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The Conventional Views of the Global Crisis: A Critical Assessment

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1. Introduction

Since the summer of 2007, the world has faced and will continue to face at least for the next few years what in retrospect it is likely to be judged the most virulent global financial crisis ever recorded together with a recession, which seems comparable to the Great Depression of 1929 (Eichengreen and O' Rourke 2009). Among the conventional interpretations of the current crisis which can be found in the growing literature on the nature and cause of the crisis, much attention has been paid to the following two. First, it is argued that the crisis is due to the misguided underpricing of risk: financial investors 'played with fire' by being overconfident about the ability of their mathematical models of measuring and managing risk. Secondly, it is argued that the cause of the crisis is the loose monetary policy of early 2000s, what has also been labelled the 'Greenspan put': central banks and especially the Fed came to the rescue of financial markets by lowering the short-run interest rate significantly and consistently. The chapter assesses the merits and the drawbacks of these two conventional causes, looking at the peculiar type of relationship between these explanations and their theoretical frame of reference, namely the New Consensus Macroeconomics (NCM) model. The structure of the chapter is as follows. Section 2 presents a brief chronology of the financial crisis, with a particular focus on the key stages of the crisis. Section 3 reviews the main features of the modern securitization process, and it highlights the most problematic aspects of it. Then, Section 4 assesses the argument that an accommodative monetary policy in early 2000s has fuelled the housing and credit bubbles, which have led to the financial

crisis and related recession. Section 5 provides a summary of the main arguments and then concludes.

2. A Brief Chronology of the Financial Crisis

There are several important dates marking key stages of the crisis. Originating primarily in the United States, the first sign of the crisis appeared with rising defaults in its subprime market, i.e. the market for borrowers with high default rates, excessive debt experience as well as a history of missed payments, or recorded bankruptcies (Temkin *et al.*, 2002). In May 2007, the credit agency Moody's indicated that it was going to reduce the assessment of creditworthiness of 62 tranches of mortgage-backed securities (MBS), namely debt obligations representing a claim on the cash flows generated from mortgage loans. In June and July 2007 further tranches were downgraded. On the 9th August 2007 the large French bank BNP Paribas temporarily halted redemptions on three of its funds because it could not reliably assess the value of the US subprime mortgage securitisations held by the funds. As a result, across the world several financial institutions started to reassess the value of the collateral accepted against their lending. Suddenly trust and confidence in the system trembled. Many institutions raised doubts about the evaluation of securitized assets and started to hoard large amount of cash in order to cover potential losses in their portfolios. The market for securitisation came under stress and overnight interest rates increased sharply.

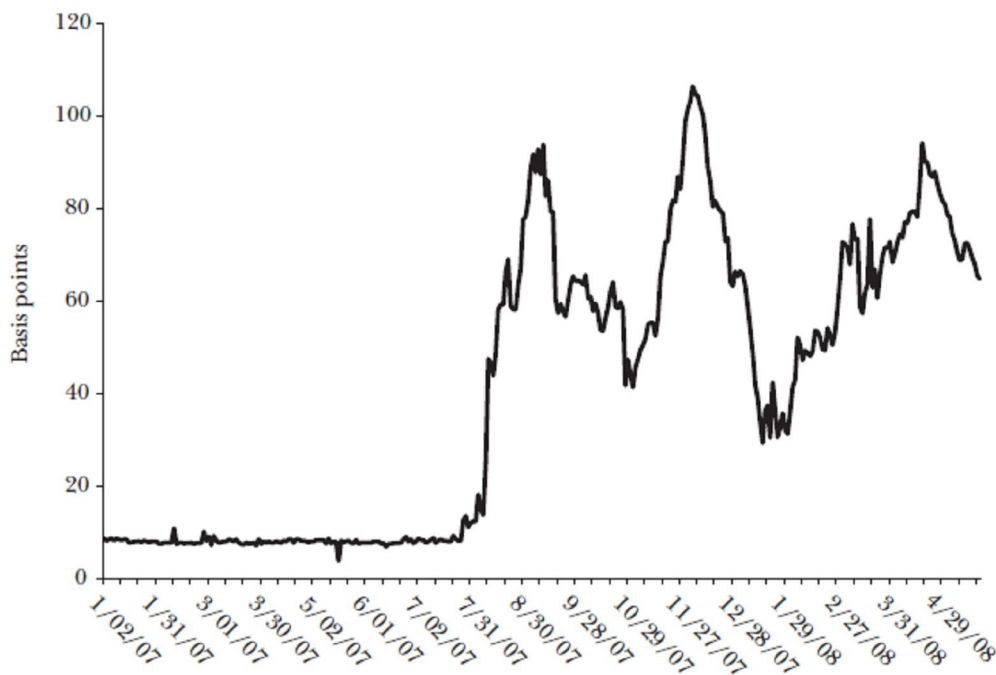


Figure 1: Spread between 3-month LIBOR and 3-month expected Federal funds rate, from January 2007 to May 2008, Daily (Source: Cecchetti, 2009)

Figure 1 above shows the daily spread between the 3-month London Inter-Bank Offered Rate (LIBOR) and 3-month expected Federal Funds rate between January 2007 and May 2008 (Cecchetti, 2009). The LIBOR is the benchmark rate for interbank lending, which is the basic rate used for determining other interest rates in the economy, including consumers and business loan rates. Normally, the difference between the LIBOR and the 3-month expected Federal Funds rate, the so-called LIBOR spread is less than 10 basis points. However, on the 9th August the spread jumped to 40 basis points, and then it fluctuated between 25 and 106 basis points.

In the matter of few weeks, the interbank lending market dried up. Banks suddenly realised that they could not be sure of the value of their balance sheets, hence they could not properly assess the risk attached to their lending. For the sake of avoiding any confusion, it may be worthy to recall one of the main propositions of the endogenous money theory (Fontana, 2009), namely that banks do not need monetary reserves in order to make loans. Banks first make loans and then look for reserves in order to preserve the smooth functioning of their economic activities. However, loans represent risky assets in the balance sheets of banks. Therefore, when making loans banks assess their impact on the balance sheets. Starting in August 2007, banks realised that they could not assess the impact of further lending activities on their balance sheets. As a result they kept a tight rein on new lending. Many financial institutions start to experience severe liquidity problems.

Liquidity problems were amplified by the increasing reliance on the “liquidity through marketability” approach, namely the practice of many financial firms to hold long term maturity assets funded by short term liabilities on the grounds that these assets could be easily and readily sold in markets when circumstances required. As explained in the Turner Review (2009, p. 21: see also House of Lords, 2009) “this assumption was valid at the level of firms individually in non-crisis conditions, but became rapidly invalid in mid 2007, as many firms attempted simultaneous liquidation of positions”. One of the major casualties of this new situation was the failure of the British bank Northern Rock in September 2007. Interestingly, US total commercial bank credit extended rose by \$575 billion in the last five months of 2007, before coming to a sharp decline in the first quarter of 2008 (Cecchetti, 2008; see, for a similar situation in UK, Bank of England, 2008). This rise in commercial bank credit is consistent with the view that during the same period the interbank lending market dried up. The credit extension in USA and UK is in fact explained by the involuntary lending of banks: as financial institutions were unable to get liquidity from the market, as long as their contract allowed it, they rely for their liquidity needs on the credit lines with banks.

As the crisis progressed rating agencies increasingly downgraded their credit ratings of securitised assets. On 30th January 2008 Standard and Poor's downgraded in one single report over 8000 securities. This steady process of downgrading credit ratings added further uncertainty to the value of the balance sheet of financial institutions. Banks responded by changing the composition and the size of their balance sheet, namely they replaced risky assets with safer assets, while at the same time contracting their balance sheets.

In part, this situation was exacerbated by the pro-cyclical nature of some aspects of the regulatory framework. In the face of the downgrading of the value of their assets and more generally of the liquidity problems described above, financial institutions tried to dispose of their assets in order to meet accounting rules and capital requirements. In order to do it, they were required to value assets according to mark-to-market principles. Unfortunately, these principles are inherently pro-cyclical. They push up profits and reserves when asset prices increase, but when prices decrease they imply significant writing down of assets, which leads to a vicious cycle. A financial institution makes "fire sales" in order to maintain capital requirements. However, these sales further reduces assets price and hence force other institutions to "fire sales" in order to maintain capital requirements. This action in turn affects the mark-to-market value of the assets for the original institution, which then triggers further "fire sales" and so on.

The liquidity problems in the financial sector worsened throughout the summer of 2008, and soon turned into solvency problems for major financial players. The housing market problems had intensified from the start of the year, and they were now recognised as widespread in US but also UK, Spain, and other countries. On the 7th September, the two publicly traded but government-chartered institutions Fannie Mae and Freddie Mac were taken in federal conservatorship. Fannie Mae and Freddie Mac held a large fraction of U.S. mortgages. Their failure raised further concerns about the value of mortgage-backed securities, and the solvency of the institutions that were exposed to them. On the 15th September Lehman Brothers went into administration after a late attempt by Timothy Geithner, president of the Federal Reserve Bank of New York, to secure a future for the investment bank with Barclays and Bank of America. The day after, the stock price of AIG, a large international insurance company, fell more than 90 percent. Worried for the situation in the credit derivatives, the US Federal Reserve quickly organized a bailout of \$85 billion in exchange for an 80 percent equity stake. What the US Treasury and Federal Reserve officials failed to realise were the effects of letting Lehman Brothers into administration. In this regards, it is noteworthy to remember that the deal with Barclays and Bank of America was unsuccessful because the US authorities refused to offer a government guarantee. The bankruptcy of Lehman Brothers produced a massive loss of confidence in the financial system: the market preconception

that no large financial institution would be allowed to fail was destroyed. The remaining financial institutions responded by attempting to diminish their exposure to each other. Therefore, in mid 2008 not only the liquidity problems described above got worse, but solvency problems appeared, and soon they became widespread. At the same time, the crisis which started and developed in the financial market spread to the real economy, with dramatic consequences on the level of output and unemployment in many developed and developing countries. There are several mechanisms that explain the contagion to the real economy. First, in the face of growing liquidity problems and solvency risks many banks tried to replenish their capital by maintaining liquid portfolio, and hence they refused or severely curtailed new lending. Secondly, with the collapse of the price of financial assets prices and of houses, households suffered negative wealth effects which constrained their demand of goods and services. Finally, in the face of an uncertain future, firms postponed their investment and preferred to use their cash flow for restoring more prudent debt to own capital ratios. The overall effect of all of these contagion mechanisms was a generalised decrease of aggregate demand with deleterious effects for the level of output and employment. For instance, the unemployment rate in US rose from 4.7 percent in the fourth quarter of 2007 to 9.2 percent in the second quarter of 2009. Similar types of increases of the unemployment rate were recorded for the same period by many countries: UK moved from 5.1 percent to 7.76 percent, France from 7.54 percent to 9.11 percent, Spain from 8.61 percent to 17.9 percent, and Ireland from 4.64 percent to 12.02 percent (OECD, 2010). As a result of it, huge interventions of the monetary and fiscal authorities around the world followed in order to contain the effects of the financial crisis and related recession. The generalised weakness of aggregate demand continued during the entire 2009 and the first months of 2010.

3. The Modern Securitisation Process

There is no doubt that at the heart of the evolution of the financial events described above there is the replacement of the “originate and hold” banking model with the “originate and distribute” banking model together with the securitisation process of structured finance products, which in different forms and shapes has interested the most advanced countries in the world either directly, like in the case of the USA and UK, or indirectly, like in the case of Germany. In the traditional “originate and hold” model, the issuing bank will hold loans until they are repaid, where in the current “originate and distribute” model the issuing bank sells loans to other banks and financial intermediaries, via the securitization process. There are two major problems with this change. First, the incentive for the loan officer of the bank to collect information and properly assess the loan

application of the borrower is diluted in the “originate and distribute” model. Since the loan will not stay long in the book of the issuing bank, the main concern of the officer is likely to be how many loans will be approved rather than if the loan will be repaid or not. Secondly, due to the complexity of the modern securitization process, even if information is collected it is not necessarily passed on to other banks and financial intermediaries. A description of the modern securitization process may help to explain this second problem.

The process of securitisation of finance products has been known and practised for several decades though only recently has become an important source of funds for banks. In its modern form, it consists of two steps. First, a diversified portfolio is formed by pooling together corporate bonds, mortgages, loans, like car loans or student loans, and any other type of credit-sensitive assets. Secondly, the newly formed diversified portfolio is sliced into different tranches, which are sold to investors with different risk appetites. Pooling and tranching are the two key features of the modern securitisation process of the so-called structured finance products, often referred to as collateralized debt obligations (CDO). When a package of credit-sensitive assets is securitised, they are transferred to a special subsidiary company of the originating bank, namely a Special Purpose Vehicle (SPV). In turn the SPV uses these credit-sensitive assets to support the issuance of a prioritised capital structure of claims, namely bonds, with different levels of risks and maturities profiles attached to them. These bonds are known as tranches. The prioritization scheme used in structuring claims is essential in making some of these manufactured bonds safer than the average asset in the newly formed diversified portfolio, with the so-called senior tranches absorbing the default losses of the portfolio only after the capital of the junior claims has been exhausted. The advantages of pooling and tranching in the securitisation process of structured finance products can be illustrated with some examples.

Let’s assume that a bank has two identical securities which pay 0£ on default and 1£ otherwise, and both have a default probability (p_D) equal to 10 percent. The bank then decides to pool these securities into the portfolio of an appositely created SPV. The nominal value of the portfolio will be equal to 2£. The SPV can then issue two tranches against this portfolio, namely a ‘junior’ tranche and a ‘senior’ tranche, the main difference being that the latter will bear losses only after the capital of the former has been exhausted. For instance, the tranches could be written such that the junior tranche will pay 0£ if either bonds default and 1£ otherwise, while the senior tranche will pay 1£ if no bonds default, or only one of the bonds defaults, and 0£ otherwise. Coval *et al.* (2009a, 2009b) explains that if the defaults of the two bonds are uncorrelated, in this case the senior tranche will only have 1 percent probability of default, against 19 percent for the junior tranche. In other words, as a result of the pooling and tranching of the securitisation process described above, the senior

tranche will pay either 1£ or 0£ like in the case of the original securities. Yet, the senior tranche is much less likely to default than either of the underlying securities, namely 1 percent against the original 10 percent.

Importantly, by including more securities into the portfolio of the SPV, a greater component of the capital can be repackaged into tranches that are less likely to default than either of the underlying securities. For instance, let's assume that the portfolio of the appositely created SPV contains now three identical securities, which like in the previous case pay 0£ on default and 1£ otherwise, and all have a default probability (p_D) equal to 10 percent. The tranches could be written now such that the junior tranche will pay 0£ if any of the three bonds default and 1£ otherwise, the 'mezzanine' tranche will pay 0£ if two or more bonds default and 1£ otherwise, while the senior tranche will pay 1£ if no bonds default, or only one or two out of three bonds defaults, and 0£ otherwise. In this case, assuming again that the defaults of the three bonds are uncorrelated, the senior and the mezzanine tranches will only have 0.1 percent and 2.8 percent probability of default, respectively. In other words, as a result of the securitisation process the senior and mezzanine tranches, which represent two-thirds of the capital of the portfolio, will pay either 1£ or 0£ like in the case of the original three securities. However, the senior and mezzanine tranches are much less likely to default than of the underlying securities, namely 0.1 percent and 2.8 percent against the original 10 percent.

Furthermore, the securitization process could be applied again to junior tranches achieving a further credit enhancement. For instance, in the case above of the two securities making the portfolio of the SPV, the probability of default for the junior tranche is 19 percent. If the SPV pools together two 1£ junior tranches the resulting capital of this new portfolio is 2£. The tranches from this second round of the securitization process, what are usually called CDO-squared or CDO² for short, could now be written such that the resulting senior tranche will pay 0£ if at least one bond defaults in each of the two underlying portfolios, and 1£ otherwise. In this case, assuming again that the defaults of the bonds are uncorrelated, the senior tranches will only have 3.6 percent probability of default against the original 19 percent.

It should be now clear that the modern securitization process is an extraordinary mechanism for credit-enhancement of credit-sensitive assets. But at the same time due to its inherent complexity, the credit information of these assets become more and more opaque through the different stages of the securitization process. Like Buiters (2007, pp. 3-4) explains "whatever information is collected by the loan originator about the collateral value of the underlying assets and the credit worthiness of the ultimate borrower, remains with the originator and is not effectively transmitted to the SPV, let alone to the subsequent buyers of the securities issued by the SPV that are backed by these assets. By the time a hedge fund owned by a French commercial bank sells ABSs (asset backed securities)

backed by US sub-prime residential mortgages to a conduit owned by a small German Bank specialising in lending to small and medium-sized German firms, neither the buyer nor the seller of the ABS has any idea as to what is really backing the securities that are being traded”.

There are two further significant problems with the modern securitization process. First, the ratings of structured finance products are very sensitive to modest changes in the evaluation of the underlying default risks of the securities, and how likely these default risks are correlated. Secondly, structured finance products are inherently exposed to systematic risks. The first issue is closely related to the novelty of structured finance securities. Single-name securities, like corporate bonds, have been traded for several decades. This means that long and reliable historical data is available in order to assess these products. Furthermore, by its own nature the default rate of a single-name security depends on the misfortune of a specific firm. Therefore, the default risks of single-name securities are not correlated. By contrast, structured finance securities are not only new products, but they have also been introduced during a period of economic boom. As a result of these two features, there was very little historical data and, more importantly, the data was biased because of the strong economic growth and very few defaults rates, typical of an economic boom period. The combination of scarce and biased data should have called for a cautious approach from investors, rating agencies, and regulators. Unfortunately, this was not the case. In less than a decade, the issuance of structured finance products in US grew more than ten-fold, reaching \$100 billion in each of the first two quarters of 2007. Investors, rating agencies, and regulators equated structured finance products to single-name securities. By doing it, they not only underpriced the underlying default risks of the securities backing the structured finance products, they also ignored that these default risks were highly correlated.

The second issue is inherent feature of modern securitisation, and it reinforces the problem described above. The process of pooling and tranching credit-sensitive assets in actual fact transforms idiosyncratic and largely diversifiable risks into systematic risks. Structured finance products are what Coval *et al.* (2010) appropriately call “economic” catastrophe bonds. Catastrophe bonds, which are also known as cat bonds, are securities whose default likelihood is dependent on the occurrence of natural disasters, like an earthquake or hurricane. They command a relatively high price, because their default risks are unrelated to the behaviour to any set of economic indicators, e.g. whether the economy is in boom or recession or the Fed rate is going up or down. Therefore, the default risks of cat bonds can be easily eliminated through diversification. Furthermore, given their own features, cat bonds are usually rated below investment grade, i.e. below the grade representing low to moderate levels of default risks (Derivative Fitch, 2006). Structured finance products are catastrophe bonds, in the sense that their default likelihood is unrelated to the

idiosyncratic default risks of the underlying assets. However, the trigger event causing the loss of principal is not an earthquake or hurricane rather it is the state of the economy. This means that as the economy experiences a severe downturn, investors in structured finance products are increasingly likely to experience significant losses. As a result, structured finance products should be expected to earn a higher rate of return compared to single-name products, whose default likelihood is only affected by the misfortunes of a specific firm. Unfortunately this was not the case. Investors, rating agencies, and regulators equated structured finance products to single-name securities. Structured finance products were priced and rated like standard corporate bonds. In this way, investors, rating agencies, and regulators not only underpriced the underlying default risks of the structured finance products, they also ignored that these default risks were all highly correlated to a downturn of the economy.

Finally, there is another important lesson to be learned from the modern securitization process described above. The current financial crisis was a triple-A crisis, in the sense that it was triggered and sustained by the high default rates of triple-A rated financial products, which represent the scale of products with the broadest usage and the highest profile within the international capital markets. From this perspective, as it is increasingly recognised, rating agencies played a key role in creating the conditions for the collapse of the financial markets around the world. They were instrumental in lulling both investors and regulators into a false sense of security by rating many structured finance products triple-A. This in turn led to a large demand from global investors of structured finance products, which were often institutionally restricted in their purchase of securities to triple-A rated products. Rating agencies like Moody's, Standard and Poor's and Fitch thus bear important responsibility in the success of the securitization process that has led to the financial crisis. As explained above, the triple-A rating of structured finance products created the illusion of comparability with single-name securities, i.e. liabilities of single companies or institutions. Figures 2(a) and 2(b) below show the rating distributions of Fitch for single-name products and structured finance products in the summer of 2007, respectively.

Global Rating Distribution

Corporate Finance Issuer ratings

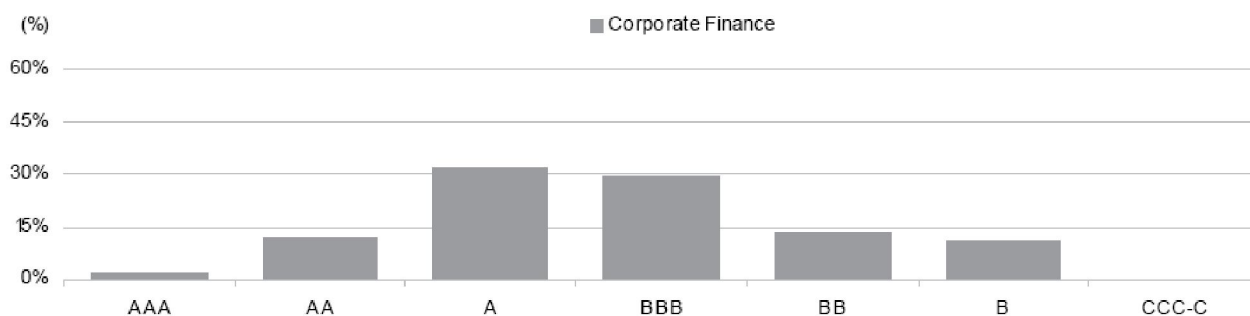


Figure 2(a): The Global Distribution of Corporate Finance Issuer Ratings at Fitch as at 30th (Source: Fitch ratings, 2007)

Global Rating Distribution

Structured Finance Instrument Ratings

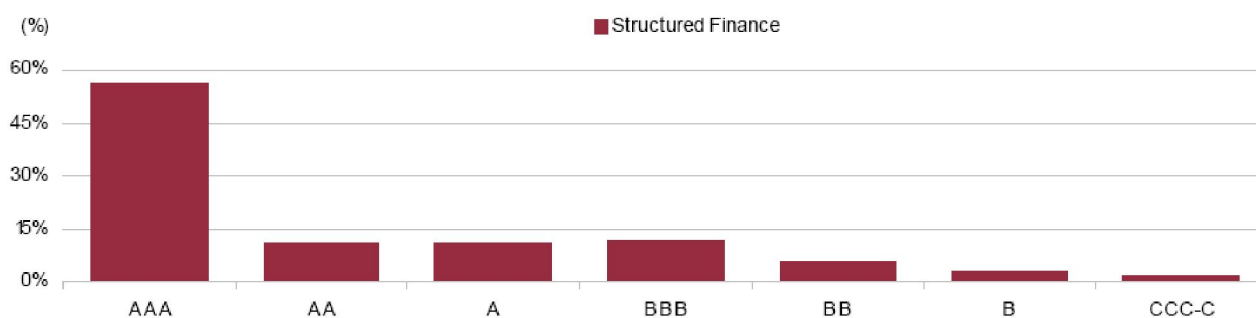


Figure 2(b): The Global Distribution of Structured Finance Instruments Ratings at Fitch as at 30th (Source: Fitch ratings, 2007)

Figures 2(a) and 2(b) below show that just as the first signs of the financial crisis became evident, triple-A ratings only represented 1 percent of Fitch ratings of corporate finance products in contrast to roughly 60 percent of global structured finance products. It is likely that the same applied to the other rating agencies, namely Moody's and Standard and Poor's. The main factor contributing to this surge in demand for structured finance products was the above average yield on these securities, together with the false sense of security offered by the triple-A rating of the agencies. This false sense of security was further enhanced by the purchase of credit default swaps (CDS), namely credit derivative contracts insuring against the default of a particular bond or tranche: in return for the payment of a periodic fixed fee, the buyer of a CDS receives a payoff if the underlying financial instrument defaults. This meant that an investor holding a triple-A rated tranche of a CDO combined to a CDS could reasonably believe that the investment had a very low risk attached to it, and yet an above average yield compared to single-name securities (Brunnermeier, 2009). The high demand for structured finance products led to a sharp rise in the

demand of the underlying assets, namely mortgages, car loans and all sort of credit-sensitive assets. This in turn led to a huge reduction in the borrowing costs for households and firms, which fuelled the credit and house bubbles. In a vicious circle, the sharp increase in the price of houses and other assets gave further support to the creation of new structured finance products, which triggered again the same sequence of high demand of credit-sensitive assets, reduction in the borrowing costs, and increase in the price of houses and other assets. Importantly, the entire process could not have started and prospered without the triple-A rating of the agencies. In short, the success of the modern securitization process, together with its deleterious effects, is no small part due to the role of rating agencies which have helped to favour structured finance products over traditional corporate finance products. But, were investors simply genuine victims of ignorance and the greedy behaviour of rating agencies? Interestingly, Alan Greenspan, chairman of the Federal Reserve of the United States from 1987 to 2006, maintains that almost all main players in financial markets were in fact increasingly aware of the growing risks of the modern securitization process and the related underpricing of risk in financial markets. Greenspan (2010, p. 8; see also Brunnermeier, 2009, p. 82) argues that financial firms were aware of the existence of a credit bubble, but they were reluctant to bet against the bubble, because they feared that had they withdraw too soon from the markets they would have surely lost their market share, and possibly irretrievably. Citigroup former chief executive officer Chuck Prince explained the situation by referring to Keynes's analogy between financial bubbles and the game of musical chairs (Nakamoto and Wighton, 2007): "when the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing".

4. The Favourable Macroeconomic Environment of Low Interest Rates

The modern securitization process described above is an essential component for the explanation of the current financial crisis and related recession. Yet, it is only part of the story. Financial market developments and innovations did not appear suddenly. They had actually started in the early 1970s as major features of the campaign for financial deregulation. These developments and innovations accelerated dramatically in the last two decades in parts as a result of a favourable culture which favoured market solutions to any form of government interventions. For instance, Greenspan (2010, Table 5) laments that a major factor explaining the surge in the demand for subprime securities was the heavy purchases by the major US Government Sponsored Enterprises (GSE), namely Fannie Mae and Freddie Mac, which responded to the pressure of US authorities to expand affordable housing by heavily investing in subprime mortgage securities: between 2002 and 2006 the

purchases by Fannie Mae and Freddie Mac accounted for 25 percent of all subprime securities outstanding. Greenspan maintains that tighter regulations and controls on mortgage lending would possibly have contained the evolution of the securitization process described above. However, these regulations and controls would also have damped enthusiasm for homeownership from low and moderate income groups, and hence defeated the affordable housing goals of the US authorities, “unless [Greenspan acknowledges] low and moderate income ownership were fully subsidized by government” (Greenspan, 2010, p. 44, note 72). In other words, in the view of Greenspan the securitization process which led to the financial crisis is in part due to the affordable housing goals of the US authorities, and their determination in achieving those goals via market solutions rather than direct government interventions.

In addition to the securitization process, in the opinion of most academics and practitioners there is one major feature of the macroeconomic environment of the past few years that is the main culprit of the financial crisis and related recession, namely the accommodative monetary policy strategies followed by the monetary authorities of US and most advanced countries. Accommodative monetary policy strategies, facilitated by growing international macroeconomic imbalances, are accused to have created the low interest rate environment that has fuelled the recent housing and credit bubbles. The following quote from Jacques de Larosière, chairman of the high-level group on financial supervision in the EU, giving evidence to the Select Committee on Economic Affairs of the House of Lords in UK is typical of this view.

The main fundamental cause of what happened was the piling up over 10 or 15 years of easy - too easy - monetary policies, very large current account imbalances in the United States in particular, matched by large structural surpluses in a number of emerging countries which pegged their currencies to the dollar more or less and therefore injected very large amounts of liquidity into the system. This easy money, easy credit condition propagated a search for higher yields than those that were offered by very low interest rates which were associated with this easy monetary policy; financial institutions’ investors engaged in search of higher yields, therefore paying less attention to the quality of credits, accepting relatively low spreads for high risks, therefore undermining the fundamental prudence of the banking system. This was the basic set of circumstances that led to the present crisis. So it is an accumulation of international imbalances and what I would call loose monetary policies (de Larosière, House of Lords Report, 2009, p. 100).

De Larosière explicitly refers to a long decade of accommodative monetary policies followed by many central banks around the world as one the main factor behind the recent financial crisis. He also mentions the modern features of the securitization process described above and growing international macroeconomic imbalances. Since, the latter factor is often presented as an additional mechanism of transmissions of the deleterious effects of monetary policies, the focus in the rest of

the paper is on the effects of the favourable macroeconomic environment created by the low interest rates (see, for a discussion of the international macroeconomic imbalances, Obstfeld and Rogoff, 2009; Caballero, 2008, 2009, and Whelan, 2010).

The standard argument against the long decade of accommodative monetary policies usually goes along this line: when a crisis arose many central banks around the world came to the rescue of financial markets by significantly and consistently lowering the short-run nominal interest rate, which in turn affected a variety of interest rates in the economy, and by doing it, it fuelled housing and credit bubbles in many countries. This explanation goes also under the name of ‘Greenspan put’, in recognition of the role played by the Greenspan’s Fed in setting the pace for accommodative interest rate policy decisions by many central banks around the world. Figure 3 below gives support to the first part of the so-called Greenspan put. It shows the target nominal federal funds rate from August 2000 to August 2009: in response to the 2001 recession the Fed rate fell from 6.5 percent in December 2000 to 1.75 percent in December 2001 and then to 1 percent in June 2003, the latter being the lowest rate since the 1950s.

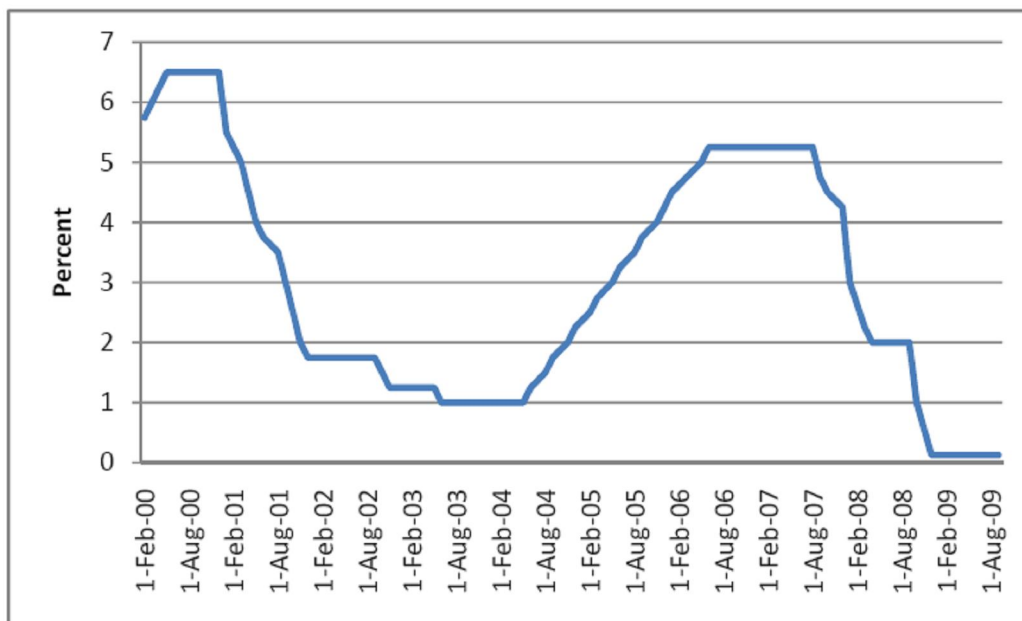


Figure 3: The Target Nominal Federal Funds Rate (Source: Federal Reserve Board, USA)

Figure 4 below supports the second part of the so-called Greenspan put. It presents the time series for the share of nominal residential investment in GDP: residential investment averaged 4.5 percent of nominal gross domestic product over the period from 1974 to 2001; after 2002 the share rose

substantially and reached 6.25 percent of nominal GDP in late 2005. This represents the highest share in fifty years.

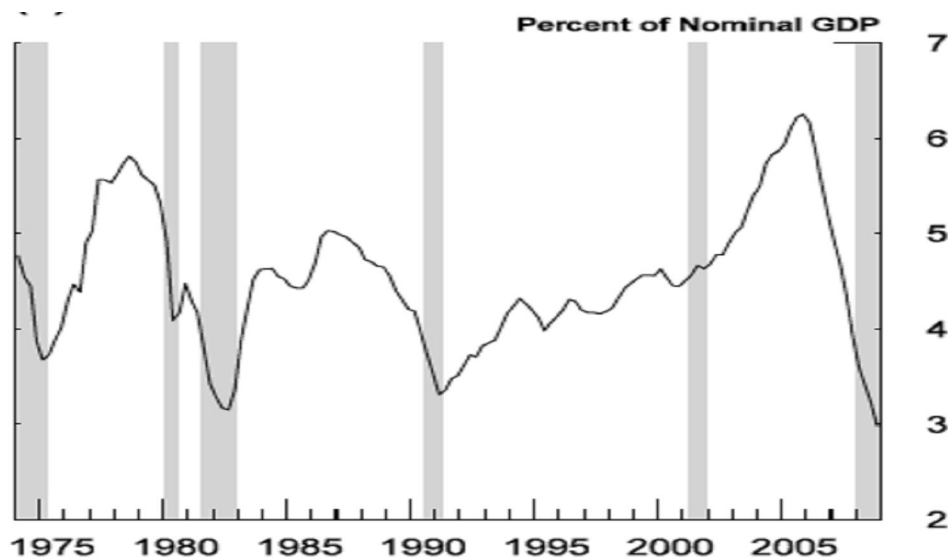


Figure 4: Residential investment as a share of nominal GDP
(Source: Bureau of Economic Analysis, USA)

One of the most strenuous defender of the causal link between accommodative monetary policies and the housing and credit bubble has been John Taylor. In a long succession of papers (e.g. 2007, 2008, 2009a, 2009b) and a recent book (2009c) he explains the argument in terms of the divergence between the actual Fed funds rate and the Taylor rule rate. According to Taylor during the period 2002-2005 the Fed maintained the target rate too low, in the sense that a Taylor rule predicts substantially higher target Fed funds rate in this period than actually occurred. Not surprisingly, this argument has attracted the criticism of Greenspan.

Mr. Taylor unequivocally claimed that had the Federal Reserve from 2003-2005 kept short-term interest rates at the levels implied by his “Taylor Rule,” “it would have prevented this housing boom and bust.” This notion has been cited and repeated so often that it has taken on the aura of conventional wisdom. ... while I believe the “Taylor Rule” is a useful first approximation to the path of monetary policy, its parameters and predictions derive from model structures that have been consistently unable to anticipate the onset of recessions or financial crises (Greenspan, 2009).

By keeping the target rate too low, the Fed indirectly contributed to the housing and credit bubbles, which have then led to the financial crisis and related recession. Figure 5 below shows the target Fed funds rate and two policy rates which are calculated according to the following Taylor Rule (Taylor, 1993):

$$i_t = i^* + \pi_t + \alpha(\pi_t - \pi^*) + \beta(Y_t - Y_t^*) \quad (\text{Equation 1})$$

where i_t is the target Fed funds rate, i^* is the equilibrium real rate, which is assumed to be 2 percent, π_t is the current inflation rate, π^* is the target inflation rate, which is again assumed to be 2 percent, Y_t and Y_t^* are the current and potential level of output. The difference between current and target inflation rates, and the current and potential levels of output are usually called the inflation gap and the output gap, respectively. Finally, α and β are the weight for the inflation gap and the output gap, respectively. They are assumed to be equal to 0.5.

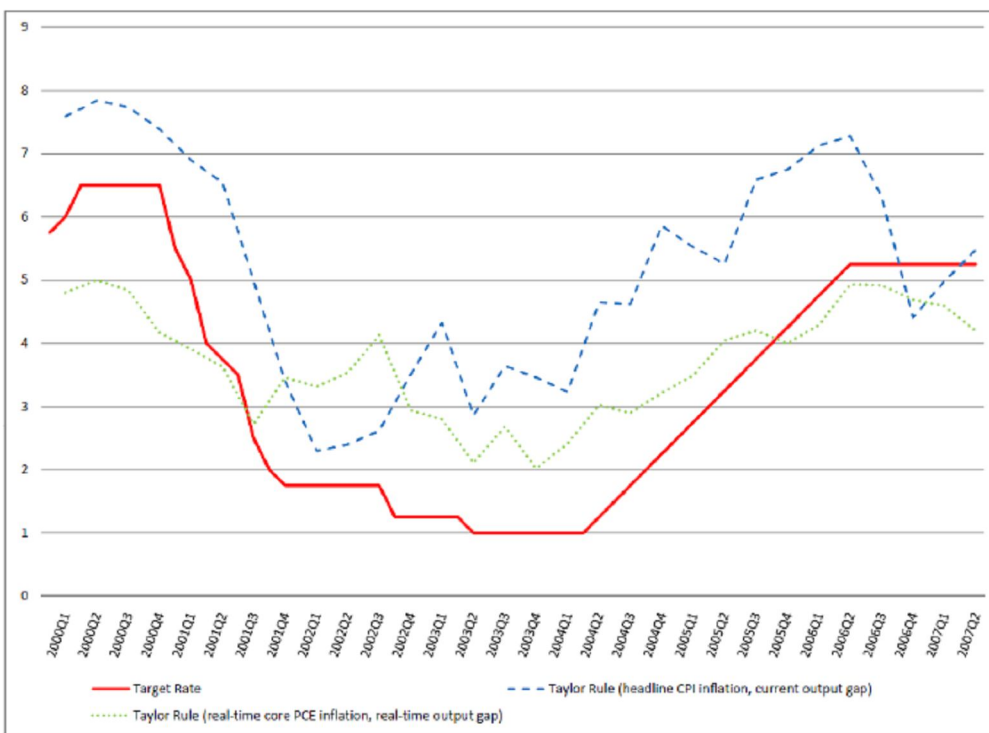


Figure 5: The Target Federal Funds Rate and Taylor (1993) Rule Interest Rates (Source: Dokko *et al.*, 2009)

Figure 5 shows the evolution of three short-term nominal interest rates in US from early 2000s. The solid line represents the actual target Fed funds rate, where the dashed line shows the Taylor rule rate when inflation is measured with the headline consumer price index (CPI), and the output gap is calculated with current data using the FRB/US model. Finally, the dotted line presents the Taylor rule rate when inflation is measured using real-time data on core personal consumption expenditures (PCE), which is the favourite Fed measure of inflation, and real-time estimates of the output gap from the FRB/US model. Both Taylor rule rates are calculated by assuming that the weights for the inflation gap and the output gap, namely α and β are equal to 0.5. Looking at the evolution of three short-term nominal interest rates from early 2000s, it is immediately evident that

a comparison between the solid line and the dashed line offers plenty of support to the argument that between 2002 and 2005 the monetary policy of the Fed was too accommodative: on average over this period the Fed rate is about 200 basis point below the Taylor rule rate calculated by using headline CPI inflation and current output gap. However, the same conclusions do not hold when the solid line is compared with the dotted line: from 2003 the latter is only marginally above the Fed rate. More generally, several authors have shown that the magnitude of the deviations of the Fed rate from simple policy rules like the Taylor rule hinges on the choice of the appropriate measures of inflation, output gap and the weights α and β assigned to such factors, as well as on the preference for real time data or current data (see, e.g. Kohn, 2007; Orphanides and Wieland, 2008, and Dokko *et al.*, 2009). Once all these factors are taken into account, there is little evidence that monetary policy in US was too accommodative in the 2002-2005 period. Furthermore, looking at longer historical periods, there is even less evidence that the magnitude of the deviations of the Fed rate from simple policy rules is higher in the 2000s than in previous decades: if any these deviations were highly significant in the pre-1987 period, but they have since become modest, especially for the controversial 2002-2005 period.

Another way of assessing the argument linking accommodative monetary policy to the housing and credit bubbles is to look at the international evidence. Figure 6 below shows the actual interest policy rates (policy rates for short) along with Taylor rule policy interest rates (policy rules for short) for several countries, including France, Germany, UK, Switzerland, and US. The Taylor rule policy interest rates are computed by the International Monetary Fund (IMF) for the fall 2009 *World Economic Outlook* (WEO) according to equation (1) above. It is worthy to note that the inflation rates used in Figure 6 are the PCE index for US and the CPI for all remaining countries, while the target inflation rate is assumed to be 1.9 percent, and the output gap is estimated using the Hodrick-Prescott filter.

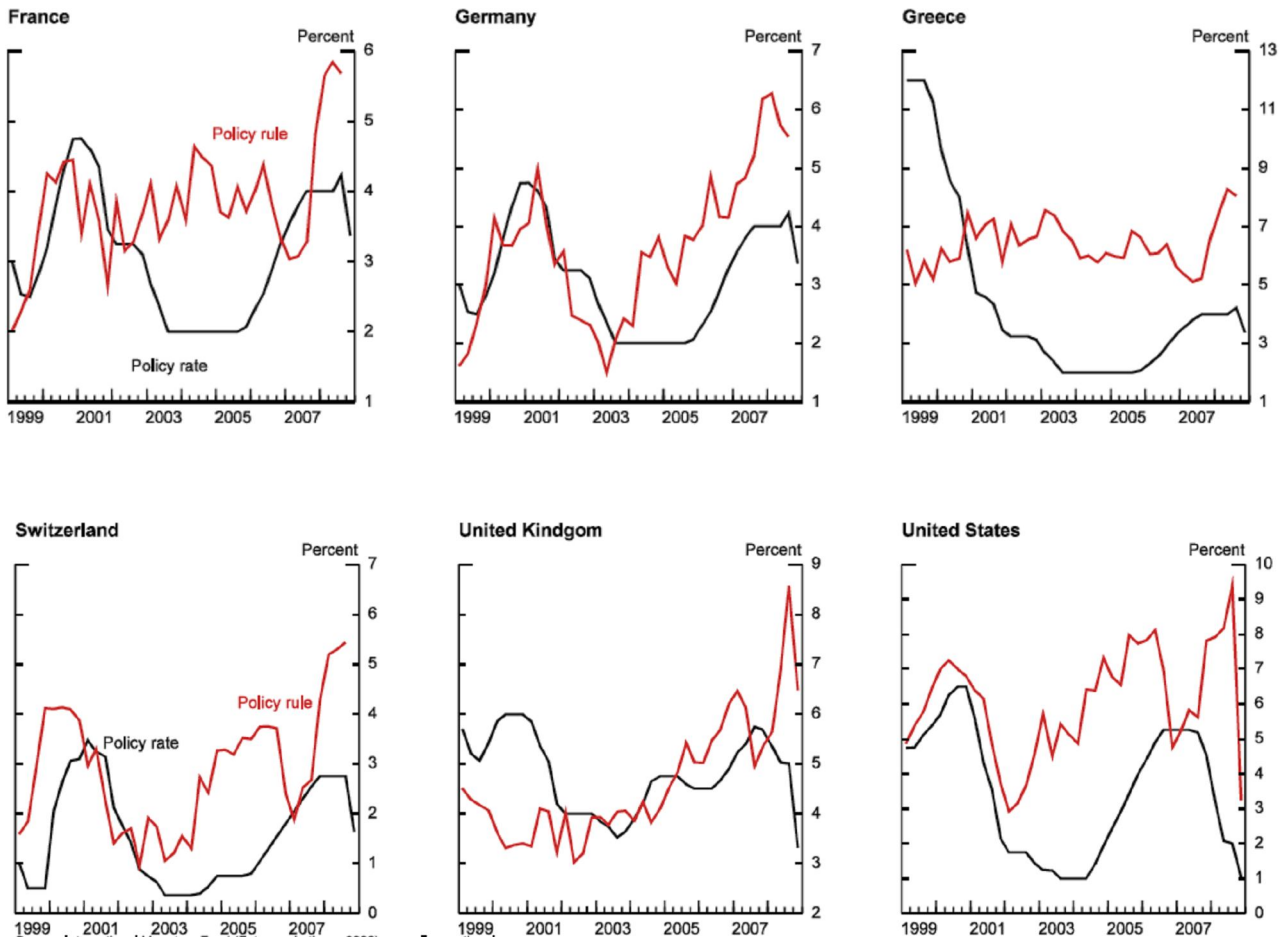


Figure 6: Comparison between the actual policy rate and the Taylor rule rate in France, Germany, Greece, Switzerland, United Kingdom, and United States (Source: IMF 2009, Dokko *et al.* 2009)

Overall, the international evidence presented in Figure 6 does not seem to support the argument that between 2002 and 2005 the monetary policies followed by many central banks around the world were too accommodative. For instance, while France and Greece seem to experience a significant difference between the Taylor rule rate and the actual policy rate, this experience is not replicated in other countries. More interestingly, United Kingdom had a housing bubble even bigger than US, but for most of the period the Taylor rule policy rate is often below rather than above the actual interest rate. At the same time, a bit like in the case of US, Germany and especially Switzerland did record a positive divergence between the Taylor rule policy rate and the actual interest rate between 2002 and 2005. However, Germany and Switzerland did not experience any housing bubble.

In conclusion there is little evidence that the monetary policies followed by many central banks around the world are the cause of the credit and house bubbles which have led to the financial crisis and related recession. Of course, whether monetary policies were too accommodative or not, it does not exclude that monetary policies could be questioned for not preventing or limiting the effects of the financial crisis. But this criticism calls into question the role of monetary policy in modern

economies rather than if monetary policy followed or not a simple policy rule à la Taylor. In this case, there are different questions to be asked. What is the role of a central bank in modern economies? What is the transmission mechanism of monetary policy? Are low interest rates a problem, how and when? The answers to these questions have been provided by the so-called New Consensus Macroeconomics model (Arestis, 2007; Fontana, 2010). Therefore, if any, the critiques of central banks must be directed to the NCM model and the way in which according to the NCM the central bank is supposed to affect the working of modern economies.

As matter of fact, as late as August 2008, Olivier Blanchard, the current chief economist of the International Monetary Fund, claimed that the state of macroeconomic was good. “Macroeconomics is going through a period of great progress and excitement, and that there has been, over the past two decades, convergence in both vision and methodology” (Blanchard, 2008, p. 26). This was a view shared by many academics and practioners: the degree of consensus achieved in macroeconomics has been unprecedented since the ‘Golden Age’ of the 1950s and 1960s. It is not a case that this view was labelled the New ‘Consensus’ Macroeconomics (NCM). This view is usually represented with the help of a 3-equation model made of an *IS*-type curve, a Phillips curve, and a Taylor rule representing the conduct of the central bank. All three equations can be derived from explicit optimizing behaviour of individual agents in the presence of market failures, including imperfect competition, incomplete markets, and asymmetric information. These market failures generate transitory price and wage stickiness, which play important role in relating the monetary policy rule to the *IS*-type curve: due to these nominal rigidities, by changing the short-run nominal interest rate, the central bank is actually able to control the short-run real interest rate. In terms of the mechanics of the model, the central bank plays a key role in adjusting the aggregate demand to the aggregate supply. It affects the consumption component of aggregate demand, and hence the current level of output. This is an important theoretical result, because it goes well with another important tenet of the NCM model, namely that low and stable inflation is conducive to growth, stability and the efficient functioning of market. When the economy is hit by shocks, taking it away from its natural path, the central bank is responsible for achieving the desired rate of inflation in the long run, and subject to that, also for bringing output and employment to their equilibrium levels in the short run. However, in pursuit of its objectives the central bank faces a short-run trade-off between inflation and output. This trade-off is captured by the Phillips curve, which can be thought as the aggregate supply component of the NCM model. In summary, the NCM model maintains a rigid separation between the aggregate demand, which is indirectly controlled by the central bank via changes in the short-run nominal interest rate, and the aggregate supply side, which depends only on exogenous changes in labour, capital and technology. This is what has been labelled the

principle of independence of aggregate demand and aggregate supply, the trademark of the neoclassical economic paradigm (Fontana, 2010). Putting it slightly different, the NCM view subscribes to the neoclassical principle that money and monetary policy is neutral in the long run. This view still provides the shared benchmark for the current work of a great majority of academics and practitioners. Despite all dramatic events of the financial crisis and related recession very little work has been done to challenge the long run neutrality of monetary policy (for a critique of the neoclassical foundations of the NCM model, and an alternative interpretation of the role of central bank, see Brancaccio (2009) and Brancaccio and Fontana (2011)).

5. Summary and Conclusions

Economies around the world are still suffering from what in retrospect it is likely to be judged the most virulent global financial crisis ever recorded together with a recession, which is second only to the Great Depression of 1929: the unemployment rate in US has risen from 4.7 percent in the fourth quarter of 2007 to 9.2 percent in the second quarter of 2009. Similar types of increases of the unemployment rate have been recorded for the same period by many countries: UK has moved from 5.1 percent to 7.76 percent, France from 7.54 percent to 9.11 percent, Spain from 8.61 percent to 17.9 percent, and Ireland from 4.64 percent to 12.02 percent (OECD, 2010). As a result of it, huge interventions of the monetary and fiscal authorities around the world have followed in order to contain the most deleterious effects of the financial crisis and related recession. This generalised weakness of aggregate demand has continued during the entire 2009, and it is unlikely to disappear soon.

The main purpose of this chapter has been to assess the conventional view that there are two main causes of the current crisis, namely the modern securitisation process and the accommodative monetary policy of the early 2000s. Certainly, there are several problems with the modern securitisation process. The incentive for the loan officer of a bank to collect information and properly assess the loan application of the borrower is diluted in the “originate and distribute model” that has now replaced the traditional “originate and hold” model. Furthermore, even if the information is collected there is very little chance that will be passed on to other banks and financial intermediaries due to the sheer complexity and opacity of the modern securitisation process. This is not to deny that securitisation is an extraordinary mechanism for credit-enhancement of credit sensitive assets. However, its future now hangs on balance. There are two critical issues that are in urgent need of a solution before another wave of triple-A rated products is allowed to flood modern economies. First, the ratings of structured finance products are very sensitive to modest changes in

the evaluation of the underlying default risks of the securities, and these default risks are likely to be heavily correlated. Secondly, structured finance products are inherently exposed to systematic risks. Certainly, there are also many problems with the accommodative monetary policy of the early 2000s. It is true that as a result of the 2001 recession many countries around the world slashed their policy rates to very low levels. For instance, in June 2003 the Fed rate fell to 1 percent, that is the lowest rate since the 1950s. However, overall there is little evidence that the monetary policies in the early 2000s are the cause of the credit and house bubbles, which have then led to the financial crisis and related recession. Germany and especially Switzerland in different ways did experience a favourable macroeconomic environment of low interest rates. Yet, they never experienced a housing bubble. By contrast, United Kingdom had a housing bubble even bigger than US, but the Bank of England has never been criticised for maintaining a policy rate too low and too long. As for the US, looking at the historical evidence, changes in the Fed rate were highly significant in the pre-1987 period, but they have since become modest, especially for the controversial 2002-2005 period. Of course, whether monetary policies were too loose or not, it does not exclude that monetary policies could be questioned for not preventing the financial crisis. But this criticism calls into question the role of monetary policy in modern economies rather than if monetary policy were too accommodative or not.

Overall, the paper draws two main lessons from the financial crisis. First, financial innovations and developments did not appear suddenly. They had actually started in the early 1970s as major features of the campaign for financial deregulation. These developments and innovations accelerated dramatically in the last two decades in parts as a result of a favourable culture which favoured market solutions to any form of government interventions. The events of the last few years cannot but call into questions this extreme form of pro-market thinking. Secondly, any critique to the role of the central bank in creating the favourable macroeconomic environment of low interest rates, which has allegedly led to the housing and credit bubbles, and hence to the financial crisis in US and then across the world, must be directed to the NCM model and the way in which according to the NCM view the central bank is supposed to affect the working of modern economies.

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