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Institutional causes of the global banking crisis and the emergence of macro-prudential countercyclical policy¹

Abstract

The recent global banking crisis was caused by an intertwined process consisting of the emergence of universal financial conglomerates, the development of global interbank money markets, and of regulatory capture leading to an excessively libertarian approach to financial regulation and supervision. All these factors produced the three main sources of risks that brought about the global banking crisis, namely, enhanced credit pro-cyclicality, banks' interconnectedness, and their growing exposure to balance sheet losses. The experiences with unsustainable lending booms of the previous decade showed that stabilizing inflation is not sufficient to stabilize the economy. These experiences underscore that macro-prudential policy should be a second weapon in central banks' countercyclical policy arsenal.

Keywords: global banking crisis, regulation and supervision, macro-prudential policy

1. Introduction

Among the main reasons for the global banking crisis that started in 2007 was the low level of interest rates and ill-advised government intervention in the housing market (Taylor 2009). Nonetheless, it was mainly institutional changes which increased the risks undertaken by banks that stood at the heart of the global banking crisis. The main institutional cause of the crisis was the emergence of *too-big-to-fail* (TBTF) banks which were in fact universal financial conglomerates with large trading and mortgage portfolios financed mostly with short-term funds borrowed in the global interbank money market (Levitin, Wachter 2012, Małecki 2013).

The institutional changes that led to the recent global banking crisis began in the 1970s when banks started to increase their trading portfolios. At that time banks started to use

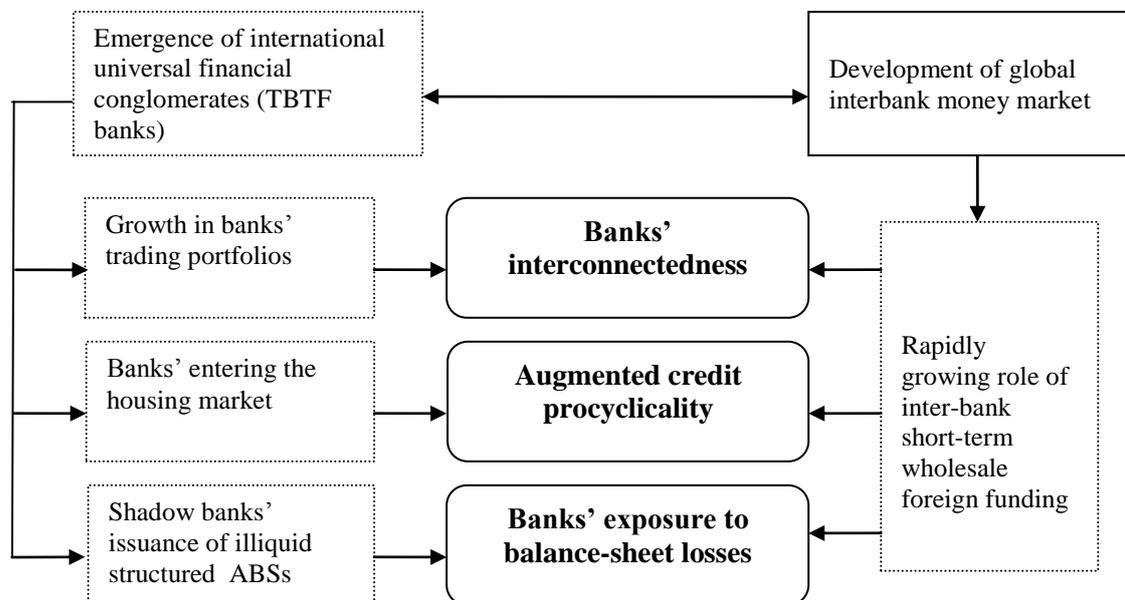
¹ Tekst ukazał się w czasopiśmie *Acta Universitatis Lodzianensis Folia Oeconomica*, , no. 295/2-13, s. 7-25

extensively short-term interbank loans as a source of their funding, which exposed them to increased interconnectedness risk (Alessandri, Haldane 2009).

In the 1980s, banks were allowed to enter the housing market and reoriented their lending towards mortgage loans. Scoring enabled the standardization of mortgage loans. Banks started to issue mortgage loans on a massive scale (Lapavitsas, Dos Santos 2008). The source of funding was again short-term interbank loans. Bank loan portfolios began to grow faster than GDP. The change augmented credit procyclicality and increased the exposure of banks and economies to unstable boom-bust cycles (Leamer 2007, Wilmarth 2002).

In the 1990s, the emergence of shadow banking enabled banks to introduce the “originate and distribute model” under which they were extending mortgage loans and selling them to securitization funds that converted (securitized) the purchased loans into asset-backed securities (ABS). Some of the ABSs were risky instruments due to their illiquid markets, as was the case with CDOs (*Collateralized Debt Obligations*). The CDOs were intended to be sold to long-term investors (mainly pension funds and mutual funds). However, banks themselves were also tempted to buy these securities due to the combination of their high ratings and elevated rates of return. Buying illiquid securities exposed banks to the risk of incurring large balance-sheet losses (Wilmarth 2009).

Figure 1. The institutional causes of the global banking crisis



Source: Author's own elaboration

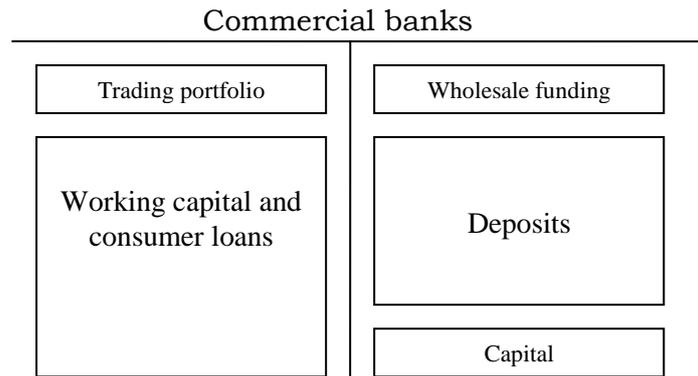
This paper is based on a review of literature. The first objective of the paper is to highlight the most important institutional changes that led to the outbreak of the recent global crisis and to accentuate the changes in the regulatory framework and bank supervision that are necessary to prevent a repetition of a similar crisis in the future. The second objective of the paper is to make a case for adopting a macroeconomic stabilization approach to macroprudential policy.

The rest of the paper is organized as follows. Section 2 focuses on the evolution of bank balance sheets as the banks evolved from traditional commercial banks into universal financial conglomerates with large trading and mortgage loan portfolios. Section 3 highlights the changes in the regulatory system which are necessary to neutralize the risks that produced the recent global banking crisis. Section 4 calls for using by macroprudential authorities not the systemic risk indicators but the macroeconomic imbalances indicators. It also underlines that central banks should have a decisive role in conducting macroprudential policy. Section 5 concludes.

2. The changing model of banking

Traditionally commercial banks (Fig. 2) extended mainly short-term working capital loans which are loans funded with household and corporate deposits. The only part of commercial bank assets that is usually financed with interbank deposits (wholesale funding) are trading portfolios, which is natural due to the short-term character of dealing room transactions. Nonetheless, in the case of commercial banks the relative scale of their trading activity is small. Therefore, the direct interconnectedness of traditional commercial banks is usually insignificant.

Figure 2. Commercial banking. Balance sheet.

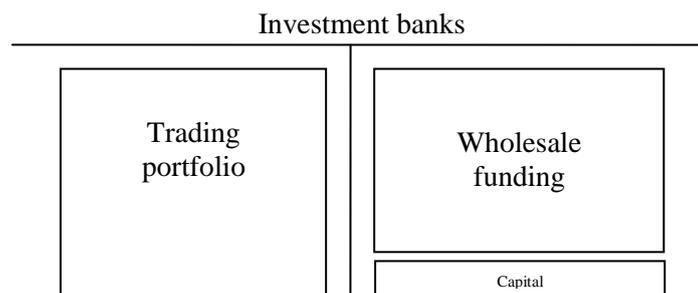


Source: Author's own elaboration

Traditional commercial banks suffer large losses only during severe recessions when borrowers may be unable to repay their debts. In the past, the risk of banks' insolvency triggered bank runs which deepened recessions. However, the introduction of deposit insurance schemes created a situation in which bank runs are very rare.

In the case of traditional commercial banking the procyclicality of credit is relatively low, because the demand for working capital loans grows with the demand for money which is stable in relation to GDP. Thus when bank loan portfolios are financed with household deposits they grow in line with the level of income. Under these circumstances the risk that borrowers will not be able to repay their debts is relatively small.

Figure 3. Investment banking. Balance sheet.



Source: Author's own elaboration

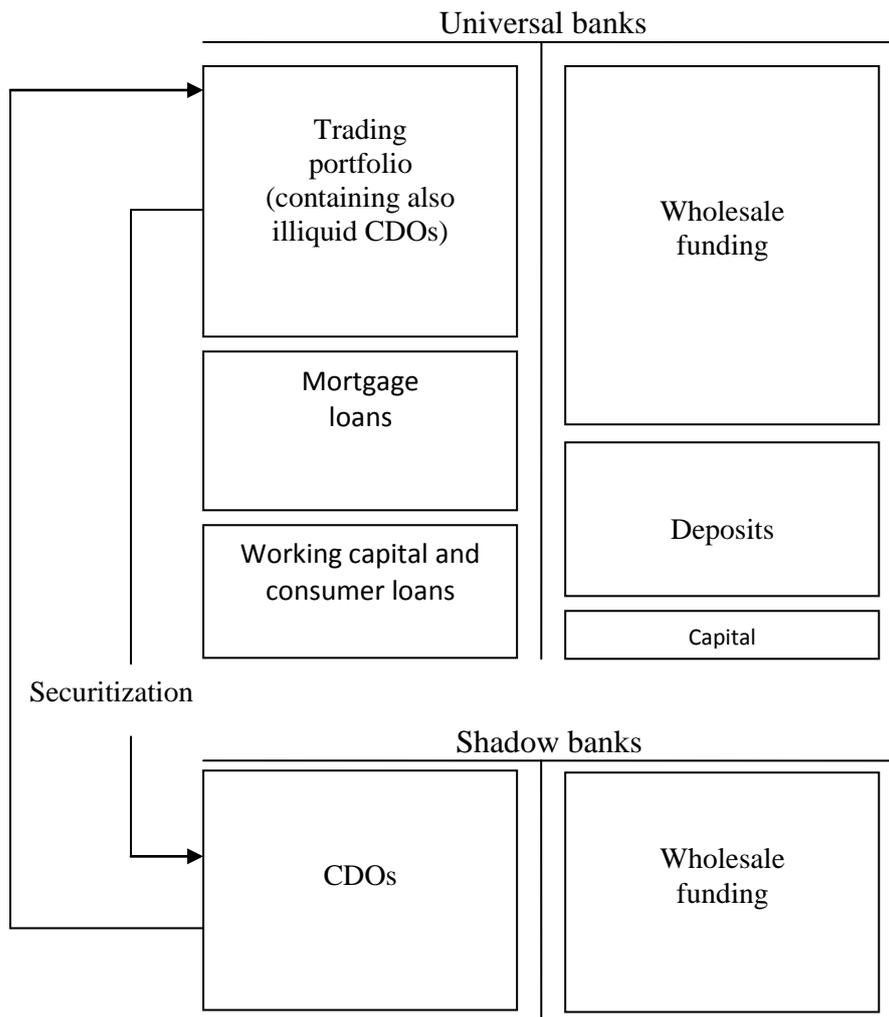
Traditional investment (broker-dealer) banks (Fig. 3) are also relatively safe institutions. Their assets are mainly trading portfolios consisting of liquid securities that are used for short-term transactions. Speculation is often perceived as something risky. However, it has to be taken into consideration that investment banks are involved mostly in arbitrage, i.e. short-term speculation undertaken through concluding reciprocal transactions on a pair of

similar markets in which prices tend to change in a parallel manner (e.g. the interest swap and bond markets). This kind of arbitrage usually hedges investment banks against large balance sheet losses.

In the case of broker-dealer banks the risk is in fact on the liability side of their balance sheets. Investors' doubts about the solvency of a broker-dealer bank can trigger a run leading to the bank's collapse. In the past such situations were rare. They occurred only when unexpected turbulence in some markets produced a situation in which prices of similar instruments diverged, as was illustrated by the near-collapse of the LTCM hedge fund (Haubrich 2007).

This changed with the emergence of shadow banking, when securitization funds (established by TBTF banks) started to issue illiquid structured bonds. Investment banks were also buying these bonds, which exposed them to the risk of taking large balance sheet losses. The risk materialized with the outbreak of the global banking crisis in the summer of 2007 which triggered a sharp fall in CDOs prices. The first victim was Bear Stearns, one of the largest US investment banks. The next run was on Lehman Brothers and led to the bank's collapse (Adrian, Shin 2008, Gorton, Metrick 2009).

Figure 4. Universal banks and shadow banking. Balance sheets.



Source: Author's own elaboration

The emergence of universal banking (Fig. 4) created a situation in which commercial banking was connected to so-called “casino units” (banks’ large trading portfolios), which exposed taxpayers to the risk of covering banks’ potentially large losses in times of general price collapses in the financial markets. Nevertheless, the main change that led to the global banking crisis was banks’ reorientation towards mortgage lending and the emergence of shadow banking involved in mortgage loan securitization.

The reorientation began in the 1980s, when commercial banks were allowed to enter the mortgage market (Green, Wachter 2007). In the past, mortgage loans were extended by building societies and mortgage banks. Thus, previously, mortgage loans were funded with household savings deposited with building societies or invested in high quality long-term debt securities issued by mortgage banks. Once commercial banks were allowed to enter the housing market, mortgage loans started to be financed mainly with short-term bank deposits.

Moreover, a growing part of bank mortgage loan portfolios were financed with wholesale funding mostly in the form of short-term interbank loans (Hume, Sentance 2009, McGuire, Peter 2009). Banks' mortgage loan portfolios began to grow much faster than GDP. This was possible due to the deterioration of lending standards (Financial Services Authority 2009).

In the 1990s, large universal banks started to set up securitization funds to circumvent the limits that capital adequacy requirements put on their capacity to extend loans. Securitization funds were buying bank (mainly mortgage) loans to convert (securitize) them into structured bonds that were intended to be sold to long term investors (mostly pension funds).

As mentioned above, structured (tranching) bonds called CDOs were the most risky product of securitization. Their senior tranches were issued as AAA-rated securities despite the fact that their issuance was the outcome of securitization of loans of varying quality (including *subprime* loans). Securitization funds were funding their stocks of (unsold) CDOs through selling their short-term commercial paper (ABCP; *Asset Backed Commercial Papers*) to money market funds and by borrowing funds in the repo market (Gorton, Metrick 2009).

The structural flaw of CDOs was that they were illiquid as every issue of CDOs was the outcome of securitization of different portfolios of mortgage loans. The inescapable illiquidity of the CDOs generated the risk that a fall in confidence in the value of CDOs might result in a deep fall in their prices. This risk materialized in the summer of 2007 when rising concerns regarding the repayment of subprime loans triggered a deep fall in CDO prices. Banks took large balance sheet losses that produced a confidence crisis and a standstill in the inter-bank money market. Central banks were forced to provide liquidity to the banking system on a historically unprecedented scale (Lubiński 2013).

The question is, why did banks buy CDOs which were intended to be sold to long-term investors such as mutual funds and pension funds? Banks were tempted to do this because the senior tranches of CDOs were AAA-rated securities that offered a substantially higher rate of return than Treasury paper of the same rating.

Apart from the structured bond market, the derivative market also contributed to the outbreak of the global financial crisis. However, the problem with derivative markets was mainly ethical as many financial institutions were selling derivative products providing a hedge against tail risk but they did not build necessary reserves (Lo, 2001, Alessandri, Haldane 2009). The problems of the American International Group (AIG) were exactly of this nature. AIG issued large volumes of CDSs without creating proper reserves. American

taxpayers' money had to be involved to prevent a collapse of the American International Group and the holders of the CDSs issued by AIG (Rajan 2010).

The question left to be answered is, what were the sources of the ample supply of short-term wholesale funding? There were several reasons for its abundant supply for banks and shadow banks.

Firstly, as mentioned earlier, money market funds bought short-term asset-backed commercial papers issued by securitization funds. Secondly, central banks provided the funding. Among the primary dealers of central banks are large universal banks and investment (broker dealer) banks (Reinhart 2011). For primary dealers it is possible to borrow reserve money from the central bank in order to finance their trading and loan portfolios or to lend these funds to other banks. Moreover, among the Federal Reserve's primary dealers were branches of foreign banks which were shipping the funds borrowed from the Fed to their headquarters which, in turn, distributed them to branches and subsidiaries in various countries (Shin 2011).

The third important reason that facilitated the rapid growth in the supply of short-term wholesale funding was the *adjusted* money multiplier working in the repo market. The term *adjusted* money multiplier was introduced by Singh and Stella (2012). They highlighted that banks often utilize the possibility to re-pledge (reuse) the collateral they receive when extending loans. This produces so-called collateral chains that enable the functioning of the adjusted money multiplier. For example, if a broker bank receives a security as collateral against a loan it extends to a hedge fund, it can re-pledge this collateral (reuse it) by taking a collateralized loan from another bank or non-bank financial institution. Then, the bank can lend the borrowed funds to another bank or financial institution against the collateral. The possibility to re-pledge collateral creates a situation in which a given stock of liquid securities (that may serve as eligible collateral) enables the creation of funds whose volume is a multiplier of the stock of the collateral (Singh, Stella 2012).

Singh and Stella introduced the term *adjusted* money multiplier to highlight the similarity of this mechanism to the textbook money multiplier, which is possible, because banks also *reuse* households' and non-financial firms' deposits to extend new loans. The other analogy is that haircuts in collateralized lending have a similar impact on the *adjusted* money multiplier as the required reserve has on the textbook money multiplier (Singh, Aitken 2010, Singh, 2011).²

² One reservation that one could have towards the term *adjusted money multiplier* is that what is created due to re-pledging and collateral chains is in fact not textbook money (held by household and non-financial firms with

2. Regulatory reform

Behind the institutional changes that led to the recent global banking crisis was the belief that markets are efficient and the financial system exhibits strong self-regulatory properties. It was assumed that the progress in risk management - including the proliferation of the Value at Risk (VaR) methodology – enabled banks to adjust their potential losses to their capital. This was believed to preserve the long-term solvency of banks. The natural outcome of the trust in the effectiveness of the new methods of estimating and managing risk was a light-tough approach to supervision. Under such circumstances the dominant conviction was that the job of supervisors was only to monitor whether banks managed their risk in a proper way. Large banks were allowed to use their internal risk models despite the fact that banks were using this opportunity to economize on capital in order to increase their leverage (Turner 2010). From the perspective of the experiences of the global banking crisis it may sound almost unbelievable, but there was no regulation on liquidity management, as it was assumed that well capitalized banks would have no problems with access to funding in the developed money markets (Goodhart 2010).

The Basel II Accord was based also on the trust in market discipline. It was believed that economic agents (not only investors but also households) were able to assess the quality of risk management in different banks and they would deposit their savings only with those banks that were not taking excessive risks. Additionally, it was assumed that the growing use of short-term interbank funding would force them to manage their assets in a prudent way (Calomiris, Kahn 1991).

Despite the warnings highlighting the procyclicality of Basel II (Danielson et. al. 2001), faith in the self-regulating abilities of the banking system was widespread. In reality, both pillars of the Basel Accord failed. The VaR methodology was not sufficient to safeguard banks' capabilities to absorb their losses in a time of turbulence. Market discipline turned out to work in the opposite direction.

The VaR methodology turned out to be insufficient to adjust banks' potential losses to their capital. One of the reasons was that price volatility was assumed to be stable. In reality, price volatility varies over the cycle. It is low when prices are rising and increases sharply when prices are falling. For decades before the crisis, prices in the American housing market

commercial banks) but additional supply of wholesale funding used by banks and shadow banks to finance their portfolios. Thus, the term *reserve money multiplier* might have been more appropriate.

were (on average) rising. Thus, as the historical house price volatility was low, also the estimates of banks' potential losses and the required regulatory capital were also relatively low. The collapse of house prices in the US in fall 2006 led to a sharp rise in the volatility of house and ABSs prices. Under such circumstances banks' capital turned out to be insufficient to cover bank losses. The problem was augmented by the feedback loop between the fire sales of bank assets (necessary to cover the losses) and the resulting fall in securities' prices. This exposed banks to large balance sheet losses (Persaud 2008).

Market discipline did not eliminate excessive risk taking. On the contrary, it worked in a reverse direction. For a long period of time, the winners were those banks that took excessive risk by lowering their lending standards and by resorting to massive use of short-term wholesale funding. Among the best known examples were Northern Rock and Anglo-Irish Bank whose extremely risky growth strategies were perceived as very successful for a number of years. Other banks felt compelled to follow this example not to lose their market share (Clarke, Hardinan 2012).

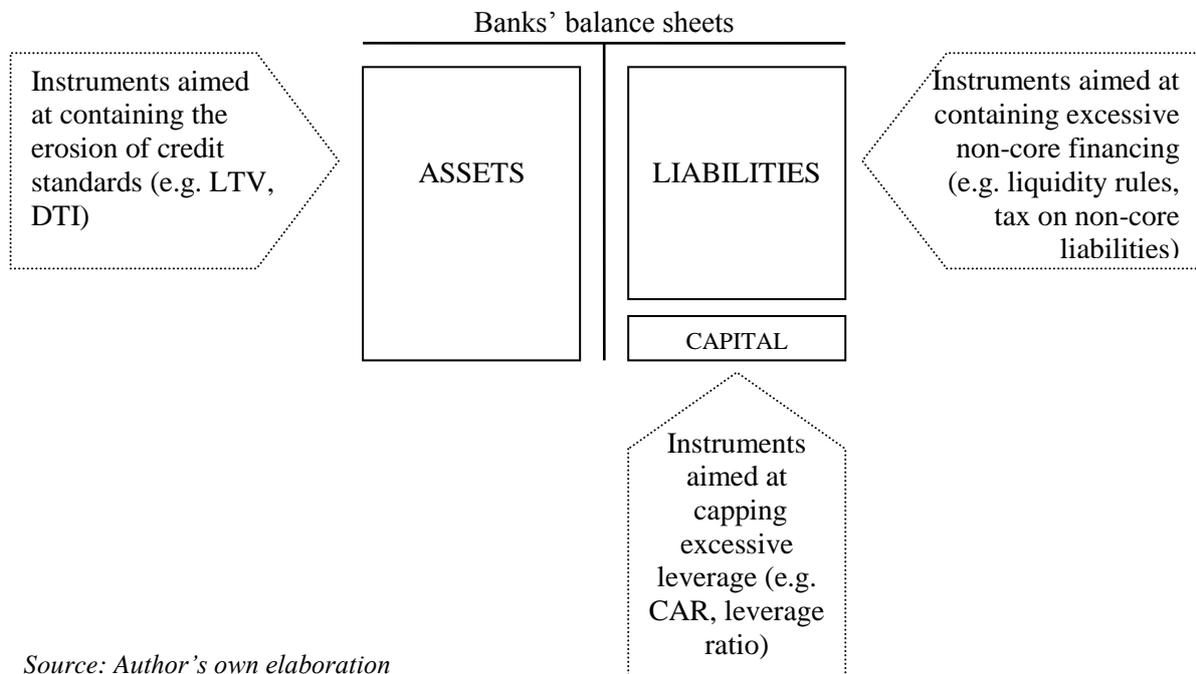
For the regulators the general lessons from the global banking crisis were straightforward. If the emergence of *too-big-to-fail* financial conglomerates contributed to unsustainable lending booms, banks' interconnectedness, and their exposure to balance sheet losses, the proper regulatory response should be separation of commercial and investment banking (Blundell-Wignall, 2011) and implementation of changes in regulations aimed at preventing repetitions of procyclical deterioration of lending, funding and capital standards.

For a long period of time, it seemed that bank lobbying was too influential to allow for a return of separation of commercial and investment banking. However, due to the unprecedented scale of the global recession caused by irresponsible bank behavior the issue of solving the TBTF syndrome started to be present in public debate. The first breakthroughs were the imposition of the Volcker Rule (Carpenter, Murphy 2010), the introduction of ring fencing between commercial and investment banking in the UK (Independent Commission on Banking 2011) and the proposals of the Liikanen Report to neutralize the risks stemming from banks' large trading portfolios (European Commission (2012)).

Solving the problem of TBTF banks will probably take a long time due to a large component of political economy involved in this issue (Warwick Commission 2009, Jabko 2013). The problem which regulators began to address was credit procyclicality (Fig. 5). The issue of excessive use of short-term wholesale funding was addressed by the proposals put forward in Basel III. It is proposed to introduce the Net Stable Funding Ratio and the Liquidity Coverage Ratio that will reduce excessive maturity mismatches and liquidity (roll-

over) risk. Basel III envisages also the introduction of additional countercyclical capital buffers and a cap imposed on rough (non risk-weighted) leverage.

Figure 5. Macro-prudential tools for containing credit procyclicality



Source: Author's own elaboration

The changes proposed in Basel III are insufficient as they continue to focus on micro-prudential supervision and banks' loss absorption capacity (Shin 2011a). The experiences of the global banking crisis clearly call for using macro-prudential policy as a second weapon of central banks' countercyclical policy.

3. Macroprudential policy

Financial stability started to be perceived as an important central bank task after the Asian crisis of the late 1990s (Borio, Lowe 2002). However, the only outcome of this change was that central banks began to publish so-called financial stability reports. The publishing of these reports hardly influenced the decision making process at central banks which was still focused mainly on price stability.

The next event, after the Asian crisis, that highlighted the importance of financial stability was the burst of the dotcom bubble that brought about a three-year fall in stock prices and a shallow recession in developed economies. The recession was mild, because during the boom the purchases of stocks were financed with savings lodged with institutional investors

(pension funds, mutual funds). Such institutions do not default as they transfer the price risk on their customers. Therefore, the burst of the dotcom bubble did not produce a financial crisis and a deep recession.

Due to the shallowness of the recession after the burst of the dotcom bubble, the discussions on financial stability were not focused on macro-prudential issues. It was believed that central banks should not *lean* against an upward trend in asset prices, but *clean* the consequences of a burst of a bubble by adding liquidity to the market as was the case in the US after the burst of the dotcom bubble. Thus, the dominant belief was that central banks should concentrate on price stability and mop up the consequences of a potential financial crisis. (Cecchetti et. al. 2000, Bordo, Olivier 2002, Posen 2006, Roubini 2006).

The global banking crisis that started in 2007 was different. It was caused by the busts of unsustainable lending booms in many countries that were financed to a large extent with short-term interbank lending. The burst of these highly leveraged booms brought about banking crises and deep recessions. The dire outcomes of the boom-bust cycles illustrated that central banks should not only stabilize inflation but also *lean against the wind* of unstable lending booms using both monetary and macroprudential policies.

3.1. The choice of operational target

If macro-prudential policy was to be a second weapon of central banks' countercyclical policy, it should have characteristics similar to monetary policy. Policymakers should have at their disposal a clear benchmark signaling a necessity to tighten or loosen macroprudential policy.

Usually it is assumed that macro-prudential policy's direct target should be to mitigate systemic risk, defined as a turbulence in the financial system that exerts negative influence on the real economy (Galati, Moessner 2011, Osiński 2010). It might be assumed that adopting some indicator of systemic risk as an operational target for macroprudential policy would not preclude using this policy a tool of countercyclical stabilization policy. However, it is impossible to set one universal indicator of systemic risk that might serve as a clear benchmark informing decision makers on the necessity to change the parameters of macro-prudential policy (Lo 2009). Without such a benchmark it would be difficult for the policy makers to convince financial institutions and the general public of the necessity and the timing of proposed macro-prudential measures. Such a situation would also expose

policymakers to banking lobbyists who tend to portray any tightening in regulations as a major threat to economic growth (Jenkins 2011).

If macroprudential policy were to be used as a second weapon of central banks' countercyclical policy, it should be forward-looking, as is the case with monetary policy. The necessity to be forward-looking is even larger in the case of macroprudential policy because financial cycles are longer than business cycles which are stabilized with the use of countercyclical monetary policy (Borio 2012). Macroprudential policy could not be forward looking if policy makers used systemic risk indicators as they have no predictive power (Danielson, et. al., 2011). The solution is to use macroeconomic imbalances indicators not only when conducting monetary policy but also for macroprudential policy purposes. Such a macroeconomic stability approach to macro-prudential policy was reflected in proposals to use an equilibrium rate of growth in credit (Brunnermeier et. al. 2009, Persaud 2009) and the output gap (Blanchard, 2011) as benchmarks for decision makers. The macroeconomic stability approach would facilitate an effective coordination of monetary and macro-prudential policy and the use of macroprudential policy in an active and timely manner. Setting macro-economic stability as a benchmark for the decision-making process of a macro-prudential authority would also facilitate clear and efficient communication with the general public.

Setting an indicator of macroeconomic stability as a direct target for macro-prudential policy would also focus public opinion on its ultimate goal of keeping the economy on an equilibrium growth path (Kowalczyk, Kruszka 2011). Furthermore, setting an indicator of macroeconomic stability as a direct target for macro-prudential policy would enable policy makers to adopt a rule-based approach to macro-prudential policy, which would make it more resistant to regulatory capture and bank lobbying.

In Basel III it was proposed to use the credit-to-GDP gap as an indicator for setting a countercyclical buffer (Drehmann et. al. 2010). Such an indicator would help to use macro-prudential policy for macroeconomic stability purposes. (IMF 2011).

3.2. The role of central banks

An important factor that enabled the excessive liberalization in finance, which brought about the global banking crisis, was regulatory capture (Warwick Commission 2009, Brandon, Padovani 2011). There is a number of avenues for regulatory capture in banking, including the concentration of wealth that leads to banks' excessive political influence (Johnson, Kwak

2010, Baker 2010), the revolving door effect (Makkai, Braithwaite 1992), the democratically unaccountable Basel process that led to its capture by large international banks (Griffith-Jones, Persaud 2003, Lall 2010), and politicians' boom-supporting mentality (Thirkell-White 2009). The effectiveness of regulatory capture can be illustrated by the comparison of intended and actual shape of Basel II regulations which favored large international banks (Lall 2009).

The influence of bank lobbying could be substantially limited, if macro-prudential policy was conducted by an independent institution focused on macroeconomic stabilization, as is the case with central banks. They became independent to shield monetary policy from the influence of government policies. The change was successful. Central banks proved that they were able to stabilize inflation. An analogous advantage could be derived from allowing central banks to use macro-prudential policy to cope with financial cycles.

Central banks' independence and the difficulty with questioning their macro-stabilization mandate would not only shield macro-prudential policy against bank lobbying. Making macro-prudential policy the second weapon of central bank stabilization policy would eliminate supervisors' natural tendency to continue their traditional focus on microprudential policy which makes them exposed to regulatory capture (Goodhart, Persaud, 2008)

There are many synergies between macroprudential and monetary policy. Macro-prudential tools have some convenient characteristics that monetary policy is lacking. They can be used, like interest rate policy, to influence the cost of borrowing. However, they can be targeted at a specific market segment without increasing the cost of borrowing in the whole economy. For example, it is possible to increase risk weights for mortgage loans in order to cool down the housing market. Prudential tools may address the causes of booms that are beyond the reach of interest rate policy. Macro-prudential authorities may change the Loan to Value (LTV) or Debt to Income (DTI) ratios to neutralize banks' inclination to change their lending standards in a procyclical manner (Minsky 1986). The illustration is South Korea's and other Asian countries experiences with using effectively the changes in the LtV ratio to stabilize their housing markets (Ren, 2011, Lim et. al. 2013). Regulatory tools may prevent an excessive use of foreign short-term wholesale funding which was one of the main causes of the boom-bust cycles that occurred in so many countries (Shin, 2011, Borio, Disyatat 2011, Hahm et. al. 2012).

The synergies between monetary and macroprudential policy will improve the effectiveness of central banks' countercyclical policy (King 2012, Ren 2010, Szpunar 2012). Potential problems with the coordination of monetary and macro-prudential policy might

emerge only in such rare occasions as a combination of a credit boom and inflation well below the target or a combination of a credit bust and inflation well above the target (Beau, Clerk, Mojon, 2011). Not only the synergies between the monetary policy and the macroprudential policy call for using the latter as a second instrument of central bank stabilization policy. Macroprudential policy might also be an effective instrument for managing capital flows and preserving the necessary scope of monetary policy autonomy (Rey, 2013).

Two factors limit the autonomy of central bank monetary policy. The first is the destabilizing influence that short-term portfolio capital flows exert on exchange rate volatility (Calvo, Reinhart, 2002). The second is the destabilizing influence of short-term interbank foreign funding that may feed an unsustainable lending boom in a given country (Brzoza-Brzezina, Kolasa, Makarski 2012). This situation pushes especially emerging economies towards imposing capital controls on short-term portfolio capital flows (Ostry *et. al.* 2010) in order to lower the volatility of their exchange rates and to regain a wider scope of monetary policy autonomy. However, the potentially effective way to cope with destabilizing capital flows is to use macro-prudential tools to control cross-border interbank lending. In 2012 South Korea reemployed a 100% loans-to-deposits ratio and imposed a tax on non-core deposits, with the tax rate being higher for interbank loans with shorter maturities (Shin, 2011, Hahm, Mishkin, Shin 2012). A promising tool for limiting the scale of short-term capital flows would be an increase of risk weights for trading portfolios held by banks, as was the initial plan when discussions on Basel II started (Lall 2009).

4. Concluding remarks

The emergence of large financial conglomerates (TBTF banks) was presented as something that allowed banks to diversify their activities, which made them safer. However, the emergence of TBTF banks created the risks that led to the global banking crisis. The main causes of the crisis were the rapid growth of banks' trading and mortgage portfolios financed with short-term foreign wholesale lending and the issuance of illiquid structured bonds that were the product of securitization of mortgage loans. This led to enhanced credit procyclicality, excessive interconnectedness of banks and their exposure to large balance sheet losses.

Three changes need to be implemented in order to dismantle the mechanisms that produced the recent global banking crisis. Firstly, too-big-to-fail banks (in fact, financial

conglomerates) should be divided into commercial and investment banks. Secondly, changes in the regulatory system should prevent the reappearance of a procyclical deterioration of lending, funding and capital standards within the banking system. Thirdly, macro-prudential policy should become an important weapon of stabilization policy and should be conducted under the umbrella of central bank independence, as is, for example, the case with the Financial Policy Council established at the Bank of England (Goodhart, 2011).

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