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An Assessment of Recent Reforms of Financial Regulation after the Financial Crises

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Abstract

Asset price bubbles and following deep financial crisis have occurred in the past three decades with an increasing frequency. The past regularity framework was obviously not sufficient to stabilise the worldwide financial system. Therefore, after the recent big financial crises that took its course from 2007 onwards, financial regulations have been reformed once again in order to protect governments, tax payers and financial service consumers from abusive practices by banks and other financial market participants. Since then, several years have passed and it is now a good time to come up with an assessment of what has been achieved so far. The paper starts with an analysis of the regulatory weaknesses before the financial crises started to spot the necessary changes. In the next step, the recent reforms will be explained their effectiveness analysed. The problem of international divergence of reforms will be stressed in this regard. Finally, an assessment on these reforms will be made. It will be highlighted that these reforms suffer from four drawbacks: The equity capital requirements for banks are not sufficient, systemic risk should have been taken more into the focus, shadow banks have been hardly reformed at all and pose a significant risk to the financial system and also the remuneration practices of bank managers require a change. The conclusion of this paper is that despite significant reform efforts the mentioned weaknesses still have to be addressed in order to achieve the goals that have been claimed by politicians and regulators when the reforms began in 2008.

Key Words: *Financial Crisis, International Regulation, Basel III Accord, Systemic Risk, Macroprudential Policies, Shadow Banks.*

Introduction

Over the past thirty years, the instability of financial markets has increased noticeably. There was a series of price bubbles that triggered the most severe financial crises in different parts of the world (Borio and Lowe, 2002). It was possible to define which conditions favour their occurrence. These include a strong monetary growth with low interest rates and a credit expansion, which exceeds economic growth significantly. Such a development was often accompanied by a deregulation in the financial sector. An equally important role played leaps of technological progress, a prolonged period of economic recovery and a widespread optimism. These factors are not necessarily all at the same time met to trigger exaggerations, which end in a collapse. For example, a strong credit expansion is possible without a high growth of money supply, bubbles in the property sector do not require technological progress, the US housing bubble happened without a long-lasting economic boom, and it is sufficient if the optimism of economic agents is focused on just specific sectors of the economy. In the current situation, especially the rapid growth of money supply is worrisome (Schnabl and Hoffmann, 2007). Some economists also fear that the financial industry is slipped into credit cycle that is out of control (Pally, 2005). Technological progress is already longer in a period of great acceleration. More people than ever work in research and development and businesses rarely have been in a tougher competition to innovation than today. Internet, mobile communications, biotechnology and nanotechnology may serve as keywords in this context, and many expect that a new generation of robots could revolutionize the economy. It can be concluded that a number of ingredients for a renewed financial crisis are at work. Against this background, is the reform of financial regulation sufficient that has been made since the last crisis? This is the key question that shall be discussed and answered in this paper.

Where there was need for better regulation?

When a financial system is regulated, then the proposed changes are often not based on theoretical considerations. Instead, they are based on the experiences that have been made in previous crisis. However, a financial system is evolving, new instruments are invented, new markets are emerging and with them new agents come into play. Therefore, many regulations lead to nowhere. And also a well-suited regulation will always have weaknesses and must be constantly updated. One finding, however, can be taken from the past: The focus of regulation should be first and foremost on the systemic risk and the protection of consumers of financial services (Goodhart, 2010).

Systemic risk arises from the fact that the market position of an individual actor affects the positions of all the other actors. This impact spreads through a decline in market liquidity, price changes, and volatility. If extreme losses of a single actor lead to its insolvency or inability to pay, then a number of other financial institutions are affected so that the financial system can falter as a whole. This may happen by self-reinforcing spirals in the financial system. Such spirals gain further momentum as market players see the risks even darker than they actually are. They do not know exactly how the balance sheets of their business partners look like. Therefore, assets are sold, loans are cancelled, and money hoarded. The problem of information asymmetry between the actors triggers pro-cyclical behaviour (Goodhart, 2010).

The Basel Accord was realigned in the mid-nineties after various financial crises. It was based on three pillars: capital requirements, supervision and market discipline. The first pillar was the most important one. It defined risk-weighted capital requirements. The risk-weighting was assessed by the rating of the debt. Most industrialized countries and many emerging countries implemented this accord. But it contained dangerous weaknesses. Critics claimed that the capital requirements were inadequate. Only 8 % risk-weighted capital had to be kept by banks. Without the risk weighting many banks held not even 3 % of its total assets in the form of equity. Basel II also supported the cyclical behaviour of banks. In boom times, the asset values of banks increased, which allowed them to lend more and systemic risk increased. During the crisis, however, banks were forced to sell in a falling market and to ration loans, so that the situation was exacerbated. It would have been better to allow for individual risk management measures to diversify the behaviour of banks (Caprio, 2013). Another weakness of Basel II was the risk weighting of assets that was used for the calculation of the required amount of equity. Investments that have been classified as low risk were particularly lucrative for banks and were expanded. For them, only a small amount of expensive equity capital had to be kept. This was true, for example, for many structured bonds of real estate loans, for which the agencies provided a high rating. The same was also true for government bonds in the Euro area. Sovereign debt was classified as riskless according to the Basel Accord. This enticed many banks to strongly engage in Southern Europe and to give loans to these countries. The debt crisis in Europe is also due in part to the Basel Accord. The reliability of the rating awarded by the agencies has to be critically questioned. The agencies get paid by the issuer, so that their objectivity with respect to their ratings seems doubtful (Caprio, 2013). In addition, the ratings of the agencies run steadily afterwards actual developments, because they need time to obtain the necessary information.

In the years before the millennium banks alleged, they could better assess their risks than regulators, because they had developed advanced risk measurement instruments such as the Value-at-Risk (VaR). Especially their specific focus on measurable market risk was highlighted. Therefore, it would make more sense that all banks should raise and harmonize their risk management on the progress of this new method.

The implicit idea was the following: if all banks introduce the best risk management systems, then also the financial system as a whole would be safer. This assumption, which was finally accepted by the Bank for International Settlements and the governments in the US and Europe, had a crucial drawback: the risk consideration of an individual financial institution is fundamentally different from those of a regulator or of a state. A bank wants to make sure that it´s risk is under normal circumstances under control. However, if an extreme and highly unlikely shock occurs, then it can pass the consequences on the society. This is especially true for large banks whose failure would threaten the entire financial system. Hence, the VaR method is perfect for the considerations of a single financial institution. It calculates the maximum loss for a pre-fixed high probability, but not beyond. The regulator, however, should be mainly interested in unlikely and extreme losses that can trigger a systemic crisis. Financial regulators had taken the view of the banks as its own. Market risk sensitive measurements also encourage herding behaviour. If the volatility in the markets rises, then the calculated potential loss for a bank increases. In this case, the bank will be compelled to sell risk-bearing assets. The volatility continues to increase, and other banks have now to sell assets as well. There is a risk of a selling spiral in motion, which destabilized the affected markets. The obvious weakness of market-based risk measurement systems is that they are looking at a financial institution only as a single and leave the interrelation to other aside. But it is this interdependence which may endanger the viability of the financial system (Persaud, 2000). Furthermore, as the history of the US real estate crisis has clearly demonstrated, the VaR and other market-based procedures were not capable to provide a reliable estimate with respect to the probability of extreme events. Despite considerable research efforts in this area no convincing solution to this problem has been found to date. Also from this angle one need to call into question their suitability for the regulation of financial institutions.

The Basel Accord focused solely on the regulation of banks. The so-called shadow banks, however, remained largely unregulated. Shadow banks are financial institutions that are involved in the process of lending, but do not have the status of banks. Shadow banks therefore have no access to central bank money and are subject to increased refinancing risks. The group of shadow banks include money market funds, structured financing companies, brokers and dealers, finance companies, financial holding companies and hedge funds. The international "Financial Stability Board" estimates that shadow banks account for around 45% of the total financial system worldwide (Claessens and Kodres, 2014). An important driver of its rapid growth has always been the search for higher returns. Furthermore, shadow banks allow banks to circumvent the capital requirements of the Basel Accord. Securitized loans can be transferred with their help to investors and so that they do not burden the balance sheets of banks (CNMV, 2013). Shadow banks securitize leases and mortgages or other forms of credit and make them as tradable securities on the exchanges.

Shadow banks often prefer short-term funds to finance their activities such as commercial paper, repo transactions or deposits from money market funds. Repo transactions and money market funds became particularly important as a financial source for shadow banks as they grew strongly due to the increasing volume of available liquidity by a very expansionary monetary policy in the past decades. The providers of such short-term funds are not required to hold reserves despite the fact that they have no access to central bank money and that they have a similar function for the financial system like a bank: they lend money to other market participants. These conditions create a particular financing risk in the case that the money market is freezing in a crisis situation. Money market funds are suffering from losses and substantial capital outflows and no one is willing to be involved in a repo transaction due to the increased counterparty risk. Short-term funds are no longer available. Shadow banks loose immediately their capacity to finance longer term loans and the financial system is moving towards a credit crunch. This risk has increased over time as banks outsource more and more lending activities to the shadow banking sector. Such developments happened in the subprime crisis in the US. The supposed transfer of risk in the lending business from banks to capital markets turned out to be an illusion, because the banks had granted significant credit lines to shadow banks, for which they had to stand up then. This also got the banks financing problems which nobody had expected (CNMV, 2013). The credit crunch accelerated.

Moreover, shadow banks operate with a high level of financial leverage in order to maximize their return on equity. Since they are hardly regulated, they could do so by a large margin. The money market funds and funding entities for the securitization of loans were highly in debt before the financial crisis, and kept large sums of illiquid assets, which exacerbated the panic by investors in times of crisis. Massive amounts of money have been deducted from shadow banks, which compelled them to sell securities in the crisis. Thus, the general price decline has been accelerated by it. The securitization process of shadow banks led to very complex connection chains in the provision of financial services. They were and are extremely difficult to understand. This may result very fast in doubts about the actual value of assets, and thereby spurs the general uncertainty in the event of a crisis. Working with a high level of indebtedness also multiplies the sums traded on the market, supporting the evolvement of price bubbles. The global financial crisis has shown very clearly that shadow banks have the potential to endanger the stability of the global financial system (IMF, 2014). On the other hand, shadow banks should not be considered only negatively. Their securitization process may provide the financial system with cheap money from the capital market. With them also the risk can be better distributed on a variety of professional investors. The carving of risk remains an important mechanism to satisfy the risk preferences of investors and thereby bring more loans to the market (IMF, 2009). As long as their activity does not get out of hand, they increase the securitization efficiency of the financial system. However, they require a genuine regulation.

The remuneration schemes in the financial industry pose a potential risk to the financial system that is not to be underestimated. The top managers, so greedy they may have been in the past, are not the main problem. The shareholders "encourage" the management to take higher risks in boom times to achieve higher profits and dividends. At the same time, shareholders may pass on a portion of their risk to the general public, as they are only liable in the amount of their equity capital placed in the firm. It is therefore misleading to make the management solely responsible for extraordinary risks in the financial system. The "encouragement" is done by the remuneration of the management which is designed for very short-term success (Goodhart, 2010). For this purpose often stock options are issued to leading managers. Once the stock price of a financial institution moves up, then the value of the options increases by several times, because they are equipped with a lever. In this way, it can happen in good years that executives and traders earn 50 million dollars or more. It is therefore not surprising if they do anything to screw up the stock price of their institution, willing to accept extreme risks. The former investment banks Bear Stearns and Lehman did not survive the financial crisis, because they suffered dramatic losses. Their top managers, however, earned in the years before the collapse hundred millions of dollars by taking aggressive actions (Caprio, 2013). They were among the winners of the financial crisis. In addition to stock options, performance-related bonus payments play an important role when it comes to the destabilizing effect of the practiced remuneration system.

The concentration in the banking industry has been recognized as another major threat. Contributing factors to that have been the abolition of separated banking system in the United States and the creation of a single banking market in Europe. In the derivatives market, for example, about a handful of institutions dominate the market. The greater interdependence between banks combined with their increasing size makes the regulation of the banking sector more important than ever. Therefore, the Basel III Accord was created (Caprio, 2013).

What reforms have since happened?

In 2008, the G20 countries met to reform the global financial system fundamentally. The obvious shortcomings that led to the crises should be removed. The "Financial Stability Board" has been established as the central body for international coordination of reform measures. It should define clear principles for reform and monitor their temporal introduction (FSB, 2014). As a second important organ, the Bank for International Settlements (BIS) is in particular responsible for banking supervision and the Basel Accord. The new regulatory framework of Basel III has the strengthening of the system stability and greater transparency in the financial sector as priorities. Issues such as equity provisions, liquidity, leverage ratio and reporting were revised. The aim was to limit the liability of the government and the taxpayer (BAB, 2011). The lessons learnt from the big financial crisis should be regarded in this reform. For example, a strong and resilient banking sector is the foundation for sustainable economic growth, as banks are at the centre of the lending. A major cause of the great financial crisis was that the banking sector in many countries had greatly increased its indebtedness in and outside its balance sheets. At the same time many banks held too low liquidity reserves (BCBS, 2013). The heart of the new banking regulation is an improved endowment of banks with equity, so that banks can absorb higher losses in a crisis. Until 2019, banks have to maintain core capital of at least 4.5%. This refers to paid-in capital of the shareholders and reserves from earlier gains. To prevent that the banks slip immediately below this 4.5 % equity level in the event of a crisis, they also need to hold a capital buffer of 2.5 %. These percentages are not calculated in absolute relation to outstanding loans, but in a risk-weighted form. The higher the risk of a loan that a bank has given, the more equity it has to hold as security. The sum of all weighting factors is smaller than 1, which means that the banks hold in fact less capital buffers than the 4.5 % plus the 2.5 %. However, the risk weights have been increased in the new accord in particular for complex securitisations. Since risks in the financial system are not constant, as several major crises have shown in the past, a new countercyclical capital buffer has been installed. Due to this buffer, unexpected losses can be mitigated. The counter-cyclical buffer is determined by the national supervisory for a country's banks and should be between zero and 2.5 %. In the case of economic overheating and excessive lending, the countercyclical buffer will be successively increased. For large and as systemically important classified banks, higher capital requirements apply again. They need to keep 2 % additional equity capital. Overall, banks must demonstrate a maximum of 10.5 % risk-weighted equity capital (BCBS, 2014). However, capital will only protect against insolvency, but not against illiquidity. Therefore, the new Basel Accord requires banks now to hold a liquidity reserve. This reserve is supposed to ensure that a bank can operate for 30 days expectable liquidity outflows. For this purpose they must hold appropriate liquid and freely available high quality assets (Claessens and Kodres, 2014). In the recent financial crisis it became all too clear that the cash reserves of banks were not sufficient to make it through a collapse of the money market (BMF, 2015). This was still not enough for the Basel regulators. They also introduced the "net stable funding ratio". It demands from the banks that they have to match the maturity profile of their claims with the one of their funding to some extent. In this way, it shall be prevented that banks become too dependent on short term funding. If money markets freeze in a crisis, the banks were otherwise threatened. The introduced "funding ratio" still allows significant maturity transformation as short-term deposits of individuals are regarded to be 90 to 95% stable and can therefore be used to finance long-term and illiquid assets (BMF, 2015).

As has already been explained, the calculated equity quota according to the Basel Accord indicates little about the actual ratio of equity to invested assets. It was therefore decided for Basel III, that banks have to inform the supervisory authorities about their absolute leverage ratio - without risk weighting. For now, this rate is only recorded. But it is being discussed to introduce a minimum size here. A limitation of the total assets on the 33.3 times the total core capital is a favourite model (FSB, 2014). These new requirements cannot be meet from today to tomorrow by the banks. They were granted a transitional phase until 2019.

New accounting standards require that financial institutions must adjust the carrying value of securities and other receivables promptly to falling financial market prices. The Board for International Accounting Standards will define new rules for risk prevention in the context of financial reporting (Danjou, 2013).

A final important element in the regulation of banks is the concept of the so-called "Living Will". It refers to global banks which may endanger the financial system. They must create and publish emergency plans in the event of insolvency to allow an orderly settlement. These plans must show how a possible recovery of the bank can look like by measures to raise liquidity and equity capital. Failing that, it must be clear how the actual settlement of an institution may be organised when the bankruptcy or insolvency could no longer be averted. For this, the regulators require from the banks certain preparations, including, for example, the simplification of legal structures. An important problem remains the international interdependence of institutions that may lead to significant complications in the case of insolvency (Goodhart, 2010).

Transatlantic Differences

Although the Basel III Accord was introduced in Europe as well as in the US, there are significant differences between the two regions, which may limit the effectiveness of regulation. In the US, the "Dodd-Frank Act" was decided. It should change the financial market law in an extensive manner and was adopted on 21 July 2010. According to President Obama and his political supporters the act provides the most comprehensive regulation of financial markets since the Great Depression in the thirties of the last century. It covers 541 legal articles in 849 pages. The act has two main objectives: A government rescue of financial institutions or insurance companies should be avoided in future. In addition, consumers should be protected from abusive practices in financial services (Economist, 2012). Financial institutions and insurance companies may be put into receivership in order to handle ordered settlement. Deposits with financial institutions must largely be assured to enhance deposit protection. The proprietary trading by banks and thrift institutions has been significantly restricted, as well as investments in hedge funds and private equity funds by banks. However, the restriction of certain financial market transactions and proprietary trading may cause a decline in market liquidity in the financial system and risks may simply be relocated on other players (Claessens and Kodres, 2014). New regulations were also introduced for the trading of financial derivatives. To make the risk in this financial market segment more visible, all derivatives that are tradable in a standardized way shall be traded on exchanges or electronic platforms. Derivatives that only can be traded OTC, must be backed with more capital. Overall, the information requirements for the trade of derivatives have been increased (FSB, 2014). Shadow banks have hardly been regulated so far. The only exception is the money market funds. Money market funds are no longer allowed to offer a guaranteed income. Their value and income for the customer have to depend only on the market value of the invested portfolios. Thus failures of such funds should be prevented. In addition, the redemption of shares may be temporarily limited when it comes to cash outflows by panicky investors. Also the insurance sector shall be reformed. For this purpose, the "International Association of Insurance Supervisors" announced a plan in 2013 to introduce better risk standards for the insurance industry. By the end of 2016, the plan is to be completed (FSB, 2014).

In Europe, a banking union was launched. It consists of a resolution authority for banks whose mission is to prevent big banks in the event of insolvency to be bailed out by the taxpayer. A fund of 55 billion euros has to be set up by banks from 2016 onwards. In 2024 this sum has to be reached. As part of a "Restructuring Act" it is set binding that primarily the owners and creditors should be liable if a bank is insolvent. Banking supervision has been unified under the umbrella of the European Central Bank and a new deposit protection scheme was launched. In all member states deposits up to a height of 100 thousand euros are guaranteed (BMF, 2015). Whether the states shall be liable jointly or individually, is still under discussion. The risk-bearing proprietary trading of financial institutions should be separated from the customer business. But also this point is still under discussion and it is argued how this scheme should look like exactly (BMF, 2015). The risk management of financial institutions should be improved as well. The supervision will increasingly be based upon qualitative indicators such as an assessment on the risk monitoring in the institutions, what risk culture is lived and how the business model of a bank is shaped with respect to risk (FSB, 2014). The remuneration of top managers is to be initially monitored and proposals are being developed for their reform in terms of sustainable management (FSB, 2014). Money market funds will in future have to maintain a capital buffer of 3 %, so they are not forced in the event of a crisis to sell securities. Such fire sales of these funds had contributed in the past to significant liquidity problems in the financial system. Moreover, money market funds have to become more transparent and inform customers and financial supervision in a regular way (FSB, 2014). The EU initially focuses on money market funds, as they can be controlled more easily than hedge funds, which are often based in tax havens. With regard to hedge funds it is only intended to collect "reliable data" (Spiegel Der, 2013).

The planned introduction of a financial transaction tax has been on hold for many years now. There are from time to time proposals how it can be shaped and an agreement among the countries of the Eurozone also seems quite possible. Its size is still unclear. But it is clear that Britain will not participate, so that a large proportion of derivatives trading would likely migrate to London. In any case, the tax is hardly appropriate to prevent a financial crisis. For this purpose, it would have to be so high, that it will interfere significantly the trading in securities in normal times and thus the functioning of financial markets.

Overall, one has to have the impression that in Europe many planned reforms have not yet been implemented and their specific configuration is still unclear and controversial. The US seems to be one step ahead. A number of experts are calling for a better transatlantic cooperation in the regulation and supervision of the international financial system. The closer this cooperation would be the stronger the signals to other countries that are also reforming their financial system. These signals are not to be underestimated. Three of the 15 largest banks are coming from China. In fact, the regulation between the US and Europe in some places diverges, causing a negative impact on the global reform process. This poses the risk of circumvention of regulations by financial institutions into jurisdictions with weaker standards.

While responsible authorities try to implement the Basel III Accord, in the United States further steps are in process. Here more stringent capital requirements can be expected. In Europe, the focus is more on the remuneration of bankers and the financial transaction tax, but much is still unclear as described. The treatment of foreign institutions is handled differently in the two regions as well. For the stability of the global financial system, it would be important that there are uniform reforms not only in the US and Europe, but also in Asia. For this purpose, the G20-format and the "Financial Stability Board" are good platforms for collective agreements (Atlantic Council, 2010).

How is the situation to be assessed today?

From 27 countries and regions participating in the Basel Accord, 25 have already introduced Basel III to a large extent. In the European Union and the United States this has been the case since summer 2013 (BCBS, 2013). The banks have until 2019 to comply with its requirements. From 1 January 2015, banks must also publish their financial leverage. The majority of banks are on the right track to meet the capital requirements. Many of them have already reached the targets. The international banks now hold at least 10% true equity capital in relation to its risk-weighted assets (BCBS, 2013). The equity ratio without risk weighting rose to 4.4 % compared to the often less than 3 % at the time before the great financial crisis. The banks have also increased their liquidity ratio noticeably. However, there are still a certain number of banks, who need to make significant progress. They currently represent a particular risk for the financial system (FSB, 2014).

How have now all these measures to be assessed, has the financial system become more secure? Yes, the financial system is now more secure than before the financial crisis, which took its course in the year of 2007. Banks hold more equity capital and liquidity, banking supervision has been improved, the weaknesses of money market funds are currently being reduced. The financial system has also become a little more transparent. But considering the words of political leaders that "taxpayers should never again be liable for bankrupt banks”, [1] that is not enough by far. A key criticism is that governments in Europe and the United States have introduced a number of regulations, but to a much lesser extent and in much smaller increments than might have been expected immediately after the crisis. Economists call for a higher capital adequacy ratio for banks to reduce their vulnerability. Some of them are calling for quotas of 20-30% (Forbes Magazine, 2014). Only then can the financial system would be safe and healthy. In addition, the risk weighting of assets is criticized because it would lead in practice that banks hold too little equity capital (Caprio, 2013). On the other hand, more stringent capital and liquidity requirements imply higher costs for financial institutions. These costs will be passed on to their customers, resulting in higher costs for business. How high these costs are ultimately, however, is controversial. Some studies assume that the economic costs of higher capital requirements are relatively low (Claessens and Kodres, 2014). The

[1] For example, the German Chancellor Angela Merkel on the G20-summit in Brisbane (Australia) in November 2014

example of Switzerland[2] shows that significantly higher requirements may be adopted as provided by Basel III, without causing trouble to the affected banks or a credit crunch in the economy. But even if the costs of higher requirements allow for significantly higher capital and liquidity ratios, the remaining systemic risk would still be considerable (Claessens and Kodres, 2014).

A major criticism of the new Basel Accord is that it is too complex, because it wants to fulfil three tasks simultaneously: to secure the banking system, not to harm the banking business and to control the risk management of individual banks. The more complicated the Basel Accords were in the past, the less successful they have been. For Basel I and II this assessment can be seen as safe – these accords had certainly not been able to stabilize the financial system. Doubts about Basel III are also justified. The latest Basel Accord contains 200,000 categories that make more than 200 million calculations necessary (Caprio, 2013). It also disturbs that the large banks might look like the winners of the recent regulatory reforms, as they deal best with very complex regulations and their related financial burden. This deteriorates the competition in the banking sector (Caprio, 2013).

Financial systems vary considerably between countries and regions. There are different ratios of loan volume to GDP, significant institutional differences, different regulations, laws and customs. Therefore it makes little sense, so the criticism, to change all these countries and markets with one and the same regulation - Basel III. It unfolds very different effects dependent on the type and structure of the financial system. This applies also and especially for the United States and Europe (Caprio, 2013). This argument contradicts the assumption that regulation should be as uniform as possible to prevent market participants to move to countries and sectors with the weakest regulations in place. This contradiction can only be resolved, if differences in regulations are checked with respect to possible mitigation strategies.

Large financial institutions still represent a major risk. As before, they are so big that a state cannot afford to let them go bankrupt. The taxpayer is therefore not safe from future bank assistance. While such "systemically important" banks are forced to keep a higher equity ratio than smaller institutions according to Basel III, it is doubtful whether this is sufficient. In addition, the refinement of a fund for bank resolution is uncertain in Europe and whether it will be large enough to rescue several big financial institutions in difficulty, is also questionable. Other large financial institutions such as insurance companies and shadow banks that are also a source of similar systemic risk have so far been barely regulated. Authorities have only started to identify potential risks (Claessens and Kodres, 2014).

The US, Britain and the Eurozone have the largest shadow banking sector. In the US, credit involvement of shadow banking is even greater than those of regular banks. They usually offer long-term loans to enterprises and the private sector and invest the money from insurance and pension funds. The growth of the shadow banking in emerging markets is very dynamic and is significantly higher than that of the banking sector. This is especially true for China, where shadow banks grow twice as fast as the regular banking sector (IMF, 2014). Driving forces behind the growth of shadow banking is the tighter regulation of the banking sector, the high level of available liquidity by expansionary monetary policies worldwide, the search for higher returns and a high demand for investments on the part of institutional investors. It can be observed that an increasing number of lending is outsourced to shadow banks. Commercial banks are only reluctantly giving loans to smaller companies or to finance individual projects. Shadow banks jump in and take over the business. Even mutual funds offer direct loans.

Shadow banks run their business often with a very high level of indebtedness. This is of course risky, as past price bubbles and financial crises have demonstrated very clearly. One of the biggest problems of shadow banks is their reliance on short-term funding as well as faulty incentive structures in the securitization process of loans, which had led to a general deterioration of lending practices. In addition, the

[2] In Switzerland, the two largest banks have to keep 19% equity capital in relation to their risk-weighted assets

transparency of many financial practices is insufficient. A number of reforms currently being developed, aim to resolve that issue (IMF, 2014).

Against this background, it has to be assumed that the systemic risks will continue to increase. This is especially true for the market and liquidity risk in developed economies. But shadow banks are not to be judged only negatively. They can usefully complement the lending of the banking sector, improve the liquidity in the markets and contribute to a better diversification of the overall credit risk. The challenge for policy and regulatory authorities is to preserve the advantages of the shadow banks and to reduce their systemic risks at the same time. Current measurements of systemic risk show that the contribution of shadow banks to systemic risk is just below the level before the outbreak of the financial crisis in 2007 (IMF, 2014). In industrialized countries, the activity of the shadow banking sector seems increasingly to move to less-regulated areas. This refers to certain credit transactions as well as on trade in OTC-derivatives (IMF, 2014).

The Financial Stability Board is observing the system of shadow banks on a global scale since 2011, and is working on appropriate measurements to control their systemic risk. It has set the goal that in future each actor, each market and each product that may endanger financial market stability, receives adequate regulation and supervision (BMF, 2015). Particular attention is given to the securitization process of credits, which has played a significant role in the recent financial crisis. An international working group has been set up to promote the sustainability of the securitization process. Possible measures come into consideration such as a higher risk weighting for investments of banks into the shadow banking sector or specific controls by supervisors (FSB, 2014).

Another aim of the FSB is to reduce the dependence of banks and investment funds from rating agencies. Ratings have proved in the past as not being very reliable. They encourage herd behaviour and may impede abruptly the marketability of securities. For this purpose, however, laws and regulations would have to be changed. In addition, investors would have to develop skills and capacity to independently assess credit risks. So far the FSB has failed to achieve this goal. Central banks still base their decision which securities to accept for money market transactions on classical ratings. Investment funds and insurance companies are required by law to take into account credit ratings for their portfolio construction. Even for repo transactions these ratings continue to play a central role (FSB, 2014).

Hedge funds are hardly regulated. They use a wide range of investment techniques to increase their yields and to manage their risk. Credit-oriented hedge funds take short-term positions with a high level of indebtedness via fixed-rate bonds. But they can also assign direct loans. Hedge funds may increase the selling pressure on financial markets in times of crisis by being forced to sell their assets or by speculating on falling prices. They represent a significant risk to the financial system (IMF, 2014). How to deal with that risk in the future remains largely unclear to date.

The shadow banking sector also includes brokers and dealers. They act on their own account and trade assets on behalf of clients. They usually work with a high financial leverage and are often dependent on short-term financing as well. In a liquidity crisis, they run the risk of no longer being able to refinance their debt and to also contribute to falling prices in financial markets by forced sales. They remain largely unregulated up to now. This also applies to the real estate investment trusts. These trusts invest in real estate and are funded by the money of investors or by borrowing in the capital market. Some of this money is short term in nature. It comes for example from repo transactions. Therefore, they are also at risk of being unable to refinance their debt in a crisis and thereby being forced to panic selling (IMF, 2014).

Thus, the shadow banks give all cause for concern. Their importance in the financial system increases, and yet there are hardly any concrete measures to be seen by relevant government agencies in the EU, the US or at a global level by the Financial Stability Board (BMF, 2015).

Why there was not more progress?

The right combination of instruments to stabilize the financial system is not easy to determine, as a variety of interactions need to be considered here. It should be noted that these instruments can generate costs or negative sentiment, because they reduce available financial resources, limit the development of financial markets and may affect their efficiency (Claessens, Gosh, et al., 2014). Therefore, a careful cost-benefit analysis is essential. It is also important to adjust the instruments properly, which is difficult due to the lack of experience and poor information (Lim, Columba, et al., 2011). It makes sense that politicians and financial regulators do not react with activism to the financial crisis, but consider carefully. A major hurdle is the contradiction to provide on one hand uniform international regulations to prevent financial transactions shifts into the less regulated regions. On the other hand, one has to consider that many countries differ in the structure of their financial system. An optimal instrument for all countries cannot exist. To overcome this issue, difficult and often protracted negotiations are required. A fundamental problem of international financial reform is the fact that one often agrees on the lowest common denominator, because otherwise no results would be achieved. Every government is under pressure to negotiate the best conditions for its financial institutions. At this point, the influence of lobbying is not to be underestimated. Lobbyists play into hands that the markets of individual countries compete for financial services (Goodhart, 2010).

Conclusions: What could have been done better?

Although there has been some progress since the last financial crisis, significant shortcomings in the regulation of the financial system have to be named. Many measures that have been taken so far do not bear systemic risks sufficiently into account. Such systemic risks in modern financial systems often have an endogenous character. They arise from the interaction of the actors, and cannot be controlled by measures which only focus on individual institutions or markets as in the former Basel Accords. Their capital requirements made a single bank more secure, but were far less effective if a large number of banks came at once under pressure. Reforms must capture the interactions between actors, markets, and institutions.

Against this background, the so called macro-prudential policies have been developed in recent years. These policies should help not only to make institutions in the financial system more robust but the system as whole. In addition they are also aimed to reduce the pro-cyclical occurrence of excessive risks. In this respect, Basel III provides the pro-cyclical capital reserve in order to hedge better against the risks of strong credit expansion, the capital surcharge for systemically important banks and the "funding ratio", which should reduce the risk of maturity transformation. How effective these measures are, remains to be seen. In Spain, for example, a pro-cyclical reserve showed no great effect in the crisis, probably because of its low size (Claessens and Kodres, 2014).

Macro-prudential policies are supposed to reduce four types of systemic risk: risk that is generated by strong credit growth and asset price bubbles; risks arising from a too high level of indebtedness; risks arising from foreign capital inflows or by a high level of debt in foreign currency. The main macro-based instruments come up with a limit on the

- Loan amount in relation to the value of the investment
- Debt in relation to income
- Lending of a financial institution
- Debt in foreign currency
- Maturity transformation

In addition, liquidity reserves, countercyclical capital requirements and dynamic loan loss provisioning were proposed. The dynamic credit loan loss provisioning requires that credit institutions must increasingly make provisions when their risks grow in line with their loan portfolio, even if no increase of defaulted loans can be observed. The simultaneous use of different instruments has the advantage to tackle multiple angles of a risk by limiting circumvention strategies of financial market participants (Lim, Columba et al., 2011).

Measures relating to lending, such as limits on the ratio of credit to the investment value or the ratio of debt to income should be introduced in a variable manner in order to reduce the growth of loans in economic expansion phases and of risk in times of crisis to mitigate the downturn. That also applies to measures affecting the composition of balance sheets in order to avoid contagion (Claessens, Gosh et al., 2014). The optimal selection of individual instruments depends on the level of development of a country and its financial system, the exchange rate regime and the vulnerability of an economy to certain shocks (Lim, Columba et al., 2011). A real advantage of macro-prudential tools is that they can be applied in a targeted way and therefore are very effective. Thus, the limits of the ratios of income to debt or the loan amount to the value of the investment can be automatically tightened when the measured standards in lending by financial institutions are too relaxed. Furthermore, if too much debt in foreign currency is taken, automatically limits may be determined. Generally, rules are more effective than discretionary interventions on the part of financial supervision. In the past, regulators were not able to recognize the risks that were building up in time or not determined enough to take bold countermeasures. Before the financial crisis, for example, the American banking supervision told the Congress that the risks of investment banks would be strictly controlled. A little later, however, investment banks were at the heart of the financial crisis. Supervisors and regulators are under enormous political pressure to keep the economic expansion going and they always have to decide under uncertainty. The high degree of complexity of regulations is also not very helpful for a decision-making process (Caprio, 2013). Nevertheless, supervisors and regulators also need some room to manoeuvre to be able to respond to unexpected developments. A rule binding with a certain degree of decision-making powers for authorities would be best.

What experiences have been made in the past with these macro-prudential policies. Can they really stabilize the financial system? Caprio (2013) found in his study that limits on the ratio of credit to the investment value represent a promising solution to limit credit growth in boom times. This was particularly true for the real estate market. They also served to protect borrowers. A study by Kuttner and Shim (2013) came to the conclusion that credit growth in the real estate sector can be significantly affected by limits on the ratios of debt service to income, and credit to the investment value. In addition, taxes on property ownership and transactions would exert a dampening effect. An empirical analysis of Lim et al. (2013) showed that macro-prudential instruments were able to limit systemic risk by curbing credit growth, the liquidity risks of financial institutions, high levels of debt and strong capital inflows. The authors found that all the above-listed macro-prudential measures helped significantly to reduce the ratio of credit growth to economic growth. The financial leverage could be limited by ceilings on the ratio of debt to income, for credit growth and for foreign loans and by a counter-cyclical capital buffer as well as by dynamic loan loss provisioning. The International Monetary Fund (IMF) (2014) examined for a variety of countries the effectiveness of the measures with regard to lending growth, property prices and foreign capital inflows. The analysts of the IMF found that variable capital and liquidity requirements could slow down credit growth noticeably. Moreover, it was found that limits on the ratio of credit to the investment value and capital requirements tamed a rise in property prices. However, these measures have also led to economic costs. Limits on the ratio of credit to the investment value, for example, had a negative impact on economic growth, probably because of the dampening effect on the construction sector. Finally, Claessens, Gosh et al. (2014) found in his study that restrictions on the ratio of credit to the investment value had a considerable influence on the strength of a real estate cycle and may thus mitigate strong booms and subsequent crises. This instrument seemed to be the most effective one. Even measures that sought to strengthen the balance sheets of banks, such as the dynamic provisions, offered some protection against the negative consequences of a boom, although they could not prevent it. For countries with a fixed exchange rate mechanism or taking part in a monetary union, macro-prudential instruments were particularly important because these countries have little ability to control their credit development by using monetary policy, since interest rates have to be fixed with respect to the exchange rate. In extreme cases, these countries have to introduce restrictions on international capital transfers to mitigate contagion effects.

Overall, the calibration of these instruments is extremely important. If they work too restrictive, then economic growth may be unnecessarily dampened. If they are implemented too generously, then they lose their desired effect on the stability of the financial system (Lim, Columba et al. 2011). A particular problem in this regard is the change of dynamics in a boom phase. Rising earnings expectations, exuberant optimism and herding behaviour require that macro-prudential measures have to adjust quickly in order to be effective. Rigid measures would not work. Getting this fine-tuning right is extremely difficult in practice. Therefore, the studies cited are to be regarded with certain scepticism. To have enough observations, the authors have also included in their investigations booms that were not as pronounced as those of major price bubbles and busts such as they happened in Japan, the US and Spain for example . Therefore, it is quite likely that the authors have underestimated the problem of proper adjustment of macro-prudential measures. These measures are not very likely to be able to prevent asset price bubbles and financial crises, but can be an important component of a well-balanced regulation to dampen the economic costs of such events. Their refinement and adjustment should be based primarily on scientific evidence and econometric estimations. In addition, macro-prudential tools are more effective when they are used in accordance with monetary and fiscal policy (Lim, Columba et al., 2011).

Contingent convertible notes have been discussed as another possible tool in order to solve the problem of a possible bankruptcy or insolvency of very large financial institutions. With the help of these specific convertibles, the equity capital base of banks could be strengthened in the event of a crisis. Such convertible bonds are long-term, subordinated debt with a fixed coupon, which upon the occurrence of a predetermined criterion – for example insolvency risks - are converted automatically from debt into equity. In the case of conversion, the shareholders have to share their future profits with a growing number of shareholders. This could cause them to carefully monitor the risks assumed (Calomiris and Herring, 2011). However, there is a danger that an impending earnings dilution may cause existing shareholders prior to the conversion to sell their shares. A dangerous downward spiral of prices could be set in motion. In several countries, such convertible bonds have been introduced.

Systemic risk can only be effectively limited if governmental supervision bodies are be able to recognize it in time. This requires greater transparency in the financial system. This refers particularly to OTC-transactions[3] or complex securitization processes. OTC-transactions should be standardized as much as possible and processed through clearing houses[4]. In order to increase the transparency of the securitization process, these processes should be simplified and the disclosure requirements for banks and their specific financing companies be tightened. Thus, securitized credits would become easier assessable and tradable in financial markets (IMF, 2009). In addition, this business has to reduce its dependence on the rating agencies because of their limited reliability. Alternatively, it was suggested that banks need to keep a portion of securitized loans on their balance sheets to ensure that the lending standards are kept on prudent levels. However, the share of loans to be kept in balance sheets should not be too high, because otherwise the business of securitization would become unattractive for banks and lending conditions too tight (Goodhart, 2010). In this context it was also demanded that rating agencies reduce their financial dependence from their clients - the issuers - in order to arrive at more objective ratings. This is important because credit rating agencies are – despite all – likely to continue to play an important role in the securitization process. The agencies should be forced to disclose their rating process and methods and to make them verifiable (IMF, 2009).

[3] OTC stands for "Over-the-Counter" which means that transactions will be done between two market participants and not on an official exchange. Such transactions are not visible for supervision bodies.

[4] A clearing house is a financial institution that provides clearing and settlement services for financial and commodities derivatives and securities transactions. These transactions may be executed on a futures exchange or securities exchange, as well as off-exchange in the over-the-counter (OTC) market. A clearing house takes over the counterparty risk for the participants.

For the success of regulation, it is crucial to prevent the circumvention of measures by regulated market participants as much as possible. Two types of circumventions can be distinguished: Transactions by a regulated sector of the financial system may migrate to another sector, which is less regulated; for example from the banking to the shadow banking sector. Second, regulations can be circumvented internationally as transactions are relocated towards less regulated countries. This applies to all rules enforced no matter whether they refer to capital requirements or clearing houses. The reason is always the same: regulations reduce profits and so that the incentive for evasion is very high. Therefore, all financial institutions must be controlled and regulated in the same way. This is true for large banks, small banks, hedge funds, money market funds, other investment funds, etc.(Goodhart, 2010). In the case of a crisis, the less regulated countries or sectors pose the greatest threats.

A word on the much-discussed high-frequency trading: the Financial Stability Board is to develop measures to identify the risks of high-frequency trading in order to achieve a better control. This refers in particular to its effect on market liquidity (FSB, 2014). However, nothing concrete has been decided yet.

The compensation practices of large financial institutions were an important factor in the emergence of great financial crisis. High profits of institutions allowed generous bonus payments, without an adequate consideration of the risks involved (FSF, 2009). To reform these practices, voluntary measures of the financial sector would be desirable but unlikely to be sufficient. Therefore, global rules on remuneration practices should be introduced. As a monitoring body the "FSB would be an option since it drafted remuneration principles for financial institutions. It is not intended to prescribe specific wages. Instead, payments should take into account the risks involved, similar to the performance measurement and fees of investment funds (FSF, 2009). The remuneration of directors should also be focused more on the longer-term performance of assets or their financial institution (IMF, 2009). It would not be advisable to impose the same solution to all institutions, but to distinguish by type, culture and business model. Reforms to remuneration have little chance of success if they are not coordinated internationally.

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