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Disseminating the History of the Major Financial Crises and Their Multidimensional Implications

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Abstract

In this article, we provided a comprehensive discussion about the major financial crises and their details based on some major historical financial crises. The crises include the stock market crash of 1987, the Asian financial crisis of 1997, and the global financial crisis of 2007-08. The discussion is categorized into two sections. Under first section, the generation models for crises are discussed based on the timeline and their development. In the second section, each of the above mentioned crisis is discussed in details which include the situations prevailing before during and after the crisis and the lessons undertaken by the markets from those disastrous events.

Keywords: *global financial crisis; basic generation models; economic policies; Asian stock market; efficiently channel.*

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A brief introduction about major financial crises

The history of financial crises is as old as the financial markets themselves are. Crises have been known events since the birth of financial markets and their severity and intensity has been varied over time. They happen from time to time and mostly are the result of the errors committed in the financial sector. There is no concise and easy way to define financial crises, but based on their varied nature and impacts, instead a broad term for financial crises is applied to give some understanding about them. The term financial crisis broadly applies to a variety of situations in which adverse selection and moral hazard problems predominate and as a result the markets become unable to efficiently channel their funds to the most productive uses (Schlink, Huen, 2004). The main reasons for crises are not specific, but crises can occur as a result of problems like overshooting of markets, excessive leverage of debt and credit booms, miscalculation of risks, the rapid outflow of capital from a country (capital flight), mismatches between asset types, such as investing in short term assets to fund long term assets. No matter where we are at the financial stage, what one does see again and again in the history of financial crises is that, when an accident is waiting to happen, it eventually does. To make it simple, financial crises are practically unavoidable events created by our own mess and result in our own destruction.

While investigating about financial crises, the roots can even be realised in the 18th century. One of the first crisis that can be recognized and explained by a failure in a market economy, and thus be labelled as a financial crisis, is the “panic of 1819” which resulted from international conflicts, including Embargo Act, war of 1812, which lead to several bank failures, foreclosures, high unemployment rates and slump in agriculture and manufacturing (Skaggs, Ln Glasner, Cooley, 1997). Since that was almost 200 years ago and during that time crises were not so often, but there have been other incidents of crises in between that period and afterwards and crises, however, have become relatively frequent events since the beginning of the 1980s (Tomczyńska, 2000). Whatever may be the reason for that, whether it is the financial liberalization or the introduction of other complex instruments, the intensity and frequency of crises have been increased to many folds.

The theories of crises provide an ambiguous answer to their proximate causes but literature does help in clarifying that what can be the possible symptoms of an upcoming crisis. These symptoms can range from recessions to the exaggerated cycles in credit markets (Lucarelli, 2011). The literature is filled with discussions on crises from different perspectives of how crises can occur and what can be the indications for that, but in order to have a clear and thorough look at the development of financial crises over time, this paper discusses the literature from two different perspectives covering most of the literature in an ideal way to provide a complete guideline for the reader to understand most aspects of crises. For this purpose, the elementary approach to look at the crises is through generation models which ascertain that how the majority of the crises can be categorized on the basis of fundamental problems and other relevant symptoms, thus associating them to a particular generation of models, which means categorizing new crises based on their characteristics.

The maintactic is to explore the literature by specifically focusing on major crises in the history. It covers the previous four decade crises which in particular include; stock market crash of 1987, Asian financial crisis of 1997, and the first major crisis of the new century: subprime mortgage crisis of 2007-2008. This part provides a

comprehensive but compact material to look at the past history of financial crises and understanding about their behaviour without missing any of the noteworthy information.

The study is sequenced as follows: Section 2 discusses the generation models which includes first, second, and third generation models. Section 3 provides the literature based on the major financial crises and elaborate significant and main studies and their results. In section 1, an effort has been made to summarize and provide some discussion on the past four decades and some recommendations on what can be the suitable scheme to look at the crises in order to build some statistical approaches to predict such unwanted events.

Literature review based on Generation Models

With every past financial crisis, economists always proposed new sets of complex models in order to better capture the situations. Although there is no specific definition for generation models, but generally speaking, the terms which explain the crises on the basis of some arguments based on the market situations at that given time, if observed on a timeline, are considered as the generation models. The basic reason of coining them as generation models is that they are sequenced on a timeline and capture all the improvements and varieties over this time-span. There are three basic generation models which are literally termed as 1st generation models of crises, 2nd generation models of crises, and 3rd generation models of crises respectively. There are three basic models, however, another model was also suggested by Krugman, (2002) which deals with some additional situations compared to the other three generation models. The details about these generation models are discussed in subsequent sections.

1. First Generation Models

Krugman (1980) developed one of the first generation models in the light of crises in Latin America in the 1960s and 70s. According to Krugman (1980), a government attempting to keep its currency from depreciating under the fixed exchange rate, under the expansion rate of domestic credit in excess of money demand growth, finds a persistent loss of its international reserves, which ultimately results in the speculative attacks on the currency. To put it differently, a domestic credit expansion inconsistent with the fixed exchange rate gives rise to a loss of international reserves, which simulates a speculative attack that forces the exchange rate to be abandoned. According to this model, the root causes for the crisis appeared to be poor government policy, which is, the excessive public sector deficit that becomes monetized in the presence of fixed exchange rates. According to Krugman (1980) and Calvo (1987), the fiscal authority is the first mover which fixes the fiscal deficit level. The monetary authority then chooses the rate of domestic credit expansion in order to accommodate the fiscal deficit. However, the argument of Flood and Garber (1984) is in contrast to the study of Krugman (1980) and Calvo (1987) which describe that; the first mover is the monetary authority that chooses the rate of domestic credit expansion. To accommodate to this monetary expansion, the fiscal authority, then chooses the fiscal deficit.

Some of the studies extended Krugman's model in various directions. These extensions have presented that speculative attacks would generally be set by a real appreciation of the currency and if there is deterioration of the trade balance. The results followed from those models in which expansionary fiscal and credit policies lead to higher traded and non-traded goods, end up with a real appreciation of the currency (Garber, Svensson, 1994). Other models take a different perspective to highlight crisis

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and describe that expectations of a future crisis may lead to higher wages, but low competitiveness in the presence of sticky prices (Blackburn, Sola, 1993). Models which shed light on uncertainty about credit policy or about the loss of international reserves, and that the authorities are willing to sustain to defend parity, argue that domestic interest rates would increase when crisis become more likely (Gupta, 1996). Kaminsky, Lizondo, Reinhart (1999); Heun, Schlink (2004); Chaeng (2008); Kindman (2010); and Lundstrom and Tiberg (2010) are a few of the studies which focused on the first generation models. However, in later years, the focus of the literature has shifted from this view, since the stipulated fiscal disequilibrium in Krugman's model has proved to be absent in many recent crises.

While traditional approaches stress upon the role played by declining international reserves in triggering the collapse of a fixed exchange rate, few models have suggested that the decision to abandon the parity may stem from the authorities' concern about the evolution of other economic variables. For instance, Ozkan and Sutherland (1998) presented in the study that the authorities' objective function depends positively on certain benefits which are derived from keeping a fixed nominal exchange rate, and negatively on the derivations of output from a certain target level. Generally, under a fixed rate of exchange, there exist higher domestic interest rates and lower output levels if there is heave in foreign interest rates, which makes it more costly for authorities to maintain the parity. Once the foreign interest rates exceed some critical level, the cost of keeping the exchange rate fixed grows larger than the benefits and the authorities abandon the parity.

2. Second Generation Models

Since, the series of outbreaks on some European currencies under the European Monetary System (EMS) during 1992-93 and Mexican crisis of 1994-95 could not be explained through first generation models and also some models have suggested that crises may develop without any noticeable change in economic fundamentals. As a result, another generation of models was developed. The need to have another set of models can best be actualised by looking at EMS 1992-93, seigniorage was not an issue and it was not even the depletion of reserves which led the authorities to abandon the parity, rather it was a matter of policy choice as there may have been concerns about the adverse consequences of policies needed to maintain the parity. Obstfeld (1996) offered several variants, but the main theme seemed to focus on macroeconomic trade-offs and decisions, and the existence of multiple equilibria. As the contingent nature of economic policies may give rise to multiple equilibria and generate a self-fulfilling crisis.

A crucial assumption in these models is that economic policies are not predetermined, but instead are response to changes in the real economy and economic agents take this relationship into account for forming their expectations (Buckley, 2008). At the same time, the expectations and actions of economic agents may affect same variables to which economic policies respond. This, in a way, may give rise to the possibility of multiple equilibria and the economy may possibly move from one equilibrium to another without any variations in its fundamentals. Within the second-generation models, crises are no longer the result of irresponsible policy, but they occur because market participants expect them to. As a result, it may be difficult to find a tight relationship between fundamentals and crises, as sometimes crises may take place without any previous significant change in fundamentals. Calvo, (1995: 1) phrases it, "If

investors deem you unworthy, no funds will be forthcoming and, thus, unworthy you will be”.

This view was further established by Obstfeld (1996) which was based on the study of Flood and Garber (1984) and it examined the effects of self-fulfilling attacks on the gold standard. Chang and Velasco (2001) used the same theoretical approach in the bank run model for investigating the banking crisis. Second generation models differ from first generation models significantly as it recognizes and accounts for the effects of speculative attacks from international investors. A crisis may be the result of deteriorating fundamentals or self-fulfilling prophecies by noting that a currency is more expensive to defend when it is under speculative pressure, and the speculative pressure is not always based on sound information or rational concerns.

3. Third Generation Models

When the Asian Financial Crisis (AFC) hit the markets in 1997, both first and second generation models were unable to explain the actual causes of it. This gap enforced some challenge to researchers to come up with something which could be more relevant to the situation present during AFC. As a result, in those models, apart from the acknowledgement that the behaviour of market participants influenced also the decisions of policy makers, the main characteristics were the integration of moral hazards, information asymmetries, herding behaviour and contagion effects. This model, thus, was the synthesis of many of the conclusions drawn from the first and the second generation models. Krugman (1999) later hypothesizes the existence of three separate equilibria; growth equilibrium, crisis equilibrium and a transitional equilibrium. The crisis and growth equilibrium are stable, while the transitional one is not. The fall from growth to the crisis through transition is a three step process according to Krugman's stylized facts.

The process begins with a loss of confidence, either due to exogenous factors such as contagion or endogenous factors such as liquidity concerns. This loss of confidence manifests in a sudden stop of foreign investment which can turn a current account deficit into a current account surplus. This potentially leads to a transfer problem which can be considered as a second step. In that situation, governments must find a way to finance a diminishing current account deficit. This in turn creates a balance sheet problem which is the third step in the process. This stage may define the difference between a panic and leading to a recession situation. A weak currency and shock to demand can create disastrous conditions for domestic businesses, causing widespread default, the impact of which may diffuse through the economy causing long term damages.

Since the growth in international bank lending to emerging markets and its sharp retrenchment was a remarkable feature of the East Asian crisis, Jeanneau and Micu (2002) found evidence of several fundamental factors as determinants of international capital flows. Dodd (2001) pointed out that the currency trade, whereby foreign exchange, forward, and swaps were used to hedge as well as to speculate on the fixed exchange rate regimes while profiting from the interest rate differential between pegged currencies, was the major factor preceding and participating in the Thailand during the 1997. If the authorities are not mindful of their activities, derivatives can make the economies more susceptible to the financial crisis because they create conditions for entities to raise risk in relation to capital and to dodge prudential regulatory safeguards even though they play the useful role in herding and risk management.

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To summarize the discussion about generation models, it is noteworthy to describe that these models do not have any significant statistical form or equation, rather, they are based more of terms which describe a particular set of criteria which studies follow to investigate crisis under a particular generation of the model. As a result, such models help in understanding the bases and logics behind studying about crisis using a particular definite rule.

In this section, the detailed discussion of major crises is provided for the last three decades and is particularly based on three major crises, which include stock market crash of 1987, Asian financial crisis of 1997, and sub-prime mortgage crisis of 2007-08. Each of the crises is separately discussed in detail in the coming sections. Moreover, this discussion is followed on with what were the major causes and triggers of the crises? What went wrong at that time and how much did it cost to the financial markets?

Stock Market Crash of 1987 (Black Monday)

On October 19, 1987, the stock market, along with other associated futures and options markets, crashed and equity market suffered its largest single day decline in history. The standards and poor's 500 (S&P 500) stock market index fell by 57.86 points which was a decline of (20.46 %) and also suffered an overall decline of (10.12%) in its value during the three days. The Dow Jones Industrial average (DJIA) also suffered a similar loss and it fell by 508 points which was (22.50%) of its value. Moreover, NASDAQ also fell by 46 points (11.35% in value) although its dealers stopped trading early (McKeon, Netter, 2009). The 1987 crash of the stock market is a significant event in the crises history not only because of its severity and quick impact on the markets, but also because it clearly exploited the weaknesses of the trading systems themselves and how they could be strained and come close to breaking in extreme conditions. Crisis became worse because of the problems in the trading system interacted with the declining prices. When things got worse quickly, the other problem which markets faced was to gather information in that chaotic environment.

The use of trading strategies, based on pre-set instructions (previous pre-set programs), was not able to process many transactions at once, and when there is such an uncertainty in information, it always cause investors to pull back from the market and that is what happened during that time (Itskevich, 2002). Another factor which contributed to the troubles was the record margin-calls that accompanied large price changes. While protecting the solvency of the clearing house, processing trade was necessary and the size and timing of payments contributed to reduce market liquidity. Lastly, some have greatly argued that program traders contributed to the overwhelming of the system because it led to notable volumes of larger securities sales (Carlson, 2006).

By carefully observing the market background during the years proceeding to the 1987 crash, the equity markets showed strong gains, earning growth was outpaced by price increments and as a result there were high price-earnings ratios. Although some of the analysts warned of the situation that the market had become overvalued (Anders, Garcia, 1987). There were some new market investors in the stock market during the 1980s such as the pension funds, and the surging demand, which help support the prices (Katzenbach, 1987). Due to some favourable tax treatments to the financial and corporate buyouts, such as allowing firms to deduct interest expenses associated with debt issued during a buyout, helped in boosting the equities. It also increased the number of companies that were potential takeover targets and pushed up their stock

prices (Malkiel, 1988). It concluded that the failure of the stock market and derivatives markets to operate in sync was among the major factor behind the crash.

However, looking through the macroeconomic perspective during the months leading up to the crash showed some clear symptoms which can directly be related to the crash. Interest rates were rising globally (Winkler, Herman, 1987). A growing US trade deficit and decline in the value of the dollar were leading concerns about inflation and the reason for higher interest rates in the US as well (Itskevich, 2002). In the study, Siegel (1988) concluded that it was not possible to directly pin point the basic reasons for the crash, however, the cumulative effect of rising real interest rates appeared to quickly shift the sentiments of investors from an extremely optimistic scenario of future corporate profits to one closer to a consensus view. Notably, the financial markets had seen an increased use of program trading strategies (such as Designed Order Turnaround (DOT) system), where computers assist to trade quickly the particular amounts of a large number of stocks, those, which were included in a particular stock index. There were two program trading strategies that have been tied to the stock market crash. The first one was the portfolio insurance, which serves the purpose to limit the losses investors might face from a declining market.

To implement this strategy, computer models were used for computation of the optimal stock-to-cash ratios at various market prices. Models would suggest that investors decrease the weight on stocks during falling markets and reducing their exposure to falling markets, which on the other hand, during rising markets, would increase the weights on stocks. So, in a sense for investors, buying portfolio insurance was similar to buying put options which allowed them to preserve upside gains but hedge from the downside risk. In reality, many portfolio insurers operated in future markets rather than in the cash market. By buying stock index futures in a rising market and selling them in a falling market could provide protection to portfolio insurers against losses from falling equity prices with even trading stocks. It was preferred as trading in future markets was cheaper in general and also instructions which provide portfolio insurance were not authorized to trade their clients' stock.

Garcia (1987) argued that portfolio insurers did not continually update their analysis about the optimal portfolio of stock and cash holdings because of tedious and time consuming procedures with high transaction costs, instead, the study runs the models periodically and then traded in batches. This view was also supported by McKeon and Netter (2009) who too highlighted that insurers were outdated on their optimal portfolio investments. Moreover, there were concerns that the use of portfolio insurance could lead many investors to sell stocks and futures simultaneously. It also signified the concern that during a declining stock market, the use of portfolio insurance "could snowball into a stunning rout for stocks".

Among the strategies of program trading, the second one was the index arbitrage. This strategy was designed to produce profits by exploiting the discrepancies between the value of stocks in an index and the value of the stock-index futures contracts. If the value of the stocks was lower than the value of the future contracts, then index arbitrageurs would buy the stocks in the market and sell the future contracts knowing that the prices would have to converge at the time the future contract expires. The reverse transactions could be executed if the value of the stocks was above that of the future contracts, but the rules which restrict short-sales made this trade more difficult to implement for arbitrageurs who did not own any stocks (Carlson, 2006).

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New York Stock Exchange (NYSE) used the program trading using the Designed Order Turnaround (DOT) system. This order processing system allowed NYSE member firms to transmit large volumes of buy and sell orders through their own connections to the NYSE common message switch and then have them routed to a specialist/trading port. A specialist at the NYSE is an exchange member in charge of making a market in a particular stock or stocks.

All stocks are assigned to a specialist. The specialist has a monopoly on arranging the market for the stocks and in return has an obligation to make a market when there are order imbalances by buying/selling whenever there are numerous sell/buy orders from other market participants (Cornett, Saunders, 2007). It worked this way, that if the specialist did not report the execution of the trade within three minutes, the NYSE gave confirmation of execution at a reference price. If the trade was not made with the third party, then the trade was put on specialist account (Malkiel, 1988).

This automatic nature of the DOT system enabled it to handle the large number of trades needed for the successful implementation of the program trading strategies. Moreover, the broader look at the crash clearly explains that uncertainty and herd behaviour also contributed to the crash. Information about the current market conditions was difficult to obtain due to rapidly changing prices. Price quotes for stock and stock index were not necessarily reliable since some stocks were temporarily not open for trading (Securities and Exchange Commission, 1988). Rumours about the market closing added to the confusion and panic among investors (Siconolfi, Kilman, 1987), and given the uncertainty, investors ostensibly sought to sell and close out their positions. Insufficiency of reliable information made the herd behaviour common. According to Malkiel (1988), on the day of crash market participants were reacting more to price movements than to any other particular news.

The impact on Asian stock markets was significant. Asian markets were also hit by the stock market crash as Asian markets are generally dependent on the direction of US markets, as studies have proved that the information coming from US affects the Asian markets (Aggarwal, Rivoli, 1989). The stock market crash of 1987 not only hit in the US, instead, it also affected the other major stock exchanges around the Asian stock markets (Greenspan, 2007).

Arshanapalli, Doukas and Lang (1995) studied the behaviour of the US and Asian markets and concluded that the Asian region was severely affected during the stock market crash. In another study, Liu, Pan and Sheih (1998) concluded that the degree of interdependence among national stock markets in Asia increased substantially after stock market crash of 1987 and also highlighted that the US markets play a dominant role in influencing the Pacific-Basin markets. The figures 1 and 2 represent the market situations during the stock market crash in US, UK and Asia respectively.

As for US and UK markets, it is clear from the Figure 1 that all the markets took a nose dive and their values were severely affected and some even lost more than 20% of their original values (S&P 500) before the crisis period. Although, the markets started to recover immediately, but still their levels remained much lower than the original values of pre-crisis time.

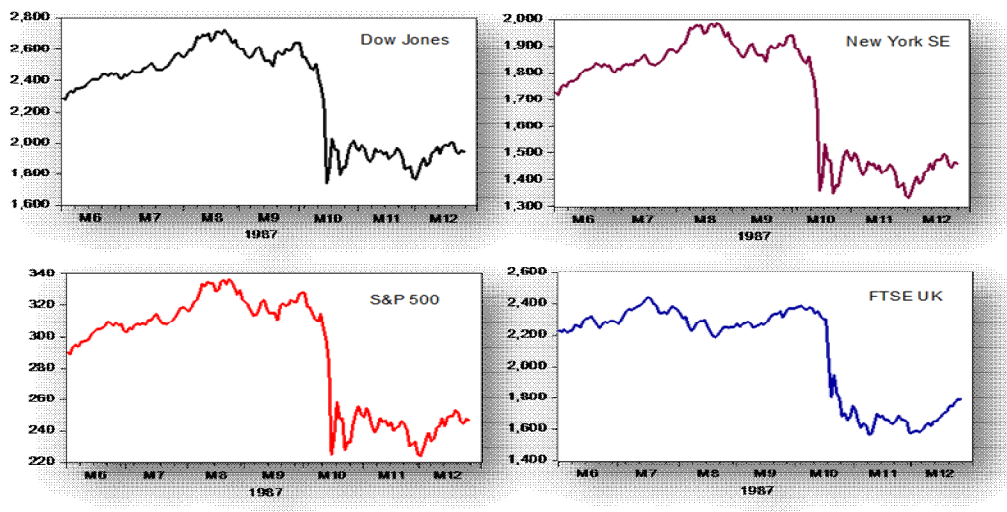


Figure no.1. Behaviour of US and UK Stock Markets for the sample period 01 Jul 1987 to 01 Jan 1988

Source: Authors' own calculations using historical data on daily basis for the given stock markets

In case of Asian Markets, Japan stock market fell from a value of 26646 to 21910 (a loss of 17.77%) within four days of trading. The Hong Kong stock market went down to 30% from its original value. Singapore and Malaysian markets also recorded a decline of 26.57 and 32.05 percent respectively. Philippines and Indonesian markets also showed a decline of 8.9 and 5.82 percent in values respectively, while South-Korean stock market showed a great resistance and its value did not change much, which is an interesting observation.

The argument on the presence of contagion revealed the fact that stock market crash of October 1987 has been extensively discussed in literature in many ways. The main observation which holds or at least catches the attention is that almost all stock markets fell together despite widely differing economic circumstances (Roll, 1988); (King, Wadhvani, 1990); (King, Sentana, Wadhvani, 1994). If one looks at the economic fundamentals of each country, it does not seem to provide a credible explanation on the origin of the crash. Thus, as a result, generates a notion that there may exist contagion at the time of the crash. Before going further into the details about the presence of contagion, this study will briefly describe here that what constitutes a contagion and then continue with the discussion.

Although the research for contagion has progressed to many levels, yet, there is no uniform definition of what constitutes a contagion. The reason for this lies in the complexity and variety of the contagion in which they occur. However, according to Eichengreen, Rose, Wyplosz (1996); Kaminsky, Reinhart (2001) contagion is defined as a situation where the knowledge that there is a crisis elsewhere, increases the probability of a domestic crisis. Edwards (2000) defined contagion as events, where the extent and magnitude to which a shock is transmitted internationally exceeds what was expected before. The World Bank defines contagion as the "transmission of shocks to other countries or the cross-country correlation, beyond any fundamental link between the

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countries and beyond common shocks”. To put it simply, contagion is a situation, where the markets or countries get affected under situations created in other markets or countries, where, under normal circumstances they had no or very less probability of being affected.

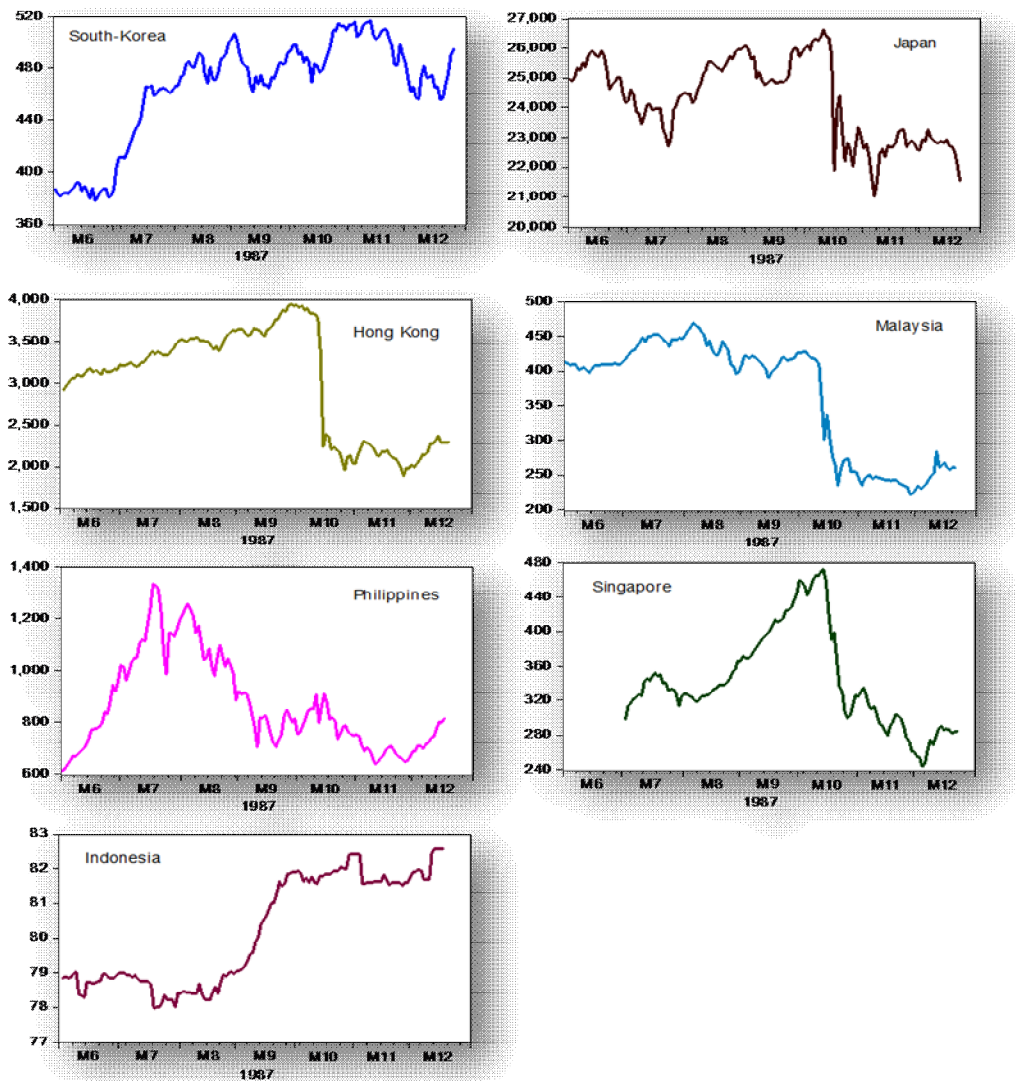


Figure no. 2. The evolution of Asian Stock Markets (01 Jul 1987 to 01 Jan 1988)
 Source: Authors’ own calculations using historical data on daily basis for the given stock markets

Coming back to the discussion on the presence of contagion King and Wadhvani (1990), as one of the earliest studies on financial contagion during the 1987 crash, argued that share prices in one market respond not only to public information about economic fundamentals, but also to share price changes in other markets beyond

of what economic fundamentals suggest, which indicates the presence of contagion. Moreover, much of the theoretical studies: Kyle, Xiong (2001); Kodres, Pritsker (2002); Yang, Bessler (2004) stressed on the argument that financial crises should be characterized by financial market contagion. Studies indicated a variety of results and many varied views over it. Among the studies which supported the contagion phenomenon include Mathur, Gleason, Dibooglu, Singh (2002). However, Forbes and Rigobon (2002) showed that with an improved statistical method, there is little or no evidence of contagion in major crises including the stock market crash of 1987. This study challenges the argument on the presence of contagion. Furthermore, an important question arises that if there was no contagion, then what made things to worsen during the 1987 crash period given the fact that the 1987 crash is the most significant stock market crash in the history of stock markets. However, in another study, Yang and Bessler (2008) studied the contagion effects during that time period and concluded that the stock market crash which originated in the US market, created an upward movement in the Japanese market after the crash which helped in the recovery of US market indicating that contagion existed. Roll (1988) argued that the international stock market crash first originated in Asian countries, other than Japan, and from there spread to Europe, the US and finally reached Japan. The survey evidence of Schiller, Fumiko, Yoshiro (1991) suggested that the US played a dominant role in the international crash. King and Wadhvani (1990) though studied different market, but also speculated that a US price decline, intensified by portfolio insurance, could have rapidly spread to the other markets during the period of the crash.

Although, there is a strong argument between researchers that it was not the contagion effect; instead the degree of dependence among the world's stock exchanges is an important factor for investors which transmit the spillovers effects. However, studies have also shown that there is a high degree of independence among stock exchanges of different countries (Reddy, Sebastin, 2009). Still, there were pronounced linkages among markets during the crash of 1987 and it refers to the rapid globalization of financial markets and in particular, it is often suggested that world markets have developed a tendency to follow market movements in New York. According to Aggarwal, Reena and Rivoli (1989), there has been a strong tendency towards day-to-day linkages between New York and the other Asian and European markets and in particular before the crash of 1987 and these markets showed dependence on market movements in New York. Furthermore, the study also concluded that there is a well-documented tendency towards low Monday returns in the United States and it has led to low Tuesday returns in Asian markets.

In a nutshell, the 1987 stock market crash was a shock to the stability of the financial system, not only because of the size of the drop in price but most importantly because of market functioning was impaired. The volume of sell orders at time overwhelmed NYSE specialists and they were forced to suspend trading in some stocks. However, the issues raised by the crash not only helped the markets in upgrading their facilities by exchanges and clearing houses, but also helped in understanding the market situations and how to deal with them by applying different tools in order to avoid any of such unpleasing events in the future.

Asian Financial Crisis of 1997

There is no doubt that some of the economies were in very bad economic situations before the crisis in Asia. Indonesia, Malaysia, and Thailand were affected by

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the ineffective banking system, corruption, and nepotism. South-Korea was suffering with rigid industrial structure which was dominated by cables and unsound commercial bank loans (Clifford, 1998). However, all these troubles were present long before the crisis erupted even at the time when economies were performing outstandingly. This in a way highlights that these troubles can be considered as a reason in building up the crisis but is not the trigger factor of it.

Moreover, it is of common understanding that the Asian Financial Crisis (AFC) refers to the onset and aftermath of the currency crashes with huge declines in output growth and plummeting stock markets in many of the previously fast growing countries in East-Asia before 1997-1998. The countries which were particularly hit by the crisis were Thailand, Indonesia, Republic of Korea, The Philippines, and Malaysia which is also termed as “The Affected Five”. An average decline of this group of countries during the crisis of 1997 in terms of the real GDP growth was about 10% of the trend value of 1996. The currency devaluations range from 30% to 80% and stock markets declined by as much as 70% (See Klien, Shabbir (2006) for further details). During the last decade preceding the crisis, these East-Asian countries had enjoyed a period of remarkable economic growth as well as social sector achievements. The region enjoyed a growth in average real GDP and with an annual growth rate of more than 7%, a decline in poverty from a massive six in ten to two in ten.

For Korea, the per capita income increased up to ten times, and four folds for Indonesia, Malaysia and Thailand, almost 100% primary school enrolment, a remarkable reduction in infant mortality and an increase in the life expectancy. In short, before the crisis, this region was growing in an ideal way and was enjoying outstanding macro-economic stability. However, this view was opposed by Chang and Velasco (1998) as according to them, irrespective of all of this, there were clear signs of disruptions before the crisis. It was very unfortunate that the crisis of 1997-1998 pushed the region into trouble and all the past achievements went into serious jeopardy. The region suffered with heavy economic and social disasters. Thailand was the first country to experience a crisis in the region. It started with the series of currency attacks during late-1996 and mid-1997 which led to the collapse of Thailand’s fixed exchange rate on July 2, 1997 (Agenor, Miller, Vines, Weber, 1999).

The consequent and severe fall of around 40-80 per cent in the Baht value led to a tremendous increase in the liability side for entrepreneurs in the balance sheet as they borrowed heavily from the international markets. Financial institutions were facing liquidity and insolvency problems (Sornette, 2003). This market trouble put a negative impact on the other regional economies and their currencies also became unstable, which sent even more negative feedback effect on the Thai economy. In order to defend the currency, at first, bank of Thailand (BOT) used up all of the international reserves through the swap operations, which resulted in a net worth of only 1 billion dollars in July 1997 (it was 33.8 billion dollars in December 1996). As a result, it had to borrow credit of 17.2 billion dollars from the IMF. Thailand’s real GDP contracted to -10.4% in 1998 and the unemployment rate was as high as three times compared to the 1997.

As for the case of Malaysia, for ten consecutive years, it grew by 8% annually and more and had always been politically stable and economically resilient, with a strong currency and all the international debts within the acceptable limits. From no point, it looked to be a contender for economic and financial turmoil but still in July 1997, its currency began to devalue rapidly and its stock market plunged to extremely low levels (Mohammad, 2000). There were clear effects of the fall of Thai Baht on the

Malaysian economy and fall of the Ringgit and stock-market capitalization looked likely to be continuous and could not be detained. The country and the government were completely unprepared to deal with the seriously flagging economy. No one seemed to understand that what was happening and why the Ringgit (RM) was depreciating so rapidly against the US dollar. The Ringgit charge rate was also generally stable against regional currencies. Against the currencies of two of Malaysia's neighbours; Thailand and Philippines, the Ringgit was stable at 1 Ringgit to 10 Thai Baht (TB) and 10 Philippine Pesos (PP) respectively. The Ringgit did appreciate against the Indonesian Rupiah (IR) but this was due to the Rupiah's weakness against most currencies including the Ringgit.

On the back of the currency stability, Malaysia's economy was very steady and showed great economic growth. As an evidence, by the end of 1996, real GDP grew at almost 8.5% per annum for almost ten consecutive years and it was looking like that this rate will continue to grow for many more years. By 1997, total external trade reached to more than 158 US billions, making Malaysia, according to the World Trade Organization (WTO) as an 18th biggest exporting nation and 17th biggest importing nation in the world (Klien, Shabbir, 2006). External debt was low at 40% of GNP, inflation was at its lowest at around 2.1%. Despite the fact that Malaysian economy was fundamentally strong, the crisis happened in Malaysia. The other regional neighbours to Thailand experienced more or less same and got entangled into the crisis one after the other. Different studies based on 1997 crisis highlighted a variety of reasons and causes for the crisis and based their arguments centred on a variety of market situations. The detail of such studies and their claims are discussed in depth in the following section.

What really made the things go this worse? Literature that has been inspired by the East Asian crisis extends two competing hypotheses as the possible causes of currency crisis. At first is the contagion hypothesis. According to this hypothesis, crisis' severity is directly linked to the contagion phenomenon where herd behaviour was prominent factor. For instance, Bhagwati (1998) concluded that, the only explanation that accounts for the massive net capital outflows is panic and herd behaviour: whether it was of domestic or foreign nationals. Radelet and Sachs (1998) deduced that the crisis was triggered by dramatic swings in creditors' expectations about the behaviour of other creditors, thereby creating a self-fulfilling financial panic. On the other hand, the vulnerability hypothesis states that the crisis occurred because of the worst situations present in the market and which just required some spark to exploit it. Dornbusch (1997) described that vulnerability means that if something goes wrong, then suddenly a lot goes wrong. That "something" which causes things to go wrong can be considered as "trigger" whereas the possibility of "suddenly" a lot going wrong is conditional on the existence of the vulnerability.

According to the contagion view, the capital flight in Thailand persuaded big expectations of an impending devaluation of the Baht relative to the US dollar to whom it was pegged and had negative informational spillover effects that doomed some of the neighbours by casting doubt in the minds of the investors about otherwise healthy economies. The vulnerability hypothesis, on the other hand, maintains that some economies were inherently vulnerable to crisis because of relatively long term deterioration in economic fundamentals (Haile, Pozo, 2008). This prone them to crisis when faced with shocks that may lead to expectation of exchange rate devaluation.

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These two explanations are quite contrasting and can be described in a way that contagion is analogous to a trigger and vulnerability means susceptibility to a country crisis on the basis of fundamentals.

According to Radelet and Sachs (1998); Marshall (1998); Chang and Velasco (2000), the initial financial turmoil in Asian countries and its propagation over time was mainly due to sudden shifts in market expectations and confidence, followed by regional contagion. According to the view of worsening of the macroeconomic performance of some affected countries in the mid 1990', the extent and depth of the crisis cannot be attributed to the deterioration in fundamentals, as explained in first generation models, but rather to panic on the part of domestic and international investors. Another view of Corsetti, Pesenti, Roubini (1999); Dooley (2000) suggests that the crisis occurred primarily as a result of structural and policy distortions. This view emphasizes that fundamental imbalances triggered the currency and financial crisis in 1997, and as after the crisis started, market over-reaction and herding caused the falls in exchange rates, asset prices and economic activity got worse than warranted by the initial weak economic and financial conditions.

Although, it is very difficult to decide that which hypothesis is more plausible, but policy and institutional reforms should however be reformed in a way to address the weakness, if the crises were caused by weak economic fundamentals. On the other hand, if investors panic deemed to be the cause of crisis, policy reforms should focus more on ways to prevent and contain the investors panic. As a result, which hypothesis to accept requires thorough understandings as there are different policy implications for different hypotheses (See Zhuang, Dowling (2002) for further understanding). Berg and Pattillo (1999) explained that there were no fundamental imbalances at the time of crisis and fiscal position was robust for all countries. Inflation was under control and the countries were enjoying the peak of their periods. There were no common symptoms among countries other than the weakness in financial and corporate sectors. But what actually made things worse was the spread of crisis from one country to another country, as investors withdraw their money in a panic. Spillovers and herding behaviour of the investors led to play an important role in capital flight out of a whole region and played an important role in the contagion.

According to the study of King (2001), Asian financial crisis was triggered by Japanese commercial banks as these banks wanted to reduce their exposure to Asia in response to emerging troubles in Thailand and South Korea which worsened the market situations further. On the other hand, the contagion theory fails to explain, if one believes there was pure contagion, why some countries like Singapore, Taiwan and China proved to be resilient to the spreading of the virus? Therefore, it is hard to escape from relying on explanation based on deteriorating fundamentals in Thailand before 1997. With regards to the fundamental deteriorations, few clouds appeared on the horizon by 1996, as IMF indicated the overheating in Thailand, especially, growing current account deficits, banking failures and signs of an asset price bubble. Meanwhile in Korea, the corporate profitability had been falling steadily with six of the largest thirty corporations going bankrupt by June 1997, although there was no expectation of a crisis in the region at least outside Thailand (IMF, 1998).

A common backdrop in crisis was abundant liquidity and excessive, imprudent credit expansion. Prior to the Asian crisis, capital flows into the region surged, leading to a sharp rise in bank lending and corporate borrowings. Foreign investors bought high-yield Asian securities or US dollar denominated debt instruments, assuming that Asian

economies would continue to grow rapidly and currency pegs would hold indefinitely (Ee, Xiong, 2008). Because of the abundance of liquidity, there was search for yield by leaders and it led to tax credit standards. Credit imprudence came in the form of connected lending to large corporate entities or to mega projects and property developments that were of uncertain commercial viability. Little explanation of it can be found in the Minsky (1992) that describes well-known financial instability hypothesis that “a period of strong growth encourages increased leveraging” and this phenomenon was present in Asia during that time. Furthermore, the study categorized borrowers into three types: Hedge borrowers, speculative borrowers, and Ponzi borrowers. Speculative and Ponzi borrowers play a major role in the asset bubbles and such borrowers were significant during the crisis which added to the financial troubles.

Asian Financial Crisis (AFC) of 1997 was the most significant crisis ever took place in Asia. What has happened is for sure cannot be reverted, the question is what did markets learn from it and how can it avoid such troubles in future? There are some important achievements conquered by Asian and other Emerging Market Economies (EMEs) which are very significant to notice and make us believe that this region has learned some important lessons from the past experience.

The region has significantly improved in and has reduced an important source of financial vulnerability by taking cautious approach about cross border bank borrowings (Haile, Pozo, 2008). It has also become more prudent in running current account deficits. If one compares the level of reserves during AFC and now, there is a huge accumulation of reserves which is a healthy sign for the region. Now, there is a great flexibility in exchange rates compared to the earlier situations, which provide a greater cushion against the speculative attacks. Fiscal policies are relatively strong and as a result, the risk of fundamental based crises has been reduced significantly (Klien, Shabbir, 2006). Leverage in the financial system has been reduced, which is a very healthy sign. Therefore, all the above adjustments in the financial system are pretty impressive and gives a positive signal that the region has learnt a handful from past mistakes and has corrected its position to not to become a victim of the same sort of troubles again.

Another very important lesson which can be learned from this crisis is that without the building of strong institutions, a wide capital inflow (uncontrolled financial liberalization) under a fixed exchange rate can put the economy in trouble during the panics and can eat up a huge amount of reserves. A panic can lead to capital outflows and put pressure on currency’ devaluation and no amount of government reserves can defend the currency as was the case with Thailand during the Asian crisis. As according to the Moussalli and Huntingdon (2007) study, developing countries should be careful in attracting too much capital in short span of time as it can have devastating effects in case of panic attacks. Conversely, if the capital liberalization is the only way, then economy at least should adopt a flexible exchange rate system. Another way to look at the crisis is to assess the performance and behaviour of economic and financial variables before, during, and after the crisis period, which an empirical study can cover as a future inquiry.

Subprime Mortgage Crisis 2007-2008

Crisis anniversaries are usually occasions to draw lessons from the past, but the 10th anniversary of the Asian financial crisis came with another shock to the financial markets in the form of global financial crisis. In response to dot com collapse in 2001,

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the Federal Reserve decided to create capital liquidity by lowering the interest rate to realise the main objective which was to boost the US economy by encouraging more borrowings, spending, and investments (Bianco, 2008). The strategy worked well and the economy began to stabilize by 2002. Low interest rate, although, helped stabilize the economy, but on the other hand, it went on to provide a hunger to even increasing real estate mortgages and their meltdowns.

In the real estate market, house prices increased in accordance to the law of demand and supply as more liquidity in the economy gave rise to house price bubble as if there is more demand than the supply, prices rise. Based on the prediction that housing values will keep on surging always, customers found it suitable to buy houses as an investment and it paid off as well, banks lent more and more money, at the beginning, with proper check and balance and then later on, even allowed and started lending to subprime borrowers (Subprime lending is the practice of providing loans to borrowers who do not qualify for the best market rates or have low/bad credit history) as banks could receive higher profits over high mortgage rates associated with sub-prime lendings (Lal, 2010).

Financial institutions were safe, and the reason that they were considered as safe is because if a sub-prime customer gets any sort of troubles; banks could always sell the property at higher prices and could earn even more profits over it. The house prices immediately escalated to such a high level that it was almost out of the reach of customers. It resulted in declined demand for housing in accordance to the law of demand and supply, as if supply is more than demand, prices decline. When the house prices began to fall, not only did borrowers failed to make high interest rate payments, but financial institutions also stopped investing in sub-prime lendings. In order to compensate for the losses, the banks amplified the mortgage rates, which made the situation even worse and it resulted in higher delinquency rates (Hofstede, 2009).

The trigger for crisis begin when on September 15, Lehman Brothers filed a case for bankruptcy; the largest bankruptcy filing ever in the history of US with Lehman holding over \$600 billion in assets. This created a bad impact on the already worsened economy. The Dow Jones closed down just over 500 points (-4.4%) on September 15, 2008 and it reached to (-7.0%) on September 29, 2008. Soon after this incident, the largest insurance company American International Group (AIG) also collapsed and all these ended up with the global recession, which caused 30 million people to go unemployed and it doubled the debt of US (Lim, Brooksf, Kim, 2008). Before the crisis occurred, the whole of the investment process was backed up by the securitization system. Therefore, for the current study, it is desirable to explain this system in detail in order to get to the root of the problem that how these problems originated and spread to the rest of the markets.

The securitization issues are very important. During old times, the money goes directly to the local lenders when homeowners pay their mortgages every month, and since mortgages took a long time to repay, lenders have always been cautious before lending the money. However, in contrast to the old system, in the new system lenders sell those mortgages to investment banks, these investment banks combine many of such mortgages and other loans (e.g. credit card debts, student loans, car loans) to create a complex type of derivatives. These derivatives are known as Collateralized Debt Obligations (CDO's). The investment banks then sell these CDO's to investors.

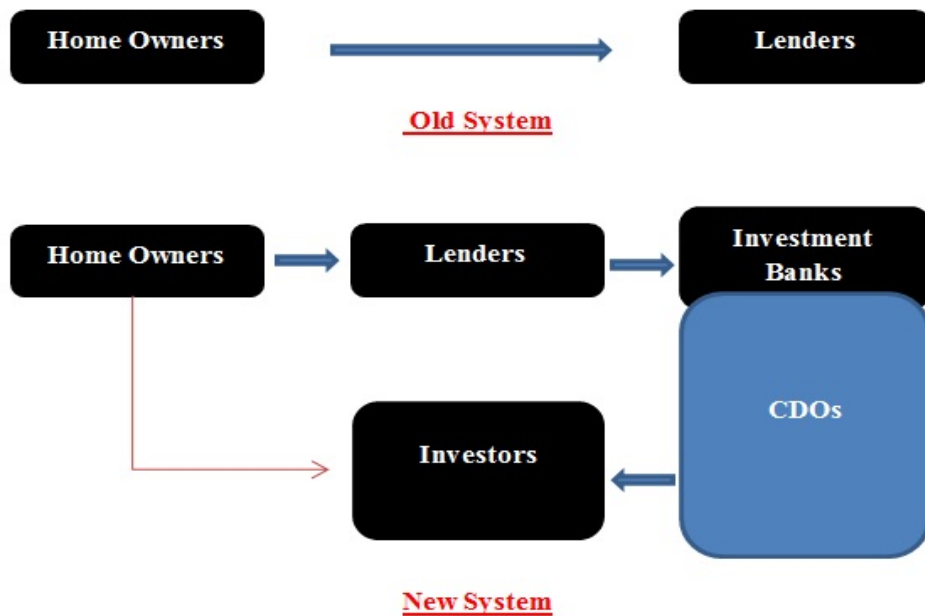


Figure no. 1. Securitization System
Source: Authors' own calculations

If the homeowners pay the mortgage payments, money goes directly to investors which are all over the world. In order to be more striking, these investment banks paid rating agencies to evaluate their CDO's, and in fact many of them got AAA ratings which is the highest possible grade which any asset can get in investments. This made CDO's popular with retirement funds which can only buy highly rated securities. In reality, the whole system became very risky, as lenders did not care anymore about whether a borrower can repay or not, and even started making riskier loans. Investment banks followed on the same lines as for them, the more CDO's they could sell, the higher profits they made, and also rating agencies which were paid by these investment banks, had no liability if their rating of CDO's proved to be wrong later (O'Connell, 2010). As a result, the numbers of mortgage loans started augmenting every year and everybody in the securitization chain did not care about the quality of the mortgage. The subprime loans increased to very high levels, and when thousands of such subprime loans were combined together to create CDO's, most of them still could receive the AAA ratings. The only attraction for investment banks to prefer subprime loans were higher interest rates, which these loans were carried (Mortreuil, 2010).

Through this securitization chain, billions of dollars were flowing through the system as anyone could get a mortgage. Home purchases and house prices skyrocketed and it resulted in the biggest financial bubble ever in the history. Although, the investment banks kept on issuing subprime loans without any control to make more and more profits, but few efforts made to regulate the mortgage industry. However, such proposals were immediately rejected and the investment banks kept on borrowing heavily to create more loans. As a result of such fury, the leverage ratio between the borrowed money and banks own money increased from 3:1 later to 15:1 and even reached to as high as 33:1 (Merrouche, Nier, 2010). Securities and Exchange

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Commission (SEC) relaxed the limits on leverage, with the efforts of Goldman Sachs, which allowed the banks to sharply increase their borrowings. Another big threat which was created in the financial system was of AIG which is the world's largest insurance company as it was selling huge quantity of derivatives called Credit Default Swaps (CDS). The CDS worked like an insurance policy for investors who owned CDO's. An investor who purchased CDS and paid AIG a guaranteed premium, and if CDO's went bad at any time, AIG promised to pay the investors their damages.

Although it looked like normal insurance, but there was a major and astonishing difference between this and regular insurance. Unlike the regular insurance, speculators could also buy CDO's from AIG, in order to bet against CDO's they did not even own. Since CDS were unregulated, it was advantageous for AIG as it did not have to put aside any money to cover the potential losses. However, if CDO's went bad in any case at any time, then AIG could get into real trouble. In total AIG issued 500 billion worth of CDS during the bubble, and most of them were on CDO's which were backed by subprime mortgages (Harrington, 2009). Borrowers on average had borrowed 99.3% of the value of the house, which was quite astonishing as if anything goes wrong, it does not put any pressure on borrowers as borrowers could walk away easily as they have no money invested in the house. Despite the huge warnings from many researchers and institutions, Federal Board did nothing and let the subprime mortgages grow. The result was, the loans went bad and thousands of lenders failed, the market for CDO's collapsed and it left the investment banks holding hundreds of billions of dollars in loans, CDO's and real estates which they were unable to sell.

Disasters

On March 16, 2008 Bear Sterns ran out of cash (Bankruptcy) and was acquired for 2\$ per share by J.P. Morgan Chase. Bear Stern was rated as A2 (High Investment Grade) one month before it went bankrupt. Same with Lehman Brothers, AIG as AA, Fannie Mae and Freddie Mac were AAA. This deal was backed by 30 billion dollars in emergency guarantees from Federal Reserves and was the beginning of the countless disasters in the financial system. On September 7, 2008, Federal Reserve took over Fannie Mae and Freddie Mac; the two of the gigantic mortgage lenders on the edge of collapse, but they still reported that economy is doing well. Two days after the incident, Lehman Brothers recorded a loss of 3.2 billion dollars and its stock collapsed. By September 12, Bank ran out of cash and was not bailed out, as a result, it filed a bankruptcy report on Sep 15, 2008 and was not rescued. According to Federal Reserve, Lehman Brothers was not rescued because in order to calm the markets and move forward it was necessary for Lehman to go into bankruptcy. AIG owed 13 billion dollars in the form of CDS's and it did not even has the money, and later it was taken over by government on Sep 17, 2008, and its owners of CDS' were paid with 61 billion dollars, the next day AIG bailout, it cost taxpayers over 150 billion dollars as AIG was forced to pay 100 cents over a dollar. The immediate result was double digit unemployment in the US (Ferguson, 2010).

In spite of the strong economic and financial fundamentals in Asia and the Pacific, the regional markets were not strong enough to cope with the international financial crisis after the collapse of Lehman Brothers in September 2008. All the claims about Asia being insulated from the distant financial crisis proved to be myths and the region suffered drastically. The shock was very acute and its intensity was unprecedented. Financial markets were the first to receive the shocks as market confidence and risk appetite collapsed. Equity indexes as well as the house prices faced

downward movements. Export markets were affected badly as US consumers cut down on their spending, and it put a real pressure on Chinese markets and these markets stumbled, resulting in millions of overseas Chinese losing their jobs (Céspedes, Velasco, 2011). Same happened to Singapore and it went down to (-9%) from the initial growing rate of about (20%) per year as its export market collapsed.

In the case of the GFC, it is not feasible to single out that what was the major problem for crisis, however, it would be more appropriate to call it as a structural issue, and the crisis was not a one-time unique event as interestingly addressed by Reinhart and Rogoff (2009) in the book “This Time is Different” (as contrast to their book title, based on the past crises events, they demonstrated that these crises are not new and we have been here before, so this time is not different). According to Gorton (2010) the structure of private transaction securities created by banks can be considered responsible for the crisis. Although this structure was very important for the economy, but it was still subject to the periodic panics if there were shocks concerning about the counterparty default.

Conclusions

In this research study, we tried to integrate three major crises in last four decades and built a story line which could render the common reader some idea that what went wrong and how the turmoil affected the economies. The whole discussion about the financial crises and the channels through which the virus was spread and the losses which economies incurred because of it, may lead the discussion again to the question that, what did financial markets learn from the disasters created by our own mistakes and will we be able to structure ourselves in a way not to repeat those mistakes again? There are many of similar questions which arise when we observe the behaviour and response of financial markets to the crises of the past four decades, as according to Reinhart and Rogoff (2008) the comparative analysis has shown that such things have already happened in the past. According to Zandi (2009) there is probably no coincidence that why crises are happening about every ten years as, “It takes about that long for the collective memories of the previous crises to fade and confidence to become all persuasive once again”. It is in human nature. So, future financial shocks are inevitable.

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