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**DELEVERAGING IN  
THE BANKING SECTOR**

## Abstract

A symptom of the financial crisis in the banking system was an increase in credit risk, which has become an expression of increasing the share of the loan portfolio of non-performing loans on time. The resulting losses were not sufficiently covered by equity, which proved to be insufficient against the increasing difficulties. Increasing the risk of default led to the development of the new capital adequacy ratio known as Basel III, which implies an increase in equity of commercial banks. This process is practically impossible in a short time, especially for medium-sized and small banks. Therefore, banks are forced, to limit their active operations, mainly by reducing lending and sales of treasury bonds of countries with a low credit rating. This process is called deleveraging

**Keywords:** *Deleveraging, Bazel III, credit risk.*

**JEL classification:** *E52 G21.*

## Introduction

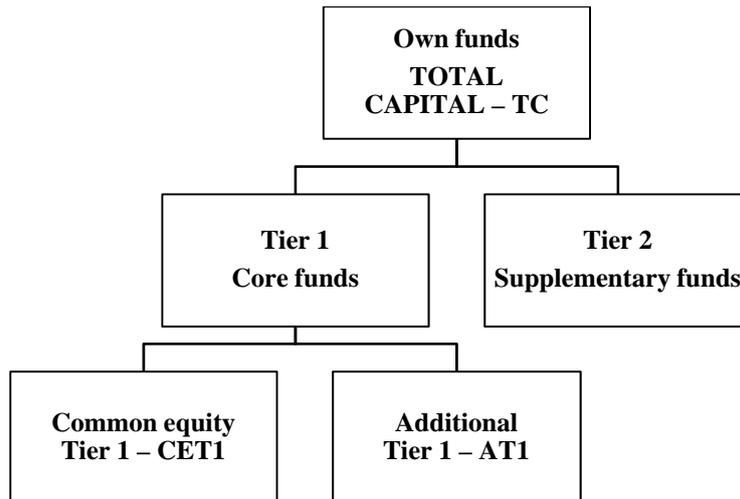
During the economic conjuncture banks conduct expansionary credit policy. Liberal requirements for borrowers in both the credit rating, as well as conditions for loans led to an excessive increase in debt. The high increase in loans was the cause of increase in credit risk. The sign of it was a deterioration in the quality of the loan portfolio and increasing the share of problematic loans, or unpaid on time.

Credit growth has coincided with a fall in the value of bank deposits, which exacerbated the negative liquidity gap. The situation was exacerbated insecurity in equity. Banks continued to hold equity at the necessary minimum prescribed by the rules of financial supervision and were using leverage more and more. In many banks, the ratio of risk to equity was inappropriate. Excessive debt of banks, the low level of equity, the volatility of deposits and negative liquidity gap as results in brought a decrease of confidence for banks. Increasing systemic risk revealed that the capital requirements known as Basel II or New Capital Accord are not sufficient. One of the signs of the fight against the growing crisis was the introduction of an improved capital adequacy ratio referred to as Basel III. New prudential standards recommend an increase in shareholders' equity, which leads to a reduction in leverage.

## 1. The changes caused by the introduction of Basel III

Basel III regulations are contained in the document of the Basel Committee *Basel III: A Global Regulator for More Resilient Banks and Banking Systems*<sup>1</sup>. Their aim is to strengthen the capital in banks. Basel III regulations introduce a modernized definition of equities in which these funds (TC – Total Capital) have been divided into two components: Tier 1 and Tier 2. Category of Tier 1 constitute funds which are intended to cover losses arising from the normal course of business. Funds forming a Tier 1 are the highest category core capital (CET1 – common equity Tier 1) and other core funds (AT1 – additional Tier 1). Category Tier 2 consist supplementary funds, which are intended to cover losses in the event of bank failure. The new solutions completely abandoned the previously Tier 3 category on short-term capital. Classification of own funds according to regulations of Basel III is shown in Figure 1.

**Figure 1. The new definition of own funds TC (Total Capital) in Basel III**



Source: Basel III: *A Global Regulatory Framework for More Resilient Banks and Banking Systems, Annex 4*, Basel Committee on Banking Supervision, Bank for International Settlements, Basel 2010.

The whole process of comprising introduction of various detailed arrangements for the allocation of capital into categories, which should determine the level of risk and protection against cyclical nature of the economy is set for

<sup>1</sup> *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems, Annex 4*, Basel Committee on Banking Supervision, Bank for International Settlements, Basel 2010.

many years and will be implemented in phases by 2019. The first changes which refers to increase the capital requirements for counterparty risk related to come into force early in 2013<sup>2</sup>. In the Basel Committee document *Basel III* introduced a number of rules for the bank's own funds. New relations of each category of equity CET1, T1 and TC<sup>3</sup> to risk-weighted assets were identified. Banks have to reach the final required level of these ratios to the end of 2014<sup>4</sup>. Minimum levels of factors CET1 and TC at various stages of implementation of Basel III are shown in Table 1.

**Table 1. Expressed ratios of CET1 and T1 as a percentage limits in the period from 2013 to 2015 in %**

Ratios	1.01.2013	1.01.2014	1.01.2015
CET1	3,5	4,0	4,5
T1	4,5	5,5	6,0

Source: Basel III: *A Global Regulatory Framework for More Resilient Banks and Banking Systems, Annex 4*, Basel Committee on Banking Supervision, Bank for International Settlements, Basel 2010.

In order to increase long-term stability of the banking system there was created an additional safeguards determine the value of capital enlarged by reserves also specially created against market downturns. These reserves took the form of two ratio:

- Capital Conservation Buffer,
- Countercyclical Buffer.

Capital buffer has been set at 2.5% of risk-weighted assets. Its value is added to the factors CET1 and TC, indicating the minimum ratio of total capital to risk-weighted assets. Target is achieve the overall level of 7%, including CET1 and 10,5% including TC by 2019. Stages of implementation of the capital buffer is shown in Table 2.

**Table 2. Expressed the percentage limits for the CET1 and TC ratio, taking into account the capital buffer according to the implementation schedule in %**

Ratios	1.01.2016	1.01.2017	1.01.2018	1.01.2019
capital buffer	0,625	1,25	1,875	2,5
CET1 + capital buffer	5,125	5,75	6,375	7,0
TC + capital buffer	8,625	9,25	9,875	10,5

Source: Ibid.

<sup>2</sup> J. Zombirt, *Bazylea III. Czy to wystarczy?* „Bank” 2011, nr 2, s. 18.

<sup>3</sup> Minimum level of 8% for TC ratio remained unchanged compared to the Basel II records.

<sup>4</sup> *Raport o stabilności systemu finansowego*, NBP, Warszawa 2010, s. 77

Consequence of failure on capital buffer would need to retain a part of profit, which may result in suspension of dividend payments. The countercyclical capital buffer is to prevent the increase of credit risk in times of economic downturn. It is set within 0-2.5% of risk weighted assets and the decision to introduce it, is the responsibility of a national financial supervision. The basis of introducing of the factor is the variation of loans to GDP ratio<sup>5</sup>. Another factor reinforcing the importance of capital in the commercial bank's capital leverage ratio. The reason for introducing a new indicator was a situation where a high level of adequacy ratios achieved by the banks during the crisis did not reflect their high exposure to risk, mainly due to incorrect assignment of risk weights to below the line items. This ratio is the relationship of regulatory capital to assets and below the line commitments<sup>6</sup>.

Leverage ratio estimation rules particular concern: reducing of below the line expositions, exposure from granted financial liabilities and derivative securitization transactions<sup>7</sup>. Prohibit diminishing balance exposure by using financial or property collateral. This prevents the reduction of the level of equity in the case of a large involvement in derivatives and off-balance sheet instruments securitization. The purpose of this ratio is to reduce the leverage commonly used in banks.

## 2. The nature and effects of deleveraging

Basel III has set a condition for banks to increase equity in relation to the volume of lending. In view of the growing financial crisis in the banks began process called deleveraging which relies on matching the level of equity in terms of size of investment risk taken by banks. In accordance with the recommendations of the Basel Committee, the bank which planning increase of lending is obliged to appropriate capital increase which will provide the safety of business. If bank can't enlarge the involvement of their own funds, it must reduce the value of their assets. In practice, the process of deleveraging can be done in different ways: by mobilizing equity or change the structure of assets. The methods of deleveraging are shown in Table 3.

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<sup>5</sup> H. Hannoun, *The Basel III Capital Framework: A Decisive Breakthrough*, BIS, Hong Kong 2010.

<sup>6</sup> Ibid.

<sup>7</sup> J. Zombirt, *Bazylea III...*, op. cit., s. 21.

**Table 3. Ways of deleveraging for commercial banks**

Concern capitals	Concern investments
1. Increased stability of banks' funding sources	1. Limiting activity areas of the bank
2. The growing importance of domestic sources of capital	2. The allocation of capital in profitable assets
3. Restructuring liabilities	3. Changes in the structure of assets towards a growth in positions exposed to low risk weights
4. Increasing the share of equity in the liabilities	4. Reducing off-balance sheet derivatives speculative operations in favor of direct customer service

Source: Based on: *Najnowsze kierunki zmian w regulacjach bankowych*, KNF, Warszawa 2010, s. 7.

### 3. Changes in the capital structure of the bank as a sign of deleveraging

Banks finance lending from three main sources: equity, savings from clients and foreign funds. The main source of financing for loans are deposits, most of them for the short time, usually not exceeding one year. This results in significant differences between the maturity dates of assets and liabilities. The widening of the imbalances was influenced by the growing demand for long-term mortgages. Financing long-term loans with short-term deposits endangered banks to liquidity risk and threatened the stability of the entire banking system. To increase security, it is necessary to restructure liabilities in order to increase stable capital with the long-term nature<sup>8</sup>.

The problem of matching maturities of assets and liabilities, is being solve partially by the increase of the share in the liabilities of the bank's own debt securities such as bonds or bank certificates of deposit. The Bank is not obliged to redeem them before the established, official redemption date. From the bank point of view instruments are therefore more stable source of capital than deposit accounts. Bond maturities are generally longer than a year, and certificates of deposit in practice occurring as part of the structured products are also medium and long-term instruments.

In the countries of Central and Eastern Europe, which just join the European Union the specific structure of the banking system was developed, In which most of the banks is part of the international bank holding companies. Foreign inflow of funds from the mother banks who fed their banking subsidiaries has become an additional source of capital. This scenario was typical for the first

<sup>8</sup> Ł. Tarnawa, *Banki A.D. 2012 i wyzwania długookresowe*, „Bank” 2012, nr 4(232), s. 53.

phase of the crisis. Foreign banks in order to maintain good health of the banking subsidiaries increased their funding streams. Then, however, foreign banks began to withdraw capital, directing them to their centrals. The main reason for the change in the funding strategy was to increase of the capital adequacy requirements (Basel III). Banks that have difficulties in completing the regulatory provisions at headquarters began to pull funds from the banking subsidiaries. In Poland and other new EU countries, the process of outflow of foreign funds from foreign banks was observed. According to the World Bank in 2011, the financial sector of these countries received 25% less capital than in 2010, from their mother banks<sup>9</sup>.

Overall in 2012, the euro area deleveraging process included more than 70 banks. It was assumed that their equity should increase to the value of the total 114.7 billion euro. Apparently withdrawal from subsidiaries to mother banks can be seen on the example of Austria. Austrian banking supervision ordered the Raiffeisen Bank a reduction in the loan portfolio of the bank subsidiaries to 110% of the deposit. So strict restrictions were dictated by an exceptionally bank's risk exposure because 70% of Raiffeisen Bank profits was generated by the foreign banking subsidiaries and branches in Central Europe.

In Poland, the outflow of foreign funds from the banking subsidiaries had yet another cause. The depreciation of the zloty against the euro and the Swiss franc caused a drop in demand for foreign currency loans and, consequently, a significant reduction in their share of the loan portfolio. Since foreign capital were mainly used to finance these loans, the necessity to keep them at the current level expired<sup>10</sup>. Ways of financing loans with foreign capital in Poland are presented in Table 4.

**Table 4. Sources of funding lending in %**

Sources of funding	1996-2000	2001-2004	2005-2008	2009-2012
Deposits	88	76	63	87
Foreign funds	11	18	35	-1
Security issue	0	6	3	14

Source: Based on: *Ograniczenia w finansowaniu a rozwój akcji kredytowej*, BFG, Warszawa 2012, p. 12.

The most important way of deleveraging on the liabilities side is to increase the equity. This gives some kind of guarantee to cover potential losses. This can be done by issuing a new series of shares or the retention of the current profit

<sup>9</sup> *Raport o stabilności systemu finansowego*, NBP, Warszawa 2012.

<sup>10</sup> *Raport o rozwoju systemu finansowego*, NBP, Warszawa 2012.

including the part allocated for the payment of dividends. In a short time, the process of enlargement of equity capital by issuing shares is virtually impossible for many banks, especially small and medium-sized non-euro area banks.

#### **4. Deleveraging by the realization of the assets**

Lack of opportunities for increase equity, makes meeting new requirements the only way to reduce the scale of investment. Banks faced the necessity of:

- reduction in lending,
- resign from risky derivatives and bonds of countries with a low rating investments (violently way),
- reduction of off-balance sheet transactions in derivatives.

The restructuring of assets is often the only possible way to maintain funds ratios at a satisfactory level. However, there is concern that the reduction of investments and realization of the assets may undermine the stability of the banking system, and even the entire financial market. While the sale of risky bonds as well the decrease in the value of derivative transactions actually reduces the risk, the reduction in lending may have negative influence to the viability of the bank inhibition, or even slow down economic growth in macroeconomic terms. Sales of financial instruments held by banks' assets can greatly affect the price movements in the financial market. The result can come as recession exacerbation, rather than to its inhibition. The negative effect of limiting lending by banks is also a flight of capital loan to shadow banks<sup>11</sup>. It is estimated that in Poland monthly 80 thousand loans leaking to shadow banks, which puts it close to 0.5 million per the six months.

#### **5. The effects of commercial banks deleveraging**

The result of changes were significant deterioration in the solvency ratio. In the euro area, this situation refers to all banks, regardless of the size and nature of its business, but it refers most to the large banks with capital of Tier 1 category which is more than 3 billion euro conducting operations in the international market. Research conducted Basel Committee on a sample of over 200 commercial banks are presented in Table 5.

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<sup>11</sup> *Delewarozacja w kredytach*, „NBS” 2012, nr 10, s. 26.

**Table 5. Average capital adequacy ratios by groups of banks (in%)**

Banks		CET 1		Tier 1		In total	
Group	Number	Gross	Net	Before B III	B III	Before B III	B III
Big	74	11,1	5,7	10,5	6,3	14,0	8,4
Others	133	10,7	7,8	9,8	8,1	12,8	10,3

Source: *Results of the Comprehensive Quantitative Impact Study*, Basel Committee on Banking Supervision, Bank for International Settlements, Basel, 2010, s. 8.

The report stated that the Basel III regulations can affect the bank funds, reducing the level by almost 27% in large banks and almost 17% in the others (Table 6). Such a change would occur with an increase of risk-weighted assets by 7.3% in the large international banks and 3.2% for other banks. The analysis also showed that the implementation of Basel III will cause recorded of higher levels of capital adequacy ratio, in all categories of smaller banks funds. Higher rates of major banks have been registering by using the previously existing regulations<sup>12</sup>.

**Table 6. The effects of changes in the definition of capital and capital requirements of Basel III regulations (in%)**

Banks		Changes in RWA	Changes In CET1 fund (brutto)	Changes In Tier 1 fund	Changes In funds In total
Group	Number				
Big	87	7,3	-41,3	-30,2	-26,8
Others	136	3,2	-24,7	-14,1	-16,6

Source: *Ibid.*, s. 10.

Analysis of the results of a survey conducted by the Basel Committee confirms the necessity of increase the standards for the amount of equity in commercial banks, especially in the group of large banks with international operations and perform multiple operations on derivatives and securitization. NBP conducted similar studies in Poland. They show that the majority of Polish banks reach the requirements of the capital adequacy ratios (Table 7).

<sup>12</sup> *Results of the Comprehensive Quantitative Impact Study*, Basel Committee on Banking Supervision, Bank for International Settlements, Basel 2010, p. 8.

**Table 7. The number of banks that do not meet the required levels of capital ratios in Poland**

Category	Number of commercial banks	Missing value in capital (mln zł)	Amount of cooperative banks	Missing value in capital (mln zł)
<b>CET1</b>	2	45,3	4	11,3
<b>Tier 1</b>	7	702,8	11	40,0
<b>Total Capital</b>	6	724,5	20	37,5

Source: *Raport o stabilności systemu finansowego*, NBP, Warsaw 2010, s. 79.

In the future, Polish banks could still feel the effects of adapting to the cyclical and capital buffer requirements that will increase the current level of the indicator by 2.5 percentage points each. Implementation of the Basel III regulations will cause the necessity of collecting by Polish banking sector additional own funds in the range of 28.8 billion to even 46.8 billion zł. Reports on the state of the banking sector showed a surplus of own funds to 8% capital requirement in the third quarter of 2010 at level of (amounted?) to 42.5 billion zł. Polish banking sector seemed to be able to cover the requirements of Basel III regulations implemented under the assumption incorporation into the capital base of banks net profit for 2010. However, in practice, the increase of credit exposures requires the raising of equity in each year. Under this assumption and the capital adequacy ratio of 13%, the total capital requirement will reach 105.3 billion zł. In comparison, the capital requirement on capital adequacy ratio of 8% would be only 64.7 billion zł<sup>13</sup>.

## Conclusions

In effect deleveraging led to the changes that are intended to increase the safety of the financial market, especially in the banking system. Strong risk aversion intensified pressure for introducing changes to European banks. This has led to the evolution of functions and business model of banks. It also contributed to a gradual shift away from a strategy of universal banks more to the subjects and banking services specialization. Changing the existing business lines clearly shift towards pro customer direction.

<sup>13</sup> *Makroekonomiczne skutki wyższych standardów kapitałowych: Analiza dla Polski*, KNF, Warszawa 2011, s. 11.

**Table 8. Deleverization effects**

Positive(advantages)	Negative(disadvantages)
<ol style="list-style-type: none"> <li>1. Lower leverage, the growth of equity importance</li> <li>2. Improvement of equity capital to assets ratio. increase of the return on equity (ROE).</li> <li>3. Improvement of the quality of the loan portfolio by withdrawing from risky lending activities (eg. foreign currency loans)</li> <li>4. Development of domestic sources of bank funding</li> </ol>	<ol style="list-style-type: none"> <li>1. Reducing the supply of foreign subsidiaries banks by mother banks delevarization in there origin countries.</li> <li>3. Redutcion in lending.</li> <li>4. Decrease in assets profitability</li> </ol>

Source: *Ograniczenia w finansowaniu...*, op. cit.

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