Transatlantic Financial Liberalization and Regulation: Capital Markets and the Role of Central Banks in the Light of Recent Financial Market Events

Willi Semmler[1] and Brigitte Young[2]

GARNET Working Paper No: 57/08
September 2008

ABSTRACT

This paper addresses issues that are involved in the financial market liberalization and transatlantic regulation. Whereas the discussion in previous years has concentrated on the benefits of the financial market liberalization for both sides of the Atlantic, due to recent credit and financial market crises, the cost of fast and excessive financial liberalizations has come into focus. In the literature on Capital Market Liberalization (CML) it has become clear in the last two decades that the issues of CML are more complex than for example trade liberalization of goods and services. In contrast to the theory of perfect capital markets, we here start from the more realistic assumption of imperfect capital markets. We deal with the benefits but also the potential shortcomings of CML. Too fast liberalized capital markets, for example a CML with a wrong sequencing, can trigger financial instability, contagion effects and strong negative effects on the real side of the economy. Thus, capital market liberalization – at least in the short run—does not necessarily show the same beneficial effects as product market liberalization. We also show that what is understood under CML appears to differ on both sides of the Atlantic. In particular, this perspective seems to hold true on oversight and regulation of the financial markets. In the US, regulatory institutions are more akin to represent some type of self-control of the market and are market friendly, whereas politicians in Europe seem to support more public regulations and oversight. We discuss the causes and effects of the current financial market melt down and the role the Central Banks and how they have react to the currently evolving financial market turmoil on both sides of the Atlantic. Finally we discuss and analyse in detail the proposed financial market regulations as they were triggered by the recent financial market crisis.

[1] Department of Economics, New School, 79 Fifth Ave, New York, NY 1003, email:semmlerw@newschool.edu
[2] Department of Political Science, University of Muenster, Germany , email: byoung@uni-muenster.de

I: INTRODUCTION

This paper addresses some major issues that are involved in the financial market liberalization and regulation. Whereas the discussion in previous years has concentrated on the benefits of the financial market liberalization for both sides of the Atlantic (see Council on Foreign Relations, 2002), due to recent credit and financial market events, the cost of fast and excessive financial liberalizations has come into focus.

In the literature in the last two decades on Capital Market Liberalization (CML) it has become clear that the issues of CML are more complex than for example trade liberalizations of goods and services. In contrast to the theory of perfect capital markets, we here start from the more realistic concept of imperfect capital markets. It is from this perspective that both possible benefits as well as costs of CML can appropriately be evaluated. Much of this concept of imperfect capital markets is developed in Semmler (2006).

The remainder of the paper is organized as follows. Section II of the paper discusses important issues of CML and sketches briefly the history of the successes and failures of CML. Section III studies the capital markets on both sides of the Atlantic. Section IV deals with the currently ongoing financial market crisis. Section V studies the central bank policies and the issues they face arising from the financial market turmoil. Given the recent financial market instabilities in the US, and its world wide spill-over effects, section VI explores the challenges that regulators now face. We here discuss new regulatory proposals that have come into the public discussion on financial market crises and regulation. Section VII draws some conclusions. The Appendices 1 and 2 present the data and figures describing the current financial market melt down, triggered by the US subprime crisis.

II: CAPITAL MARKET LIBERALIZATION AND ITS PITFALLS

a) Role of Financial Markets in Market Economies

We first want to discuss the benefits but also the potential shortcomings of Capital Market Liberalization (CML). Let us remind ourselves what the functions are that the financial market has in a market economy. The financial market performs the essential role of channelling funds to firms that have potentially productive investment opportunities. Moreover, they also permit households to borrow against future income and allow countries

to access foreign funds and, thus, accelerate economic growth. As financial markets have expanded across borders, they have significantly impacted not only on economic growth, but employment and policy as well.

Financial deepening is usually accompanied by waves of financial innovations. Recent new financial innovations are hedge funds and options and derivative instruments. Collateralized debt obligations (CDOs) and Collateralized loan obligations (CLOs) are financial instruments where households' and companies' loans are turned into tradable securities. These are relatively new financial instruments that diversify risk for the issuer of households` mortgages or commercial credits. The number of such innovative financial products have grown rapidly, in fact credit derivatives in the form of credit default swaps, mortgage-backed securities, or loan backed securities have expanded exponentially, but so too have financial markets for them which have greatly enlarged.

Given the modern financial markets and the new financial innovations and instruments what general issues do they raise:

- What are the specifics of the major financial markets and do they differ in importance as to how they impact economic activity? Does the deepening and liberalization of the financial marketplace stimulate or retard economic growth? Will developed financial markets and new financial innovations lead to a more efficient use of resources?
- Has the deepening and liberalization of the financial marketplace decreased or increased the volatility of macroeconomic variables, e.g., output, employment, balance of trade, interest rate exchange rates, money wages, the price level, and stock prices? Has, in spite of the fact that risk is diversified for the individual issuer by financial market innovations, financial risk economy-wide increased and will financial liberalization lead to booms and bust cycles?
- Are asset price inflation, deflation, and volatility harmful to economic activity? How do asset prices, alone or through credit channels, affect business cycles? Can an asset price boom also lead to an economic boom? Do asset price booms have a persistent effect on economic growth?
- Do monetary and fiscal policies influence the financial market and how do financial markets influence government policies? How effective are these

policies in open economies with free capital flows and volatile exchange rates? Should governments or monetary authorities intervene to stabilize asset prices or credit markets? How effective can central banks' monetary policies be, given the innovation and also risk of then financial market instruments. To what extent should financial markets be constrained and regulated?

These are important questions that are also relevant in thinking about opening up the Transatlantic financial markets for unrestricted capital flows. But let us first go back the history of capital market liberalization (CML).

b) A Historical Note on the CML

As above indicated CML has been a popular topic since the 1980s and 1990s. Financial liberalization has actively been advocated by such organizations as the International Monetary Fund (IMF) and the World Bank (WB) and has been pursued by many governments since 1980s. Even under the Clinton government CML has been strongly pursued, in particular when Larry Summers became Undersecretary of Treasury and when NY Wall Street rose to an influential institution in the Clinton Government, for example after the appointment of Rubin as Secretary of Treasury. At the same time, the Fed Governor Alan Greenspan was strongly promoting globalization, in particular globalization of the capital markets. After the fall and breaking up of the of the Soviet Union he thought there will be a long period of expansion of the world economy due to the establishment of global markets for products and financial services.

Yet, others have maintained that it is not surprising, that the rapid enlargement of the financial market has led to more financial instability which, in turn, can be devastating, see for example Stiglitz et al (2006). For example, the Mexican (1994), Asian (1997/8) and Russian (1998) financial crises demonstrated the degree to which a too-rapid market liberalization could lead to a currency crisis wherein a sudden reversal of capital flows was followed by financial instability and a consequent decline in economic activity.

Again, during the period from 2001 through 2002, the United States and Europe experienced a significant decline in asset prices, commonly referred to as the bursting of the Information Technology (IT) Stock Market Bubble. Here, the combination of a decade of dubious accounting practices, short-sighted investment, and outright fraud (as in the Enron case, for

an evaluation of the latter events, see MacAvoy and Millstein, 2004) led to a situation in which the public-at-large became suspicious of accounting practices and equity valuations with consequent high volatility and negative pressure on asset prices became the not so surprising result. It is interesting to note that this very volatility and lack of trust, especially when combined with the increasing globalization of the markets, have led to new financial products and new excitement in these same markets. The post-crash phenomena were seen as opportunities by clever traders, for new financial innovations and for globally operating investment firms. Usually the operations were undertaken with little or un-checked collaterals on the borrowers side. From this followed another financial market crash, the subprime and credit market crises starting in 2007 and still continuing these days, see the figures in the Appendix 1.

On the other hand, the liberalization of financial markets has been more positively evaluated by other circles. An emphasis of the benefits of financial globalization in general can be found with the American business and financial community, and also the Council on Foreign Relations. The Report by the Council on Foreign Relations for example is emphasising what has been viewed as positive effects by supporters of CML since the 1990s. The Report is strongly pushing for transatlantic liberalization, citing mainly the possible **benefits** of free capital mobility such as:

- reducing trading cost, and in particular low cost of financial transaction,
- increase of investment returns,
- lowering the cost of capital when firms invest
- increasing liquidity in the financial market and
- increasing economic growth and positive employment effects on both sides of the Atlantic**.**

Surely, CML has benefits. Yet, as aforementioned, there are also costs of fast CML, in particular CML with inappropriate sequencing.

Often the theory of perfect capital market has been used in order to justify fast and radical market liberalizations, i.e., product and capital market liberalizations. Also the above stated report by the Council on Foreign Relations is not free of such a charge. We here do not want to go further into the political motivation and strategic thinking behind the fostering of quick

capital CML. Yet, whereas some part of the academic profession broadly continues to see benefits outweighing the costs of market liberalization for goods and services, other see problems and the strategy of rapid CML has recently become under scrutiny. Too fast liberalized capital markets, for example a CML with a wrong sequencing, can trigger financial instability, contagion effects and strong negative external effects on the real side of the economy. Thus, capital market liberalization -- at least in the short run-- does not necessarily show the same beneficial effects as product market liberalization.

c) The Negative Externalities of fast CML

Negative externalities of fast CML are stated in the recently published book by Stiglitz et al. (2006). This book gives a fair account of the pro and cons of fast CML. The major argument of the authors is that too fast a CML leads to financial instability and boom and bust cycles, hampering economic growth in the long run. Taking the view that capital markets are basically imperfect, they argue that free capital markets have significantly different effects than free trade. CML might not produce the promised benefits but as Stiglitz et al (2006) summarize:

- National fiscal and monetary policies become difficult to pursue, since national government have to exclusively respond to the signals of the capital market, when pursuing policy objectives
- Boom and bust cycles may be emerging instead of steady development (booms in housing sector, in land prices and equity prices as well as consumer purchases of imported good lead to distortions of balanced growth, and are usually corrected by periods of busts)
- Financial instability and credit crises, leading to a general contraction of credit and higher risk premia for loans, hamper the economic development
- There are strong contagion effects of financial busts, since capital movements – the inflow and outflow of capital -- are fast as compared to the change in trade flows
- The low income segment of the population as well as small businesses cannot insure and protect themselves against the risk that arises when bubbles burst and recessionary periods occur (or are prolonged). Indeed, those groups are mostly affected.

Thus the proponents of (fast) CML frequently overlook the imperfectly working of capital markets and attribute too much of a self-correcting mechanism to the capital markets. Frequently there is also mentioned insufficient regulatory or supervisory institutions for the banking system, the stock market or real estate market such that there are no stabilizing forces or safety nets for certain countries--- this in particular holds, as recent history of financial events have shown, for emerging markets and developing economies. Yet, even advanced countries with a long tradition of regulatory institutions such as banking and stock market regulations are also not protected from such events and the negative externalities of financial crashes and busts --- as recent history, after the introduction of a new wave of financial innovations, has shown.

d) How does Economic Theory see CML?

Both theoretical and empirical work on the relationship of financial and real activities has been undertaken by different schools of economic thought. One currently prominent school refers to the theory of perfect capital markets. Perfect capital markets are mostly assumed in intertemporal general equilibrium theory (stochastic growth and Real Business Cycle (RBC) theory). Yet they include no explicit modelling for the interaction of credit, asset prices, and real activity. In contrast to this, many theoretical and empirical studies have applied the theory of imperfect capital markets. Moreover, there are other traditions,
e.g., the Keynesian tradition as revived by Minsky (1975, 1986, 1998) and Tobin (1980) that have been very influential in studying the interaction between financial markets and economic activity. There is, currently, also another important view on this interaction and this is represented by Shiller's (1991, 2001) overreaction hypothesis.

The research that has influenced our thinking here is heavily influenced by Keynesian tradition, yet one can also draw upon recent developments in information economics, as developed by Stiglitz and others wherein systematic attempts have been made to describe how actual financial markets operate. Many studies of financial markets, for example this is Stiglitz`s view, claim that a crucial impediment to the functioning of the financial system is asymmetric information. In this situation, one party to a financial contract has much less information than the other. Borrowers, for example, usually have much better information about the potential returns of their investment projects and the associated risks than do the potential lenders. Asymmetric information leads to two other basic problems: adverse selection and moral hazard.

Adverse selection occurs when those borrowers with the greatest potential for default actively seek out loans. Since they are not likely to repay the loan anyway, they may offer a high interest rate. Thus, those borrowers who lenders should most avoid are most likely to obtain loans. If the percentage of potentially "bad" borrowers is perceived as too high by the lender, he/she may simply decide to ration loans or to make no loans at all.

Moral hazard takes place after a transaction has taken place. Here, lenders are subject to hazards since the borrower has incentives to engage in activities that are undesirable from the lenders point of view. Moral hazard occurs if the borrower does well when the project succeeds, but the lender bears most of the cost when the project fails. Borrowers may also use loans inefficiently, e.g., personal expenses. Lenders may impose restrictions, face screening and enforcement costs, and this may lead, in turn, to credit rationing for the entire population of borrowers.

The existence of asymmetric information, adverse selection, and moral hazard also explains why there is an important role for the government to play in the regulation and supervision of the financial marketplace. To be useful, regulation and supervision mechanisms must aim towards the maximization of access to information, while minimizing adverse selection and moral hazard. This requires the production of information through screening and monitoring. Firms and banks need to be required to adhere to standards of accounting and to publicly state information about their sales, assets, and earnings. Additionally, safety nets for institutions as well as for individuals are necessary to avoid the risks of a rapid liberalization of financial markets.

Already in the 1990s much critical work on this was published. Mishkin (1998), for example, has posited an explanation of the Asian financial crisis of 1997/8 using the above information-theoretic ideas. A similar theory by Krugman (1999, 2000) laid the blame on banks' and firms' deteriorating balance sheets. Miller and Stiglitz (1999) employ a multiple-equilibria model to explain financial crises in general. Now, whereas these theories point to the perils of too fast a liberalization of financial markets and to the role of government bank supervision and guarantees, Burnside, Eichenbaum, and Rebelo (2001) view government guarantees as actual causes of financial crises. These authors argue that the lack of private hedging of exchange rate risk by firms and banks led to financial crises in Asia. Other authors, following the bank run model of Diamond and Dybvig (1983) argue that financial

crises occur if there is a lack of short-term liquidity. Further modeling of financial crises triggered by exchange rate shocks can be found in Schneider and Tornell (2004) and Edwards (1999) and Rogoff (1999), the latter discuss the role of the IMF as the lender of last resort. Recent work on the roles of currency in financial crises can be found in Aghion et. al. (2004), Corsetti et al. (1998), Flaschel and Semmler (2007), Proano, et. al., (2006), Kato and Semmler (2005) and Roethig, Semmler and Flaschel (2007). The latter authors pursue a macroeconomic approach to model currency and financial crises and consider also the role of currency hedging in mitigating financial crises. Recently, since 2007/8, many research papers in the same vain have piled on the web-site of the Fed, in particular papers by Bernanke and Mishkin, see Bernanke et al (1983; 1994; 1998) and Miskin (1998, 2008).[3]

III: THE DIFFERENT CAPITAL MARKET REGULATORY REGIMES IN THE US AND EUROPE

While the US and EU play the dominant role in global financial markets as both the largest and most liquid financial markets worldwide, they operate under quite different regulatory regimes. Despite these continuing regulatory differences, the degree of market integration between the two transatlantic markets has increased over the last two decades, as formal barriers to trade and investment have been reduced and financial markets have been increasingly liberalized on both sides of the Atlantic. The recent subprime crisis is a good illustration of how quickly the effects of the leveraged loan market failures were transmitted to Europe and elsewhere. The subsequent joint transatlantic policy response to the financial crisis was a further indicator of the increasing transatlantic interdependence of financial markets. But despite the fact that formal barriers to free flows of capital have been removed, differences in licensing rules for financial service providers and products, conduct of business, investor protection, and reporting requirements continue to restrict the free market

[3] As shown above, many observers of the financial crises in emerging markets during the period 1997 - 1999 were very quick to blame loose standards of accounting, the lack of safety nets, etc. as being root causes. Yet, the years 2001 - 2002 have already shown that even advanced countries e.g. the United States, Europe, and Japan cannot escape excessive asset price volatility and financial instability. As things have turned out, however, the same loose accounting practices, the lack of supervision by executive boards and regulatory institutions, and the role of big banks in helping to disguise huge corporate debt has led to a general distrust by shareholders and the general public with respect to "fair" asset prices. Moreover, the experience of the most recent financial market disruption point to a host of additional failures in the financial market oversight and regulation, to be further discussed below.

access on both sides of the Atlantic, which increases the transaction costs for market participants and investors in Europe and the US (Deutsche Bank Research 2008).
Historically, the US regulatory regime has relied more on market-control whereas in Europe, until the capital market reforms in the latter half of the 1990s, financial market regulation and supervision was the domain of national public authorities. Today's regulatory frameworks in the US and, until recently, in member states of the European Union, are the result of policy rules formulated in national capitals for purely national financial markets. Only with the reform of the EU capital markets along the Financial Service Action Plans (FSAP), tabled by the EU Commission in May 1999, and the new decision-making procedures known as the 'Lamfalussy process", accepted at the Stockholm Council Meeting in 2001, has the more restrictive European national-state-based regulatory system of the early 1990s given way to the supranationalization of capital markets in the EU (Mügge 2008). To integrate and Europeanize the financial markets, the Lamfalussy Plan proposed central bodies in the form of the European Securities Committee (ESC) and the Committee of European Securities Regulators (CESR), staffed by member state representatives and an advisory committee of national experts (Donnelly 2007). In particular, the CESR has since been recognized as one of the central bodies in EU capital market regulation. As a result of the new rule making authority in the EU, capital market regulation has changed fundamentally. Its novelty lies in its supranationalization supplanting the fragmented national regulatory rule-making of individual member states (Mügge 2008; Donnelly 2007; Posner 2008; Bieling 2003).

In contrast to this more centralized institutional EU regulatory framework (Posner 2008), the United States still relies on regulatory institutions created in response to the financial meltdown of the 1930s. The goal was to create independent regulatory institutions, such as the Security and Exchange Commission (SEC), to take politics out of national regulation and ensure a more market-oriented regulatory environment. But this independent regulatory framework has had the effect of creating regulators who tenaciously defend their autonomy against political intervention, and are reluctant to give up their independent powers (Evenett and Stern 2008).

To overcome the fragmented regulatory environment across the Atlantic and reduce the impediments to transatlantic financial integration, Angela Merkel as President of the European Council, and George W. Bush, President of the United States, put forward an initiative in April 2007 for joint transatlantic cooperation and risk control. The *Framework*

for Advancing Transatlantic Economic Integration Between the European Union and the United States of America, Annex 6 explicitly addresses the differences in the financial market structure and regulations on both sides of the Atlantic and its intent to advance convergence and cooperation between EU and US financial regulators. It is estimated that the greater integration could result in savings in transaction costs per year USD 48 billion in securities trading alone, and create the basis for annual transaction volume to rise from USD 21 trillion to USD 31 trillion (Deutsche Bank Research 2008: 1). The US, according to Al Hubbard, director of the White House National Economic Council, fully supports the call by Angela Merkel, to use political pressure "to convince the bureaucrats to make regulatory reforms that will result in a reduction in barriers between the European Union and the US" (Financial Times 2007).

Even if the United States and the EU are "condemned to co-operate" as Charlie McGreevy, the European Commissioner responsible for the Internal Market suggested (Evenett and Stern 2008), it is much too early to evaluate the likely outcome of this ambitious goal to strengthen economic integration across the Atlantic. The informal Financial Markets Regulatory Dialogue has met regularly and served as a platform for discussing policy responses to the subprime crisis. At their recent meeting in June 2008, the SEC and the EU Commission agreed to pursue mutual recognition as the main instrument for further integration and to develop an agenda in order to review the current positions of the US and EU in global financial markets and the remaining regulatory barriers, discuss the strategies to resolve these issues and the institutional framework in place, and address the policy initiatives going forward. Mutual recognition, which in fact the EU Commission had also chosen over full harmonization as an approach to integrate the EU capital markets, means that each country recognizes regulation of the other country as fully equivalent, and "allows market participants or products licensed in country B to move freely in the host market without additional requirements" (Deutsche Bank Research 2008: 14).

It remains to be seen, if US regulators are willing to consider the cross-border consequences of their actions and share regulatory powers multilaterally (Evenett and Stern 2008). Due to the US hegemony in global financial markets, there is, as Simmons (2001) has pointed out, little incentive for the US to adjust its own policies in response to external pressures. However, the gross deficiencies in the US regulatory system which have surfaced during the

recent subprime crisis may open a window of opportunity and a policy space to change the present regulatory power equation.

IV: CAUSES AND EFFECTS OF THE CURRENT FINANCIAL MARKET CRISIS

Next it is worth focusing more in detail on the current financial market events, in particular the US subprime crisis, how it evolved as financial market melt down and created contagion effects for Europe. Both Central Banks, the Fed and the ECB --- and regulatory institutions-- face new challenges, given the spread of the financial market crisis on both sides of the Atlantic. Yet, let us first survey briefly what has led to the financial market melt down since the middle of last year.

As recent events have shown, reflected also in recent academic debates, there are large externalities and contagion effects arising from financial instabilities -- either arising from the stock market (as in the 1990s) or from the credit market, for example as now triggered by the subprime crisis. The evolution of the subprime crisis and its effect on the financial sector in the US is described by using some detailed figures in the Appendices 1 and 2. There it is shown that

- the current financial market crisis originated in low interest rates, rapidly rising household debt, and a bubble in the housing market (high housing prices compared to fundamentals),
- the bubble is accelerated by the outsourcing of risk due to the securitization of mortgages (that have been packaged and sliced in risky securities of different types, CDOs),
- expectation of returns from investment in real estate and CDOs were rising (due to low interest rates, low default rates and high discovery rates)
- liquidity in the housing sector (and financial market) was pumped up by capital inflows
- the burst of the bubble was triggered by Bear Stearns` hedge funds` failure, triggering a credit crunch in the banking sector
- suddenly default risk and risk premia were shooting up and a credit crunch occurred (as at the beginning of all town-turns),

- the feedback to the real sector makes then the growth rate of the GDP falling, with further feedback effects from the real to the financial side (a recession is defined by the NBER as negative growth rates for two quarters)

Indeed, one can show that this time the financial market crisis originated in the housing market and then was transmitted to the banking sector. This has not been always so. Often a stock market crash triggers the downturn, but not this time. The stock market reaction came later. When the investors in subprime mortgages felt the first fall out, the holders of those securities felt a massive credit crunch (starting with the two Bear Stearns` hedge funds in the Summer 2007). Subsequently many big investment banks in the US –and in Europe-- where threatened by insolvency (see Bear Stearns, Merrill Lynch, Citibank, Morgan and Stanley, but see also the two German Banks, and the BLB). Thus, now the credit crisis appears to also spreading to Europe.

V: FINANCIAL MARKET CRISIS AND MONETARY POLICY

As the financial market melt down evolved, this became a great challenge to the central banks. Often the central banks, in spite of their initial denial, are forced to heavily intervene in the financial markets (in the stock market or credit market). Although traditionally only inflation targeting was the proclaimed goal of the central banks, yet recently both the Fed and the ECB have moved away from this and heavily intervened in the financial market.

We want to note that a strong sporadic intervention has already been undertaken under Greenspan, since the 1990s. A detailed evaluation of the central banks' action with respect to the stock market, during the technology bubble, and their potential success or failure can be found in Greenspan`s recent book. As it was well understood at that time, of course, monetary authorities can and should not target specific levels of asset prices. There are fundamentally justified movements in asset prices -- for bond prices, credit cost, stock prices and exchange rates. Although asset price misalignments, see the BIS survey, are difficult to measure, as are potential output, future inflation rates and equilibrium interest rates, this should be no reason to ignore them. For a more detailed analysis and for the issues involved, see Cecchetti, Genberg, Lipsky and Wadhwani (2000) and Semmler and Zhang (2002). Monetary authorities should help to provide stability for the financial market and reduce the

likelihood of financial instability. In the earlier literature, with a view on the 1990s, this was discussed with respect to the extreme changes in asset prices, in particular stock prices.

Now, with the outbreak of the credit crisis triggered by the subprime sector and the entailing financial melt down, in particular in the credit sector, central banks intervention in the credit sector became a major issue. As abovementioned, though traditionally only inflation targeting was the proclaimed goal of the central banks, yet recently both the Fed and the ECB undertook drastic actions --- and also coordinated world wide actions--- to prevent the credit crisis from spreading and a financial market melt down. In November 2007 a joint action of Western central banks were undertaken to provide more liquidity for the private sector, in particular for the banking sector, given the clear sign of a credit crunch. Moreover, the US Fed provided more liquidity in the first quarter of 2008, first a plan of inject $200 bill and then actually assisted in bailing out Bear Stearns by JP Morgan in the middle of March. Moreover, overall, up to the time this paper was written in September 2008, the short term interest rate in the US had been taken down from 5.25 % to 2.00%.

For the interested observer this change in direction of monetary policy from inflation targeting to heavy intervention in the financial market did not come without surprise. Ben Bernanke, now the Fed Chair, had already written academic papers that advocated a strong intervention of the central bank in case of a financial market melt down, see Bernanke et al (2004). Already in his earlier papers Bernanke and co-authors had put forward the view that the central bank should buy private assets if it had come to an end of its interest rate policy. This not only would prevent further fall in asset prices but in particular drive down the long term interest rate. Though the paper originally was written with an eye on the Japanese long period of stagnation, starting in the 1990s, when the zero inflation rate and almost zero interest rates, did not leave any room for monetary policy, Bernanke and co-authors hint already at a possible US application. Now, in fact the US central bank had been applying this non-traditional monetary policy, the success of which still has to be judged in the future.

On the other hand, the European Central Bank the ECB, was always more conservative in its monetary policy stands, first by applying the two pillar concept and second giving more attention to the inflation rate than to output or the financial market and its possible externalities to the real economy. The two pillar concept is that the ECB kept the tradition of controlling the money supply, as advocated by the Bundesbank, but at the same time it

pursued direct inflation targeting through discretionary interest rate setting. Further development in the financial market sector and spillovers of the financial meltdown to the EU will test whether the ECB is equipped to deal with severe financial market turmoil. Peter Praet, an official of the Belgium Central bank, stated on March 17, 2008 at the London school of Economics "If a major European (financial) institution were to get into trouble, the institutional mechanism that are in place could be too weak to handle it" (FT, March 18)

Overall, the claim of the recent monetary concept, that the central banks should restrict themselves to inflation targeting, giving some weight to output targeting, came under stress not only in the 1990s already but particular since the outbreak of the subprime crisis and the ensuing credit crisis and financial melt down. It would indeed be a too easy a concept that the modern central bank undertake some fine tuning of the economy, engineering interest rate changes in some direction and steering the economy toward some steady employment, or "natural rate of unemployment". As Ned Phelps, the Nobel Laureate in Economics of 2006 often writes, in a dynamic capitalist market economy there is too much uncertainty of what the natural rate of interest is, and what the medium run natural unemployment rate will be, in order that the economy could be steered, with not much inflation rate, close to it: both "natural rates" are "always shifting, temporarily or permanent, with new developments" (Phelps , in Wall Street Journal, March 14, 2008). Now a new uncertainty is added to the central bank challenges: the uncertainty of an evolving financial market melt down.

VI: FINANCIAL MARKET CRISIS AND FINANCIAL MARKET REGULATIONS

As we have shown in section II of the paper the role of financial markets has grown due to deregulation, liberalization of capital accounts in many countries, financial innovations and development of new financial instruments such as financial derivatives, CDS, CDOs, LDOs and so on. For some countries CML has been accompanied by an economic boom. On the other hand, numerous countries have experienced major episodes of financial instability, some times with devastating effects on economic activity, and thus boom and bust cycles, often entailing declining economic activity, large output losses and strong negative effects on the low income segment of the population and small businesses, which cannot insure themselves against those large financial and real shocks.

As we have stressed, a particularly great concern of our study are the externalities that the financial markets can create when financial bubbles burst. As we currently can observe, the

burst of the real estate bubble in the US and the fall-out for the US banking system had severe real effects, triggering a recession in the US.

Traditionally, for most advanced countries such negative externalities of the burst of financial market bubbles have been observed a long time ago. In order to prevent this, it had not only required regulatory institutions and public screening and monitoring of the financial market, but firms and banks were required to adhere to strict standards of accounting and publicly reveal information on assets, debt and earnings. As has been realized, fast liberalization of the financial market entails that there is a great risk if there is insufficient financial market regulation, inexperienced and loose supervision, no disclosure requirement, no screening and monitoring of financial institutions and no secure safety net for the financial institutions (for example, insurance for bank deposits (as enacted in the 1930s). Yet, weak accounting standards and loose supervision cannot only be found in emerging markets, but also in the US and advanced countries, as the book by MacAvoy and Millstein (2004) demonstrates. The latter authors have strongly endorsed additional regulation, by testifying in front of congress when the Sarbanes-Oxley act was initiated after the Enron-collapse.

Now, the recent financial market event, in particular the subprime financial crisis in the US, has transformed itself into a credit crisis and financial market melt down. This has triggered a new discussion on financial market regulation and oversight. In the US, due to the recently triggered huge financial losses of investment banks, mortgage firms and commercial banks, the media, regulatory institutions, (such as the SEC) and the congress (see the testimony by Robert Kuttner) have vigorously put forward new ideas on the oversight and regulation of the financial markets. A similar discussion has started in Europe. Recently, for the G7 meeting on April 12, 2008, the Financial Stability Committee (a Committee initiated by the G7 Finance Ministers and Central Bank Governors in October 2007) has recommended actions to "Enhance Market and Institutional Resilience". Also, Congress in the US has held many hearings and suggested many measures to improve regulation and oversight of the financial market.

Now, after numerous discussion and studies the following consensus as to financial boom-bust cycles seems to be widely emerging:

1) Bubbles are common in financially driven market economies, and the subprime case has all the makings of a typical financial market bubble.
2) Bubbles have huge negative externalities when they burst, but they might have also positive real effects while they are building up.
3) Bubbles should be contained by risk management, regulations and oversight; the public should not bear the cost of insolvencies, but should bear the cost of providing liquidity.

Each of these can be spelled out further:

1) Bubbles are common in financially driven market economies, and the subprime case has all the makings of a typical financial market bubble

The subprime crisis arose from overuse of an imperfectly understood financial innovation. This was the securitization of credit risk through CDOs – which were supposed to make the economy safer. Yet, instead their widespread use in the mortgage market contributed to a typical financial market bubble very similar to others that the US and other advanced macro economies have seen. These go back a long time: there was the Florida real estate bubble in the early 1920s, the stock market bubble in the late 1920s, the tech stock bubble in the late 1990s, the real estate bubble in the UK in the early 1990s, and the US since 2000, and the bubble in the futures market for oil and other resources, in recent times. These bubbles have tended to happen more frequently, the more the financial market has been deregulated (the Glass–Steagall Act, introduced in the 1930s, restricting the banks to hold other financial assets than treasury bonds, was removed in the 1999. Indeed, provisions which prohibit a bank holding company from owning other financial companies were repealed in 1999 by the Gramm-Leach-Bliley Act.

Usually, as we have shown in section III, as a bubble develops, asset price inflation and credit expansion usually move in tandem. The bubble will be particularly pronounced when the financial sector expands more rapidly than the rest of the economy, as has happened in the US. This pattern can be seen in the subprime market: with a low cost of borrowing (low interest rates) and expected prices of the subprime assets rising (due to expected adjustable interest rate etc.), incentives developed to hold an excessive amount of inventories of subprime CDOs; this also created incentives for banks to finance those inventories through loans (even though the collateral might be suspect): eventual sales of such inventories seemed to promise huge margins. Yet, the data on returns from CDOs is scarce, and there were only a few academic studies on how large the expected margins might be, as compared to the returns

on other assets. Finally, there was no specific market to evaluate such assets and the actual profitability of those of CDOs, and the more risky tranches of it, went down to due to higher default risk and lower recovery rates, which the actually produced the collapse to those highly risky securities, see Bernhard and Semmler (2008).

2) Bubbles have huge negative externalities when they burst but they may have also positive real effects while they are building up

It is a mistake to think that all bubbles are all bad; in fact some bubbles leave the economy significantly better off - with higher productive capacity, more and better skills and higher income. A good example is the technology bubble in the US in the late 1990s. The US had its bubble and strong growth --- Europe had no bubbles and no economic growth. Recent financial market innovations also enhanced economic growth and facilitated the purchase of houses for the low income sector.

On the other hand, financial bubbles do have negative effects, even apart from the damage when they burst. For example they may produce or enhance uneven income distribution (tides do not lift all boats, but mainly yachts) and they may lead to misallocation of resources (e.g. the huge build up of optical fiber in the US). And even before it bursts, the bubble creates financial instability; other sectors may be pulled into unwarranted booms. With the bubble or bubbles bursting then, there will be huge externality effects, falling asset prices in the bubble will pull down other asset prices, the value of collateral will fall, and loans will be called in; credit markets will contract, and financial institutions will suffer. Many completely 'innocent' agents – who made no unwarranted or speculative decisions - will be dragged down, and this will spill over onto the real side of the economy—thus leading to a negative impact on employment and output.

In general, and particularly for the recent subprime bubble, we can say that the risk that has been built up has had two components:

a) Idiosyncratic risk

This applies to the individual financial institutions. This is risk from high expected margins, cheap sources of funding for speculative or Ponzi positions, lack of adequate or internal risk assessment and in the financial institution itself, lack of diversification (all parties follow the same strategies, for example attempting to replicate the hedge funds' beta), lack of sufficient capital requirements, underrated risk by rating agencies, and lack of accountability.

b) Common risk

This arises from higher interest rates, falling consumption and investment demand, sudden increases in risk perception (emerging credit defaults, swaps and spreads rising), correlated risk and tighter credit markets with increased credit constraints.

Widespread build-up of idiosyncratic risk can then lead to the emergence, even the sudden emergence, of a dangerous level of common risk.

3) Bubbles should be contained by risk management, regulations and oversight, and the public should not bear the cost of insolvencies, but it should bear the cost of providing liquidity.

There should be a revival of serious discussion on banking regulation, and on the regulation and oversight of other financial institutions, but this discussion should not pretend to remove or avoid all financial bubbles. First, this may be too much to ask of government, but, second it also is not needed, given the remarks above.

A) What Academics have proposed:

a) increased personal **accountability** of the executive decision-makers, particularly the top CEOs of financial institutions (see the Sarbanes- Oxley act, triggered after the Enron collapse).

b) there should be more effort made **of better risk management**. Inside financial institutions risk control divisions should be set up; proper risk assessments should also be made through independent rating agencies, so that a proper risk assessment takes place (federal oversight of rating agencies as introduced by the Sarbanes-Oxley act).

c) capital requirements should be increased for the financial institutions - in particular those that are not required by law to hold reserves at the Central Bank. I has also been suggested to enforce procyclical capital requirements, see for example the suggestion by Goodhart. Capital requirements, in particular should be increased for the new financial products, such as certain complex credit products.

d) incentives should be provided to financial institutions for a **diversification of capital assets**, so that financial institutions should not follow the same strategies --- e.g. all holding promising subprime CDOs with high expected margins.

e) better and **faster enforcement of Basle II agreements** (which do not seem to have been enforced much in the US). According to State regulatory agencies, Basel II has been approved through the federal State, at the time of the agreement, but not by the regulatory agencies of the States (which appear to act independently)

f) there should be **better information and transparency**, for example, quarterly reports to the SEC, transparency of risky exposure by banks, investment firms and Hedge funds, and independent scholarly work on asset returns in new areas of financial innovations (the magnitude of returns from assets are roughly known - for example equity returns, bond returns, returns from currency and future markets - but there are no similar studies for the new financial instruments).

g) And finally: there should **not be any commitment to 'bail outs'**. The public should not bear the cost of a bail out when insolvency arises, but the public should bear the cost of **providing liquidity** so that no insolvency arises due to a lack of liquidity, often resulting from the feedback effects to the two types of risk discussed in point 2) above. Note, that the view expressed here is similar to a position recently taken in a draft for enhanced financial market regulation by the European parliament.

B) What Congress, the Administration and the Financial Stability Forum (FSF) have proposed

Senator Schumer's office in NY has proposed several improvement on the financial regulation of the mortgage and financial sectors and Congress has held hearings and testimonies with experts, see Kuttner`s (2007) testimony in front of Congress. The Bush administration has proposed a mitigation of the victims of the subprime crises by extending the period of fixed interest rates for certain income groups, and other measures. The remaining presidential candidates are also very active in proposing new emergency, regulatory and oversight measures. But there does not seem to be any effective measure in sight to stop the falling asset prices in real estate and accelerating foreclosures.

As we have discussed in section IV, the Fed had, under Greenspan, attempted to intervene in the asset price bubbles (tech bubble), but credit and banking crises and a crisis in the bond market are a different matter. A judgement on the real pre-emptive regulatory potentials of central banks, the Fed in the US and the ECB in Europe, is still out. In particular, because

CML sets in motion a much greater contagion effect than trade liberalizations, some international cooperation in this area, in order to avoid the contagion effects of the financial credit crises, are strongly needed.

The latter has recently been pursued by a G7 meeting on April 12, 2008 following a proposal by the Financial Stability Forum which has suggested actions to "Enhance Market and Institutional Resilience". The FSF focuses 1) increasing the capita requirements (in particular for complex structured credit products) and strengthening liquidity and risk management (specially for off- balance sheet entities), 2) enhancing and improving transparency and valuation through credit rating agencies, 3) increase the authorities` responsiveness to risk (translating risk analysis into action, and 4) extension of the arrangements to deal wit financial stress and disruptions (extending central banks`policy to asset purchases and liquidity provisions for the private sector. So, far at least what the press has reported, the increase in capital requirements seems to be high on the agenda.

VII. CONCLUSIONS

We have addressed in this paper essential issues on the transatlantic financial market liberalization and its possible pitfalls. Previous studies frequently have concentrated on the benefits of the financial market liberalization on both sides of the Atlantic. Yet, due to the recent credit and financial market crisis, the cost of fast and excessive financial liberalizations has come into focus. In the last two decades it has become clear that Capital Market Liberalization (CML) is more complex than, for example, trade liberalization of goods and services. In contrast to the theory of perfect capital markets, we here start from the more realistic framework of imperfect capital markets. Starting point here is the theory of information economics and the Keynesian theory of the working of capital markets. We deal with the benefits but also the potential shortcomings of CML. Whereas the academic profession broadly seems to continue to see benefits outweighing the costs of market liberalization for goods and services, yet fast and drastic CML has recently become under scrutiny. Too fast liberalized capital markets, for example a CML with a wrong sequencing, and without "safety nets" are likely to trigger boom–bust cycles, financial instability, contagion effects and strong negative effects of financial market melt downs on the real side of the economy. Thus, capital market liberalization – at least in the short run-- does not necessarily show the same beneficial effects as product market liberalization. Yet, we have

also demonstrated that not all bubbles are bad, some may lead to higher growth rates and result in higher level of output .

We also have shown that what is understood under CML appears to be different on both sides of the Atlantic. In particular, this perspective seems to hold true on oversight and regulation of the financial markets. In the US, regulatory institutions are more akin to represent some type of self-control of the market and are market friendly, whereas politicians in Europe seem to support more public regulations, oversight and interventions. We have discussed the causes and effects of the current financial market melt down and the role Central Banks played to contain the financial market melt down on both sides of the Atlantic. We have described and studied the recent proposals on regulations, oversight and risk management. We in particular discussed and analysed the newly proposed financial market regulations as they were triggered by the recent financial market crisis. Yet, we want to remark that many of the effects of the recent financial market disruption (Miskin 2008) on the real side are still uncertain and many of the currently proposed new regulations of the financial market are still in a preliminary stage. Future discussions will still have to sort out what are useful regulations in the long run.

References

Aghion, P., Bacchetta, P. and Banerjee, A. 2004, 'A Corporate Balance-Sheet Approach to Currency Crises', *Journal of Economic Theory*, vol. 119, pp. 6–30.

Bernanke, B. (1983), "Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression", American Economic Review, 73, June:257-276.

Bernanke, B., and M. Gertler (1994), "The Financial Accelerator and the Flight to Quality". Review of Economics and Statistics, vol. 78, no. 1: 1-15.

Bernanke, B., Gertler, M. and S. Gilchrist (1998), "The Financial Accelerator in a Quantitative Business Cycle Framework", NBER working paper, no 6455, forthcoming in J. Taylor and M. Woodford (eds), Handbook of Macroeconomics, Amsterdam, North-Holland

Bernanke, B., V. R. Reinhard, and B.P. Sack (2004), Monetary Policy Alternatives at the Zero Bound: An Empirical Assessment, Federal Reserve Board, Washington. D.C. no 48.

Bernhard, L. and W. Semmler (2008), Credit Derivatives in the Housing Markets and its Collapse, mimeo, New School.

Bieling, Hans-Jürgen (2004). The New European Economy and Transatlantic Relations. Paper prepared for the International Studies Association, March 2004, Montreal. Canada.

Bieling, Hans-Jürgen (2003). Social Forces in the Making of the New European Economy: The Case of Financial Market Integration, New Political Economy, vol. 8, no. 2: 203-224.

Burnside, C., Eichenbaum, M. and Rebelo, S. 2001, 'Hedging and Financial Fragility in Fixed Exchange Rate Regimes', *European Economic Review*, vol. 45, pp. 1151–1193.

Cechetti, S.G., H. Genberg, J. Lipsky and S. Wadhwani (2000), "Asset Prices and Central Bank Policy", Geneva Reports on the World Economy, no. 2, International Center for Monetary and Banking Studies and Cener for Economic Policy Research.

Council on Foreign Relations (2002), Building a Transatlantic Security Market, authored by Benn Stein.

Corsetti, G., P. Presenti and N. Roubini (1998), "What caused the Asian Currency and Financial Crisis", NBER paper no. 2633.

Diamond, P. and P. Dybvik (1983), "Bank Runs, Deposit Insurance and Liquidity", Journal of Political Economy.

Deutsche Bank Research (2008). EU-US financial market integration a work in progress. Financial Market Special. EU Monitor 56.

Evenett, Simon and Robert M. Stern (2008). "Condemned to Co-Operate"? The Merkel Initiative and Its Systemic Implications. Conference Paper at the University of Michigan, 7th May, 2008.

Financial Times (2007). Transatlantic talks ‘to tackle barriers’ (27. June 2007).

Flaschel, P. and Semmler, W. 2006, ‘Currency Crisis, Financial Crisis, and Large Output Loss’, in C. Chiarella, P. Flaschel, R. Franke and W. Semmler (eds), *Quantitative and Empirical Analysis of Nonlinear Dynamic Macromodels*. Contributions to Economic Analysis (series editors: Baltagi, B., Sadka E. and D. Wildasin), Elsevier, Amsterdam, pp. 385–414.

Kato, M. and W. Semmler (2005), "Currency Crises and Monetary Policy Rules", newschool.edu/gf/cem.

Krugman, P. 1999, ‘Analytical Afterthoughts on the Asian Crisis’, mimeo. Princeton University.

Krugman, P. 2000, ‘Crises: The Price of Globalization?’, *Global Economic Integration: Opportunities and Challenges*. Federal Reserve Bank of Kansas City, pp. 75–106.

MacAvoy, P. and I. Millstein (2004), "The Recurrent Cirsis in Corporate Governance, Stanford University Press.

Miller, M. and J. Stiglitz (1999), "Bankruptcy Protection against Macroeconomic Shocks", The World Bank, mimeo.

Minsky, H. P. (1975), John Maynard Keynes, Columbia New York University Press.

Minsky, H.P. (1982), "Can it Happen again?", Armonk: ME Sharpe.

Minsky, H.P. (1986), "Stabilizing an Unstable Economy", New Haven: Yale University Press.

Mishkin, Frederic S. (2008). "Monetary Policy Flexibility, Risk Management, and Financial Disruptions," speech delivered at the Federal Reserve Bank of New York, New York, January 11.

Mishkin, F.S. (1998), "International Capital Movement,Financial Volatility and Financial Instability", NBER working paper, no. 6390.

Mügge, Daniel (2008). Widen the Market, Narrow the Competition. The Emergence of Supranational Governance in EU Capital Markets. (Unpublished Dissertation, University of Amsterdam).

Posner, Elliot 2008. The New Transatlantic Regulatory Relations in Financial Services. Paper presented at the Venice Workshop on Global Financial Integration Thirty Years On.

Proaño, C.R., Flaschel, P. and Semmler, W. 2005, ‘Currency and Financial Crises in Emerging Market Economies in the Medium Run’, *Journal of Economic Asymmetries*, vol. 2, pp. 105–130.

Reszat, Beate (2003). How has the European Monetary Integration Process Contributed to Regional Financial Market Integration? Hamburg Institute of International Economics, Discussion Paper 221.

Roethig, A. W. Semmler and P. Flaschel, (2007) Corporate Currency Hedging and Currency Crises, Australian Economic Papers.

Rogoff, K. (1999), "International Institutions for Reducing Global Financial Instability", NBER working paper 7265, Cambridge.

Schneider, M. and Tornell, A. 2004, 'Balance Sheet Effects, Bailout Guarantees and Financial Crises', *Review of Economic Studies*, vol. 71, pp. 883–913.

Semmler, W. and W. Zhang (2002), "Asset Price Bubbles and Monetary Policy Rules: A Dynamic Model and Evidence", CEM, Bielefeld University, working paper.

Semmler, W., Greiner, A. and W. Zhang (2006). Monetary and Fiscal Policy in the Euro-Area, Elsevier.

Semmler, W. (2006), Asset Prices, Booms and Recessions: Financial Economics from a Dynamic Perspective, Heidelberg/New York, Springer Publishing House, 2nd edition.

Shawn Donnelly (2007). The Regimes of European Integration: Constructing Governance of the Single Market. Unpublished Habilitation, University of Bremen.

Shiller, R. J. (1991), "Market Volatility" Cambridge: MIT Press.

Shiller, R.J. (2001), "Irrational Exuberance", New York: Random House.

Simmons, Beth A (2001) International Politics of Harmonization: the Case of Capital Market Regulation. International Organization 55 (3): 589-620.

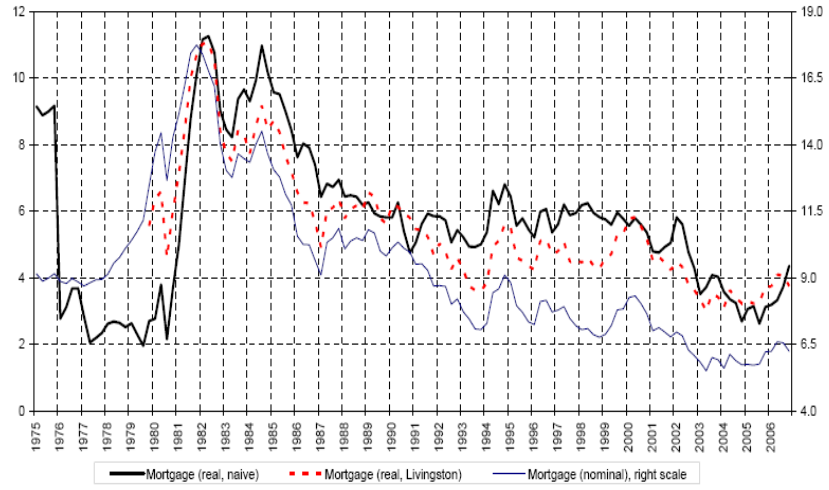
Tobin, J. (1980), "Asset Accumulation and Economic Activity", Oxford: Basic Blackwell.

Appendix 1: Some Figures on the Causes and Evolution of the Current Financial Crisis

The following presents some figures on the causes of the current subprime crisis that has let to a large scale financial melt down.

Real mortgage interest rates (with naive and survey inflation expectations)

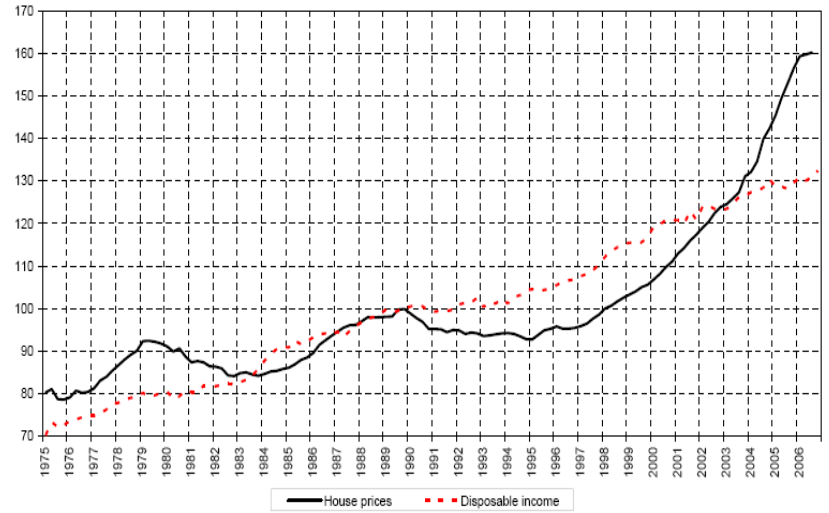
(quarterly data; percentages, A. Fincelli "House price developments and fundamentals in the US")



Source: calculations on data from Bureau of Economic Analysis and Federal Reserve. (1) Naive inflation expectations are defined as the current quarter rate of inflation over 1 year earlier; survey 10-year inflation expectations are taken from the Livingston Survey (Federal Reserve Bank of Philadelphia).

Real house prices and per capita disposable income

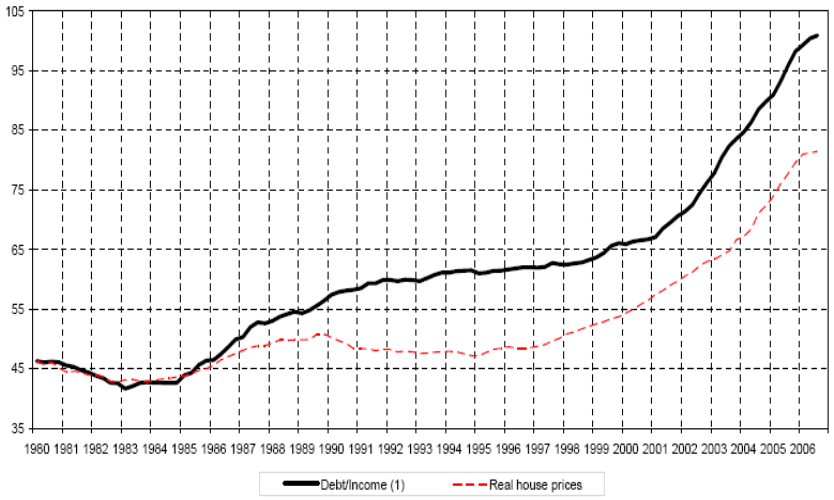
(quarterly data; indexes: average = 100, A. Fincelli "House price developments and fundamentals in the US")



Source: Bureau of Economic Analysis, Federal Reserve, and Office of Federal Housing Enterprise Organization (OFHEO). (1) OFHEO house price index and nominal per capita personal disposable income deflated by the total consumption deflator.

Household mortgage debt and real house prices

(quarterly data, A. Fincelli "House price developments and fundamentals in the US")



Source: Bureau of Economic Analysis and Federal Reserve. (1) Percentage values; the denominator is the value of disposable income for the year ending in the reference quarter. - (2) The house price index is normalized so that its value in 1980Q1 coincides with the debt-income ratio.

Debt service ratio

(quarterly data; percentages, A. Fincelli "House price developments …")

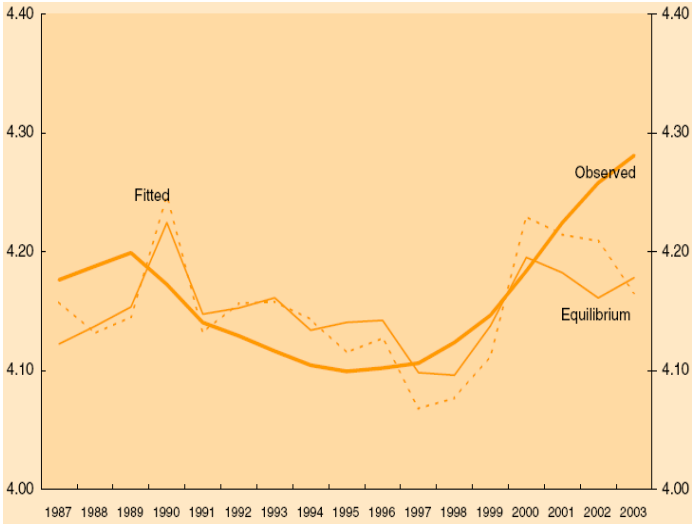
Source: Federal Reserve. (1) Ratio of interest and minimum contracted principal payments and disposable income.

Inflation-adjusted US home prices, Population, Building costs, and Bond yields (1900-2005)

(R. Shiller "Irrational Exuberance", 2nd ed.)

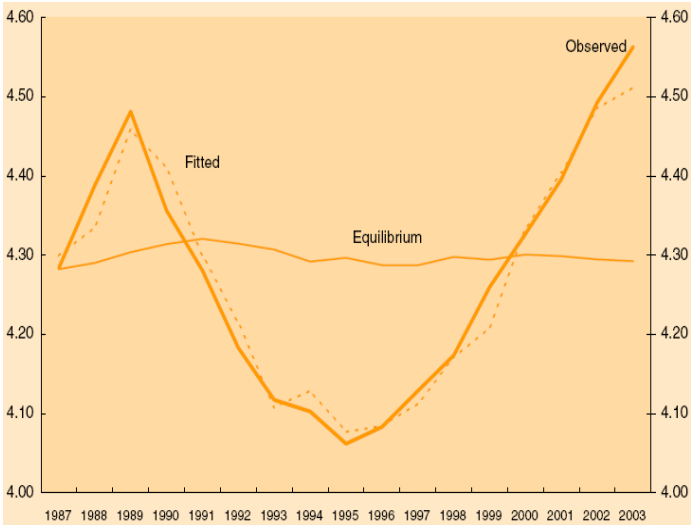
Immobilienboom – USA (House prices/rents)

(J. Ayuso and F. Restoy: "House prices and rents: An equilibrium asset pricing approach")



House prices/rents (Ln) – UK

(J. Ayuso and F. Restoy: “House prices and rents: An equilibrium asset pricing approach”)



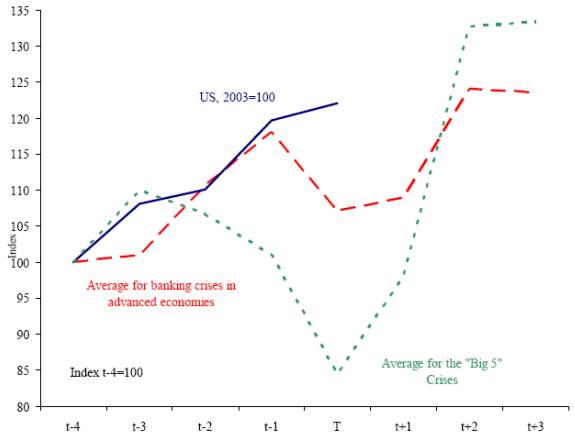
Typical Boom-Bust-Cycle (credit, realestate, banks)

(Reinhart/Rogoff 2008: Is the 2007 US Sub-Prime Financial Crisis So Different?)

Typical Boom-Bust Cycle

Reinhart/Rogoff (2008)

Figure 2: Real Equity Prices and Banking Crises



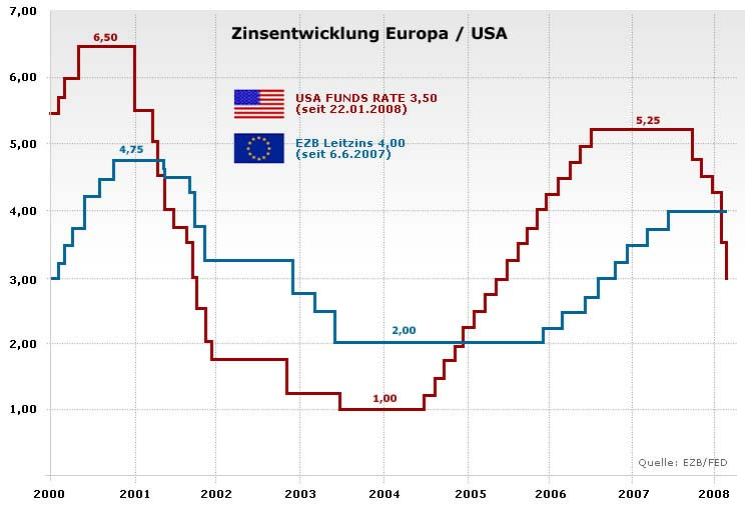
Typical Boom-Bust-Cycle (GDP growth)

Reinhart/Rogoff (2008)

Figure 4: Real GDP Growth per Capita and Banking Crises (PPP basis)

Domino Effect of the Subprime Crisis (has hit the US economy and other economies)

US-Fed and Euro-Area ECB (Interest rate policies)



Appendix 2: Risk Perception and Risk Premia Triggering Recessions

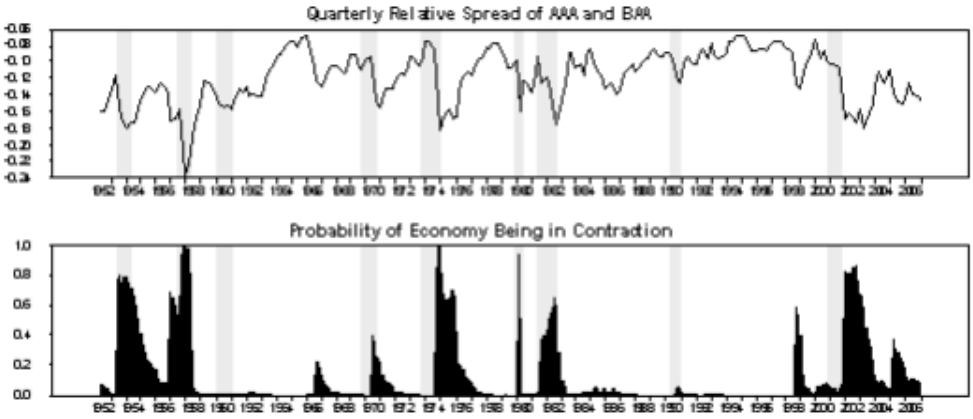
In the literature on financially driven boom- bust cycles a changing risk perception and risk premium is predicted to occur over the boom-bust cycle. The following are some preliminary results form the analysis of the risk perception expressed by the spread between AAA and BAA corporate bonds and the economic activities, for details see Grüne, Chen and Semmler (2008).

1. The spread = AAA-BAA is always negative. The magnitude becomes larger briefly before and during the contraction. But the magnitudes vary largely from one contraction to the other. The reason is that the spread itself depends on the current riskless interest rate. Therefore a better measure to study the relation between the risk perception and the contraction is not the spread itself but the relative spread (AAA-BAA)/BAA

2. In the graph of Quarterly Relative Spread of AAA and BAA the decreases of the relative spread during the contraction are about the same magnitude. The shading areas are the official contraction dating according to NBER.

Both figures confirm our hypothesis that during the contraction the risk perception is increasing while during the expansion the risk perception is decreasing.

3. Since the relative spread is informative for the contraction, we try to estimate the probability of contraction using a Markov switching model, see Grüne, Chen and Semmler (2008) for details



The results show that the risk perception is very informative on economic contractions. In most cases the economic contraction are predicted with high probability.