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Reforming Finance: A Literature Review

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Abstract: The almost consensual view on the global financial crisis is that it should be attributed to massive regulatory failure. Regulation is either argued to have failed in constraining an inherently instable financial system or to have provoked the crisis by means of inappropriate regulatory changes. Even though a core conclusion from the present crisis is that a microeconomic focus on financial stability does not suffice and will need to be complemented by macroprudential regulation, there is also widespread consensus that the crisis has demonstrated the need to strengthen the microprudential regulatory framework itself. This literature review focuses on the microeconomic aspects of financial regulation. It is built around three main questions: what exactly did the regulatory failure consists of? How was it possible for regulatory failure to emerge? What lessons have been drawn from the crisis? Not surprisingly, the consensus in the literature evaporates when looking for precise answers to these questions. The introductory section of the paper address two broader question; i.e. why financial firms should be subjected to tighter regulation than the rest of the economy and how financial instability may be defined and measured.

Key words: Banking Union; Corporate Governance; Credit Rating Agencies; Financial Sector Reform; Financial Stability; Household; Indebtedness; Microprudential Regulation; Shadow Banking; Sovereign Debt

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List of Abbreviations

ABCP:	Asset-Backed Commercial Paper
ABS:	Asset-Backed Securities
AIF:	Alternative Investment Fund
ARM:	Adjustable Rate Mortgage
BCBS:	Basel Committee on Banking Supervision
BIS:	Bank for International Settlements
CAR:	Capital Adequacy Ratio
CDO:	Collateralised Debt Obligation
CDS:	Credit Default Swap
CEBS:	Committee of European Banking Supervisors
CEPR:	Centre for Economic Policy Research
CFTC:	Commodity Futures Trading Commission
CoCo:	Conditional Convertible Debt
CoVar:	Conditional Value at Risk
CRA:	Credit Rating Agency
CRD:	Capital Requirements Directive
DGS:	Deposit Guarantee Scheme
EBA:	European Banking Authority
EBF:	European Banking Federation
EBIC:	European Banking Industry Committee
ECB:	European Central Bank
EDP:	Excessive Deficit Procedure
EEA:	European Economic Area
EFSF:	European Financial Stability Facility
EIOPA:	European Insurance and Occupational Pensions Authority
EIP:	Excessive Imbalances Procedure
ELA:	Emergency Liquidity Assistance
EMIR:	European Market Structure Regulation

EMU:	Economic and Monetary Union
ESCB:	European System of Central Banks
ESFRC:	European Shadow Financial Regulatory Commission
ESM:	European Stability Mechanism
ESMA:	European Securities and Markets Authority
ESRB:	European Systemic Risk Board
EU:	European Union
FCIC:	Financial Crisis Inquiry Commission
FDI:	Foreign Direct Investment
FDIC:	Federal Deposit Insurance Corporation
FSAP:	Financial Services Action Plan
FSB:	Financial Stability Board
FSF:	Financial Stability Forum
FSOC:	Financial Stability Oversight Council
GDP:	Gross Domestic Product
GFCF:	Gross Fixed Capital Formation
HMDA:	Home Mortgage Disclosure Act
IMF:	International Monetary Fund
IORP:	institutions for Occupational Retirement Provision
IRB:	Internal Ratings Based Approach
LCR:	Liquidity Coverage Ratio
LLR:	Lender of Last Resort
LTCM:	Long Term Capital Management
LTI:	Loan to Income
LTRO:	Long Term Refinancing Operation
LTV:	Loan to Value
MBS:	Mortgage-Backed Security
MMF:	Money Market Mutual Funds
NBER:	National Bureau of Economic Research

NCB:	National Central Bank
NFSR:	Net Stable Funding Ratio
OECD:	Organization for Economic Cooperation and Development
OFHEO:	Office of Federal Housing Enterprise Oversight
OMC:	Open Method of Coordination
OMT:	Outright Monetary Transactions
OTC:	Over the Counter
OTD:	Originate to Distribute
OTS:	Office of Thrift Supervision
REPO:	Sale and Repurchase Agreement
RMBS:	Residential Mortgage Backed Securities
SEC:	Securities and Exchange Commission
SGP:	Stability and Growth Pact
SIV:	Structured Investment Vehicle
SME:	Small and Medium Enterprises
SPV:	Special Purpose Vehicle
UCITS:	Undertakings for Collective Investment in Transferable Securities
TARP:	Troubled Assets Relief Program
UCRG:	Universal Credit Rating Group
UK:	United Kingdom

1 Introduction: Micro- and Macro-economic Financial Stability¹

The almost consensual view on the global financial crisis that erupted in the fall of 2007 is that it should be attributed to massive regulatory failure.² The onset of the crisis was not provoked by some large exogenous shock such as the outbreak of a major war or an energy price hike, but instead clearly occurred for endogenous reasons (Leijonhufvud 2007: 7-8). Ross Levine (2010), for example, came to the conclusion that the main cause of the US crisis was the failure of financial regulators to act despite their awareness of the increasing fragility of the system.

But behind the consensus on regulatory failure as the main cause of the crisis are important nuances. In what might be called the passive variant, regulation failed to adequately constrain an inherently instable financial system. In the active variant, (changes in) an inappropriate regulatory framework provoked the crisis. Still, both interpretations share the conclusion that ultimately it is the quality of public regulation and supervision that determines the degree of financial stability.

Regulation of financial markets has both micro- and macro-prudential aspects. The objective of microprudential regulation is “to limit failures and bankruptcies of individual institutions”, whereas macroprudential regulation aims to “limit the occurrence of financial crises”. (Creel & Labondance 2013: 3; Brunnermeier et al 2009: xii). Accordingly, one might conclude that macroprudential supervision is superfluous if micro prudential regulation achieves its objectives. Yet, a core lesson the crisis has taught is that this is not so. While constituting a major systemic risk, asset bubbles are not necessarily reflected in insufficient capital adequacy ratios of individual institutions. As e.g. the FDIC’s vice chairman Thomas Hoening (2012a) notes, employing the (microprudential) Basel criteria, the 10 main US banking groups would have appeared perfectly sound at the onset of the crisis in 2007 (also Goodhart 2010: 166). Indeed, the aggregate equity to asset ratio of the US commercial banking system was at an all-time high of 10% in 2007 (De Young 2008:370).³

Despite the highly publicised queues outside the Northern Rock Bank in September of 2007, the trigger to the systemic crisis was not a depositor run but a run on the interbank market. With mounting doubts about the value of sub-prime assets like MBSs, and lacking information about the exact exposure of financial institutions to toxic assets, the fear of counterparty risk spread like wildfire and caused the interbank market to freeze. For highly leveraged institutions that were dependent on being able to roll-over their debt this only left the option of a fire sale of assets thus driving asset prices further down and strengthening (perceptions) of counterparty risk. Consequently, banks that relied more heavily on the interbank market for short-term finance as compared to their own deposits, performed worse during the crisis (Beltratti & Stulz 2012). A complete meltdown was only avoided by central banks replacing the interbank market as a source of liquidity, plus a combination of government guarantees and nationalisation aimed at eliminating the debilitating perceptions of counterparty risk.

Indeed, in such a setting, microprudential regulation that reduces the risk-exposure of individual institutions may even heighten systemic risks. This is so because the diversification of asset portfolios makes banks more similar to each other. Allen, Babus & Carletti (2012) capture such effects in a model where the ability of banks to diversify their risk, together with the reliance on short-term debt and the opacity of the risk-exposure of the individual institution leads to information-driven contagion via the interbank market.

In other words, microprudential regulation only insufficiently takes the interconnectedness between financial institutions into consideration as a result of which the illiquidity or insolvency of institution A may cause problems for institution B and so forth. In the presence of substantial interlinkages, the probability of a significant number of institutions encountering problems simultaneously may be much larger than suggested when treating the likelihood of instability of individual institutions as independent events. Hence, capital adequacy ratios set on the basis of the probability of the price of an individual bank's assets changing by a certain percentage over a given period of time may turn out to be grossly inadequate. Moreover, when trying to contain

and resolve a crisis, an exclusive focus on microprudential issues may be seriously counterproductive. To the extent that banks try to restore their capital ratio by means of reducing their asset base, microprudential regulation will impart a procyclical effect, as lower market prices for assets will trigger moves to sell more of those assets (de Larosière et al 2009:11; Hanson et al 2011: 5; Brunnermeier et al 2009:xi & ch. 2). In short, microprudential regulation may fail in the aggregate if a larger number of individual institutions are confronted with the need to reconstitute their capital.

The issue of interconnectedness gains even more relevance as it transcends borders. The rapid spread of the crisis to countries other than the USA in 2007 was facilitated by persistent global current account imbalances creating large net foreign asset and liability positions in individual countries. As Tong & Wei (2010), conclude on the basis of empirical data from almost 4000 firms from 24 emerging economies for the period 2007-2009, the international ramifications of the US financial crisis were more pronounced the larger a country's reliance on non-FDI inflows of foreign capital. On a regional scale, large imbalances within the EU, especially since the introduction of the Euro in 1999, created a similar potential for cross-border contagion.

In short, a core conclusion from the crisis is that a microeconomic focus on financial stability does not suffice (Hanson, Kashyap & Stein 2011; Liikanen et al 2012: ix; United Nations 2009: 62; Warwick Commission 2009: 59). The whole is more than the sum of its parts and thus a system in which all microeconomic indicators are in the green may nevertheless contain a serious potential for instability. (Cf. de Larosière et al 2009). Microprudential regulation thus will need a macroprudential complement; an insight already reflected, in the establishment of the Financial Stability Oversight Council (FSOC) in the USA and the European Systemic Risk Board (ESRB), (Gersbach 2011: 1) as well as in a vigorous debate about whether preventing asset booms should be added to the objectives of central banks; a widespread argument being that low interest rate policies, though justified in terms of inflation targeting, played a driving role in the rapid inflation of bank balances that preceded the crisis (Petursson & Moriss 2012). Maddaloni & Peydró (2011), indeed do show that prolonged low short-term interest rates weakened

lending standards in both the USA and the EU. Based on a theoretical reasoning, Berger & Kibmer (2013) find that inflation targeting independent central banks have fewer incentives to act pre-emptively in the face of asset booms and thus are more conducive to financial instability than non-independent central banks.

Nevertheless, there is also widespread consensus that the crisis has demonstrated the need to strengthen microprudential regulation, although those that adhere to the passive variant of regulatory failure are more prone to argue that reforms should aim to change the structure of the financial system because regulators will inevitably be overburdened in a system of fractional reserve banking. This literature review will focus primarily on the microeconomic aspects of financial market regulation. It is built around three main questions: what exactly did the regulatory failure consists of? (Section 4) How was it possible for regulatory failure to emerge? (Section 5) What lessons have been drawn from the crisis (Section 6). Not surprisingly, the consensus in the literature evaporates when looking for precise answers to these questions. But before engaging with these questions it is helpful to briefly look at the reasons why financial firms should be subjected to tighter regulation than the rest of the economy (section 2), and how financial instability may be defined and measured (Section 3)

2 Why is there a Need for Regulating Financial Markets: Moral Hazard, Public Goods and Herding

Financial crises are a recurrent feature in economic history. There is a substantial literature analysing the occurrence of financial crises over long periods of time (Bordo 2006; Fishlow 1985; Galbraith 1990; Kindleberger 1984; Kindleberger & Aliber 2005; Reinhart & Rogoff 2009; Roubini & Mihm 2010, chap. 1). The frequent recurrence of such crises seems to suggest three conclusions: (1) Instability is an inherent feature of financial systems. That conclusion by no means is a novel one⁴ but instead determined

much of economic policy thinking in industrialised countries since the Great Depression of the 1930s. (2) Although financial innovations may have contributed to the severity of the crisis, particularly via widespread securitisation, the historical instability of financial systems suggests that their effects can easily be exaggerated (Brunnermeier et al 2009: XI). (3) Public regulators apparently do not draw the correct lessons from previous crises so as to preclude a repetition. Jonung (2009: 307), e.g. argues that the main reason for the financial crises in Finland, Norway and Sweden of the early 1990s lies in ignorance of the effects of financial liberalisation. Reinhart & Rogoff (2009) have termed this inability to learn the “This Time is Different Syndrome”, meaning that policy-makers as well as professional analysts steadfastly hold that previous crises hold few, if any, valuable lessons because ‘this time is different’.

The dominant pre-crisis view, also known as the efficient market hypothesis, held that due to advances in information and communication technologies as well as in economic analysis, the risk of systemic financial instability had effectively been banned. The fact that the internationalisation of financial markets since the early 1980s led to a substantially higher incidence of systemic crises, predominantly, in emerging economies (Bordo 2006) did not undermine this conclusion.⁵ Instead such instability was mainly attributed to the failure of the emerging economies to adopt western style regulatory and managerial techniques. Moral Hazard resulting from inappropriate regulatory frameworks - such as the lack of bankruptcy law or blanket guarantees of foreign currency loans by the government - and overly cosy relations between governments and business - the so-called crony capitalism - were diagnosed to be the main problems (Aghevli 1999; IMF Staff 1998; Goldstein 1988). The IMF and the World Bank⁶, for example, attributed a large role to moral hazard created by domestic governance structures in causing the Asian financial crisis of 1997.

The term Moral Hazard originally described the reason why taking out insurance may induce more risky behaviour. Applied to financial institutions the argument claims that arrangements aiming to insure financial institutions and their customers against illiquidity or insolvency will create incentives for those institutions to assume a higher

risk profile. Deposit insurance and ex- or im-plicit bail-out clauses are the main mechanisms relevant in this respect. Deposit insurance, reduces the incentives of depositors to monitor the operations of the institutions in question, whereas bail-out clauses reduce or eliminate the risks involved in default of the borrowers and thus creates incentives for high-riks lending (Haldane 2009: 6).

The upshot of that argument is that market discipline will ensure the robustness of the financial system and therefore less instead of more regulation will promote financial stability.⁷ Market discipline will restrict the availability of deposits and increase the interest rates for banks exhibiting riskier behaviour while also negatively affecting the ability to raise equity and its valuation. The same principle is seen to apply to containing a financial crisis as liquidity support and bail-outs will have the long-term consequence of undermining market discipline, thus making future crises more likely (Demirgüç-Kunt & Servén 2010: 94-5). Demirgüç-Kunt & Huizinga (2004: 388), studying a sample of 30 countries during the period 1990-97, find that “explicit deposit insurance significantly dampens interest sensitivity to bank risk, suggesting that explicit deposit insurance reduces or completely removes market discipline depending on the specification.” Dam & Koetter (2012), who examined all bailouts in Germany between 1995 and 2006, also find evidence of the importance of moral hazard. They show that bank bailouts are dependent on regional political factors, and that an increase in the likelihood of a bailout being available significantly increases the probability of bank distress.

However, the conclusion that less rather than more regulation would be required seems to be very much a minority position. First, most of the academic literature would currently argue that the model of perfect competition is not applicable to the financial sector and that there is a trade-off between competition and stability (Vives 2008: 442ff). This trade-off occurs because, in a nutshell, competition will lower the profits of banks, thus lowering their franchise value, while a lower franchise value, in turn, will reduce the incentives for prudent risk-monitoring. As Hellman et al (2000: 148) argue: “With sufficient competition banks will find it desirable to gamble.” The implication of this view is that market discipline cannot guarantee financial stability and regulation is inevitable.

However, there are some dissenting voices. Boyd & De Nicolo (2005), construct a model in which lower interest rates loans are less risky and default is perfectly correlated with riskiness. In that case competition between banks leads to a lower interest rate and thus a larger share of less risky assets in the portfolio. Martinez-Miera & Repullo (2010) drop the correlation of perfect correlation between default and riskiness, in which the case lower interest rates due to competition will also reduce interest payments on performing loans that provide part of the buffer out of which banks cover defaults. As a result, the relation between competition and financial stability becomes U-shaped; financial instability being high at both low and high levels of competition, but not so at intermediate levels. This occurs because in monopolistic markets the risk effect dominates; higher loan rates leading to higher risk portfolios, whereas in very competitive markets the margin effect dominates, reducing the buffer to absorb defaults.

Moreover, public authorities are very unlikely to sit by idly in the face of financial sector instability given its catastrophic consequences for the real economy. Accordingly, even explicit no-bail out laws may not be credible.⁸ Especially since the eruption of the crisis in 2007 it has become clear that governments will bail out all institutions that are either too big to fail or too interconnected to fail, irrespective of whether they are members of the relevant safety net arrangement (Freixas & Rochet 2012). If, however the availability of a bail-out must be assumed, i.e. the access to public funds in times of need, then regulation becomes unavoidable. Increasing the costs of a government bailout for equity-holders and managers, in that case, might seem a more appropriate regulatory strategy to reduce incentives to risk exposure.

Limiting bail-out clauses to systemic institutions only, moreover, would not necessarily mitigate the problem as this will reinforce the concentration of firms in the financial market. Institutions covered by a bail-out clause enjoy a competitive advantage because they will be able to procure funds at lower interest rates. This is in line with Brewer & Jagtiani's (2013) finding that banks paid a significant premium for mergers that would put them over the Too-Big-To-Fail limit. In addition, there is a vivid discussion to what extent it will be feasible to strictly regulate only those institutions whose failures may

pose systemic risks by restricting them to “narrow banking” (section 6.4), or whether such a strategy will either promote regulatory circumvention by off-balance-sheet vehicles or will be too costly (Kay 2010, Goodhart 2010).

The case for regulation can be made on several grounds. The first argument rests on the public good nature of financial stability. If financial stability is indeed a public good (Plihon 2009), it will be undersupplied by the market therefore requiring intervention by the public authorities. To the extent that it is an international public good, it will also be undersupplied by national regulators because they can hope to free-ride on stability provided by regulators in other jurisdictions (Plihon 2009: 256).

Even though contagion is a real danger, financial stability not necessarily is a public good. If market participants evaluate the behaviour of financial institutions market discipline will create incentives for prudent behaviour. For financial stability to be a public good it is necessary to assume a combination of incomplete information, information asymmetries and herding behaviour. If the riskiness of assets is not known to the investors, either because it cannot be accurately gauged at all or because of information asymmetries, and if higher-risk securities imply higher profitability, then financial stability indeed becomes a public good as it is now individually rational for financial firms to free-ride by concentrating on high-risk securities.

Prudential regulation in that case could be justified by information asymmetries, with depositors not being able, or having insufficient incentives to monitor financial institutions. The complexity of financial products such as collateralised debt obligations (CDOs) reached such levels that it “made proper risk assessment challenging for even the most sophisticated in the market.” (de Larosi re 2009: 8), thus pointing to the need for more transparency. Dispersion of ownership will generally reduce the incentive of stakeholder to monitor financial institutions (Dewatripont et al 2010: 5), thus pointing to a need for third party oversight or more concentrated ownership.

A somewhat different argument centres on self-fulfilling prophecy dynamics and herding behaviour. The starting point is that financial markets are not spot markets and thus

expectations necessarily play a crucial role in their dynamics. Whereas standard microeconomic analysis assumes that the forces of demand and supply will create a strong tendency towards equilibrium, they may instead promote cumulative instabilities.

Concerning the microeconomic foundation of cumulative process there are two strands of thought. The first departs from cognitive psychology and behavioural economics. The path-breaking work of Kahneman (2003) led to the conclusion that decision-making is informed by heuristics, i.e. rules of thumb rather than rational calculations. The “availability heuristics” leads actors to attribute a lower probability to an event the further that event lies in the past. Thus, the probability of a financial meltdown came to appear increasingly remote as the so-called golden decade of finance (1998-2007) progressed, leading to the increased risk taking that brought about the financial meltdown (Haldane 2009: 3-5; Taleb 2004: 187 ff). It also follows that the longer a bear market exists, the stronger will be the expectations of actors that it will persist.

A second strand of thought departs from the inevitable reflexivity of social systems. The basic intuition is that market actors react to the environment but the environment itself is the sum of the decisions by market actors (Shin 2005: 383; Soros 2009 Ch. 3-4). In other words, market processes are inherently non-ergodic. As a result, it is quite possible that beyond a given threshold market interactions will amplify instead of dampen volatility (Shin 2005: 385). An approach based on reflexivity therefore does not need to invoke anthropological constants like the availability heuristics or “animal spirits” to arrive at the conclusion that financial systems are prone to cumulative instability, but is compatible with a rational actor model (Bicchieri 1997).

The classic example of “self-fulfilling rational panics” (Dewatripont et al 2010: 4) is the bank run. Banks suffer from a term-mismatch as they fund long-term lending with short-term borrowing. A substantial withdrawal of deposits will hence ruin any bank, no matter how well managed it is. If, however, some depositors suspect that other depositors might withdraw, then it becomes rational to do so first. (Dewatripont et al 2010: 4).

Because of the existence of self-fulfilling prophecies, reflexive systems give rise to herding behaviour and contagion. To the extent that significant interconnectedness exists between banks, bank runs will spread through contagion. If the failure of bank A would threaten bank B, then the suspicion that a significant amount of depositors have lost confidence in bank A might constitute a rational reason to withdraw deposits also from bank B. etc. Similarly, cumulative dynamics of self-fulfilling prophecies may also be the dynamic underlying asset bubbles⁹.

This in turn implies that “the correlation in strategies between financial institutions will then be high because all see the same opportunities and hence we see herding behaviour. Systemic risk would be enormous and not checked by market discipline.” (Boot 2011A: 30) In more technical terms, if financial systems are potentially exposed to self-fulfilling prophecies, herding and contagion, the decisions of individual investors or the movement of individual assets can no longer be analysed as independent events based on a Gaussian probability distribution (Haldane 2009; Leijonhufvud 2007: 2; Taleb 2007). Yet, that was the assumption underlying the risk management techniques that came to be employed in response to the 1987 US stock market crash and the 1998 failure of the Long Term Capital Management (LTCM) hedge fund. As Andrew Haldane (2009: 1) points out, the price movements observed during the onset of the crisis in August 2007, according to the standard risk management techniques “would be expected to occur once every 6×10^{124} lives of the universe.” Risk assessments, such as ratings, per definition then can only provide very uncertain guidance as they depend on the *ceteris paribus* clause holding which definitely will not be the case over a somewhat longer period.

Bebchuk and Goldstein (2011), develop a model of bank lending to firms in which credit freezes may arise because of the (self-fulfilling) expectations of individual banks that other banks may cease lending. Empirically, Nirei et al (2012) confirm the presence of herding behaviour on the basis of an examination of institutional holdings of S&P500 stocks in the USA between 2003Q1 and 2008Q1. Raddatz and Schmukler (2013) detect

herding behaviour in the portfolio management of Chilean pension funds during their sample period of 1996-2005.

Admittedly, markets may still discipline individual financial institutions that deviate visibly from the common trend but this is no longer a guarantee for stability and may be an engine of instability. To the extent that investors decide on the basis of short-term results rather than on long-term averages, the management of a financial firm might not even be able to take a long term perspective. Once the threshold towards a cumulative process is passed even risk managers not affected by the “availability heuristics” would have little choice but to mimic their colleagues as taking on less risk would result in inferior short-term yields, thus putting at risk the fund concerned and the job of the manager. In addition, unlike the assumption of many models, individuals are finitely lived which makes it possible for asset stripping leading to the eventual failure of a firm to be an optimal strategy.¹⁰ William Black (2010) has applied this insight to the financial industry, developing what he calls a control fraud model of doing business.

The policy implications of these different views are that those who emphasise moral hazard problems would primarily seek a solution to financial instability along the lines of designing regulations in such a way that market discipline can exert its maximum effect a substantial part of which would consist of the reduction of information asymmetries through better disclosure and improving the quality of the rankings issues by CRAs. If instead, financial stability is considered a public good, or if financial markets are characterised by pervasive reflexivity, herding and contagion rather than moral hazard is the main issue,¹¹ meaning that little trust can be placed in market discipline and imposing external regulatory constraints on firm behaviour will be crucial. How pervasive this regulation will need to be, in turn, depends on the extent to which it is possible to effectively compartmentalise different sections of the financial markets. If compartmentalisation can be effective, institutions whose failure would have no systemic consequences, such as hedge funds, for example, could be left unregulated. If, however, contagion is inevitable, microprudential regulation will need to encompass all institutions.

3 The Measurement of Financial Instability and Early Warning Systems

As policy makers and researchers, with few exceptions, failed to predict the crisis, the issue of how to accurately monitor financial stability and whether it is possible to develop early warning indicators has become of central importance to policy makers. For those who argue that financial markets are inherently unstable the development of early warnings indicators would seem a palliative of doubtful usefulness. If financial market instability is driven by reflexivity or by “animal spirits”, then the only feasible solution is the re-regulation of the financial system.¹² In other words, the clock needs to be turned back to the pre 1980s period when pervasive financial repression coincided with a virtual absence of financial crises. Even if accurate early warning systems could be developed, the optimal choice would rather be to regulate the system in such a way that financial instability cannot emerge rather than to intervene when early warning system signal a potential problem.

This, view, however, does currently not command majority support, neither amongst policy-makers nor amongst academic analysts. Instead, increasing research efforts are directed at measuring and monitoring financial developments with a view to detecting early warning signs.¹³ The IMF publishes a Global Financial Stability Report at regular intervals since 2002, and since 2007 this report includes a Global Financial Stability Map that gives an overview of global instability risks (Dattels, McCaughrin, Miyajima & Puig 2009). Likewise the ECB publishes a Financial Stability Review twice a year since 2004.

One might assume that in order to monitor potential risks to financial stability, it is necessary to have a precise definition of the concept in the first place. Yet, in practice this does not seem to be the case. What the ECB considers to be its definition of financial (in)stability¹⁴ in fact consists of a list of potential risk as well as a set of measures to

safeguard stability rather than a definition of what financial stability is. The ECB seems to assume that the concept of financial stability is self-evident. In addition, when looking at the list of definitions of financial stability compiled by Creel & Labondance (2013: 10-13) the question arises whether there can be a useful *microeconomic* definition of financial stability. All of those definitions consider financial stability impaired when systemic issues. Financial instability then might simply be defined as the point at which microeconomic financial instability has systemic consequences¹⁵, implying that the concept belongs to the province of macro-prudential regulation. Such an interpretation would seem reasonable in analogy with the real sector of the economy. Competition implies the occurrence of bankruptcy, and a market economy of any size records many bankruptcies on any given day with microeconomic instability only becoming a reason for concern at the point where causes significant fluctuations in macroeconomic indicators. However, this analogy falls short because of the presence of systemic institutions in the financial system. From a microeconomic perspective financial stability hence may be defined as the stability of systemic institutions, i.e. the absence of any illiquidity or insolvency issues.

As such, financial stability would be fairly straightforward to measure but a time series of the incidence of failure of systemic institutions would have little policy relevance if it does not contribute to identifying risk to *future* financial stability. The relevant issue then is how to measure potential risks and that question evidently is inherently bound to the theoretical approach taken towards the causes of financial instability, implying that it is unlikely that a general consensus could be reached on this issue. What is emerging in practice, however, is a consensus that threats to financial stability cannot be measured by a single indicator and that asset prices, and especially real-estate price indices, have hitherto be undervalued as indicators of potential distress. Nevertheless, any quantitative measurement of threats to financial instability will need to be complemented by qualitative judgement. Even if all financial crises were preceded by a rapid increase in some real-estate price index, this fact as such would not suffice to establish the weight to be given to real estate prices as an early warning sign. In order to

do that it also needs to be known how many substantial increases in real-estate prices were not followed by a financial crash. Put differently, in how many instances would the use of real-estate prices as an indicator have led regulators to kill a boom rather than to prevent a bubble? Unless the number of real-estate booms that did not give rise to a bubble is zero, discretion and judgement will be inevitable when employing early warning systems. Finally, an even more fundamental challenge to using historical experience as a mechanistic guide to policy making is posed by Goodhart's law, which states that any observed empirical regularity will break down as soon as it is exploited for policy purposes. In short, a simple technocratic and rule-based approach to the avoidance of financial instability seems out of reach.

4 Manifestations of Regulatory Failure

Despite a widespread agreement on the central role of regulatory failure, there is no consensus on what this failure exactly consisted of, and accordingly, what appropriate remedies should look like. In a longer-term perspectives, the argument that financial instability primarily reflects regulatory failure builds on the historical record which shows that crises were very rare events indeed between the 1930s and 1970s when financial markets were tightly regulated (Vives 2011: 481). Apparently public authorities have both the knowledge and means to assure a large degree of financial stability but became increasingly unwilling to employ them since the 1970s. The exact content of regulatory failure, in this perspective can be summarised on one word: deregulation. Given the culture of greed that inevitably characterises financial markets, deregulatory measure such as the repeal of Glass-Steagall, the introduction of full capital account convertibility, the liberalisation of interest rates, the promotion of an unregulated shadow banking sector and of opaque derivatives, the introduction of the EU single market in financial services, directly caused the crisis. Yet, using a somewhat shorter

historical perspective, some analysts come to the conclusion that deregulation cannot be the main cause of the current financial instability because it occurred well before 2004, when the bubble started to inflate. In this view changes in regulatory frameworks instead are the main cause of the current financial instability. Blundell-Wignall & Atkinson (2009) argue that the switch from Basel I to Basel II was the main factor leading to the crisis (also Posner & Veron 2010). Perotti (2011) sees the decisions by the USA and the EU to extend safe harbour privileges to a set of financial instruments in 2005 as the direct cause of the hyperbolic growth of the repomarket in the subsequent three years.

4.1 The rise of shadow Banking.

Even assuming invariant national regulation, the exposure to regulation will decline if financial institutions locate more of their activities in less regulated jurisdictions or sectors. Unlike what a model of pure regulatory arbitrage might suggest, the coexistence of jurisdictions with large differences in regulatory intensity has not resulted in a general relocation of financial institutions “offshore”. Yet, such offshore locations did play an important role for many of the so-called conduits or special purpose vehicles (Leijonhufvud 2007, Tirole 2010: 24). More important, instead, is the fact that differential regulation of financial firms also within the same jurisdiction created strong incentives for shifting assets off-balance in order to reduce capital requirements. There is widespread agreement that the rise of shadow banking, at least in the USA was strongly promoted by changes in the regulatory framework (Adrian & Ashcraft 2012: 26ff).

Three main mechanism characterised the development of the shadow-banking system in the US: Money Market Mutual Funds (MMFs) who attracted part of the deposit business from traditional banks, sale and repurchase agreements (REPOs), and securitisation involving such instruments as mortgage-backed securities (MBS), asset-backed commercial paper (ABCP) and collateralised debt obligations (CDOs) (Gorton & Metrick 2010, Tirole 2010).¹⁶ Perotti (2011) argues that regulatory changes creating bankruptcy

exemption and preventing cross default clauses for securitised assets was the regulatory change that crucially stimulated the growth of the shadow sector.¹⁷ Bankruptcy privileges meant that lenders had a right to immediately withdraw collateral in case of bankruptcy. As a result the consequences of bankruptcy would be shifted to other creditors and lending became virtually risk free such that the likelihood of default mattered little and amply supplies of liquidity were thus made available. Put differently, bankruptcy privileges removed screening incentives on the part of lenders.¹⁸

4.2 How Appropriate Were the Basel Criteria?

The Basel Committee on Banking Supervision (BCBS) goes back to the trans-Atlantic ramifications of the failure of the Herstatt Bank in 1974. At the end of that year the BCBS was established by the G10 and located at the Bank for international Settlements (BIS) in Basel. Much like the OECD the BCBS seeks to act as a standard setter in international banking supervision, promoting the adoption of common rules and best practices across borders. The main focus of the Basel accords is to guarantee that banks hold sufficient capital to absorb losses in a crisis and to do so in a way that does not distort competition between institutions from different jurisdictions. Hence the Basel philosophy is akin to the EU's aim to create a "level playing field" by means of regulatory harmonisation. The first Basel accord was adopted by the G-10 countries in 1988 and came into force in late 1992. The rapid rise of securitisation fuelled the concern that Basel I did not adequately address these risks and gave rise to Basel II (Demirgüç-Kunt and Servén, 2010: 103). Basel II was released in 2004 but its adoption was overtaken by the crisis, leading to a revised Basel III (BCBS 2011). Full implementation of the Basel III rules is envisaged by 2019. In the EU the first part of Basel III came into force as of July 17, 2013 via the adoption of the Capital Requirements Directive IV package, which consists of a regulation and a directive. Currently the adoption of the Basel III accords is the subject of controversy between the USA and the EU as the former holds the new accords to be

inadequate and overly complex whereas the EU fears a competitive disadvantage for its financial industry if the US were not to adopt the new rules.

Given that the epicentre of the financial crisis was located in the G10 much attention has been devoted to analysing why the Basel accords failed to reach their objectives and what lessons should be learned from that for Basel III. That the Basel approach itself was inadequate, rather than incomplete, emerges strongly from the fact that the crisis originated in the regulated sector and not the unregulated shadow banking sector. Based on a sample of 12 OECD countries Blundell-Wignall & Atkinson (2010: 15) show that Tier 1 capital adequacy ratios of banks correlated positively, instead of negatively, with the cumulative losses suffered during the crisis.

The Basel standards rest on three pillars (Demirgüç-Kunt & Servén, 2010: 103) (1) Capital adequacy ratios for credit risk, operational risk and market risk, (2) supervisory review, (3) disclosure provisions to ensure market discipline. Capital adequacy ratios under Basel II are based either on external ratings or, in the case of larger banks, self-rating. A fundamental question in the debate about the Basel criteria concerns the determinants of bank equity. It is generally assumed that equity is more costly than other funds but this is inconsistent with the fact that banks frequently hold equity in excess of the regulatory minimum and that equity holdings vary in many cases irrespective of regulatory changes (Allen, Carletti & Marquez 2011). That would suggest that capital adequacy ratios actually are not binding, as that they do not induce banks to hold more equity than they would have done in their absence.

Setting aside that issues, the main criticisms of the Basel approach can be summarised as follows (Blundell-Wignall & Atkinson (2010): (1) Pillar 1: the approach gave ample opportunity to regulatory arbitrage, de facto placed no limits on leverage ratios, it provided incentives for securitisation, promoted the concentration of bank portfolios in government bonds, mortgages and interbank lending, and had a strong pro-cyclical bias. (2) Pillar 2: Supervisory override was cumbersome and difficult to implement in practice (3) Pillar 3; the assumption that markets form an adequate assessment of (future) risk and will discipline the management of individual firms is inappropriate. (4) The Basel

frameworks focussed too much on capital adequacy ratios and paid too little attention to issues of liquidity (Perotti 2011).

Apart from being inadequate to prevent the build-up of excessive risk, Basel I actually created incentives for off-balance securitisation by requiring lower capital adequacy ratios. According to de Larosi re et al (2009: 9) “the Basel I framework did not cater adequately for, and in fact encouraged, pushing risk taking off balance-sheets.” (also Blundell-Wignall & Atkinson 2009; Demirg  -Kunt and Serv n, 2010: 103).¹⁹

Much criticism has therefore focussed on the introduction of risk sensitive capital requirements in Basel II, especially for mortgage activities, as this imparted a strong pro-cyclical nature to the regulatory framework (Tirole 2010: 32). Indeed Blundell-Wignall & Atkinson (2009) consider the regulatory change from Basel I to Basel II as the main explanation for the exponential increase of securitisation and mortgage lending since 2004²⁰. Similarly, Dewatripont et al (2010: 3) argue that “the gradual lowering of regulatory standards pre-dated the recent crisis.”

The pro-cyclical nature of both Basel I & II, in effect is seen to result by most authors from the availability heuristics leading to overoptimistic expectation in good times and overly pessimistic ones in bad times (Blundell-Wignall & Atkinson 2010: 5).²¹ Put differently, Basel can be argued to have suffered from too short a time-horizon as a result of which leverage ratios increased excessively during the upswing, the banks’ own risk management was too optimistic, and stress testing of financial institutions during the golden decade of finance came to underestimate the potential for large-scale instability (Blundell-Wignall & Atkinson 2010: 6; Haldane 2009: 4).

4.3 Derivatives as “Financial Weapons of Mass Destruction”

Although derivatives were famously labelled “financial weapons of mass destruction” by Warren Buffet (2002:15), the pre-crisis literature argued instead that the effects of

securitisation would be highly advantageous. The theory behind financial derivatives in essence was an application of portfolio theory according to which diversification will reduce risk by spreading it much more evenly. Whereas the repayment of a single mortgage may be influenced by unpredictable idiosyncratic “shocks”, slicing single loans into many segments and distributing them over CDOs would hence imply a much reduced riskiness. This indeed, was one of the arguments behind the US Commodities Futures Modernization Act of 2000 which explicitly exempted over-the counter derivatives from regulatory oversight.²² In practice they had the opposite effect. With an originate-to-distribute instead of an originate-to-hold ²³ business model, the creditworthiness of the borrower is no longer of much relevance to the lender as the default risk can be offloaded into CDOs, and fees come to play a much larger role in revenue generation. (De Larosiere et al 2009:9; Keys et al 2010; Rajan 2005: 317).

If the quality of a borrower could be assessed by easily observable characteristics (hard information), then the switch to an OTD model could not be a sufficient cause of the proliferation of low quality loans. Yet, proper assessment of creditworthiness requires screening by the lender, i.e. the collection of soft information that is hard to communicate to third parties. Purnanandam (2011) examines US banks with more than \$1 billion in assets, or more than \$10 million in mortgage selling activities and finds evidence that indeed the reduced screening incentives of an OTD business model were the reason for the high share of low quality loans. Originators with a high share of OTD in 2007 showed a tighter distribution of interest rates charged to borrowers that were similar in terms of observable hard information than lenders with a low OTD share, suggesting that high OTD lenders indeed invested less effort in screening soft information. Moreover, by comparing the first quarters of 2007, when market conditions were normal, to the subsequent three quarters when markets had frozen, Purnanandam finds that banks with a high share of OTD loans in the first quarter experienced higher defaults in the subsequent quarter and that this effect was stronger for banks that did not manage to distribute originated loans in the last three quarters of 2007. In short, this suggests that OTD loans were of inferior quality. Moreover, he finds that banks who

funded themselves primarily by non-demandable or market-based wholesale debt rather than deposit taking were the main originators of OTD loans.

Keys, Seru & Vig's (2012) examination of the US mortgage market confirms the results of Purnadham but allows for a better identification of the channels through which securitisation induced laxer screening. By examining loans on either side of the 620 cut-off point of the FICO score, they manage to show that 620+ loans, having a greater probability of being securitised and being offloaded in a shorter time span, had a 20% higher rate of default relative to 620- loans with similar hard information. This suggests that the probability and speed with which an originated loan could be distributed prompted laxer screening of soft information.

Examining the expansion of subprime lending in the USA during 2004 and 2005 Nadauld & Sherlund (2013) find evidence that securitisation promoted sub-prime mortgage lending and did so because of the reduced incentive to screen borrowers. Similarly, Mian & Sufi (2009) document that the increase in US mortgage lending was disproportionately concentrated in subprime ZIP codes despite the fact that those neighbourhoods suffered a significant decline in relative income. The main cause of such seemingly perverse lending behaviour is seen to be securitisation of mortgages. Further evidence for securitisation leading to laxer screening of credit risk is provided by Demiroglu & James (2012) whose sample consists of 474 US ALT-A MBS from 2003 to 2007. They find that those deals in which the sponsor and the originator are affiliated and the originator thus retains a higher risk exposure exhibit a significantly lower default rate.

Cole & White's (2012) empirical findings are interesting in this respects as they partly go against what seems to be the current wisdom, namely that investment in MBS were the main cause of the US banking crisis. While recognising that MBS were a problem for investment banks as well as large commercial banks their analysis of all 263 US commercial banks that failed or were technically insolvent in 2009 does not reveal that MBS are a good predictor of future trouble. Instead, (unsecuritised) real-estate loans did turn out to be a good predictor with the exception of single family mortgage loans which either did not affect or lowered the likelihood of future failure.

4.4 Hiding Risk: The Role of the Credit Rating Agencies

The onset of the crisis demonstrated that the ratings issued by the three main credit rating agencies (CRAs) were of poor quality.²⁴ That, however, does not necessarily imply errors on the side of the CRA's to the extent that the crisis indeed was impossible to predict. In that case the conclusion from the rating debacle should be that ratings are highly overrated²⁵ rather than to focus on inadequate procedures by the agencies.

Yet, the literature displays a large degree of consensus that CRAs are to be blamed for – intentionally or unintentionally – hiding the exposure to financial risk. Charles Calomiris (2009), e.g. argues that the rating of American MBSs were based on two untenable assumptions, namely that housing prices would not decline in future and that no-documentation mortgages did not imply a significant deterioration of the quality of the borrower. The poor quality of ratings, in turn, was a major factor behind the lack of transparency that led financial regulators to underestimate the risks present in the system. Since ratings are a factor in determining capital adequacy ratios for banks, their widespread underestimation of risk will contribute to undercapitalisation and hence systemic risks. Moreover, existing microprudential regulation requires many institutional investors to only acquire highly rated assets.

Inaccurate ratings are frequently seen to have been the outcome of a conflict of interest, errors in rating methods and intense competition. A conflict of interest arose because it were the institutions issuing securities that commissioned and paid for ratings and the commission commonly was proportional to the value of the issue, thus creating incentives for overrating. Ironically, this point was already made in 1957 by the then vice president of Moody's, Edmund Vogelius, who argued that “We obviously cannot ask payment for rating a bond. To do so would attach a price to the process, and we could not escape the charge, which would undoubtedly come, that our ratings are for sale.” (Quoted in Morgenson 2008). Jiang, Stanford and Xie (2012) find confirmation of this by

analysing the effect of Standard & Poors' switch in 1974 from an investor-pays to an issuer-pays model. Strobl & Xia (2012) compare the ratings of Standard & Poors with those of Egan-Jones Rating and find that the issuer-pay-model of Standard & Poors does create incentives to inflate corporate ratings relative to the investor-pays model of Egan-Jones. Similarly, Cornaggia & Cornaggia (2013) find that the rating of the subscriber-pays agency Rapid Ratings were quicker to identify default risks than those of Moody's, which uses an issuer-pays model. Hau, Langfield & Marques-Ibanez (2013) examine ratings of US and EU15 banks from 1990 to 2011 and find that larger banks are rated more favourably especially if they provide a large amount of securitisation business to the rating agency concerned.

Calomiris (2009), instead, argues that because of ratings-contingent regulation, rating inflation was driven by pressures from the demand side rather than the suppliers. Institutional investors whose portfolio is subjected to regulatory constraints concerning the quality of instruments benefited from, and thus pressured for ratings that underestimated risk. The main reasons for this are that their investment flexibility increases if more instruments receive an AAA rating, that their performance appears better if higher risk and thus higher yield instruments receive an inflated rating, and that inflated ratings reduce the amount of regulatory capital they need to hold. Opp, Opp & Harris (2013) develop a theoretical model in which the presence of rating-contingent regulation drives rating inflation.

Another manifestation of undue leniency was that CRAs advised issuers how to structure an instrument such that it would just make the AAA grade, implying that in any rating class there would be a heavily skewed distribution towards the high-risk end (Pagano & Volpin 2010: 405). This effect may have been further strengthened by 2004 US rules that required CRAs to disclose their methodologies (Warwick Commission 2009: 15). Because of intense competition, the three CRAs had an incentive to be lenient in an effort to increase profits and market shares as well as inadequate staffing so as to reduce costs.²⁶ In short, collusion between rating agencies and issuers undermined the quality of ratings (Fennell & Medvedev 2011; Kashyap & Kovrijnykh 2013: 1; Tirole 2010: 21 ff).

Different views can be found concerning the role of competition. Unlike for the banking industry, where Carletti & Vives (2009: 276-7) find that “most of the academic literature suggests that some market power is beneficial for stability,” the view of the ratings industry is more mixed. Arguments have been made in favour of both combinations between competition and the quality ratings (Figure 1). Some authors point to the lack of competition promoting inaccurate ratings. Standards & Poor and Moody's share amongst them around 80% of the market, and as it is common to request ratings from two or three CRAs, one might argue that the market comes close to a monopoly (Tirole 2010: 21, Warwick Commission 2009: 15). Much of the pre-crisis literature shared this view of the beneficial effects of competition arguing that despite information asymmetries, market discipline could be relied on to prevent systematically inaccurate ratings as the concern for their reputation would drive CRAs to expend the best possible effort (Hörner 2002). On theoretical grounds Lizzeri (1999) concluded that monopoly agencies will reveal only very limited information whereas competition will lead to full information disclosure. However, others have argued that credit rating is a natural monopoly (Diamond 1984; Ramakrishnan & Thakor 1984; Strausz 2005), with the implication that efforts to introduce more competition will not prove to be a panacea.

The existence of specialised CRAs implies that investors have more limited information processing capacities or consider the costs of acquiring information too high. Mispricing of risk, even if it could be detected, will thus not automatically disqualify a CRA in the market since it would require potential investors to repeat the rating process for it to be detected. Market discipline might thus not work satisfactorily. Löffler (2013), studied the effects of rating reversals and defaults of highly rated issues on the stock market valuation of Moody's. Rating reversals do exert a significant effect but the effect of defaults are inconsistent, leading him to conclude that market discipline as such is insufficient. Mathis, McAndrews & Rochet (2009) argue that if CRAs derive a sufficiently large share of their revenue from rating complex instruments that the incentive to inflate ratings will outweigh reputational concerns. They then show that the share of residential

mortgage backed securities (RMBS) rated by the three CRAs did indeed increase significantly during 2001-2007.

Figure 1: Competition and Accuracy of CRA Ratings

I	II
<p>Competition Promotes Accurate Ratings / Subdued Competition is Detrimental to Accurate Ratings</p> <p>Fennel & Mevedev (2011), Hörner (2002), Lizzeri (1999)</p>	<p>Subdued Competition Promotes Accurate Ratings / Competition is Detrimental to Accurate Ratings</p> <p>Becker & Milbourn (2011), Bolton, Freixas & Shapiro (2012), Camanho, Deb & Liu (2010), Doherty, Kartasheva & Phillips (2009), Griffin, Nickerson & Tang (2013), Kashyap & Kovrijnyk (2013), Klein & Leffler (1981), Mathis, McAndrews & Rochet (2009), Strausz (2005)</p>

That market discipline proved ineffective thus can be related to short-termism and feedback mechanisms between the rating and the riskiness of the rated security. Newly issued securities, even when fundamentally unsound will reveal their flaws only with a time-lag but that time-lag may be too long for the CRA to take the negative reputational effects into account if strong competition puts more conservative CRAs at an acute disadvantage. Secondly, interaction between credit ratings and the riskiness of the security can explain why the negative reputational effects of inaccurate ratings only came into play when it was too late. This can easily be illustrated with respect to the most-problematic sector of mortgage-backed securities. The soundness of sub-prime loans critically depends on a continued rise in housing prices but the more favourable

the ratings of such securities, the larger the availability of such mortgages, the higher the demand for housing and hence the more likely it is that prices will indeed rise.

Given the presence of several agencies, issuers had an incentive to seek out the CRA that provided the most favourable rating ("Rating Shopping"). Bolton, Freixas & Shapiro (2012) develop a model of conflicts of interest in the rating industry in which the possibility of rating shopping drives rating inflation. In Skreta & Veldkamp's (2009) model, rating inflation is driven by the fact that issuers have the possibility of soliciting ratings from several agencies and publishing the most favourable one. According to Griffin, Nickerson & Tang (2013), however, "rating catering" would be a more appropriate term than "rating shopping". They find that AAA CDOs rated by both Moodys and Standard & Poors had a significantly higher default rate than CDOs only rated by one of the agencies. Whereas rating shopping assumes that CRAs played a passive role, the evidence presented by Griffin et al (2013) suggests that the competing agency was willing to adjust its rating upwards, irrespective of the outcome of its own model, if the first agency had awarded an AAA rating. Becker & Milbourne (2011) studied the effects of the rising market share of Fitch on the quality of ratings issued by the other CRAs and found that more intense competition contributed to a deterioration of the quality of ratings. Doherty, Kartasheva & Phillips (2009) also found that more competition makes ratings less informative by studying the entrance of Standard & Poors in the insurance market; a market that previously had been covered by a monopoly CRA. Hau, Langfield & Marques-Ibanez (2013), who only examine ratings given to banks by the three major agencies, instead do not find evidence to support the hypothesis that competition drives ratings inflation.

4.5 A European Problem: Sovereign Debt and Financial Instability

During the crisis sovereign debt and financial instability have interacted in two main ways. First, the need to provide massive bailouts to insolvent financial institutions

provoked a dramatic increase in public debt and thus led to a downgrading of this debt, thereby in turn further weakening the financial institutions holding it. The prime examples of this mechanism in the Eurozone are Spain and Ireland, both of whom have received support from the EFSF / ESM and both of whom had moderate gross consolidated public debt as well as budget surpluses in the years leading up to the crisis. Second, high and persistent budget deficits will lead to excessive public debt relative to GDP which will sooner or later give rise to increased fears of default and higher interest spreads, which in turn aggravates the debt problem. In the end governments may no longer be able to roll over their short-term debt at which point financial institutions holding substantial portfolios of sovereign debt will be threatened with failure unless a public bailout is orchestrated. The prime example here is, of course Greece.

The first issue boils down to the general topic of this review, namely how to limit financial instability, but the second one is a specific issues which currently seems to be peculiar to the EU. The EU's approach to this problem is macroeconomic as it attempts to impose stricter limits on permissible budget deficits plus binding trajectories for the reduction of gross consolidated public debt. Essentially this comes down to the resurrection and strengthening of the ill-fated Stability and Growth Pact (SGP) in the form of the so-called Stability Plus Pact. Yet, the strategy of fiscal austerity proved insufficient to stem the crisis in Europe. Indeed, Varoufakis (2013) argues that fiscal austerity in combination with the CDO-like bonds issued under the EFS/ESM in fact promoted the contagion of financial instability within the Eurozone. The failure of the fiscal austerity strategy then prompted the ECB to de facto assume the LLR role, even though this was not envisaged in the treaties, by means of the LTRO which was announced in December of 2011. In September of 2012 the ECB, through its OMT programme, declared it stood ready to buy unlimited amounts of public debt in order to stem a viscous circle of higher interest rate spreads and increasing doubts about some Eurozone countries' ability to honour their public debt. In addition national central banks increasingly resorted to the ELA facility to provide support to illiquid but solvent

Eurozone banks in an effort to forestall systemic effects and prevent contagion. The collateral accepted by NCBs under ELA will typically be of lower quality than the collateral acceptable to the ECB.

While the Stability Plus Pact plus the conditionality for receiving EFSF/ESM support aim to limit public indebtedness, it might also be necessary to limit the concentration of bank portfolios in public debt. The essential step for doing so would be to attach differential risk weights to sovereign debt depending on the debt to GDP ratio of the country involved. The current Basel rules attach zero risk weight to sovereign debt as do the EU proposals for a reform of risk-weighting (Lehleiter 2013: 27). They thus create an incentive for banks to invest heavily in such securities. Since the more highly indebted EU member states will have an incentive to block any revision of the zero risk-weight, Acharya (2012: 47) proposes adopting a rule-based approach to risk-weighting of sovereign debt, thus eliminating political discretion.

4.6 Household Indebtedness and Real Estate Bubbles

Part of what makes the present crisis so catastrophic is that its epicentre lies in the banking system. In comparison, the so-called dot.com bubble of the early 2000s was mainly focussed on stock markets and had relatively little effect on the real economy (Plihon 2009: 259). The rapid increase in lending prior to the crisis had its counterpart in an equally rapid expansion of borrowing by the non-financial sector. Financial sector instability, in turn, can be traced back to two separate channels, mortgage lending and a sovereign debt crisis, whereby in countries like Spain and Ireland the real-estate bubble became the main cause of the sovereign debt crisis. This distinguishes the present crisis in the North Atlantic economy from the Asian crisis of 1997-98 where the default risk originated mainly with the corporate sector, exemplified by a very strong reliance of South Korean Chaebol on debt as opposed to equity (Goldstein 1998).²⁷

Moreover, whereas the failure of larger financial institutions in the US was intimately connected with the securitisation of mortgage debt, this seems not to have been the case for smaller firms. Cole & White (2012) argue that the causes of the recent failures of smaller US Commercial Bank were the same as during 1985-1992, the implication being that not financial innovation but the failure to draw the regulatory lessons from the previous crisis stood at the cradle of the current crisis. The main lesson for regulators to then would be that commercial real estate lending is much riskier than assumed and thus should be assigned a significantly higher risk weight.

Why then did household indebtedness increase so rapidly in the build-up to the crisis?²⁸ Was it primarily driven by changes on the supply side, i.e. more aggressive strategies to originate debt, or by stronger demand for mortgages? There is widespread agreement that the background to the real estate crisis was the switch from a policy of public housing to the financial markets as the providers of affordable private housing. The political logic of that policy shift, which can be observed in almost all OECD countries (Schwartz & Seabrooke 2009), was that it promised to relieve public spending while simultaneously making adequate housing affordable also for the lower income strata of society and increasing their net financial assets. That policy reorientation thus both affected the demand and supply side of residential mortgages. Indeed, for Peter J. Wallison (FCIC 2011: 441-538) housing policy was not just a background factor but *the* main cause of the US financial crisis.

On the demand side, this policy reorientation should have strengthened the hedging motive for house purchases. Han (2010), analysing house purchases of existing US home-owners during the period 1980-1997, finds that an increase in house price uncertainty reduces the likelihood of a purchase as well as the size of any purchases for households with a low hedging incentive, while it has the opposite effect on households with a strong hedging incentive.²⁹ To the extent that home-ownership increasingly comes to function as a substitute for income security provided through welfare transfers the hedging motive will not only be driven by an effort to hedge against future hikes in housing costs, as generally recognised in the literature on the motives for purchasing

residential housing, but also against a future loss in income.³⁰ With housing being by far the most important financial asset of the average household and the availability of income support through the social insurance system less certain, household financial assets must come to play a greater role for hedging future income uncertainty.

On the supply side, much attention has been focussed on securitisation leading to laxer credit standards and reduced screening efforts. Indeed, the evidence presented by Mian and Sufi (2009) suggests that the causes of excessive private indebtedness should be sought mainly on the supply side, as they rule out improved income prospects of borrowers or expected house price appreciation as the driving forces of sub-prime mortgage growth. Instead their evidence points to supply side factors, i.e. a rightward shift of the supply curve. Securitisation, in turn was seen to be the main factor in this supply shift as the areas with the greatest increases in credit growth also showed the greatest increase in securitisation. For Europe. Leven (2011: 184) shows that private bank strategies mattered in explaining household indebtedness. Loutskina & Strahan (2011) analyse the mortgage applications of the Federal Reserve's Home Mortgage Disclosure Act (HMDA) from 1992 to 2007 and find evidence that geographical diversification may also have played a role in reducing screening. Geographically concentrated lenders were not only found to invest more in acquiring private information, as opposed to publicly available information, but they were also more likely to retain the loans they originated.

Concerning retail investors, several authors argue that their lack of sophistication made it easier to sell financial instruments of poor quality. Conflicts of interests of those consulting retail investors then further exploited this lack of sophistication. Evans & Fahlenbrach (2012) find support for this by comparing the performance of 2660 US retail mutual funds between 1997 and 2008. The performance of mutual funds that have a separate retail and institutional version shows that retail investors generally fail to react to changes in useful information and that funds for institutional investors produce a higher yield than their retail investor twins. Although conflicts of interest of those advising retail investors did play a role in the increasing exposure of private

householdsto low quality instruments, their results indicate that providing unbiased advice to retail investors may only address part of the problem as those investors may not necessarily respond to it. Bhattacharya et al (2012) examine this issue in more detail with a sample of 8000 retail customers in Germany. Their results also suggest that the availability of unbiased advice is not sufficient as many retail customers will not make use of it.

Table 1: Gross Debt-to-Income Ratio of Households (%)				
	2002	2005	2008	2011
Euro area (17)	77.2	88.0	95.4	99.0
Belgium	60.3	71.1	78.8	88.8
Czech Republic	19.1	31.4	49.7	56.1
Denmark	187.8	232.0	261.9	268.9
Germany	104.5	99.6	90.5	85.8
Estonia	24.9	60.5	91.9	88.3
Ireland	112.2	170.9	198.8	203.1
Spain	79.3	111.0	126.6	124.6
France	54.8	64.9	74.7	82.4
Italy	37.7	48.4	58.1	65.2
Latvia	14.5	48.6	70.8	65.9
Lithuania	4.8	21.2	44.9	40.1
Hungary	18.6	37.9	62.2	63.4
Netherlands	163.6	205.3	230.1	248.9
Austria	77.1	84.1	86.5	89.2
Poland	17.3	21.9	48.0	57.8
Portugal	96.2	113.9	127.6	126.5
Slovenia	23.4	29.3	42.4	46.8
Slovakia	9.2	20.4	35.4	42.5
Finland	65.1	85.1	97.9	104.0
Sweden	100.8	123.8	136.5	148.3
United Kingdom	113.8	136.1	151.4	136.2

Source: EUROSTAT

Chmelar (2013) analyses the development of household debt in the EU since 2013. Also he comes to the conclusion that its rapid expansion in the run-up to the crisis can be attributed to a mix of supply side factors – the single market in financial services, introduction of the Euro and the concomitant decrease in interest rates spreads – , demand side factors, as well as macroeconomic factors affecting the expectations of future household income.³¹ What is peculiar in Europe is that household debt exhibits markedly regional dynamics. In the periphery, which roughly corresponds to Eastern and Southern EU countries in Chmelar’s classification, debt levels started from lower levels but grew considerably faster than in the core countries. Since the outbreak of the crisis peripheral countries have also deleveraged faster. In other words, though one would expect household deleveraging to be positively correlated with the level of indebtedness this is not so in Europe.

Lack of experience with market risk may have been a contributing factor to the indebtedness of private households in the new EU states (Leven 2011), but it can have opposite effects; either leading to underestimating risk or to little demand for complex instruments. Given the higher growth rates of household indebtedness in Eastern (and Southern) member states documented by Chmelar (2013) the first effect seems to have predominated, although it should be noted that the levels of households indebtedness were and remain highest in the core countries of the EU (Table 1).

5 Why did Regulatory Failure Occur; Regulatory Capture and Complexity.

Adam Smith’s dictum that we do not expect our daily bread from the benevolence of the baker might be interpreted to mean that managers of financial institutions cannot be

blamed for behaviour that eventually turned out to have very costly macroeconomic consequences, as it is their duty to act in the self-interest of their firms. Yet, to shift all blame to the negligence of regulators and supervisors is reminiscent of the car thief who blamed the mayor on the ground that he could not have stolen the car if the street the car was parked in had been a no-parking zone. In the aftermath of the Lehmann Brothers collapse a spate of criminal activity has surfaced, with the record fine of \$13bn imposed on J.P. Morgan in October 2013 just the latest example in a long list. Managers of financial firms have a duty to act in the interest of their principals (investors), also if the regulatory framework leaves them room to do otherwise. The emergence of a culture of greed and irresponsibility in many financial sector firms thus is an integral part of the problem alongside with inadequate regulation and insufficient supervision. Yet, the policy relevant issue remains how to devise regulation such as to prevent a recurrence, which in turn, requires an answer to the question how regulatory failure occurred in the first place.

Lack of transparency concerning the risk of exposure of financial institutions is widely seen as a major contributor to the crisis. The problem is generally considered especially acute in the shadow-banking sector. More transparency would have encouraged market discipline and would have enabled regulators to identify risks earlier (Demirgüç-Kunt & Servén 2010: 94). Concerning the banking sector, some authors have argued that increasing complexity made it more difficult for CRAs to provide accurate ratings and reduced their incentives for doing so (Bar-Isaac & Shapiro 2011; Mason & Rosner 2007, Morgan 2002, Opp, Opp & Harris 2013; Skreta & Veldkamp 2009). In this view then financial innovation and in particular the rapid spread of complex derivatives would be accorded an important role in bringing about regulatory failure. To prevent rapid innovation from hollowing-out regulatory frameworks, Häring & Douglas (2012: 105) propose that new financial products should require authorisation by the regulatory authorities before they can be marketed, very much like new pharmaceuticals, which can only be brought to the market once the producer has proven their safety. Yet, given that financial crises have been a frequently recurring feature of market economies at least

since the last three centuries, such a view would not seem overly convincing. The problem is not primarily that a lack of transparency made it very difficult to accurately discern the build-up of fragility in the financial system, but that the relevant authorities in many countries were not overly interested in such information. In other words, regulatory capture may have been the main problem.

In a much noted article, Simon Johnson (2009), former chief economist of the IMF, forcefully argued that the US government had been captured by the financial services industry. Similarly, Leijonhufvud (2007: 2) attributes the repeal of Glass-Steagall to lobbying by the financial services industry and the adoption of a faulty portfolio diversification theory that assumes a Gaussian probability distribution for asset prices. Regulatory capture refers to the phenomenon that the regulator (supervisor) may come to act in the interest of the regulated (supervised). It has been documented in many areas of public intervention and is widely considered to have been a contributing factor in the regulatory failure that engendered the financial crisis. Moreover, it is also held responsible for what some consider the inadequate regulatory response to the crisis (Luyendijk 2013). *Time Magazine's* cover story of September 13, 2013, for example, was entitled "How Wall Street Won." In the European context the weak regulatory response to the 2007 crisis may be illustrated by the fact that bank bailouts still are necessary. In the summer of 2013, for example the two main Slovenian Banks, Factor Banka and Pro Banka were placed under the control of the Slovenian National Bank in order to be wound down, at the expense of the taxpayers. Moreover, in January and February of 2013 the NCBs of the ESCB had recourse to roughly €120 and €67 billion Emergency Liquidity Assistance (ELA) (Broyer & Lemangen 2013: 2).

Six different mechanisms exist through which regulatory capture may come about. (1) Regulators need intimate knowledge of and very good working relations with the regulated industry. Many of them may have a background in the industry itself and together with close interaction this may foster a degree of identification of the regulators with the regulated. In an empirical study of bank bailouts in Denmark, France, Ireland and the UK during 2008-9 Grossman & Woll (2012), add some useful differentiation to

such arguments. The exact extent of needed government support for troubled banks can only be ascertained in close cooperation with those banks. Nevertheless, confronted with similar economic problems, countries still greatly differed in the extent to which the private sector was asked to carry some of the burden of bailouts. Grossman & Woll show that in those countries where banks were closely interconnected and had the ability to act collectively the private sector came to share a larger burden of the costs of bailouts as compared to those countries where banks were less able to act collectively and policymakers had close personal relations with bank managers.

(2) Regulators tend to be remunerated less generously than financial sector operatives with a similar level of expertise and leniency may thus open the way for a more lucrative career in the industry.

(3) Financial firms have above average resources at their disposal for lobbying activities and the concentration process that has characterised the sector has further increased this power (Dewatripont et al. 2010: 8). In this case regulatory capture may come about both through lenient supervision, i.e. incomplete, enforcement of the existing rules, or through a change of the rules in favour of the industry. Igan, Mishra & Tressel (2009) find evidence for the first mechanism as their examination of US mortgage lenders revealed that those lenders who engaged more in lobbying also engaged in more risky behaviour. Apparently lenders operated on the assumption that intense lobbying could buy regulatory leniency. The reduced capital weight of mortgage loans under Basel II as opposed to Basel I may be an example of the second mechanism, as is the possibility of internal risk assessment by larger banks under the Basel II framework.

(4) Asset booms, and in particular real estate booms confer benefits on a wide section of interests so that demand for effective regulation may be lacking.³² A real-estate boom not only is lucrative to the financial sector itself but to home-owners, prospective home-owners, the construction industry, and, through its effects on higher GDP growth and tighter labour markets may benefit all wage earners. When combined with the fact that, as Ben Bernanke has pointed out repeatedly (Bernanke & Gertler 2001; also Mishkin 2008), it may be difficult to halt an emerging asset boom without provoking a recession, it

becomes easy to understand why demand for strict regulation and effective supervision may come to be in short supply. The very late decision (2007) by the Estonian Financial Supervision authorities to increase capital requirements on mortgage lending (Bohle 2013: 18) may be an example of such mechanisms.

(5) Differences in regulatory frameworks may engender regulatory capture to the extent that the regulated industry is seen to be negatively affected by the current regulations. Competition from the shadow banking market in the US, e.g., is widely seen to have contributed to the relaxation of regulations on the banking sector in the USA (Tirole 2010: 30). In the EU, different regulatory approaches in the member states may have played a similar role. Before the late 1990s the EU was characterised by distinct models of financial (and economic) regulation in what largely was a market segmented along national lines (Fioretos 2010). Towards the late 1990s the EU resolved to remove most of the barriers to financial services, but no agreement was possible on a single regulatory model (Posner & Veron 2010). Financial market integration in Europe therefore principally consisted of what is called “negative integration”.³³ By removing barriers to trade in financial services an incentive was created at the national level for laxer regulation and supervision in order to give the national industry a competitive advantage. Countries, like Ireland, Latvia, Germany and Iceland³⁴ seized on this opportunity. In a second round, these national reform efforts then became an argument for other countries to also relax their rules in order not to place their own financial firms at a competitive disadvantage (Mügge 2006).

(6) Finally, one channel of regulatory capture that has received a substantial amount of attention, especially due to Charles Ferguson’s documentary „Inside Job”, runs via the economics profession. Lucrative contracts with financial firms, so the argument goes, led academic economists to downplay or negate the risk of financial instability while advocating reforms that are sensitive to the interests of the industry (Häring & Douglas 2012). Carrick-Hagenbarth & Epstein (2012) examined 19 economists involved with the Squam Lake Report on financial reform (French et al 2010) and the Financial Reform

Task Force of the Pew Trust and found that private financial affiliations were discussed infrequently and inconsistently.

Concerning the excessive influence of the regulated industry over the regulators (mechanism 1-3 above) the implication to some is that the more complex the issue to be regulated the simpler the rules should be. Kay 2010 (219 ff) argues that the complexity and detail of the Basel regulatory frameworks was such that it bred regulatory capture. The Basel regulatory framework became steadily more complex in response to emerging problems, i.e. it increasingly aimed at supervision of business practices rather than regulation of narrowly defined issues. Such “regulatory creep” (Kay 2010: 219) seems to be a common feature throughout the history of regulation, yet it does not improve effectiveness. The more supervision of business practices becomes the aim, the more regulators will depend on experts from inside the industry, and the more the conception of what provides good business practice will be informed by the views of the major players in that industry. As a result, Kay (2010: 219) argues that the regulation of the financial industry became “extensive and intrusive: yet ineffective and protective of the existing structure of the industry and the interests of its major players.”

6 Reform Proposals

The conclusions concerning the regulatory lessons to be drawn from the crisis are a function of the degree of inherent instability attributed to a system of fractional reserve banking and the potential effectiveness of regulation. Those who hold that markets will always tend to equilibrium and are sceptical concerning the effectiveness of regulation will focus on redesigning regulation such as to strengthen the impact of market discipline e.g. through addressing issues of moral hazard. On the other side of the spectrum are those who believe that the built-in instability of a system of fractional reserve banking is quite pronounced whereas excessive regulation will be ineffective or

have undesirable side-effects. That view leads to arguments in favour of changing the structure of the industry with tight regulation confined to specialised institutions performing systemic functions i.e. “narrow banking” or mutual fund equity based banking (Chamley & Kotlikoff, 2009; Ferguson & Kotlikoff, 2009; Goodman & Kotlikoff 2009; Kay 2010; Kotlikoff & Leamer 2009). The feasibility of such proposals depends on the assumption that it is possible to construct effective firewalls between narrow banks and other types of financial institutions (“boundary problem”). Taking a more radical approach, Häring & Douglas (2012) advocate a radical curtailment of the ability of commercial banks to create money by increasing capital requirements, in favour of concentrating the function of money creation with the central banks.

Most of the literature, however, takes a position in-between these extremes arguing that redesigned regulation can adequately contain instability. The primary purpose of tighter regulation would be to limit risk-exposure in a countercyclical way. This principally involves four issues; raising capital ratios and introducing leverage and liquidity ratios; introducing a risk sensitive levy on financial institutions; reforming the governance structure of financial institutions with an eye to reducing the incentives for risk taking; and assuring that all systemic institutions are covered by tighter regulations. Barring a fundamental change to the structure of the industry (compartmentalisation), the latter can potentially be done in two different ways. Either large institutions are broken-up such that no institutions of systemic relevance remain, or regulation is essentially extended to all financial institutions as it is considered impossible or impractical to limit systemic functions to a small set of institutions.

Apart from the content of reforms, there is also a debate about the appropriate fora for adopting reforms. Reasons of competitiveness and first-mover disadvantages are sometimes invoked to argue that reform will require coordination in international fora (FSF 2009). On the other hand, there is a debate whether centralisation of regulatory and supervisory authority will decrease or increase the likelihood of regulatory capture. In practice the issue of competitiveness does not seem to be a crucial one outside of the EU as e.g. the adoption of the Dodd-Frank reform bill in the USA was not made contingent

upon other major players in the global market adopting similar legislation. Moreover, after the huge costs of the financial meltdown, one may ask whether having a strong specialisation in the financial services industry really will contribute much to the long-term prosperity of a country. Indeed, the Warwick Commission on International Financial Reform (2009: 7) already made a similar point in 2009: "It makes little sense for large or mid-sized economies like the U.K., Switzerland, and the U.S. to be deriving 20 percent or so of their GNP from financial sector activities, when finance, like law and accounting, should be about facilitating economic investment, not being the investment." Moreover, for a sample of 10 OECD countries, Philippon & Resheff (2013: 79) find that both the income share of the financial sector and financial sector output display a small negative correlation with GDP growth since 1950. Indeed, it would seem reasonable to argue that much of the problems encountered in countries such as Iceland, Latvia and Ireland were the result of policies aimed at turning these countries into financial hubs.

Finally, prudential regulation requires effective supervision in order to succeed. Weaknesses of prudential supervision may result from regulatory capture and regulatory arbitrage; from the incentive structure of the supervisors, or from institutional weaknesses in the form of a multitude of regulatory agencies, resulting in the absence of any agency with a clear view of the entire system. This form of institutional weakness has been diagnosed both for the USA³⁵ and the EU; although in the latter case it results from a multitude of national regulators in a single market for financial services. In the EU the response to regulatory fragmentation has been to transfer supervision for the largest EU banks³⁶ to the ECB as of November 2014 although there is still no agreement concerning the precise modalities of a resolution mechanism.

Brunnermeier et al (2009: 36-37) discuss the need to change the incentives structure of the regulators so as to guard against pressures from politicians and the financial services industry. Their main proposal is to adopt well-defined rules so as to minimise the room for discretion regulators enjoy.

6.1 Recalibrating the Role of Market Discipline in Regulatory Frameworks

The conclusion that market discipline cannot be counted on to prevent systemic crises is also almost universally shared in the literature (Stephanou 2010). Market discipline instead operated in a pro-cyclical way.³⁷ However, this does not imply that the concept has no role to play in regulatory frameworks. Petursson & Moriss (2012: 72-74) argue that, because it is illusory to design a perfect regulatory system in a highly complex and ever changing world, the main lesson from the financial crisis is to rethink financial regulation in such a way as to strengthen feedback between markets and regulators. Market discipline may be irrelevant in dealing with systemic risk, but it still may have a role to play on a microprudential level in limiting idiosyncratic risks (Stephanou 2010: 3). Though it would need to be complemented by other measures such as compartmentalisation, regulation of the shadow banking sector, a general overhaul of the Basel criteria and the strengthening of supervision

Strengthening the role of market discipline involves three issues: (1) Reducing moral hazard. This, in turn centres mainly on the reform of deposit insurance. (2) Improvement of transparency through improved disclosure (3) Strengthening the impact of market signals on management decisions in financial firms.

There currently is a debate on reforming deposit guarantee schemes (DGS) in the EU, where the Commission's proposal to harmonise deposit insurance (European Commission 2010) has met with resistance, especially from Germany (Verma 2013). However, this proposal is concerned with regulatory harmonisation and does not address strengthening market discipline. Overall, the issue of reforming deposit insurance is a sideline in the current debate. Demirgüç-Kunt, & Huizinga (2004) and Demirgüç-Kunt & Servén (2010) suggest that limited insurance coverage, co-insurance and a larger role for private deposit insurance may be able to strike a better balance between safeguarding confidence in the financial system in the short-run and suppressing market

pressures with its longer-term negative consequences for financial stability. On the other hand, partial deposit insurance may increase the incentives for depositors to monitor the banks but it also creates an incentive to withdraw deposits thus promoting bank runs in times of crisis (Tirole 2010: 23).

Even if transparency were to be improved, for market discipline to be more effective it would require that sufficient incentives for appropriately monitoring credit-risk exist. A basic insight underlying much of the proposals is Bliss & Flannerry's (2002) finding for US bank holding companies that security prices do react to riskiness but that such market reactions fail to have any noticeable effect on managerial decisions.³⁸

This being so, two avenues for reform suggest itself: to increase the incentives of management to react to market signals and to increase the impact of market signals by using them as input to regulatory decisions. Market discipline thus would operate indirectly, namely through the regulatory and supervisory agency as opposed to the direct channel, underlying Basel's Pillar 3 in which transparency and disclosure will lead market forces to change the behaviour of the firm's management. The issue thus boils down to a reform of the Basel mechanism. In general, the literature sees these two main avenues of reform as complementary; management incentives for prudent behaviour should be strengthened while simultaneously reinforcing regulation and supervision (Kashyap, Rajan & Stein 2009).

There are three aspects to strengthening management incentives to monitor credit risk: (1) Increasing the incentives of the shareholders of financial institutions to monitor the management, (2) Strengthening the ability of shareholders to monitor the management and, (3) Increasing the incentives of management to monitor credit risk. Effective monitoring of the management by shareholders will, in part, depend on the concentration of ownership. Widely dispersed ownership provides little incentives for shouldering the costs of monitoring. Using a sample of East Asian Banks for the period 2005-2009 Chalermchatvichien et al (2013) find a U-curve effect. At low levels an increase in ownership concentration reduces capital stability with the opposite effect at high levels. Moreover, shareholders of institutions considered too-big-to-fail have

reduced incentives for monitoring because of the certainty of bailouts (Liikanen et al 2012: 106). One solution in that case would be to break up large conglomerates into smaller units.

6.2 Reform of Compensation Schemes and Corporate Governance

The emphasis on changing the incentive structure of managers derives from scepticism concerning the effectiveness of the external constraints of market discipline and capital adequacy ratios (Rajan 2005: 356). If markets would effectively discipline excessive risk-taking, then the incentives of the management would serve to promote financial stability. Yet, a widespread argument is that compensation practices promoted excessive risk taking (FSF 2009: 1; Calomiris 2009: 2). According to the FSF (2009: 4, 5), surveys show that „over 80 per cent of market participants believe that compensation practices played a role in promoting the accumulation of risks that led to the current crisis,” while simultaneously noting that industry practice before the crisis would generally not see compensation schemes as related to risk management. The years prior to the crisis did indeed see a tremendous increase in the compensation of CEO's in financial firms. Suntheim's (2010) survey of CEO compensation of seventy four banks from eighteen countries finds that the average increased from \$2,332,944 in 1997 to \$5,368,365 in 2007, slightly over half of which was paid out in bonuses.³⁹

Compensation schemes can increase the risk of financial instability in various ways. Large bonus payments may have created an incentive to maximise short-term profits thus leading to excessive risk taking. Payment in company stocks and / or stock options had the same effect. Rajan (2005) argues that compensation of managers in relation to yield creates an incentive to hide risk, and compensation relative to the performance of competing firms creates incentives for herding behaviour. Herding behaviour in turn may remove asset prices from fundamentals. Armstrong et al (2013) investigate the relationship between managers' equity holdings and their incentives to misreport both

theoretically and empirically and conclude that there is a positive correlation only if stock holdings make managers less risk averse. Higher leverage will generally increase the net income over equity – but not necessarily so over assets - and therefore the value of stock (options) (Fahlenbrach & Stulz 2011: 12-13), meaning that compensation schemes may also be part of the cause of the excessive leverage ratios observed in the industry. Finally, compensation schemes that are insensitive to risk-taking may undermine a firm's risk management through capture or evasion (FSF 2009: 5).

It is commonly argued that excessive CEO pay is especially prevalent in the USA. A rare exception to this view is the article by Fernandes et al (2013) who find no significant differences between CEO compensation in a sample of internationally active firms from the US and 16 Anglo Saxon and European countries. Their conclusion is that CEO remuneration is the outcome of labour market competition for scarce managerial talent and does not reflect the power of CEOs to set their own pay. They reach this conclusion by controlling pay differentials also for board structure and ownership as well as pay structure. They find that firms with independent boards and high institutional ownership, which are more prevalent in the USA, are associated with higher CEO compensation as well as more extensive use of equity-based pay. Equity-based pay however implies a less diversified and riskier portfolio and thus should also be controlled for.

Even if one accepts that remuneration promoted risk taking, the case for regulating pay does not necessarily follow. An alternative would be to directly limit risk exposure banks by means of tighter regulation. Lower profitability in upturns would then also presumably result in lower remuneration. Nevertheless, there have been many reform initiatives concerning the governance of financial institutions,⁴⁰ partly because the issue of pay caps in the financial services industry is popular with a wide audience. Section 951 of the US Dodd-Frank Act of 2010 increases the powers of the shareholders in setting the compensation of the senior executives; the so-called “say on pay” provisions. In the EU, the Commission first imposed limitations on managers' compensation and severance packages in the Commerzbank case (N 625) in 2008 (Heimler & Jenny 2012: 364). Subsequently both EBA and CEBS have focussed on the issues with some of their

recommendations being included in the revised Capital Requirements Directive (CRD III & IV). Internationally, especially the FSF/FSB has engaged with the topic, issuing principles and standards on compensation in 2009 while regularly reporting on the pace of reform (FSB 2013).

The issue would seem to be a classic principle-agent problem with the principals (shareholders) needing to define better ways to discipline the agents (firm executives). The standard way to align incentives of principals and agents would be to give shareholders a larger say in compensation and promote stock ownership by the managers such that a significant share of their compensation and wealth rises and falls with the value of the company they manage. Rajan (2005) argues that requiring managers to invest a certain share of their own compensation in the entire range of securities held by the funds they manage should lead to more risk conservative behaviour. Ertimer, Ferri & Muslu (2011) analysed 1198 shareholder proposals and 134 vote-no campaigns in publicly traded US firms during 1997-2007 and found that shareholder activism did significantly reduce the compensation of CEOs with excessively high wages, though not of CEOs with simply high wages. Faulkender & Yang (2013) find that disclosure of the pay of peer group members, as mandated by the SEC in 2006, was not effective in eliminating strategic choice of peer companies against which to benchmark pay decisions. Their results rather suggest that increasing the voice of shareholders in CEO pay decision would be a more appropriate strategy in cases with concentrated equity holdings as only firms with a low concentration of institutional equity holdings displayed an increase in strategic pay-benchmarking after the 2006 SEC regulation.

A core theme running through the debate is to correlate compensation more strongly to the longer-term performance of the company. The FSF principles (FSF 2009) advocate that „payments should not be finalized over short periods where risks are realized over long periods.“ Demirgüç-Kunt & Servén (2010) propose a deferred payment fund by which bonuses are paid only with several years delay (also Wolf 2010B). Similarly (Rajan 2005: 357) argues that managers should only be able to liquidate their own holdings in

the funds they manage after a few years. Moreover, the compensation of risk managers should not be linked to the short-run performance of their firm so as not to undermine risk control (FSF 2009: 2). A similar proposal is advanced in the Liikanen Report (2012: 104): “Bail-in instruments should also be used in remuneration schemes for top management so as best to align decision-making with longer-term performance in banks. “ In part, these proposals have been implemented in Europe with CRD III which requires that a substantial part of bonus payments (“variable remuneration”) be in shares or share-like instruments and that payments be deferred over a longer period.

While a deferred stake of the managers in their firm may lead to more risk-averse strategies, it does not necessarily lead to a better alignment of the interest of shareholders and management and may be conducive to the destruction of enterprise value. If such inside debt as pensions and deferred compensation is unfunded and unsecured the claims of the (former) managers in case of bankruptcy have the same status as those of external creditors. Sizeable inside debt might thus lead to conservative management strategies that favour debt-holders at the expense of shareholders, as Edmans & Lui (2011) have argued. To avoid such risk-shifting, the deferred claims of the managers should be aligned with the capital structure of the company. Wei & Yermack (2011) test this hypothesis for 299 US firms after the 2007 SEC reform which required disclosure of inside debt. They find that substantial deferred claims lead to a rise in bond prices, a reduction in equity prices and a reduction of volatility of both securities as well as overall destruction of firm value.

Some argue that the problem lies deeper as the principals may have an incentive to promote high-risk strategies. This arises if owners can easily and quickly trade out of their stock. In that case also shareholders may have an incentive to promote short-term share value at the expense long-term stability and aligning incentives of principals and agents might even make things worse (Bebchuk & Spaman 2010). Goodhart (2010: 170) argues that because of “the nature of a limited liability shareholding, equivalent to a call option on the assets of the bank, shareholders will tend to encourage bank executives to take on riskier activities, particularly in boom times.” Incentives to maximise

shareholder value may lead CEOs to maximise dividends, minimise retained profits and / or use a substantial amount of retained profits for share buy-backs. Similarly, fund-managers might have an incentive to overrate the funds they manage if they are allowed to divest their holdings any time. All of this would come at the expense of investment and hence the longer run performance of the firm. In the worst case, maximisation of shareholder value might imply outright assets stripping.⁴¹ Comparing the performance of 164 systemic banks from 32 different countries that had more than \$50 billion in assets in 2006, Beltratti & Stulz (2012) find that banks with more shareholder friendly boards actually performed worse during the crisis. Fahlenbrach & Stulz (2011) compared CEO compensation in 95 large US banks during 2006 with the performance of those companies in 2007-2008. They do not find evidence that bank CEO's reduced their holdings of company shares prior to the crisis or hedged them suggesting that the problem of compensation schemes promoting short-termism on the part of CEO's as not salient. This suggests aligning corporate governance with the interest of the owners will not lead to more prudent strategies.

Schwarcz (2012:635), argues that the more salient principal-agent problem is not the one between shareholders and executives but between the senior management and a certain set of employees, for example when investment analysts are paid in relation to short term performance thus creating an incentive to put the long term health of the company at risk. Luyendijk (2013), who conducted interview with 200 employees of financial firms in the city of London, comes to the conclusion that large financial conglomerates are not only too big and too interconnected to fail but also too complex to govern. A similar point is made by Liikanen et al (2012: 50, 79). These findings also suggest that reforming remuneration may not be the solution unless larger bank conglomerates are broken up; a conclusion also shared by Häring & Douglas (2012).

In sum, the issue is not primarily one of aligning the interests of principals and agents, but of designing the compensation of those making decisions on risk-exposure in such a way that more prudent risk strategies will result. Accordingly the FSF principles emphasize not only that the board of directors rather than the top executives should be

in effective control of compensation design, but also that compensation schemes should be an issue of concern for public regulators.

6.3 Regulating the Shadow Banking Sector

The main argument for tolerating a lightly or unregulated shadow financial system is that if wealthy individuals wish to risk their funds in highly speculative ventures, they should be free to do so. However, recent experience indicates that differential regulation created incentives for the regulated sector to move assets off-balance by means of conduits or special purpose vehicles (SPV). Default in the shadow sector thus became threat to the regulated sector, which, in the end, meant that the unregulated sector gained access to public bailouts (Tirole 2010: 42). An early example was the bailout of the LTCM hedge fund in September 1998 (Dunbar 2000; Lowenstein 2000).

Because of the interconnectedness of the banking and shadow-banking system, regulatory changes for banks will affect both.⁴² The most important of these are the revision of the market risk procedures under the Basel accords, which now also require banks to hold capital against securitization in the trading book and the changed liquidity rules of Basel III. Basel III introduced both a Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio NFSR. The LCR requires banks to pass a 30 day stress scenario implying that they will need to hold a larger proportion of debt with maturity in excess of 1 month (Bonner & Eiffinger 2013). The NFSR emphasises stable sources of funding in an extended stress scenario of 1 year.

The EU Commission focussed its reform efforts on the banking system, but more recently has proposed reforming shadow banking, also because it recognises that “new banking rules could be pushing certain banking activities towards this less highly regulated shadow banking sector.” (European Commission 2013A, also Schwarcz 2012: 624). In March of 2012 the Commission published a green paper on shadow banking (European Commission 2012), inviting all stakeholders to express their views. The result

of this consultation was the communication on shadow banking of September 4, 2013 (European Commission 2013B). As the European Commission notes (2013A), its proposals are in line with those of the FSB. Also the latter has developed significant activity in this area, culminating in the publication, on August 29, 2013, of a policy framework (FSB 2013A), accompanied by a set of policy recommendations (FSB 2013B), plus a separate policy framework for securities lending and repos (FSB 2013C).

Many of the FSB and EU proposals focus not so much on tighter regulation of shadow markets but on acquiring better information by means of improved data gathering and disclosure standards. Similarly, Acharya & Richardson (2009: 243-48) focus on improving transparency in the OTC derivatives market by bringing them under the jurisdiction of the SEC or CFTC, and by establishing a central clearing house (also United Nations 2009: 57; 68). As of 16 August 2012, certain classes of OTC derivatives must be traded through a central clearing house in the EU, in accordance with Council regulation No 648/2012 (EMIR). Schwarcz (2012: 632) instead argues that because of the complexity of these markets improved disclosure rules will be of limited utility. “Some parts of the shadow-banking network are so complex that even some experts view them as incomprehensible.”

Given that the attractiveness of shadow banking also derived from the bankruptcy privileges, or safe harbour status, of its instruments, the discussion also focuses on a reform of these. Proposals range from an outright abolishment of bankruptcy privileges (Jackson & Skeel 2010) to the extension of public blanket guarantees to the shadow market (Gorton 2009). In between these extremes are proposals such as those by Tuckman (2010) to extend bankrupt privileges only to instruments cleared by a third party, in other words listed and not OTC instruments. In the view of Acharya & Oncu (2012), a central resolution authority for repos should be created. Perotti (2010, 2012), instead proposes taxing bankruptcy privileges by means of a countercyclical liquidity risk charge. Finally, Stein (2012) advocates placing a cap on derivatives trading.

6.4 Compartmentalisation

Whereas in Europe universal banks remained the dominant model, the US reaction to the Great Depression of the 1930s was compartmentalisation. In 1999, however, the Glass-Steagall act was repealed, partly because it was seen to create a competitive disadvantage relative to European banks (Blundell-Wignall & Atkinson 2009: 543). The mainstream view, at least since the 1990s, was that diversification promoted the stability and efficiency of the banking system. But, since the onset of the crisis, several proposals have emerged discussing the need to introduce compartmentalisation, such as the Volcker Rule in the USA, the Vickers Commission (Independent Commission on Banking 2011) in the UK and the Liikanen Report to the European Commission (Liikanen et al 2012). The Volcker Rule has reintroduced compartmentalisation in the US under section 618 of the Dodd-Frank Act of 2010. In France and the UK draft legislation has been proposed in late 2012 and early 2013. The recommendations of the Vickers Commission were reflected in a Treasury White Paper (HM Treasury 2012) published in June 2012, followed by the UK Banking Reform Bill, which was sent to parliament in February 2013. Currently, the proposed reforms are expected to come into force some time in 2019. On May 17 2013, the German Parliament (*Bundestag*) passed a law, which in terms of compartmentalisation, is in line with the Liikanen proposals.

Those advocating compartmentalisation generally are of the opinion that reforms to corporate governance, while useful, will not suffice (Liikanen et al 2012: 93). The main argument in favour of compartmentalisation is that by separating proprietary trading from the systemic functions carried out by banks, a possible failure of trading firms would no longer pose systemic risks and thus these activities would no longer enjoy an implicit public bailout guarantee. Consequently, in a compartmentalised system deposit insurance and LLR functions would no longer create a moral hazard problem in asset trading activities. In addition, compartmentalisation may mitigate the problems of too-complex-to manage and too-big-to fail. Finally, a larger number of smaller financial institutions may reduce the risk of regulatory capture (Gambacorta & van Rixtel 2013: 2).

The Liikanen Report proposes that trading activities exceeding €100bn in assets or more than 15-25% of the banks' total assets should be transferred to a new entity that will need to hold its own capital. Because this entity may be part of the parent group, Liikanen et al do not propose the strict separation that characterised Glass-Steagall and the Volcker Rule. In contrast to the Volcker rule, however, the Liikanen proposal not only refers to proprietary trading but also to the non-proprietary trading of assets and derivatives. However, Liikanen also proposes that the retail bank should be allowed to offer hedging services, which, to some extent, makes it unclear where the commission would draw the boundary between retail and investment banking. The Vickers Commission would expand the activities retail banks would not be allowed to engage in, but, similar to the Liikanen report, it does permit that investment banking subsidiaries, though separate legal entities with their own capital and liquidity provisions, may be part of the same overall banking group.⁴³ Similarly, the Warwick Commission (2009: 59-60) advocates the (re)introduction of segmentation with the walls of the compartments designed according to the differential ability of financial institutions to weather credit risk, liquidity risk and market risk.

The Liikanen report was heavily criticised by the European banking industry. The European Banking Industry Committee (EBIC) considered compartmentalisation "highly problematic" (EBIC 2013: 2). The European Banking Federation (EBF) argued that "possible structural reforms are likely to be counterproductive by (a) being unnecessary; (b) further negatively impacting growth; and (c) potentially undermining the benefits of the Single Market by restricting cross-border activities." (EBF 2012: 3) The association of German Banks (*Bankenverband*) was of the opinion that implementing the Liikanen proposals would not promote financial stability but would threaten the competitiveness of the German economy as a whole (Bankenverband 2012, a & b) Finally, Christian Clausen, president of the EBF and CEO of Nordea Bank, called the Liikanen proposals "simply wrong" (Financial Times 2012).

One widespread counterargument is that compartmentalisation will prevent banks from reaping economies of scale. Yet, one might question whether such costs outweigh the

cost of bailouts and the too-big-to-fail problem. Moreover, there is no agreement on the importance of scale economies in banking. Some studies do confirm their importance (Feng & Serletis 2011; Hughes & Mester 2011), but other studies do not find evidence of scale economies in banking (Boot 2011B, Hoenig & Morris 2012), or find that economies of scale cease to operate at a size significantly smaller than most current retail banks (Fergusson 2007; Haldane 2012). DeYoung (2010) stresses insurmountable methodological problems in empirically detecting scale economies.

In opposing compartmentalisation, Goodhart (2010) stresses the boundary problem, both between regulated and unregulated sectors and between jurisdictions, and argues that it is impossible to construct adequate firewalls. Narrow banking would provoke a massive move of funds to the unregulated sector. Recent papers by Fidrmuc & Hainz (2013), Houston, Lin & Ma (2012) and Müller & Uhde (2013), indeed do suggest that international regulatory arbitrage may be a problem. Instead Goodhart suggests regulating the system by a ladder principle. Kay (2010: 228-9) instead, does not think the boundary problem is insurmountable. Concerning the systemic functions of the financial system he makes a threefold distinction; services whose provision is essential and where no interruption can be tolerated; services whose supply is necessary but where temporary interruptions can be tolerated, and non-essential services. The decision whether or not to supply these latter services should be left up to the market. Kay places the payments system in the first category, which means that here financial institutions should be tightly supervised, guaranteed by the government and restricted to a narrow set of activities, like deposit taking, necessary to run the payments system. Credit to consumers SMEs and mortgage lending fall into the second category where the government should promote competition but retain emergency powers. In all remaining activities the government should not get involved.

Gambacorta & van Rixtel (2013) emphasise the risk of the fragmentation of banking systems along national lines due to compartmentalisation as well as the emergence of more complex and harder to supervise business models of internationally active banks due to national differences in compartmentalisation regulations.

6.5 A Banking Union for the EU

In the EU, the reform discussion also focuses on the question at what level regulation and supervision should be located; at the level of the member states or at EU level? According to the ESFRC (2009) this question involves a trilemma as only two of the following three objectives can be realised simultaneously: financial integration, financial stability and national supervision. For those who hold that financial integration provides inconvertible benefits the necessary next step then is EU-wide arrangements.

The EU's Financial Services Action Plan (FSAP) of 1999 was the decisive step towards a single market in financial services. Yet, the member states failed to simultaneously agree on a consolidated regulatory and supervisory framework. Regulatory harmonisation was hoped to result from the so-called Level 3 Committees under the Lamfalussy process, but progress has been disappointing. The level 3 committees take a technocratic approach to regulatory harmonisation based on the assumption that discussions between experts will yield a consensus on the best approach. Yet, as is also the experience in other policy areas the EU has tried to harmonise through the so-called open method of coordination (OMC), this assumption is overly optimistic as national interest frequently preclude the emergence of a technocratic consensus (Carletti & Vives 2009: 280).

The EU's main initiative in response to the crisis is the proposal of a banking union. Harmonised regulation, centralised supervision, union-wide deposit insurance plus a resolution mechanism, it is believed, will solve both institutional weaknesses and problems of regulatory capture. Yet, this analysis may be too simplistic. The issue at hand is not purely one of the disparity between market integration and national regulation but also one of the nature of regulation and supervision.

Although there was harmonised regulation as the Basel accords applied to EU member states, this did not imply full harmonisation. The partial deregulation of financial

services was driven by member states' desires to promote an internationally competitive financial industry and by the principle of mutual recognition of financial products, implying that financial institutions from less regulated systems could extend their business model throughout the union. Secondly, national financial markets, including restrictions on cross border capital flows, de facto meant a compartmentalisation of the EU financial markets that might have served the useful purpose of containing localised instability. Wagner (2012) argued that a single supervisory and regulatory environment would most likely increase herding behaviour. A similar call for empowering national regulators rather than to shift regulation to the EU level is implicit in Brunnermeier's et al (2009: 37) proposal to interconnect Basel III capital adequacy ratios with (national) macroprudential indicators. Strengthening national regulatory competences also dovetails with the Warwick Commission's (2009: 50-51) emphasis on "an international regulatory regime centred on host country control, twinned with less ambitious international cooperation"; although they believe that the more likely outcome in the EU will be centralisation.

Moreover, one could argue that financial integration is in part responsible for financial instability (Fernández-Villaverde, Garicano & Santos 2013; Notermans 2012). Introduction of the Euro, regulatory harmonisation and EU membership all greatly facilitated the flow of capital between members. Indeed during the first decade of the new millennium the EU was rather unique in the sense that here capital flowed downhill from the richer to the poorer members (Abiad, Leigh & Mody 2009). In the global economy, instead, capital frequently flows uphill from the emerging economies. Wolf (2010a) interprets this as an insurance strategy against the fickleness of international capital flows and a possible need to request IMF assistance in times of crisis. This fear of IMF intervention, in turn, is seen to have been largely inspired by the experience of in the Asia / Russia / Brazil crises of the late 1990s and early 2000s. Empirically, Tong & Wei (2011) show that FDI was a less liquid and thus less volatile form of investment, from which one might distil the policy recommendation that less developed countries should avoid excessive reliance on portfolio investment and instead rely more on FDI. This might

also have implications for the EU because without the vast inflows of portfolio capital to such countries as Spain, Ireland and the Baltics, the real-estate and consumption booms that bore much of the responsibility for the ensuing financial instability might never have developed.

The case for EU-level supervision implicitly seems to rest on the assumption of inferior supervision by the authorities in those countries that applied for EFSF/ESM assistance (Garicano 2012, Wyplosz 2012). In part this view reflects the scepticism of core EU countries with respect to the quality of public administration in the periphery. However, it is useful to recall that financial instability by no means was limited to peripheral countries. As Thorsten Beck (2012: 16) points out: “For every failed Spanish *caja*, there is a failed German *Landesbank*.” In part, scepticism with respect to the zeal of regulatory agencies in the crisis countries of the Eurozone also rests on moral hazard and regulatory capture arguments. National regulators could externalise part of the costs of a bailout of national banks to other EU member states, both via the TARGET2 system and via the EFSF/ESM, at least to the extent that financial bailouts precipitated a sovereign debt crisis as they did in Ireland, Spain and Cyprus.

Concerning regulatory capture; especially during the expansion phase of asset bubble regulators may be subjected to pressures from the government and the financial institutions to take a light approach to supervision. Centralisation of financial supervision at the EU-level may improve its effectiveness by promoting the independence of the regulatory authorities (Goodhart 2012). Regulatory capture is argued to be much less of a problem if regulation is centralised at the EU level, because regulators then would not depend on the whims of the electorate in the member states.

The counterargument is that one regulatory agency is easier to capture than 28. Farhi & Tirole (2009) argued that in making central banks independent from government may actually have increased the risk of them being captured by private financial institutions. Some critics argue that the ECB's lack of transparency in managing the ELA facility together with the NCBs, as well as its refusal to publish the minutes of its Governing Council promotes regulatory capture. Broyer & Lemangen (2013: 3) suspect that Irish

ELA operations violated the treaties as they involved monetary financing whereas in Greece and Cyprus ELA assistance may have been provided to insolvent banks. Häring & Douglas (2012: 89-90, 103), also argue that central banks are too close to commercial banks to put them in charge of supervision and consider that centralisation of regulatory authority (at the global) level would greatly increase the risk of regulatory capture. Instead, they propose that firms who want to operate in a country should be licensed in that country in order to ensure that international rules set a minimum and not the maximum. Allen, Carletti & Gimber (2012) similarly suspect that centralisation of regulatory authority in the EU would facilitate regulatory capture.

6.6 Alternatives to Basel III

The main criticism of Basel III, as it currently stands, concerns four issues: the inadequacy of its definition of capital, the assumption of portfolio risk-invariance, insufficient safeguards against liquidity risk, and its pro-cyclical nature.

The FDIC is of the opinion that the definition of capital in Basel III includes many assets that will not absorb losses in times of crisis, such as good will, minority interests and deferred taxes (Hoenig 2012b: 3). Instead of the Basel III approach, Hoenig, therefore, advocates a capital adequacy ratio calculated as the ratio of tangible capital to total assets: “We can establish a simple but stronger capital base by replacing the unmanageably complex Basel risk-weighted standards with a tangible equity capital ratio of around 10 per cent, and use a simplified risk-weighted measure as a check against excessive off-balance sheet assets or other factors that might influence banks’ safety.” (Hoenig 2012A). Hoenig’s concern that more sophisticated risk-weighting will not adequately capture risk exposure while the increased complexity of the rules will provide opportunities to “game” the system is also shared by Beck (2013: 330) who submits that “focusing on a set of simpler rules including an incentive compatible bank resolution

framework seems a more promising route to financial stability than ever more refined risk weights for capital requirements.”

Because the Basel capital adequacy ratio was a poor predictor of banks’ risk exposure and ability to absorb losses, the BCBS has proposed adding a leverage ratio of 3%. As of January 1, 2013 banks will be required to disclose the leverage ratio as defined by the BCBS, but the ratio is not intended to become binding until 2018 so as to allow for proper calibration over a full business cycle (BCBS 2013). Thomas Hoenig (2012a) holds that 3% is inadequate as it corresponds roughly to the ratio the major US Banks exhibited at the onset of the crisis.

Blundell-Wignall & Atkinson (2010) see the assumption of risk invariance in Basel I-III as a major problem. This assumption implies that the risk attributed to an asset is invariant with the share of that type of asset in the portfolio. Accordingly, financial institutions may concentrate on a few of the most profitable assets. To remedy this problem they propose the introduction of a benchmark diversified portfolio, deviations of which would increase the risk assessment by a quadratic function and hence also increase the CAR.

Hau, Langfield & Marques-Ibanez (2013) criticise the differential risk weighting introduced with the Basel II accords. Their analysis of bank ratings shows that there is no statistically significant difference between A ratings (ranging from A- to AAA) and empirical default probabilities, yet Basel attributes a 20% risk weight to AAA an AA- and 50% to A+ and A-. This differential risk weighting is thus argued to introduce competitive distortions that will favour AAA and AA- banks.

6.7 Making Regulation Counter-Cyclical

In essence, making regulation anti-cyclical involves linking the required level of CARs, leverage ratios and other microprudential regulatory variables to macrovariables such economy-wide credit growth, asset price inflation and maturity mismatch. Frequently

such proposals are combined with a call to introduce “laddered responses” or “prompt corrective action”. The main idea is to make the severity of regulatory response dependent on the degree to which a specific financial institution deviates from a given CAR such that emerging problems can be dealt with at an early stage (Spong 2000: 31). Brunnermeier et al (2009: 36), for example, advocate introducing such an approach in a revision of the Basel framework.⁴⁴ The Basel III reforms do acknowledge the issue of pro-cyclicality by introducing a countercyclical capital buffer, linked to country-specific credit growth, that can be released in bad times.

Already in 2008 Goodhart & Persaud suggested making regulation contra-cyclical by introducing CARs that vary in response to the growth of bank lending and asset prices. Yet, they do note that this might provoke circumvention. In addition, they proposed a measure specifically targeted at mortgage lending, namely time-varying minimum LTV ratios. The latter view is also shared by the Liikanen Report (Liikanen et al 2012: 105) and the ESRB who proposes to introduce caps on LTV or loan-to-income (LTI) ratios in mortgage lending.

An early example of counter-cyclical microprudential regulation is the Spanish dynamic provisioning system. In 2000 the Spanish central bank introduced regulation which linked banks' provisions for loan losses to the loan stock of that bank thus requiring higher provisions in time of rapid extension of the loan portfolio (Fernández de Lis & García Herrero 2009; Saurina 2009). Clearly that system was not sufficient as Spain subsequently experienced an unprecedented credit boom and bust. Indeed, Weil (2012) argues that it was largely ineffective as dynamic provisioning merely induced Spanish banks to manipulate their accounts so as to mask the procyclicality of their behaviour.

Brunnermeier et al's (2009) proposals to make regulation less pro-cyclical focus on limiting systemic spill-over risk by tightening constraints during asset-price bubbles by means of a laddered response. They hold interest rate policy to be an inadequate tool for preventing asset price inflation and advocate a more microeconomic response which would reduce the room of manoeuvre of individual institutions in proportion to their deviation from the CAR or other microprudential indicators. Though the modalities may

be different, in essence this is a return to the policies pursued by many West European countries during the first three decades after 1945 when central banks displayed a reluctance to increase interest rates for fear of its effects on GFCF, but instead resorted to selective credit rationing to safeguard the stability of the financial system.⁴⁵

As indicators of systemic risk, Brunnermeier et al (2009) propose stress tests in combination with variables that predict CoVar. CoVar measures the value-at-risk of the counterparty of Bank A under the condition that Bank A is encountering difficulties (Adrian & Brunnermeier 2011). Variables predicting CoVar are “leverage, maturity mismatch, interconnectedness measures and estimates of bank credit expansion.” (Brunnermeier et al 2009: 33). Tightening regulatory requirements should mainly take place by means of capital charges. Because investors have little incentive to recapitalise banks in times in crisis they also propose forced conversion of debt into equity.

A somewhat different conclusion is reached by Repullo & Suarez (2013). Their model evaluate the trade-offs involved in countercyclical banking regulation across the three different Basel regimes. Relaxing capital requirements in a crisis may, on the one hand, avoid or mitigate a credit crunch to the real economy while, on the other hand, increasing the probability of bank failure. The optimal regulatory design will hence depend largely on the social costs of bank failure. They find that although the risk based capital adequacy ratios of Basel II were more pro-cyclical than the invariant Basel I ratios, Basel II nevertheless was a more appropriate approach as it reduced the risk of bank failures and thus overall social costs. As the social cost of bank failure increase a higher, but less cyclically variable capital adequacy ratio should be imposed and they argue that Basel III is superior to Basel II in this respect.

Repullo, Saurina & Trucharte (2010), use data from Spanish bank lending to firms during the period 1987-2008 to estimate what the effects of the Basel II capital requirements would have been through the cycle and to find the optimal way to adjust the Basel II risk-weight formula so as to make it less pro-cyclical. They conclude that the best way to do so would be to adjust capital requirements by a factor depending on the deviation of the current value of a business cycle indicator from the trend.

6.8 Reforming the Credit Rating Agencies

Given that conflicts of interest and competition are considered the main factors that account for inaccurate credit ratings, the proposed reforms centre essentially on three different arrangements, alternative sources of credit ratings, an investor– instead of issuer–pays model, and improved monitoring of the rating methodology. Section 936 of the Dodd-Frank Acts addresses the latter problem as it seeks to ensure that the CRAs only employ sufficiently qualified staff. The SEC’s recent prohibition of CRA’s offering consulting services concerning ratings as well as a proposed rule requiring the CRA’s must disclose any rating solicited by issuers seek to eliminate sources of rating inflation.

In the EU, a main concern has been the inaccurate rating of sovereign debt (Paudyn 2012). Downgrading of sovereign debt may exacerbate the problems of the Eurozone periphery as it will make refinancing more expensive, may make sovereign debt unacceptable collateral and may force institutional investors subject to rating-contingent regulation to liquidate their holdings. To improve the quality of ratings, in November 2011 the EU Commission proposed new rules for CRAs, which came into force on June 20, 2013. Directive 2013/14/EU seeks to insure that pension funds (IORPs), alternative investment funds and undertakings for collective investment in transferable securities (UCITs) perform adequate in-house risk assessment and do not “solely or mechanistically” rely “on credit ratings or use them as the only parameter when assessing the risk involved in the investments made.” Regulation (EU) 462/2013 focuses on three main issues; improving the quality and transparency of rating methodologies though it does not proscribe a particular methodology; making CRAs more accountable for rating errors; and mitigating conflicts of interest, though it does not envisage abolishing the issuer-pays model. In 2010, already, regulation (EU) 1095/2010 had empowered the European Securities and Markets Authority (ESMA) to register and

supervise CRAs. Notwithstanding these reforms, Paudyn (2012: 807) maintains that “the EU’s capacity to monitor and manage CRAs” remains greatly circumscribed.

Because the ratings industry is commonly believed to be subject to significant economies of scale, public agencies might provide an alternative. However, Bloechinger, Leippold & Maire (2013) show that extensive gathering of soft information, which lies at the basis of economies of scale, is not imperative as ratings can be produced that are at least as good as those of the three CRAs by relying entirely on public information. This view also finds support from Owusu-Ansah (2012) who studied the process of downgrading CDOs by Moody’s and came to the conclusion that the agency mainly relied on the Case-Shiller Composite-20 Index. Accordingly, the dominant position of the big three may be due to regulatory arrangements instead of an information advantage (White 2010).⁴⁶ It should therefore be possible to supply credit ratings on a non-profit basis, something which would most likely bypass conflicts of interest. Strengthening public disclosure rules, especially in the financial industry would then further contribute to improving the quality of ratings. As Hau, Langfield & Marques-Ibanez (2013: 327) put it: “Better public information and more bank reporting is the best strategy to reduce the exorbitant influence of rating agencies in the current system.”

The conflict of interest inherent in an issuer-pays model could be mitigated by requiring the issuer to pay up-front, as in the agreement reached by New York Attorney General Andrew Cuomo and the three CRAs. However, such a procedure would not necessarily eliminate the problem of rating shopping. Pagano & Volpin (2010) think it is crucial to switch from an issuer-pays to an investor-pays system. As they point out, this would also require safeguards against issuers circumventing regulation by commissioning consulting or pre-rating services from the CRAs. Persaud (Warwick Commission 2009: 15) believes the investor-pays model to be flawed for what essentially are free-rider issues. Skreta & Veldkamp (2009) and Kashyap & Kovrijnykh (2013), support this view as both papers conclude that an investors-pays model may mitigate conflicts of interests but may also do away with the entire rating market because of free-riding. Persaud therefore advocates a system which exacerbates the consequences for the CRAs of

delivering poor ratings, His preferred way of doing so is to create a fund that redistributes revenue from poor to better performing CRAs. This fund would be filled by penalties on CRAs, to be levied in relation to their score on a Gini-coefficient that measures the ordering of default relative to the order of ratings. An alternative way would be to create more transparency and making CRAs more accountable. As Partnoy (2001: 18-19) notes credit rating agencies are immune from liability for misstatements in a registration statement under Section 11 of the Securities Act of 1933.” Bolton, Freixas & Shapiro (2012), hence propose eliminating this immunity.

Calomiris (2009) argues that the poor quality of ratings was driven by the buy-side of the market and that an investor-pays model would do nothing to solve the problem. That argument would be supported by the fact that the persistence of highly inaccurate ratings would seem to require the assumption of widespread investor naiveté.⁴⁷ But as Stanton & Wallace (2010), as well as White (2010), point out, this is an improbable assumption in view of the sophistication of many commercial MBS investors. Calomiris (2009) therefore proposes to make it profitable for CRA's to issue high quality ratings, despite the demand of institutional investors for inflated ratings, by a combination of licensing and claw-back. The first means that for regulatory purposes only ratings issued by recognised agencies could be used and the second involves rating agencies having to repay part of their fees – or losing their status as recognised institutions – in case of persistently inflated ratings. A similar proposal is made by the United Nations Commission (United Nations 2009: 73). Bolton, Freixas & Shapiro (2012) instead call for increased supervision of CRAs so as to guarantee the quality of their methodology.

7 Conclusion

More than five years after the subprime meltdown in the USA the crisis cannot be declared over and the possibility of similar events repeating themselves has by no means been banned. Indeed, more than one observer has puzzled about the strange continuity

of ideas and policies in the wake of the financial crisis (Crouch 2011). In its cover story of September 13, 2013, Time Magazine claimed that “wall street won”. Krugman (2010) attributes much of the failure to fundamentally change course in the USA to President Obama’s willingness to compromise with the Republicans. Quiggin, (2010: 206) places much of the blame for the survival of “zombie economics” on the inertia of academic economists.

Much the same may be said of the handling of the financial crisis in Europe. The adoption of Basel III will not be completed until 2019, and even then it does little to curb trade in derivatives, for example. As a result of the financial crisis, concentration has further increased in the banking sector, exacerbating the too-big-to-fail problem. Partly as a result of tighter capital requirements for banks, the shadow banking sector has grown during the crisis (Halstrick 2011). Overall, EU banks still are less capitalised than their US counterparts (The Economist 2013). Funding for DGS in the EU is much weaker than is the case in the US (Verma 2013). Progress has been made towards a European Banking Union but without agreement on the modalities of a resolution mechanism and a single DGS, the transfer of regulatory authority for the EU’s largest banks to the ECB stands on one leg only. Household indebtedness remains very high in many countries with a potential subprime time bomb ticking especially in Denmark and the Netherlands. CRAs may have suffered a dent in their reputation but the regulatory salience attached to their ratings and the dominant position of the “big three” remains largely unchallenged. On the macroeconomic side European efforts have mainly focussed on reducing public deficits and debts through a strengthened EDP, though one might well argue that the main cause of Europe’s woes, in the current as in previous crises, lay with private sector over-indebtedness (Jorda, Schularick & Taylor 2013). Yet, the new Excessive Imbalances Procedure (EIP) remains a paper tiger and the ESRB can do little more than exert moral suasion.

In his analysis of the Swedish financial crisis of the early 1990s Lars Jonung (1999) lamented that policy makers tend to use the rear-view mirror as a compass, meaning that macroeconomic and financial policy were so dominated by the trauma of the Great

Inflation that they became blind to new dangers. In their analysis of the history of financial crises, Reinhart & Rogoff (2009) lament the opposite mechanism, namely that policy makers all too easily discount past disasters because “this time is different”. If policy reform is inherently backward looking, one might have expected more fundamental changes in the last few years. Yet, the this-time-is-different syndrome could hardly account for the relatively modest extent of the reforms undertaken up to now. After all, the previous meltdown of the financial system in the late 1920s and early 1930s did lead to a fundamentally different regulatory and macroeconomic regime. Some suspect that the opposition of the financial services industry to far-reaching reform may be impossible to overcome without mobilising civil society (Crouch 2011). But the key, most likely, is to be found in the interaction of macroeconomic policies and regulatory regimes (Forsyth & Notermans 1997). The Great Depression witnessed both a fundamental change in the views guiding the conduct of macroeconomic policies and of microeconomic regulatory policies, with the former driving much of the latter. The current crisis has not posed a fundamental challenge to the macroeconomic orthodoxy. There may be a lively debate about the need for central banks to also target asset bubbles, but the core idea that monetary policy in the longer run has no real but only nominal effects and that the prosperity of the economy hence depends on microeconomic factors of market flexibility, remains firmly anchored. But a macroeconomic regime which defers to well-functioning markets as the source of prosperity is incompatible with a microprudential regime that assumes that markets are crisis prone and malfunctioning. That would suggest that further-reaching regulatory reforms require a fair degree of consistency between macroeconomic and microeconomic principles. And this, in turn poses both a political and analytical challenge.

The analytical challenge the present crisis has thrown up is to integrate both macro and microeconomic factors such that the policy response to the present crisis may be somewhat more forward looking in micro-prudential regulation and macroeconomic policy. That challenge, however, has, up to now only been dealt with cursorily in the

literatures.⁴⁸ Most of the research reviewed here, quite understandably, is informed by the question of how to prevent a recurrence of latest crisis but does not ask the perhaps more important question of how to prepare for a recurrence of the *Trente Glorieuses*.

Currently micro and macroeconomic aspect are most closely linked in the research on how to make regulation less contracyclical, but overall that research would seem to suffer from the shortcoming of postulating an exogenously given economic cycle which does not allow it to address the question of how to exit from the current slump and how to maintain high growth rates without the accumulation of unsustainable financial imbalances. Certainly the focus of monetary policy on inflation targeting and its neglect of asset prices may have contributed to lower interest rates thus fuelling the crisis. Certainly, high growth rates, especially in the EU periphery may have fuelled credit booms. Certainly, the Euro and the single market in financial services may have promoted European imbalances. And certainly the abandonment of core aspects of the microprudential regulation that was introduced in the Great Depression may have evened the way for the current crisis. But then again, what Europe, and the North Atlantic economy in general, needs more than anything is growth, and growth depends on high levels of GFCF which in turn requires high levels of credit expansion. That credit expanded rapidly in the so-called Golden Decade was not the main problem but rather that this credit expansion fuelled unsustainable asset bubbles instead of sustainable growth. After all, the *Trente Glorieuses* also were a period of rapid credit expansion, but this time with most beneficial consequences.

What conclusions then is monetary policy to draw from the current crisis? That even in times of low inflation low interest rates are poison and that rapidly rising asset prices are to be responded to with much tighter money? If so, that would create a strong deflationary bias which would undermine Europe's growth prospects. What lessons is microprudential regulation to draw from the current crisis? That financial institutions should at all times be prepared for a black swan and adjust their capital and liquidity ratios accordingly?; That financial innovations which spread risk more evenly and thus expand credit are a poisoned chalice?; That credit ratings in boom periods tend to be

notoriously over-optimistic and thus should be dampened? Perhaps so, but neither lesson would seem very conducive to growth.

Instead the challenge is to redesign the system of European economic governance such that rapid credit expansion will lead to high and sustainable growth. Recent G20 communications also point in this direction as they ask for research on how reform of economic governance may promote long-term investment finance.⁴⁹ But in trying to answer this question, the caution against using the rear-view mirror as a guide concerns both the macroeconomic fear of a renewed great inflation and the micro-prudential fear of a new sub-prime and sovereign debt crisis. A core element of such a new regime would insist on the application of microlevel instruments in macroeconomic policies such that emerging asset bubbles or unsustainable credit expansion can be curtailed in those sectors where they occur without using the blunt instrument of interest rate policy. A large degree of discretion and judgement, rather than rule bound policy-making would necessarily characterise such a regime. With a selective microlevel toolbox at hand, macrolevel policy and especially monetary policy would be less encumbered to do its utmost to promote GFCF without fear of engendering asset bubbles, consumption booms and unsustainable international imbalances.

But the even greater challenge maybe of a political nature. The jettisoning of much of the regulatory framework inherited from the Great Depression was not primarily driven by the belief that institutional and technological change had made this time different, but by the failure of the previous regime in the Great Inflation. Macro- and microlevel policies stimulating growth and full-employment are not feasible if they spark highly inflationary distributional conflicts. Nor can a regime relying largely on judgement and discretion be viable if it will fall prey to regulatory capture and special interests. The real obstacles to a successful reform of European economic governance in the end may lie here.

8 References

- Abiad, Abdul, Daniel Leigh & Ashoka Mody (2009), "Financial Integration, Capital Mobility, and Income Convergence." *Economic Policy* April 2009: 241-305.
- Acharya Viral V. & T. Sabri Oncu, (2012), *A Proposal for the Resolution of Systemically Important Assets and Liabilities: The Case of the Repo Market*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2028480
- Acharya, Viral V. & Matthew Richardson (2009), *Restoring Financial Stability: How to Repair a Failed System*. Hoboken NJ: Wiley & Sons.
- Acharya, Viral V. (2012), "Banking Union in Europe and Other Reforms.", In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.
- Adrian, Tobias & Markus R. Brunnermeier (2011), "CoVaR." Revised Version September 2011, *Federal Reserve Bank of New York Staff Report No. 348*. New York: Federal Reserve Bank of New York.
- Adrian, Tobias; & Adam B. Ashcraft (2012), "Shadow Banking Regulation." *Staff Report, Federal Reserve Bank of New York* No. 559.
- Aghevli, Bijan B. (1999), "The Asian Crisis: Causes and Remedies." *Finance & Development* 36(2).
- Ahearne, Alan & Guntram B. Wolff (2012), "The Debt Challenge in Europe." *Bruegel Working Paper 2012/02*. Brussels: Bruegel.
- Aizenman, Joshua, Brian Pinto & Vladyslav Sushko (2013), "Financial Sector Ups and Downs and the Real Sector in the Open Economy: Up by the Stairs, Down by the Parachute." *BIS Working Papers No 411*. Basel: BIS.
- Allen, Franklin, Ana Babus & Elena Carletti (2012), "Asset Commonality, Debt Maturity and Systemic Risk." *Journal of Financial Economics* 104: 519-534
- Allen, Franklin, Elena Carletti & Andrew Gimber (2012), "The Financial Implications of a Banking Union." In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.
- Allen, Franklin, Elena Carletti & Robert Marquez (2011), "Credit Market Competition and Capital Regulation." *The Review of Financial Studies* 24(4): 983-1018.
- Armstrong, Christopher S., David F. Larcker, Gaizka Ormazabal & Daniel J. Taylor (2013), "The Relation Between Equity Incentives and Misreporting: The Role of Risk-taking Incentives." *Journal of Financial Economics* 109: 327-350.
- Banier, Christina E., Eberhard Feess & Natalie Packham (2013), "Competition, Bonuses, and Risk-taking in the Banking Industry." *Review of Finance* 17: 653-690.
- Bankenverband (2012A), *Bankenverband warnt: Trennbanken verzerren Wettbewerb*. <http://bankenverband.de/presse/bankenverband-warnt-trennbanken-verzerren-wettbewerb/>
- Bankenverband (2012B), *Trennbanken kein geeigneter Weg zur Erhöhung der Finanzstabilität in Deutschland*. <http://bankenverband.de/presse/presse-infos/trennbanken-kein-geeigneter-weg-zur-erhoehung-der-finanzstabilitaet-in-deutschland/>
- Bankenverband (2013), *Bankenverband zur gemeinsamen Erklärung des deutsch-französischen Ministerrats zu den Liikanen-Vorschlägen*. <http://bankenverband.de/presse/presse-infos/bankenverband-zur-gemeinsamen->

erklarung-des-deutsch-franzoesischen-ministerrats-zu-den-liikanen-
vorschlaegen/

- Bar-Isaac, Heski & Joel Shapiro (2011). "Credit Ratings Accuracy and Analyst Incentives." *The American Economic Review: Papers and Proceedings*, 101(3): 120-24.
- BCBS (2011), *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*. Revised Version June 2011. Basel: Bank for International Settlements.
- BCBS (2013), *Consultative Document: Revised Basel III Leverage Ratio Framework and Disclosure Requirements*. Basel: Bank for International Settlements.
- Bebchuk, Lucian A. & Holger Spamann, (2010), "Regulating Bankers' Pay" *Georgetown Law Journal* 98(2): 247-287.
- Bebchuk, Lucian A. & Itay Goldstein (2011), "Self-fulfilling Credit Market Freezes." *The Review of Financial Studies* 24(11): 3519-3555.
- Beck, Thorsten (2012), "Banking Union for Europe: Risks and Challenges." In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.
- Beck, Thorsten (2013), "Discussion." In: Harald Hau, Sam Langfield & David Marques-Ibanez, "Bank Ratings: What Determines Their Quality?" *Economic Policy* April 2013: 329-330.
- Becker, Bo & Todd Milbourn (2011), "How Did Increased Competition Affect Credit Ratings?" *Journal of Financial Economics* 101: 493-514.
- Beltratti, Andrea & René M. Stulz (2012), "The Credit Crisis Around the Globe: Why Did Some Banks Perform Better?" *Journal of Financial Economics* 105: 1-17.
- Benediktsdottir, Sigridur, Jon Danielsson & Gylfi Zoega (2011), "Lessons from a Collapse of a Financial System." *Economic Policy* April 2011: 183-235.
- Berger, Wolfram & Friedrich Kißmer (2013), "Central Bank Independence and Financial Stability: A Tale of Perfect Harmony?" *European Journal of Political Economy* 31 (2013) 109-118.
- Bernanke, Ben S. & Mark Gertler (2001), "Should Central Banks Respond to Movements in Asset Prices?" *American Economic Review*. 91(2): 253-257.
- Bhattacharya, Uptal, Andreas Hackethal, Simon Kaesler, Benjamin Loos & Steffen Meyer (2012), "Is Unbiased Financial Advice to Retail Investors Sufficient? Answers from a Large Field Study." *The Review of Financial Studies* 25(4): 976-1032.
- Bicchieri, Christina (1997), *Rationality and Coordination*. Cambridge; Cambridge University Press.
- Black, William. K (2010), "Epidemics of 'Control Fraud' Lead to Recurrent, Intensifying Bubbles and Crises." http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1590447
- Bliss, Robert R. & Mark J. Flannery (2002), "Market Discipline in the Governance of U.S. Bank Holding Companies: Monitoring vs. Influencing." *European Finance Review* 6: 361-395.
- Bloechlinger, Andreas, Markus Leippold & Basile Maire (2012). "Are Ratings the Worst Form of Credit Assessment Apart From All the Others?" *Swiss Finance Institute Research Paper* 12-09.

- Blundell-Wignall, Adrian & Paul Atkinson (2009), "Origins of the Financial Crisis and Requirements for Reform." *Journal of Asian Economics* 20: 536–548.
- Blundell-Wignall, Adrian & Paul Atkinson (2010), "Thinking Beyond Basel III: Necessary Solutions for Capital and Liquidity." *OECD Journal: Financial Market Trends* 1: 1-23.
- Bohle, Dorothee (2013), „Post-socialist Housing Meets Transnational Finance: Foreign Banks, Mortgage Lending, and the Privatization of Welfare in Hungary and Estonia." *Review of International Political Economy*, DOI: 10.1080/09692290.2013.801022
- Bolton, Patrick, Xavier Freixas & Joel Shapiro (2012), "The Credit Ratings Game." *Journal of Finance* LXVII(1): 85-112.
- Bonner, Clemens & Sylvester Eijffinger (2013), *The Impact of Liquidity Regulation on Monetary-Policy Implementation*. <http://www.voxeu.org/article/liquidity-coverage-ratios-and-monetary-p>
- Boot, Arnoud W. A. (2011A), "Destabilising Market Forces and the Structure of Banks Going Forward." In: Thorsten Beck, ed., *The Future of Banking*. London: CEPR.
- Boot, Arnoud W. A. (2011B), "Banking at the Crossroads: How to Deal with Marketability and Complexity?", *Review of Development Finance*, 1:167-183.
- Bordo, Michael D. (2006) "Sudden Stops, Financial Crises and Original Sin in Emerging Countries: Deja vu?" *NBER Working Paper* 12393. Cambridge: MA: NBER.
- Boyd, J. & G. De Nicolo (2005), "The Theory of Bank Risk-Taking and Competition Revisited." *Journal of Finance* 60:1329-1343.
- Brewer III, Elijah & Julapa Jagtiani (2013), "How Much Did Banks Pay to Become Too-Big-To-Fail and to Become Systemically Important?", *Journal of Financial Services Research* 43:1–35.
- Broyer, Sylvain & Alan Lemangen (2013), "Towards Increased ECB Supervision of the ELA Programmes?" *NATIXIS Economic Research Special Report* No. 51, April 2013: 1-4.
- Brunnermeier, Markus et. al. (2009), *The Fundamental Principles of Financial Regulation. Geneva Reports on the World Economy* 11. Geneva: ICMB International Center for Monetary and Banking Studies.
- Buffett, Warren E. (2002), *Berkshire Hathaway Inc. Annual Report 2002*. Omaha NE: Berkshire Hathaway Inc.
- Calomiris, Charles (2009), *A Recipe for Ratings Reform*. <http://www.economics21.org/commentary/recipe-ratings-reform>
- Camanho, Nelson, Pragyan Deb & Zijun Liu (2010), *Credit Rating and Competition*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1573035
- Caprio, Gerard & Maria Soledad Martinez Peria, (2002). Avoiding Disaster: Policies to Reduce the Risk of Banking Crises. In E. Cardoso & Ahmed Galal, Eds., *Monetary Policy and Exchange Rate Regimes: Options for the Middle East*. Cairo: Egyptian Center for Economic Studies.
- Carletti, Elena & Xavier Vives (2009), "Regulation and Competition Policy in the Banking Sector." In: Xavier Vives, eds., *Competition Policy in the EU: Fifty Years on from the Treaty of Rome*. Oxford: Oxford University Press.
- Carrick-Hagenbarth, Jessica & Gerald A. Epstein (2012), „Dangerous Interconnectedness: Economists' Conflicts of Interest, Ideology and Financial Crisis." *Cambridge Journal of Economics* 2012, 36, 43-63.

- Cecchetti, Stephen G., & Enisse Kharroubi (2012), "Reassessing the Impact of Finance on Growth." *BIS Working Papers No 381*. Basel: BIS.
- Chalermchatvichien, Pichaphop, Seksak Jumreornvong, Pornsit Jiraporn & Manohar Singh (2013), „The Effect of Bank Ownership Concentration on Capital Adequacy, Liquidity, and Capital Stability.“, *Journal Financial Services Research*. DOI 10.1007/s10693-013-0160-8
- Chamley, Christopher, & Laurence J. Kotlikoff, (2009), "Toolbox Limited Purpose Banking." *American Interest Online*, 1 April, <http://www.the-american-interest.com/article.cfm?piece=600>
- Chang, Ha-Joon, Hong-Jae Park & Chul Gyue Yoo (2001), "Interpreting the Korean Crisis: Financial Liberalization, Industrial Policy and Corporate Governance." In: Chang, Ha-Joon, Gabriel Palma & D. Hugh Whittaker, eds., *Financial Liberalization and the Asian Crisis*. New York: Palgrave Macmillan.
- Chmelar, Ales (2013), "Household Debt and the European Crisis." *ECRI Research Report No. 13*, June 2013. Brussels: European Credit Research Institute.
- Cole, Rebel A. & Lawrence J. White (2012), "Déjà Vu All Over Again: The Causes of U.S. Commercial Bank Failures This Time Around." *Journal of Financial Services Research* 42:5-29.
- Cornaggia, Jess & Kimberly J. Cornaggia (2013), "Estimating the Costs of Issuer-Paid Credit Ratings." *The Review of Financial Studies* 26(9): 2229-2269.
- Creel, Jérôme & Fabien Labondance (2013), "A definition of *financial stability*", *mimeo, OFCE/FESSUD*.
- Cronqvist, Henrik & Rüdiger Fahlenbrach (2013), "CEO Contract Design: How do Strong Principals Do It?" *Journal of Financial Economics* 108:659-674.
- Crouch, Colin (2011), *The Strange Non-Death of Neoliberalism*. Cambridge: Polity Press.
- Dam, Lammertjan & Michael Koetter (2012), "Bank Bailouts and Moral Hazard: Evidence from Germany." *The Review of Financial Studies* 25(8): 2343-2380.
- Dattels, Peter, Rebecca McCaughrin, Ken Miyajima & Jaume Puig (2010), Can You Map Global Financial Stability?" *IMF Working Paper 10/145*. Washington DC: IMF.
- De Larosièrre, Jacques et al (2009), *Report of the High-Level Group on Financial Supervision in the EU*. Brussels: EU.
- Demirgüç-Kunt, Asli & Harry Huizinga (2004), "Market Discipline and Deposit Insurance.", *Journal of Monetary Economics* 51(2): 375-399.
- Demirgüç-Kunt, Asli & Luis Servén (2010), "Are All the Sacred Cows Dead? Implications of the Financial Crisis for Macro- and Financial Policies.", *World Bank Research Observer* 25: 91-124.
- Demiroglu, Cem & Christopher James (2012), "How Important is Having Skin in the Game? Originator-Sponsor Affiliation and Losses on Mortgage-Backed Securities." *The Review of Financial Studies* 2(11)-3217-3258.
- Dewatripont, Mathias & Jean-Charles Rochet (2010), "The Treatment of Distressed Banks." In: Mathias Dewatripont, Jean-Charles Rochet & Jean Tirole, eds., *Balancing the Banks: Global Lessons from the Financial Crisis*. Princeton: Princeton University Press.

- Dewatripont, Mathias, Jean-Charles Rochet & Jean Tirole (2010), "Introduction.", In: Mathias Dewatripont, Jean-Charles Rochet & Jean Tirole, eds., *Balancing the Banks: Global Lessons from the Financial Crisis*. Princeton: Princeton University Press.
- DeYoung, Robert (2008), "Safety, Soundness, and the Evolution of the U.S. Banking Industry." In: Anjan V. Thakor & Arnoud W. A. Boot, eds., *Handbook of Financial Intermediation and Banking*. Amsterdam: Elsevier.
- DeYoung, Robert (2010), "Scale Economies Are a Distraction", Federal Reserve Bank of Minneapolis, *The Region*, pp 14-6.
http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4536
- Diamond, Douglas W. (1984), "Financial Intermediation and Delegated Monitoring.", *Review of Economic Studies* 51(3): 393-414.
- Doherty, Neil A., Anastasia V. Kartasheva & Richard D. Phillips (2009), "Competition Among Rating Agencies and Information Disclosure." *The Rodney L. White Center for Financial Research Working Paper* 04-09.
<http://www.econbiz.de/Record/competition-among-ratings-agencies-and-information-disclosure-doherty-neil/10003819966>
- Duffie, Darrell & David Skeel (2012), "A Dialogue on the Costs and Benefits of Automatic Stays for Derivatives and Repurchase Agreements." *Rock Center for Corporate Governance at Stanford University Working Paper* No. 108.
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1982095
- Dunbar, Nicholas (2000), *Inventing Money: The Story of Long-Term Capital Management and the Legends Behind It*. Chichester: John Wiley and Sons.
- EBF (2012), *EBF Liikanen Task Force Report*. <http://www.ebf-fbe.eu/uploads/EBF%20study%20on%20the%20issue%20of%20possible%20reforms%20to%20the%20structure%20of%20the%20EU%20banking%20sector.pdf>
- EBIC (2013), *EBIC's Views on the Liikanen Report's Recommendations*. Brussels: EBIC.
- ECB (2007), "The EU Arrangements for Financial Crisis Management." *ECB Monthly Bulletin*, February 2007: 73-84.
- Edmans, Alex & Qi Liu (2011), "Inside Debt." *Review of Finance* 15:75-102.
- Eisenbeis, Robert & Richard Herring (2013), "How Can We Do Better Than the Basel Liquidity Coverage Ratio? *Statement of the Shadow Financial Regulatory Committee* No 336, February 11. <http://www.aei.org/paper/economics/international-economy/how-can-we-do-better-than-the-basel-liquidity-coverage-ration/>
- Ertimur, Yonca, Fabrizio Ferri & Volkan Muslu (2011), "Shareholder Activism and CEO Pay." *The Review of Financial Studies* 24(2): 535-592.
- ESFRC (2009), "A New Life for European Financial Supervision." European Shadow Financial Regulatory Committee Statement No. 31, November 30, <http://www.ceps.eu/content/european-shadow-financial-regulatory-committee-esfrc>
- European Commission (2010), *Proposal for a Directive of the European Parliament and of the Council on Deposit Guarantee Schemes*. COM(2010) 369. Brussels: EU.
- European Commission (2012), *Green Paper Shadow Banking*. Brussels: EU; COM(2012) 102.

- European Commission (2013A) *Press Release: Commission's Roadmap for Tackling the Risks Inherent in Shadow Banking*. Brussels, 4 September 2013; IP/13/812
- European Commission (2013B), *Communication from the Commission to the Council and the European Parliament: Shadow Banking – Addressing New Sources of Risk in the Financial Sector*. Brussels, 4 September 2013; COM(2013) 614
- Evans, Richard B. & Rüdiger Fahlenbrach (2012), "Institutional Investors and Mutual Fund Governance: Evidence from Retail-Institutional Fund Twins." *The Review of Financial Studies* 25(12): 3530-3571.
- Fahlenbrach, Rüdiger & René M. Stulz (2011), "Bank CEO Incentives and the Credit Crisis." *Journal of Financial Economics* 99: 11–26.
- Farhi, Emmanuel & Jean Tirole. (2009). "Collective Moral Hazard, Maturity Mismatch and Systemic Bailouts." *NBER Working Paper* 15138.
- Faulkender, Michael & Jun Yang (2013), "Is Disclosure an Effective Cleansing Mechanism? The Dynamics of Compensation Peer Benchmarking." *The Review of Financial Studies* 26(3): 806-839.
- Feng, Guohua & Apostolos Serletis (2010): "Efficiency, Technical Change, and Returns to Scale in Large US Banks: Panel Data Evidence From an Output Distance Function Satisfying Theoretical Regularity", *Journal of Banking and Finance*, 34: 127-138.
- Fennell, Damien & Andrei Medvedev (2011), „An Economic Analysis of Credit Rating Agency Business Models and Ratings Accuracy." *FSA Occasional Papers in Financial Regulation* November 2011. London: Financial Services Authority.
- Ferguson, Niall, & Laurence J. Kotlikoff, (2009), "Reducing Banking's Moral Hazard." *Financial Times*, 2 December.
- Ferguson, Roger .W. et al, (2007), 'International Financial Stability', *Geneva Reports on the World Economy* 9,. London: CEPR; Geneva ICMB.
- Fernandes, Nuno, Miguel A. Ferreira, Pedro Matos & Kevin J. Murphy (2013), "Are U.S. CEOs Paid More? New International Evidence." *The Review of Financial Studies* 26(2): 323-367.
- Fernández de Lis, Santiago & Alicia García Herrero (2009), "The Spanish Approach: Dynamic Provisioning and other Tools." *BBVA Working Papers No. 0903*, February 2009. Madrid: BBVA.
- Fernández-Villaverde, Jesús, Luis Garicano, & Tano Santos (2013), "Political Credit Cycles: The Case of the Eurozone." *Journal of Economic Perspectives* 27(3): 145-166.
- Fforde, John (1992), *The Bank of England and Public Policy, 1941-58*. Cambridge: Cambridge University Press.
- Fidrmuc, Jarko & Christa Hainz (2013), "The Effect of Banking Regulation on Cross-Border Lending", *Journal of Banking & Finance* 37: 1310-1322.
- Financial Crisis Inquiry Commission (FCIC) (2011), *The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States*. Washington D.C.: U.S. Government Printing Office.

- Financial Times (2012), *Nordea Chief Takes a Swipe at Liikanen*. October 29, 2012.
<http://www.ft.com/intl/cms/s/0/db50e02e-21ce-11e2-b5d2-00144feabdc0.html#axzz2kVQmuEWa>
- Fioretos, Orfeo (2010): Europe and the New Global Economic Order: Internal Diversity as Liability and Asset in Managing Globalization, *Journal of European Public Policy* 17(3): 383-399.
- Fishlow, Albert (1985), "Lessons from the Past: Capital Markets During the 19th Century and the Interwar Period." *International Organization* 39(3): 383-439.
- Forsyth, Douglas J. & Ton Notermans (1997) "Macroeconomic Policy Regimes and Financial Regulation in Europe, 1931-1994." In: Douglas J. Forsyth & Ton Notermans, eds., *Regime Changes. Macroeconomic Policy and Financial Regulation in Europe from the 1930s to the 1990s*. Providence: Berghahn Press.
- Freixas, Xavier & Jean-Charles Rochet (2012), *Taming SIFIs*. University of Zürich Working Paper.
- French, Kenneth R, Martin N. Baily, John Y. Campbell et al (2010), *The Squam Lake Report: Fixing the Financial System*. Princeton NJ: Princeton University Press.
- FSB (2012) *FSB Workshop on Compensation Practices Washington DC: 19 November 2013*. Basel: FSB 24 January 2013.
- FSB (2013A), *Strengthening Oversight and Regulation of Shadow Banking: Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities*. Basel: FSB, August 29, 2013.
- FSB (2013B), *Strengthening Oversight and Regulation of Shadow Banking: An Overview of Policy Recommendations*. Basel: FSB, August 29, 2013.
- FSB (2013C), *Strengthening Oversight and Regulation of Shadow Banking: Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos*. Basel: FSB, August 29, 2013.
- FSF (2009), „FSF Principles for Sound Compensation Practices.” Basel: Financial Stability Forum.
- Galbraith, John Kenneth (1990), *A Short History of Financial Euphoria*. London: Penguin.
- Gambacorta, Leonardo & Adrian van Rixtel (2013), "Structural Bank Regulation Initiatives: Approaches and Implications." *BIS Working Paper No 412*. Basel: Bank for International Settlements.
- Gambacorta, Leonardo & David Marques-Ibanez (2011), "The Bank Lending Channel: Lessons From the Crisis." *Economic Policy*, April 2011: 135-182.
- Garicano, Luis (2012), "Five Lessons from the Spanish Cajas Debacle for a New Euro Wide Supervisor." In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.
- Gersbach, Hans (2011), "A Framework for Two Macro Policy instruments: Money and Banking Combined." *CEPR Policy Insight No. 58* October 2011.
- Goldstein, Morris (1998), *The Asian Financial Crisis*. Washington DC: Peterson Institute for International Economics.
- Goodhart Charles (2010), "How Should We Regulate the Financial Sector?" In: Adair Turner et al, *The Future of Finance: The LSE Report*. London: LSE.

- Goodhart, Charles & Avinash Persaud (2008), "How to Avoid the Next Crash." *Financial Times*, January 30, 2008.
- Goodhart, Charles (2012), "Funding Arrangements and Burden Sharing in Banking Resolution." In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.
- Goodman, John C. & Laurence J. Kotlikoff, (2009), "The Only Way Obama Can Fix the Economy Is by Changing the Way Banks Do Business." *The New Republic*, 14 May.
- Gorton, Gary & Andrew Metrick (2010), "Regulating the Shadow Banking System." *Brookings Papers on Economic Activity*: 261-312.
- Gorton, Gary (2009), "Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007", *Paper prepared for the Federal Reserve Bank of Atlanta's 2009 Financial Markets Conference*, May 9.
- Griffin, John M., Jordan Nickerson & Dragon Yongjun Tang (2013), "Rating Shopping or Catering? An Examination of the Response to Competitive Pressure for CDO Credit Ratings." *The Review of Financial Studies* 26(9): 2270-2310.
- Grossman, Emiliano & Cornelia Woll (2012), "Saving the Banks: The Political Economy of Bailouts. *Harvard Center for European Studies Open Forum Working Paper #8*, 2012.
- Guerrera, Francesco (2009), "Welch Rues Short-Term Profit 'Obsession'". *Financial Times*. March 12.
- Haldane, Andrew G (2009), *Why Banks Failed the Stress Test*.
<http://www.bis.org/review/r090219d.pdf>
- Haldane, Andrew G. (2012), *On Being the Right Size*, *Speech at the Institute of Economic Affairs' 22nd Annual Series, The 2012 Beesley Lectures*, 25 October.
<http://www.bis.org/review/r121030d.pdf>
- Halstrick, Philip (2011), *Tighter Bank Rules Give Fillip to Shadow Banks*
<http://uk.reuters.com/article/2011/12/20/uk-regulation-shadow-banking-idUKLNE7BJ00T20111220>
- Han, Lu (2010), "The Effects of Price Risk on Housing Demand: Empirical Evidence from U.S. Markets." *The Review of Financial Studies* 23(11) 2010: 3890-3927.
- Hanson, Samuel G., Anil K Kashyap & Jeremy C. Stein (2011), "A Macroprudential Approach to Financial Regulation." *Journal of Economic Perspectives* 25(1): 3-28.
- Häring, Norbert & Niall Douglas (2012), *Economists and the Powerful: Convenient Theories, Distorted Facts, Ample Rewards*. London: Anthem Press.
- Hau, Harald, Sam Langfield & David Marques-Ibanez (2013), "Bank Ratings: What Determines Their Quality?" *Economic Policy* April 2013: 289-327.
- Heimler, Alberto & Frédéric Jenny (2012), "The Limitations of European Union Control of State Aid." *Oxford Review of Economic Policy* 28(2): 347-367.
- Hellmann, Thomas F. Kevin C. Murdock & Joseph E. Stiglitz (2000), Liberalization, Moral Hazard in Banking, and Prudential Regulation: Are Capital Requirements Enough?" *The American Economic Review* March 2000: 147-165.
- HM Treasury (2012), *Banking Reform: Delivering Stability and Supporting a Sustainable Economy*. Cm 8356. London: HM Treasury, Department for Business Innovation and Skills.

- Hoenig Thomas M. & Charles S. Morris (2012), "Restructuring the Banking System to Improve Safety and Soundness", Federal Deposit Insurance Corporation and Federal Reserve Bank of Kansas City.
- Hoenig, Thomas M. (2012A) *Get Basel III Right and Avoid Basel IV.* <http://www.fdic.gov/news/letters/basel3.html>
- Hoenig, Thomas M. (2012B), *Back to Basics: A Better Alternative to Basel Capital Rules'* http://www.fdic.gov/news/news/speeches/archives/2012/spsep1412_2.html
- Hörner, Johannes (2002), "Reputation and Competition." *The American Economic Review*, 92(3): 644-663.
- Houston, Joel F., Chen Lin & Yue Ma (2012), "Regulatory Arbitrage and International Bank Flows", *Journal of Finance*, 67(5): 1845-1895.
- Hughes, Joseph P. & Loretta J. Mester (2011), "Who Said Large Banks Don't Experience Scale Economies? Evidence From a Risk-Return-Driven Cost Function", *Federal Reserve Bank of Philadelphia, Working Papers* No. 11-27.
- Igan, Deniz, Prachi Mishra & Thierry Tresselt (2009), "A Fistful of Dollars: Lobbying and the Financial Crisis." *IMF Working Paper 09/287*. Washington DC: IMF.
- IMF Staff (1998), "The Asian Crisis: Causes and Cures." *Finance & Development* 35(2).
- Independent Commission on Banking (2011), *Final Report, Recommendations*. London. <http://webarchive.nationalarchives.gov.uk/+bankingcommission.independent.gov.uk>
- Jackson, Thomas & David A. Skeel (2010). "Bankruptcy Reform Will Limit Bailouts", *Wall Street Journal*, April 21, 2010.
- Jiang, John (Xuefeng), Mary Harris Stanford & Yuan Xie (2012), "Does it Matter Who Pays for Bond Ratings? Historical Evidence." *Journal of Financial Economics* 105: 607-621.
- Johnson, Simon (2009), "The Quiet Coup." *The Atlantic Monthly*, May. <http://www.theatlantic.com/magazine/archive/2009/05/the-quiet-coup/307364/>
- Jokivuolle, Esa, Ilkka Kiema & Timo Vesala (2013), "Why Do We Need Countercyclical Capital Requirements?", *Journal of Financial Services Research*, DOI 10.1007/s10693-013-0169-z
- Jonung, Lars (1999), *Med Backspiegeln Som Kompass*. Stockholm: Finansdepartementet.
- Jonung, Lars (2009), "Twelve Lessons from the Nordic Experience of Financial Liberalisation.", In: Lars Jonung, Jaakko Kiander & Pentti Vartia, eds., *The Great Financial Crisis in Finland and Sweden: The Nordic Experience of Financial Liberalization*. Cheltenham: Edward Elgar.
- Jordà, Òscar, Moritz Schularick & Alan M Taylor (2013), "Sovereigns versus Banks: Crises, Causes and Consequences", *CEPR Discussion Paper 9678*.
- Kahneman, Daniel (2003), "Maps of Bounded Rationality: Psychology for Behavioral Economics.", *American Economic Review* 93(5): 1449-1475.
- Kashyap, Anil K & Natalia Kovrijnykh (2013), "Who Should Pay for Credit Ratings and How? *NBER Working Paper No. 18923 March 2013*. Cambridge MA: NBER.
- Kashyap, Anil K. Raghuram Rajan & Jeremy Stein (2008) "Rethinking Capital Regulation," In: *Federal Reserve Bank of Kansas City Symposium on Maintaining*

- Stability in a Changing Financial System*, 2008, pp. 431-471, Federal Reserve Bank of Kansas City, Kansas City.
- Kay, John (2010) "Should we have 'Narrow Banking'?" In: Adair Turner et al, *The Future of Finance: The LSE Report*. London: LSE.
- Keys, Benjamin J., Amit Seru & Vikrant Vig (2012), "Lender Screening and the Role of Securitization: Evidence from Prime and Subprime Mortgage Markets." *The Review of Financial Studies* 25(7): 2071-2108.
- Keys, Benjamin J., Tanmoy Mukherjee, Amit Seru, & Vikrant Vig. (2010) "Did Securitization Lead to Lax Screening? Evidence from Subprime Loans.", *Quarterly Journal of Economics* 125(1): 307-362.
- Kindleberger, Charles P. & Robert Z. Aliber (2005), *Manias, Panics & Crashes*. New York: Palgrave.
- Kindleberger, Charles P. (1984), *A Financial History of Western Europe*. London: George Allen & Unwin.
- Klein, Benjamin & Keith B. Leffler (1981), "The Role of Market Forces in Assuring Contractual Performance." *Journal of Political Economy* 89(4): 615-641.
- Kotlikoff, Laurence J. & Edward Leamer, (2009), "A Banking System We Can Trust In." *Forbes*, 23 April. <http://www.forbes.com/2009/04/22/loan-mortgage-mutual-fund-wall-street-opinions-contributors-bank.html>
- Krugman, Paul (2010), "When Zombies Win." *The New York Times*, December 19, 2010.
- La Porta, Rafael, Florencio Lopez de Silanes, & Andrei Shleifer (2002), "Government Ownership of Banks." *Journal of Finance*, LVIII(1): 265-301.
- Lehleiter, Constanze (2013), "Financial and Banking Regulation and Supervision within the EU." *Baltic Journal of European Studies* 3(2): 17-37.
- Leijonhufvud, Axel (2007), "Monetary and Financial Stability." *CEPR Policy Insight No. 14*, October 2007.
- Leony, Larissa & Rafael Romeu (2011), "A Model of Bank Lending in the Global Financial Crisis and the Case of Korea." *Journal of Asian Economics* 22: 322-334.
- Leven, Bozena (2011), "Avoiding Crisis Contagion: Poland's Case," *Communist and Post-Communist Studies* 44:183-187.
- Levine, Ross (2010), "An Autopsy of the U.S. Financial System." *NBER Working Paper 15956*. Cambridge MA: NBER
- Liikanen, Erkki et al (2012), *Final Report, High-level Expert Group on Reforming the Structure of the EU Banking Sector*. [Liikanen Report]. Brussels.
- Lizzeri, Alessandro (1999), Information Revelation and Certification Intermediaries. *RAND Journal of Economics* 30: 214-231.
- Löffler, Gunter (2013), „Can Market Discipline Work in the Case of Rating Agencies? Some Lessons from Moody's Stock Price." *Journal of Financial Services Research* 43:149-174.
- Loutskina, Elena & Philip E. Strahan (2011), "Informed and Uninformed Investment in Housing: The Downside of Diversification." *The Review of Financial Studies* 24(5): 1448-1480.
- Lowenstein, Roger (2000), *When Genius Failed: The Rise and Fall of Long Term Capital Management*. New York: Random House.

- Lütz, Susanne & Matthias Kranke (2010), "The European Rescue of the Washington Consensus. EU and IMF lending to Central and Eastern European Countries." *LEQS Paper No. 22/2010. May 2010*. London: LSE. 36 Seiten.
- Luyendijk, Joris (2013), *Het Kan Zo Weer Gebeuren*.
<http://www.nrc.nl/nieuws/2013/10/02/het-kan-zo-weer-gebeuren/>
- Maddaloni, Angela & José-Luis Peydró (2011), "Bank Risk-Taking, Securitization, Supervision, and Low Interest Rates: Evidence from the Euro-area and the U.S. Lending Standards." *The Review of Financial Studies* 24(6): 2122-2165.
- Martinez-Miera, David & Rafael Repullo (2010), "Does Competition Reduce the Risk of Bank Failure?" *The Review of Financial Studies* 23(10): 3638-3664.
- Mason, Joseph R & Joshua Rosner (2007), *Where Did the Risk Go? How Misapplied Bond Ratings Cause Mortgage Backed Securities and Collateralized Debt Obligation Market Disruptions*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1027475
- Mathis, Jérôme, James McAndrews & Jean-Charles Rochet (2009), "Rating the Raters: Are Reputation Concerns Powerful Enough to Discipline Rating Agencies?", *Journal of Monetary Economics* 56: 657-674.
- Mian, Atif & Amir Sufi (2009), "The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis." *The Quarterly Journal of Economics* November 2009: 1449-1496.
- Minsky, Hyman (2008)[1986], *Stabilizing an Unstable Economy*. New York: McGraw Hill.
- Miskin, Fredric S. (2008), "How Should we Respond to Asset Price Bubbles?" *Financial Stability Review* 12: 65-74. Paris: Banque de France.
- Morgan, Donald. P. (2002), "Rating Banks: Risk and Uncertainty in an Opaque Industry," *American Economic Review* 92(4): 874-888.
- Morgenson, Gretchen (2008), "Debt Watchdogs: Tamed or Caught Napping?" *The New York Times*, December 6, 2008.
- Mügge, Daniel (2006), "Reordering the Marketplace: Competition Politics in European Finance." *Journal of Common Market Studies* 44.(5): 991-1022.
- Müller, Oliver & André Uhde (2013), "Cross-Border Bank Lending: Empirical Evidence on New Determinants from OECD Banking Markets", *Journal of International Financial Markets, Institutions and Money*, 23: 136-262.
- Nadauld, Taylor D. & Shane M. Sherlund (2013), "The Impact of Securitization on the Expansion of Subprime Credit." *Journal of Financial Economics* 107: 454-476.
- Nirei, Makoto, Theodoros Stamatiou & Vladyslav Sushko (2012), "Stochastic Herding in Financial Markets: Evidence from Institutional Investor Equity Portfolios." *BIS Working Papers No 371*. Basel: BIS.
- Notermans, Ton (2012), "Core-Periphery Dynamics in the Eurocrisis: A Historical Perspective." *Gediz University. Proceedings Conference on International Political Economy*. <http://ipeconference.gediz.edu.tr/ipe/IPEProceedings.pdf>
- Opp, Christian, Marcus Opp & Milton Harris (2013). "Rating Agencies in the Face of Regulation.", *Journal of Financial Economics* 108: 46-61.
- Owusu-Ansah, Yaw, (2012), *What Went Wrong? Examining Moodys Rated CDO Data*.
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2079811

- Pagano, Marco & Paolo Volpin (2010), "Credit Ratings Failures and Policy Options." *Economic Policy* April 2010: 401-431.
- Partnoy, Frank (2001), "The Paradox of Credit Ratings." *University of San Diego School of Law Law and Economics. Research Paper No. 20.*
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=285162
- Paudyn, Bartholomew (2013), "Credit Rating Agencies and the Sovereign Debt Crisis: Performing the Politics of Creditworthiness Through Risk and Uncertainty.", *Review of International Political Economy* 20(4): 788-818,
- Pelkmans, Jacques. (1982), "The Assignment of Public Functions in Economic Integration," *Journal of Common Market Studies* 21(1 & 2).
- Perotti, Enrico (2011), "Systemic Liquidity Risk and Bankruptcy Exceptions." *CEPR Policy Insight No. 52.* London: CEPR.
- Petursson, Birgir T. & Andrew P. Morriss (2012), *Global Economies, Regulatory Failure, & Loose Money: Lessons for Regulating the Finance Sector from Iceland's Financial Crisis.* The University of Alabama School of Law. <http://ssrn.com/abstract=2016295>
- Philippon, Thomas & Ariell Reshef (2013), "An International Look at the Growth of Modern Finance." *Journal of Economic Perspectives* 27(2): 73-96.
- Plihon, Dominique (2009), "Financial Stability," In: John Grahl, ed., *Global Finance and Social Europe.* Cheltenham: Edward Elgar.
- Posner, Eliot & Nicolas Véron (2010): The EU and Financial Regulation: Power Without Purpose?, *Journal of European Public Policy*, 17(3): 400-415.
- Purnanandam, Amiyatosh (2011), "Originate-to-distribute Model and the Subprime Mortgage Crisis." *The Review of Financial Studies* 24(6) 1881-1915.
- Quiggin, John (2010), *Zombie Economics: How Dead Ideas Still Walk Amongst Us.* Princeton NJ: Princeton University Press.
- Raddatz, Claudio & Sergio L. Schmukler (2013), "Deconstructing Herding: Evidence from Pension Fund Investment Behavior." *Journal of Financial Services Research* 43:99-126.
- Rajan, Raghuram G. (2005). *Has Financial Development Made the World Riskier? The Greenspan era: Lessons for the Future*, Federal Reserve Bank of Kansas City.
<http://www.kc.frb.org/publications/research/escp/escp-2005.cfm>
- Ramakrishnan, Ram T. S. & Anjan V. Thakor (1984), "Information Reliability and a Theory of Financial Intermediation." *Review of Economic Studies* 51(3): 415-432.
- Reinhart, Carmen N. & Kenneth S. Rogoff (2009), *This Time is Different Eight Centuries of Financial Folly.* Princeton N.J.: Princeton University Press.
- Repullo, Rafael & Javier Suarez (2013), "The Procyclical Effects of Bank Capital Regulation." *The Review of Financial Studies* 26(2): 452-490.
- Repullo, Rafael, Jesús Saurina & Carlos Trucharte (2010), "Mitigating the Pro-cyclicality of Basel II." *Economic Policy* October 2010: 659-702.
- Rochet, Jean-Charles (2010), "The Future of Banking Regulation." In: Mathias Dewatripont, Jean-Charles Rochet & Jean Tirole, eds., *Balancing the Banks: Global Lessons from the Financial Crisis.* Princeton: Princeton University Press.
- Roubini, Nouriel & Stephen Mihm (2010), *Crisis Economics: A Crash Course in the Future of Finance.* New York: The Penguin Press.

- Saurina, Jesús (2009), *Dynamic Provisioning*. Washington DC: The World Bank
<https://openknowledge.worldbank.org/handle/10986/10241>
- Schwarcz, Steven L. (2012), "Regulating Shadow Banking" *Review of Banking and Financial Law* 31: 619-642.
- Schwartz, Hermann M, & Leonard Seabrooke (2009), eds., *The Politics of Housing Booms and Busts*. London: Palgrave Macmillan.
- Shiller, (2000), *Irrational Exuberance*. Princeton N.J.: Princeton University Press.
- Shin, Hyung Son (2005), *Commentary: Has Financial development Made the World Riskier?* Federal Reserve Bank of Kansas City.
<http://www.kc.frb.org/publications/research/escp/escp-2005.cfm>
- Skreta, Vasiliki & Laura Veldkamp, (2009), "Ratings Shopping and Asset Complexity: A Theory of Ratings Inflation.", *Journal of Monetary Economics* 56: 678-695.
- Soros, George (2009), *The Crash of 2008, and What it Means*. New York: Public Affairs.
- Spong, Kenneth (2000), *Banking Regulation: Its Purposes, Implementation, and Effects*. 5th edition. Kansas City: Federal Reserve Bank of Kansas City.
- Stanton, Richard & Nancy Wallace (2010), "CMBS Subordination, Ratings Inflation, and the Crisis of 2007-2009." *NBER Working Paper No, 16206*. Cambridge MA: NBER..
- Stein, Jeremy C. (2012), "Monetary Policy as Financial-Stability Regulation", *Quarterly Journal of Economics*, 127(1): 57-95.
- Stephanou, Constantinos (2010), „Rethinking Market Discipline in Banking: Lessons from the Financial Crisis.“, *Policy Research Working Paper 5227*. Washington D:C.: The World Bank
- Strausz, R. (2005), "Honest Certification and the Threat of Capture.", *International Journal of Industrial Organization* 23: 45-62.
- Strobl, Günter & Han Xia (2012), *The Issuer-Pays Rating Model and Ratings Inflation: Evidence from Corporate Credit Ratings*.
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2002186
- Suntheim, Felix (2010), *Managerial Compensation in the Financial Service Industry*. Unpublished Manuscript, Milano: Bocconi University, 15 September 2010.
- Taleb, Nassim Nicholas (2004), *Fooled by Randomness: The Hidden Role of Chance in Life and in the Markets*. London: Penguin Books.
- Taleb, Nassim Nicholas (2007), *The Black Swan: The Impact of the Highly Improbable*. London: Allen Lane.
- Taylor, Lance (2001), "Capital Market Crises: Liberalization, Fixed Exchange Rates and Market-driven Destabilization." In: Chang, Ha-Joon, Gabriel Palma & D. Hugh Whittaker, eds., *Financial Liberalization and the Asian Crisis*. New York: Palgrave Macmillan.
- The Economist (2013), *You break it, You Own It*. 23 November 2013.
- Tirole, Jean (2010), "Lessons from the Crisis.", In: Mathias Dewatripont, Jean-Charles Rochet & Jean Tirole, eds., *Balancing the Banks: Global Lessons from the Financial Crisis*. Princeton: Princeton University Press.
- Tong, Hui & Shang-Jin Wei (2011), "The Composition Matters: Capital Inflows and Liquidity Crunch During a Global Economic Crisis." *The Review of Financial Studies* 24(6): 2023-2052.

- Tuckman, Bruce (2010), "Amending Safe Harbors to Reduce Systemic Risk in OTC Derivatives Markets", *CFS Policy Paper*, April 22, 2010. New York: Centre for Financial Stability.
- United Nations (2009), *Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System*. New York: United Nations.
- Varoufakis, Yanis (2013), "From Contagion to Incoherence: Towards a Model of the Unfolding Eurozone Crisis." *Contributions to Political Economy* 32: 51-71.
- Verma, Sid (2013), "Germany's Rejection of a Pan-European Deposit Guarantee Scheme is No Disaster." *Euromoney*, April 25
<http://www.euromoney.com/Article/3197194/Germanys-rejection-of-a-pan-European-deposit-guarantee-scheme-is-no-disaster.html>
- Vives Xavier (2008), "Overview: Competition and Regulation in Banking.", In: Anjan V. Thakor & Arnoud W. A. Boot, eds., *Handbook of Financial Intermediation and Banking*. Amsterdam: Elsevier.
- Vives, Xavier (2011), "Competition Policy in Banking.. *Oxford Review of Economic Policy* 27(3): 479-497.
- Wade, Robert (2001), "From 'Miracle' to 'Cronyism': Explaining the Great Asian Slump." In: Chang, Ha-Joon, Gabriel Palma & D. Hugh Whittaker, eds., *Financial Liberalization and the Asian Crisis*. New York: Palgrave Macmillan.
- Wagner, Wolf (2012), "How to Design a Banking Union that Limits Systemic Risk in the Eurozone?" In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.
- Warwick Commission on International Financial Reform (2009), *In Praise of Unlevel Playing Fields*. Coventry: The University of Warwick.
- Wei, Chenyang & David Yermack (2011), "Investor Reactions to CEOs' Inside Debt Incentives." *The Review of Financial Studies* 24(11): 2011-3813-3840.
- Weil, Jonathan (2012), *The EU Smiled While Spain's Banks Cooked the Books*.
<http://www.bloomberg.com/news/2012-06-14/the-eu-smiled-while-spain-s-banks-cooked-the-books.html>
- White, Lawrence J. (2010), "The Credit Rating Agencies." *Journal of Economic Perspectives* 24(2): 211-226.
- Wolf, Martin (2010A), *Fixing Global Finance*. New Haven: Yale University Press.
- Wolf, Martin (2010B), "Why and How Should we Regulate Pay in the Financial Sector." In: Adair Turner et al, *The Future of Finance: The LSE Report*. London: LSE.
- Wyplosz, Charles (2012), "Banking Union as a Crisis-Management Tool." In: Thorsten Beck, ed., *Banking Union for Europe: Risks and Challenges*. London: CEPR.

9 Endnotes

- ¹ Many thanks to Jérôme Creel for helpful comments on earlier drafts.
- ² “Regulators and supervisors collectively failed on a massive scale to achieve even mildly risk-averse outcomes.” (Blundell-Wignall & Atkinson 2009: 537)
- ³ Which led De Young (2008; 370) to conclude; “Is the banking industry safer and sounder today than 20 years ago? The answer is almost certainly yes.” Similarly, in 2007 the ECB concluded that: “The increased integration of financial markets and market infrastructures, the growing number of institutions active on a cross-border basis and the diversification of financial activities in the EU have helped to make markets more liquid and efficient and to increase the resilience and shock-absorbing capacity of the integrated financial sector.” (ECB 2007: 73)
- ⁴ Two classic pre-crisis texts are Minsky 2008 [1986] and Shiller 2000.
- ⁵ Apparently, the Spanish and Nordic Banking crises of the 1980s and 1990s and the US Savings & Loans debacle also were too small or too peripheral to undermine this confidence.
- ⁶ See e.g. Demirgüç-Kunt & Huizinga 2004.
- ⁷ “There is a real danger that regulatory forbearance policies and overly generous depositor protection increase rather than reduce the excessive bank risk taking which has been the root cause of many bank failures.” (Demirgüç-Kunt & Huizinga 2004; 376).
- ⁸ The fate of the no bail-out clause of sovereign debt in the EMU Treaty may serve as an example. See also Hellman, Murdoch & Stiglitz (2000: 148).
- ⁹ The term „bubble“ seems somewhat misplaced. The bursting of a soap bubble is of little consequence, whereas the bursting of financial bubbles may have severe consequences for the entire economy. Cf Aizenman et al 2013, Cecchetti & Kharroubi 2012.

¹⁰ An attitude succinctly expressed in an infamous email by a Standard & Poors employee: ““Let’s hope we are all wealthy and retired by the time this house of cards falters.” Quoted in <http://www.bloomberg.com/news/2013-02-05/s-p-analyst-joked-of-bringing-down-the-house-ahead-of-collapse.html>

¹¹ For an analysis of the Asian crisis of 1997 along these lines see Chang, Park & Yoo (2001), Wade (2001), Taylor (2001).

¹² Hellmann, Murdock & Stiglitz (2000:147) argue that “There is thus an inconsistency of interest rate liberalisation and prudential bank behaviour.”

¹³ For a review of the literature on early warning systems see Reinhart & Rogoff 2009. Ch.17.

¹⁴ See <http://www.ecb.europa.eu/ecb/tasks/stability/html/index.en.html>

¹⁵ An analogous take on the concept may be that financial instability occurs when microeconomic financial volatility requires public intervention as a result of its systemic consequences. Such a definition, e.g., is implicit also in Brunnermeier et al (2009).

¹⁶ For a short overview of the literature on shadow banking see Adrian & Ashcraft 2012: 2-4’

¹⁷ The relevant EU Directives are: Financial Collateral Directive of 6 June 2002, EU Settlement Finality Directive of 19 May 1998, Directive 2009/44/EC of 6 May 2009 amending Directive 98/26/EC, and Directive 2002/47/EC (Perotti 2010: 3).

¹⁸ For a summary of the debate on bankruptcy privileges see Duffie & Skeel 2012.

¹⁹ “Yet, the Basel accords based on capital requirements proved worse than useless in the years before the crisis of 2007-8.” (Kay 2010: 219)7

²⁰ A similar point is made for the US in the dissenting statement by Peter J. Wallison to the Financial Crisis Inquiry Report (Financial Crisis Inquiry Commission 2011: 441-538).

²¹ Jokivuolle, Kiema & Vesala (2013) provide a theoretical argument for anti-cyclical regulation. Their model of a competitive credit market is characterised by asymmetric information between banks and entrepreneurs. Risk-sensitive capital requirements help reduce this market failure arising from imperfect information. Moreover, as the success probability of entrepreneurial projects will decline during crises, so should the capital requirements.

²² Albeit against the opposition of the CFTC.

²³ Blundell-Wignall & Atkinson (2009: 543) call this a shift from a credit culture to an equity culture.

²⁴ The market for credit ratings is dominated by three US firms: Standard & Poors, Moodys and Fitch Ratings. In June 2013 the Universal Credit Rating Group (UCRG) was founded in Hong-Kong to provide an alternative. UCRG is a joint-venture of Russia-based Rusrating, the Chinese Dagong Global Credit Rating and the US firm Egan-Jones Ratings.

²⁵ That was the main defence of the CRAs in the US Congressional hearings.

²⁶ The SEC, for example, entrusted the supervision of investment banks to seven employees (Tirole 2010: 26).

²⁷ The balance of payments crises provoked by a sudden stop of capital inflows in Asia led to currency depreciation which aggravated the problem of over-indebtedness due to significant foreign currency denominated debt. While many peripheral countries in the EU have been confronted with a similar sudden stop in the wake of the European crisis, devaluation in most cases was not a option due to Eurozone membership or avoided due to original sin problems (Lütz &

Kranke 2010). Simultaneously, debt restructuring was shunned for fear of creating a domino effect in the EU periphery. That left austerity as the main policy option and in the end probably has contributed to the European crisis being more drawn out than the 1997 Asian crisis.

²⁸ In many east European countries private households indebtedness was aggravated by an original sin problem. (Bohle 2013)

²⁹ The standard assumption in the literature is that higher house price volatility reduces hedging incentives because of risk aversion. However, this does not capture the dynamics of real-estate bubbles, which are characterised by more certainty that house prices will increase in future.

³⁰ Since geographic mobility reduces the incentive to hedge against future hikes in housing costs by purchasing a (larger) home, the hedging effect should play a stronger role in the EU as compared to the USA.

³¹ Ahearne & Wolff (2012, p. 9 ff) provide a similar analysis but focus only on the EU15 plus Switzerland and Norway.

³² “When regulation *is needed*, no one wants it, because asset prices are rising, there is a boom, everyone is optimistic, and regulation just gets in the way.” (Brunnermeier et al 2009: 36)

³³ On the distinction between negative and positive integration see Pelkmans (1982).

³⁴ As a member of the EEA, Icelandic financial institutions benefitted from the “single passport”, even though Iceland is not an EU member (Benediktsdottir, Danielsson & Zoega 2011: 186).

³⁵ Blundell-Wignall & Atkinson 2009: 543.

³⁶ Defined as banks with assets in excess of €30 billion.

³⁷ “The events of the last five years have illustrated the inadequacy of market discipline: indeed, they suggest that in some ways, market prices and market pressures may have played positively harmful roles.” UK Financial Services Authority, quoted in Stephanou 2010: 3.

³⁸ From which they conclude that „day-to-day market influence remains, for the moment, more a matter of faith than of empirical evidence”. (Bliss & Flannery 2002: 361).

³⁹ Bannier, Fees & Packham’s (2013) model explains the practice of paying bonuses that induce excessive risk-taking in terms of a competitive job market where managerial talent is private information.

⁴⁰ For a summary of the various reform proposals aimed at aligning the incentives of managers and investors, see Cronqvist & Fahrenbrach 2013: 671.

⁴¹ Interestingly, former General Electric CEO Jack Welch, the father of shareholder value, turned critic after the crisis. “On the face of it, shareholder value is the dumbest idea in the world.” Quoted in Guerrera 2009.

⁴² For a discussion of the US regulatory reform of shadow banking see Adrian & Ashcraft 2012.

⁴³ For a detailed comparison of the three reports see Gambacorta & van Rixtel 2013.

⁴⁴ Leony & Romeu’s (2011) analysis of bank lending in Korea suggests that a larger share of public banks has anti-cyclical effects. In contrast Caprio & Martinez Peria, 2002 find that a higher share of public banks increases the probability of systemic risk, whereas La Porta, Shleifer & Lopez de Silanes (2002) find that large public banking sectors correlate with lower growth.

⁴⁵ See, for example, Fforde 1992 on the postwar policies of the Bank of England.

⁴⁶ The tree CRAs were of modest size and importance before the SEC designated them nationally recognised agencies in 1975 and made the CAR of banks dependent on their ratings.

⁴⁷ As in the models of Bolton, Freixas & Shapiro (2012) and Skreta & Veldkamp (2009).

⁴⁸ Some of the recent research that does try to combine macro and micro aspects, though not necessarily along the lines suggested here, is Gambacorta & Marques-Ibanez (2011), Gersbach (2011), Petursson & Moriss (2012), Stein (2012).

⁴⁹ See point 14 of the Communiqué of Meeting of G20 Finance Ministers and Central Bank Governors, Mexico City, November 5, 2012.