de Lisboa, Isabel Vieira, CEFAGE–UE, Centro de Estudos e Formacao Avancada em Gestao e Economia, Universidade de Evora*

The study done by the trio assesses whether capital markets of developed countries reflect the effects of financial contagion from the US subprime crisis and in such a case, whether the intensity of contagion differs across countries. Adopting a definition of contagion that relates the phenomenon to an increase of cross-market linkages following a shock, copula models are used to analyze how the connections between the US and each market in the sample, evolved from the
pre-crisis to the crisis period. The results suggest that markets in Canada, Japan, Italy, France and the United Kingdom display significant levels of contagion, which are less relevant in Germany. Canada appears to be the country where the highest intensity of contagion is observed.

Global Financial and Economic Crisis
Impact on India and Policy Response by UNDP, authored by Rajeev Kumar, asserts that, The Indian economy looked to be relatively insulated from the global financial crisis that started in August 2007 when the 'sub-prime mortgage' crisis first surfaced in the US. In fact the RBI was raising interest rates until July 2008 with the view to cooling the growth rate and contains inflationary pressures. But as the financial meltdown, morphed in to a
Global economic downturn with the collapse of Lehman Brothers on 23 September 2008, the impact on the Indian economy was almost immediate. Credit flows suddenly dried-up and, overnight, money market interest rate spiked to above 20 percent and remained high for the next month. It is, perhaps, judicious to assume that the impacts of the global economic downturn, the first in the center of global capitalism since the Great Depression, on the Indian economy are still unfolding. The main focus of the study is on policy response of the Government to combat the crisis.

The Impact of the Global Financial Crisis on Asia and Asia's Responses

The global crisis did not originate in Asia, and, indeed, the direct damage to the financial sector in Asia has been much less than in Europe and the US. Nevertheless, Asian economies have been hit hard by the sharp drop in demand in the developed economies and elsewhere. Most countries in the region are now showing double-digit declines in exports. Taipei, China saw the biggest fall, over 40% year-on-year in December and January (2008-09), while large declines were seen in Japan, Korea, Singapore, Indonesia, Thailand, Malaysia and Hong Kong as well. In many cases, the declines were greater than those seen during the bursting of the information technology bubble in 2000-2001. Even those countries that are faring relatively better are experiencing large export declines, including the People’s Republic of China (PRC) and India. The study covers in brief the impact on Asia as a whole with little focus on country specificities.

The Global Financial Crisis, Warwick J. McKibbin & Andrew Stoeckel, Australian National University, Published in September 2009 covers the aspects relating to models the global financial crisis as a combination of shocks to global housing markets and sharp increases in risk premia of firms, households and international investors in an inter-temporal (or DSGE) global model. The results show that the future of the global economy depends critically on whether the Shocks to risk are expected to be permanent or temporary.

Further there are umpteen number of news paper coverage’s and published articles by various authors, across the Globe, talking on the crisis with its origination in USA spreading across the world economies due to its contagious effect.

There is no systematic study so far done on the, “IMPACT OF SUB PRIME CRISIS ON WORLD AND INDIAN ECONOMY & REMEDIAL MEASURES”
as taken up by the Researcher, as the current research focuses its attention on the Impact of Sub Prime Crisis on World and its effect on Indian Economy as many till recently felt that India is insulated from any kind of external crisis due to its vast dependence on domestic economy and the said feeling continued till 2009-10, but due to the fact that India liberalized itself and part of the world economy, the impact of Sub Prime Crisis which turned into a Global Economic Crisis also started impacting the growth rates of India GDP slowly as the slow down caught up with the Indian Economy off-late, now there is a realization that India in the liberalized world can no more be an insulated economy, this is where understanding the crisis and its impact on India and its growth rates makes the study more relevant from the Indian Economy Perspective.

SIGNIFICANCE OF THE STUDY
The end result of the sub prime crisis, manifesting itself in myriad ways. There are direct and indirect implications not only for the United States but for the entire world including India.

Let us briefly view the effects of this crisis on the Indian economy to understand the importance and significance this study derives.

Firstly, the sub prime crisis has led to near loss of confidence in the American Stock Markets, and this has accentuated the credit crunch. Many big investment banks have been brought down to their knees and many others are finding it extremely difficult to stay on their feet. In order to consolidate their respective balance sheets in the United States, these banks are unwinding positions in developing markets hence causing down swing in these markets. A simple case in point was the intraday 1400 points fall on the BSE in January 2008 that was brought about by Citi Bank unwinding its position in many front line stocks in
India. The sub prime that was brought upon by the American financial system upon itself is spreading its tentacles around the world. People who were not even remotely connected with the sub prime crisis are being adversely affected.

Secondly, the near recession situation in the USA has led to a loss of demand for Indian exports hence loss of export earnings for India. The Americans are known to live beyond their means.

However, on account of the sub prime crisis, all their sources of credit have dried up, and they are being forced to cut down on their expenditures. Thus demand for imports is falling, which implies loss of revenues for countries like India.

Thirdly, investment banks and other financial institutions are on a job slashing spree to cut costs. This means that many jobs in India are at stake because these institutions have their BPO’s in India. So the first jobs to go will be the low end Indian BPO jobs leading to increased unemployment in India.

Fourthly, there have been serious implications for the banking sector as well. The sub prime has meant that the Indian banks have to follow stricter norms while disbursing loans to the people. These tighter norms could prove to be counter cyclical. The argument is this- people will be asked to provide additional collateral for the loans given to them. Anybody who is unable to furnish the collateral will be denied a loan. This policy will exclude a majority of the population from institutional sources of credit, thereby affecting growth negatively.

Fifthly, there is a risk of the financial contagion spreading to the entire world. Firms like Bear Sterns, Lehman Brothers, Meryl Lynch who once inspired confidence amongst the investor class have now gone bust. Other giants like Citi Bank, Morgan Stanley, and AIG have been shaken from their very foundations.
Freddie Mac and Fannie Mae are under the conservatorship of the US government. The risk is, thus, the domino effect. If one more big financial institution fails there will be a collapse of the entire financial system of the USA.

In retrospect we can say that due to increased financial integration of the world, risks emanating in one country are being transmitted to other nations. There is no doubt that the financial system of the entire world is under great strain. The first of the dominos by the name of Lehman Brothers has fallen. The policy makers are trying all that they can to stem the fall of any more dominos. Only time will tell whether they succeed in their Endeavour. Time is running out and the policymakers cannot afford to fail.

Further as a fall out of Sub Prime Crisis, Indian Banks have tightened their credit norms and Central Bank has asked the banks to have provisioning for their exposure to real estate and other risk class assets. Due to lack of availability of Tier-II capital from the foreign banking system, short term interest rates have gone up and even long term interest rates have gone up making the Industry starved of credit availability and increased interest rates draining the profitability of Industry and adding to further inflation.

Thus, the present study which derives its significance from the perspective of identifying the root causes for a big financial crisis namely sub prime crisis and studies its impact on world economy and Indian Economy, more specifically to suggest remedial measures.
LIMITATIONS OF THE STUDY

1) The study is very wide as it begins with the origin of Sub Prime Crisis in USA and its implications on the other world leading economies and the studies its impact more specifically with reference to India. As the coverage of the study is wide, Primary information is gathered through one to one discussions with the concerned officials, and through telecalls, e-mails etc.,

2) The study is both qualitative and quantitative.

3) The study is based on subjective perception based on the statistical data analyzed with the help of observational study of the statistical data and simple statistical tools and graphical analysis, hence it may not be totally free from errors.

4) The study is focused on very complex financial instruments which are not in vogue in common parlance in many parts of the world, hence maximum effort has been put in to elucidate such complex financial instruments, however there may be a scope for errors in presentation. However maximum care and attention has been taken while explaining complex financial instruments.
OBJECTIVES, SCOPE AND RESEARCH METHODOLOGY

MAIN OBJECTIVE

The main objective of the study is to find out, "Impact of Sub Prime Crisis on World Economy and Indian Economy".

Assess the damage it caused to World Economy and Indian Economy and Suggest Remedial Measures.

In achieving the main objective, the following aspects are being framed:

(i) Study the background of Sub Prime Crisis and Time Line of Events.
(ii) Examine the Causes which lead to Sub Prime Crisis.
(iii) Assess the Impact of Sub Prime Crisis on World Economy and Indian Economy.
(iv) Study the implications and responses to the Crisis.
(v) Study the Regulatory Proposals and Long Term Solutions and Suggest the Remedial Measures in mitigating the risk of Sub Prime Crisis.
HYPOTHESIS

"Sub Prime Crisis Impacted World Economy and Indian Economy".

Having generated hypothesis, the process of hypothesis testing becomes important. In order to test whether the hypothesis is true or not, the current research study which is both descriptive and analytical has been carried out.

In order to back up the hypothesis, there is a need to compare the results against the opposite situation: The null hypothesis – the assertion that the things under testing (i.e. Sub Prime Crisis trends, Leading World Economies & Indian Economy) are not related and results are the product of random chance events.

More accurately, define the two hypotheses, the null and the Alternative.

NULL & ALTERNATIVE HYPOTHESIS

**Null Hypothesis (H0)** : “Sub Prime Crisis has No Impact on World Economy and Indian Economy”.

**Alternate Hypothesis (H1)** : “Sub Prime Crisis Impacted World Economy and Indian Economy”.
For testing, Researcher analyzed and compared results against the null hypothesis. Here the statistical comparison is based on the impact of sub prime crisis on USA economy and further the contagious impact on the other leading countries of the world, how they got impacted in terms of their key parameters namely, interest rates, inflation, financial flows, trade deficit, currency fluctuations based on Graphical Analysis and Statistical Data Comparative Studies. Observations have been drawn to elicit, whether the USA Economy and Other Economies, are moving in the same direction or in contra, affected by Sub Prime Crisis, which forms the aim behind the Hypothesis Testing, Inference. Hence the descriptive elucidation with the help of analytical inference based on, 'statistical data observation study', made by the Researcher and Graphical Analysis, which provides clear trend or direction for drawing broader conclusion forms part of the tools used for Hypothesis Testing.

**SOURCES OF DATA**

The study is based on both primary and secondary data. The primary data are the data collected by the researcher on his own with Ministry of Economic Affairs, World Bank, Asian Development Bank, International Monetary Fund, European Development Bank, Reserve Bank of India, through one to one meetings with various top notch banking professionals both in India and Abroad. The secondary data constitute reports and other records of the concerned financial institutions, central banks, government publications, policy papers, periodicals, journals, National Council for Economic Research Publications, CMIE publications, and other reference
books, internet, websites, etc,. A list comprising a comprehensive Bibliography has been annexed.

ANALYSIS OF DATA

The Data collected from various sources both primary and secondary are analyzed by applying, ‘Graphical Analysis, Descriptive Inferences’, drawn through Tabulated Statistics culled on the basis of available data in many instances, and in some data culled out by Researcher using simple statistical tools like percentages, ratios etc., Though data broadly fall within the period of + or − 5 years of 2008 taken as the base, based on the nature of parameter of the study, data limiting to that particular period only has been used for a focused study.

STUDY PERIOD

The study covers the period of 2008 (January) to 2011 (December). Wherever it is required from the historical perspective, the study covered even the period backward for 5 years, as the objective of the study is to get to the root, find the GDP rates prior and after Sub Prime Crisis and there after the causes and provide the remedies. The reason for 2008 taken as base year is from the perspective that, 2008 happened to be the year in which the impact of Sub Prime Crisis began showing its signals on the Indian Economy.
COVERAGE OF THE STUDY

To suit both a descriptive and analytical study, the various causes that lead to the Sub Prime Crisis and Prevailing Policy and Regulatory Environment, Roots of Sub Prime Crisis, Real Estate Boom in USA, Securitization and Collateral Credit Swaps among Banks both in USA and Internationally, Reports of Various Researchers, Committees, Legal Professionals, Reports of Various Central Banks across the World, Economy Statistics of Various Countries and Published Literature have been pursued.

The study concentrates on the Impact of Sub Prime Crisis on World and Indian Economy and Suggest Remedial Measures after pursuing the Policy Responses to the Crisis.

The study also focuses on spill-over effects which lead to Global Financial Crisis expanding the negativities to Europe and Other Countries including India.

PLAN OF THE STUDY (CHAPTERIZATION FOR PRESENTATION):

The contents of the study evolved into 8 (eight) Chapters.

Chapter - I, is introductory in nature and reviews the concept, rational and introduction to the Sub Prime Crisis, Background and time line of events on how it Started and evolved into a major crisis have been discussed to set an introductory
ambience for the Study. Besides these aspects, the Chapter consists of objectives, scope and methodology which have been adopted for the Research.

Chapter – II: “Causes of Sub Prime Crisis”, traces several causes which lead to Sub Prime Crisis, Understanding the various causes gains importance in this Chapter which covers, Boom and Bust in the Housing Market, Home Owners Speculation, High Risk Mortgage Loans and lending/borrowing practices, Mortgages Fraud, Securitization Practices, Inaccurate Credit Ratings, Government Policies, Policies of Central Banks, Financial Institution Debt Levels and Incentives, Credit Default Swaps, Globalization, Technology and The Trade Deficit, Boom and Collapse of the Shadow Banking System, Role of other entities etc., have been presented in detail.

Chapter – III: Impact of Sub Prime Crisis on World Economy.
Impact of Sub Prime Crisis landed the World Economy with Trillions of Losses, how the impact of Sub Prime Crisis which has its roots to USA led to Crisis in Other Parts of the World is the main theme of this Chapter which has been discussed in detail. Besides this, it also throws light on how the crisis has taken its toll on Banking, Financial Markets World across, The Shock and Panic it has created, has been elucidated.

Chapter - IV Impact of Sub Prime Crisis on Indian Economy.
How the Indian Economy got impacted due to Sub Prime Crisis has been discussed in detail in this chapter. Further the chapter deals with Impact of Sub Prime Crisis on Indian Economy, as Globalization did not insulate the Self Consumption oriented economy. Sub Prime Crisis has slackened the Indian Banking System
leading to Strict Measures from the RBI (Reserve Bank of India) through monetary policy intervention, Exodus of Foreign Investment has led to Capital Market Losses, Exports and Imports have been affected, Sub Prime Crisis has led to a contagion effect on Indian Economy as many International Bankers through the Indian Banking System, have been introduced into Indian Corporate System through miss-selling exotic derivatives, which have made the Indian Corporates face trillions of losses, How much impact has such exodus derivatives created to Indian Economy?, are the issues deliberated in detail to find the impact of Sub Prime Crisis on Indian Economy. How these various factors led to S&P down grading of India’s rating also has been highlighted.

Chapter V: Responses to Sub Prime Crisis.

As the Crisis emerged worldwide with contagious effect, Several Governments world across, Federal Reserve in USA and various other Central Banks have initiated measures to combat the Crisis. Simultaneously various respective Countries have initiated Policy tightening while focusing on the overall economic growth by providing economic stimulus, initiated measures to bring solvency in Banking with Capital replenishment, have provided Bailouts to failed financial system, provided sops to home owners by concentrating on affordable housing. How these responses have worked in favor of the affected economies forms the crux of the discussion in this Chapter.

Chapter VI: analyses the “Sub Prime Crisis and Financial Regulation-International and Comparative Perspective”.

Chapter VII Provides Remedial Measures. The researcher while examining the remedial measures taken by various Governments and Central Banks world across
has also come out with his own suggestions which have been described at length in Chapter-VII.

The last Chapter VIII presents the Summary, Findings, Suggestions and Conclusion of the study.