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## **RISK MANAGEMENT STRATEGIES OF FINANCIAL INSTITUTIONS IN HUNGARY**

**Summary:** The financial crisis forced financial institutions to implement significant changes in their risk management strategies. By 2008 it became clear that banks' increasing risk appetite largely contributed to the tremendous losses financial institutions faced.

The Hungarian banking system mostly comprising the subsidiaries of foreign parent banks was also largely exposed to the crisis-related issues.

The paper focuses on how banks in Hungary have adjusted their risk management policies to the EU's regulatory framework and the rules by the national central bank (MNB).

Analysing annual reports of some major banks the paper reveals what risks banks face and what tools they use to measure and manage them.

**Keywords:** financial crisis, risk management, financial risks, Basel III, nonperforming loans.

### **1. The effects of the financial crisis on the Hungarian banking system**

Before dealing with the types of risks banks face and the risk management policies they apply, we give a brief overview of the Hungarian banking system highlighting some of the pre-crisis situation and the post-crisis effects.

Since the 1990s Hungary has been home to the subsidiaries of foreign banks that set up their branches either as a result of greenfield investments or privatisation. The Hungarian banking sector is embedded into the European one, which has been strongly affected by market deregulation, globalization processes and recent technological advancement. All this is also underpinned by the ownership structure of the Hungarian banking system which mostly consist European (Austrian, Italian and Belgian) parent banks.

In the early 2000s, to increase profitability banks widened their loan portfolios by taking a higher risk. The risk-based competition meant, first of all, product innovation, easier lending conditions, as a result of which banks provided loans to less creditworthy clients under more favourable conditions [Király, Nagy, 2008].

By the middle of 2000s when forint-based mortgage lending fell because of a cut back on subsidised interest rate on housing loans, risk-based competition resulted in the widespread use of foreign currency lending – mainly in Swiss franc, later in an increase in the LTV (loan-to-value) ratio and less strict prudential rules [Várhegyi, 2010]. The loan-to-value ratio for mortgage loans increased constantly and in many cases exceeded 100 per cent [Banai et al., 2010]. Parent banks benefited a lot from their Hungarian subsidiaries, because the interest margins of HUF and FX loans exceeded those in the western countries and the profits could be placed flexibly within the individual banking groups [Várhegyi, 2010].

Due to the country's poor macroeconomic performance and the interconnectedness of the subsidiaries with the global financial system, as well as the high risk appetite, the Hungarian banking sector has been seriously hit by the effects of the 2008 financial crisis.

The direct effect of the crisis resulted in freezing a part of the financial resources or increasing the price of loans. The liquidity crisis forced parent banks to reduce their resources in their subsidiaries because they also suffered serious losses in spite of their relatively stable positions. In 2009, the HUF exchange rate substantially depreciated, significantly increasing the debt service burden of households which are mainly indebted in foreign currency [Report on Financial Stability, April 2010: 52]. Banks were forced to take measures for risk management by all means.

## **2. Risk and risk management**

In order to analyse risk in detail, we will start with the definition of the terms 'risk' and 'risk management'.

Risk is defined as „the chance that an investment's actual return will be different than expected. Risk includes the possibility of losing some or all of the original investment” [<http://www.investopedia.com/terms/r/risk.asp#ixzz3m0Z1wvOV>].

In the financial industry risk is defined „by the uncertainty that has adverse consequences on earnings or wealth, or the uncertainty associated with negative outcomes only. There are various definitions of risk. Risk is seen as the potential loss resulting from the interaction with uncertainty. Although uncertainty cannot

be eliminated, exposure to it can be changed". This view is taken by regulators and risk managers [Bessis, 2015: 2].

Consequently, even if risk cannot be excluded from the operation of the financial world, it can be reduced by numerous risk management strategies. Risk management is defined as „the process of identification, analysis and either acceptance or mitigation of uncertainty in investment decision-making” [<http://www.investopedia.com/terms/r/riskmanagement.asp#ixzz3m0cSpW1Q>].

### **3. The major types of financial risks**

In general, banks mainly focus on credit risk, liquidity risk, market risk and operational risk as the most significant exposures. In order to present why and to what extent banks are affected by these risks, we will take a look at their conceptual background mainly using the definitions in banks' annual reports.

Credit risk is the risk of losses due to borrowers' default or deterioration of credit standing. Default risk is the risk that borrowers fail to comply with their debt obligations. Credit risk also refers to the deterioration of credit standing of the borrower, which does not imply default but involves a higher likelihood of default [Bessis, 2015: 3]. In UniCredit Bank's annual report credit risk is associated with „the risk of financial loss occurring as a result of a default by counterparty in their contractual obligation to the Group” [UniCredit, 2014].

Before having a look at liquidity risk, let's focus on the term liquidity. According to the liquidity concepts published by Nikolau in the ECB's 2009 Working Paper Series, liquidity may refer to central bank liquidity, funding liquidity and market liquidity. Central bank liquidity is the ability of the central bank to supply the liquidity needed to the financial system. Funding liquidity is regarded as the ability of banks to meet their liabilities as they come due. The liquidity sources of banks involve depositors, the market through securitisation, as well as funds from interbank market and from the central bank. Consequently, liquidity risk is defined as „the risk that the Bank will not be able to meet its payment obligations” [CIB, 2014].

Market risk refers to the risk of loss due to fluctuations in market variables such as interest rates, foreign exchange rate and equity prices. Exposures to market risk are classified in either trading or non-trading portfolios. Gaps in the value of assets that mature or reprice during a given period generate interest rate risk, whereas fluctuations in the value of a financial instrument due to changes in currency rates lead to foreign exchange risk [CIB, 2014].

Operational risk is regarded as the risk of suffering losses due to inadequacy or failures of internal processes, human resources and internal systems, or as a result of external events. Operational risk includes (1) legal risk meaning the risk of losses due to breach of laws, regulations; (2) model risk, a potential loss as a result of bad decisions; (3) compliance risk, the risk of significant financial losses or damage to reputation as a result of the violation of mandatory or self-governance regulations; (4) ICT risk, the risk of economic, reputational and market share losses due to the use of ICT systems [CIB, 2014].

Operational risk events are those resulting from inadequate or failed internal processes, personnel and systems or from systemic and other external events: internal or external fraud, employment practices and workplace safety, client claims, products distribution, fines and penalties due to regulation breaches, damage to Group's physical assets, business disruption and system failures, process management [UniCredit, 2014].

#### **4. The Regulatory Background of the Banking Sector**

Experts mention different reasons for the financial crisis; first of all they put the blame on credit default swap instruments, as well as, mortgage access to people who would normally not qualify for a housing loan. But it should also be taken into consideration whether risk was managed effectively or the basics of risk management were ever put in place [Pastore, Kestens et. al, 2010]. As the financial crisis required a review of bank regulation and supervision around the world, we will focus on the regulatory background of the Hungarian banking sector.

##### **4.1. Regulatory framework of the Hungarian Banking Sector**

The Hungarian banking industry has undergone significant changes since the beginning of the global economic crisis. From a legislative perspective the formerly broadly regulated conduct of business rules have been replaced with detailed and rather strict provisions.

On 1 January 2014 a new act entered into force in respect of regulating banking business in Hungary: Act CCXXXVII of 2013 on credit institutions and financial enterprises (the Banking Act). The primary purpose of the Banking Act was to implement Basel III into the Hungarian legal system. There was also some change in the prudential regulation since the functions of the former Hungarian regulator, the Hungarian Financial Supervisory Authority were taken over by the National Bank of Hungary (NBH) in October 2013. As a result, the NBH

has been responsible for both the monetary policy and the regulation of financial institutions, investment and insurance service providers [Köves, Mestyán, 2014: 12].

The National Bank of Hungary as a macro-prudential authority also adopted a Decree to prevent the excessive outflow of household credit. The new regulation entered into effect on 1 January, 2015 and has two main pillars. The payment-to-income (PTI) ratio reduces customers' debt accumulation by limiting their debt-servicing burden. In the case of collateralised loans (e.g. mortgage loans) the loan-to-value ratio (LTV) limits the size of available loans in proportion to the collateral (home value). In the case of new, forint-denominated mortgage loans granted after 1 January 2015, the payment-to-income ratio may not exceed 50% and for customers in higher income brackets (a net income of HUF 400,000Ft  $\approx$  EUR 1300 or above), 60% [<http://www.mnb.hu/en/pressroom/press-releases/press-releases-2014/upper-limit-on-the-payment-to-income-ratio-protects-households-as-a-debt-cap>].

## **4.2. Banking regulation by the EU**

The Union's banking regulation contains guidelines and regulations. The member states have to transpose the guidelines into their national legal framework, while the regulations are mandatory for all countries.

Within the EU banking regulation so far has taken place at two levels: the national authorities have regulated the operation of the financial institutions in accordance with the national characteristics of the member states and the directives of the European Union have been transposed by the countries into their own legal framework in accordance with the national features. The Single Rulebook as a regulatory framework aims to change this division by providing uniform rules in each member state by means of regulations and standards issued by the European Banking Authority (EBA) [Kenesei, Nagyné Sasvári et. al, 2015].

With regard to the EU, 'Basel III', a global, voluntary regulatory framework should also be highlighted. The term refers to a comprehensive set of reform measures, developed by the Basel Committee on Banking Supervision, to strengthen the regulation, supervision and risk management of the banking sector [<http://www.bis.org/bcbs/basel3.htm?m=3>][572].

The Basel Committee of Banking Supervision developed a minimum capital regulation standard for international banks. The Basel II formula calibrates the measure of risk-weighted assets (RWA) that ensures that a bank capital of  $8\% \times \text{RWA}$  covers loan losses with 99.9% confidence. The more stringent Basel III capital regulation imposes a capital ratio close to 12% [Dermine, 2013].

$$\begin{aligned} \text{Basel III Capital} &= 12\% \\ RWA &= 1.5 (8\% \times RWA)^n = 1.5 \times \text{Basel II Capital} \end{aligned}$$

The Basel III formula implies that bank capital will cover the Basel II 99.9% confidence losses grossed up by a common factor of 50%. This factor will apply to loans of all PD (Probability of Default) categories [Dermine, 2013].

The new capital, liquidity and leverage standards of Basel III have been transposed into the EU's legal framework by the CRD IV/CRR regulatory package effective as of 1 January, 2014. The package is made up of two distinct legislative acts – the Capital Requirements Regulation (CRR) and Capital Requirements Directive IV (CRD IV):

- CRR establishes the prudential requirements for capital, liquidity and leverage that firms need to abide by. It is immediately binding on all EU member states leaving no scope for national interpretation,
- CRD IV governs access to deposit-taking activities, including remuneration, board composition and transparency. Unlike the CRR, the directive needs to be transposed into national laws and means national regulators can require additional capital buffers.

The EU's new framework for bank capital requirements came into force on 1 January 2014. It applies to all banks operating in the EU. This was a watershed event in that a system of regulatory requirements previously implemented through Member State laws and regulations has now been largely replaced by comprehensive requirements that are intended to apply directly and uniformly across the EU [Basel Committee on Banking Supervision, 2014 December].

## 5. Risk management in practice

The following examples of CIB Bank<sup>1</sup> and UniCredit<sup>2</sup> Bank, will present how banks have changed their risk management policies due to the financial crisis. Both banks devote a separate chapter to their risk management in their annual reports underpinning the importance of the issue.

Both CIB and UniCredit take a group-wide approach to manage risk, tailored to the specific Hungarian legal and business requirements. Enforced by the National Bank of Hungary and in compliance with the EU's regulatory framework, in 2014 both banks' capital requirements were based on Basel III.

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<sup>1</sup> CIB Bank is the subsidiary of the Italian Intesa Sanpaolo Group.

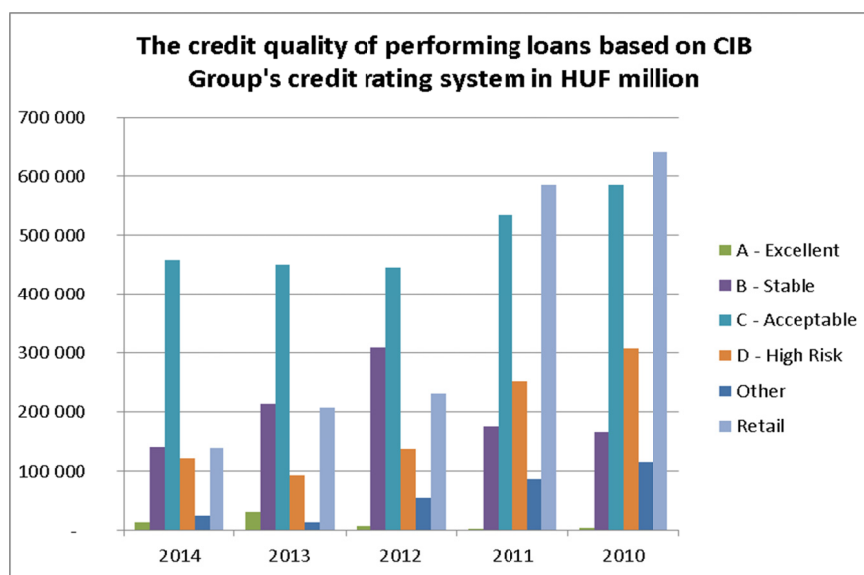
<sup>2</sup> UniCredit Bank Hungary is a member of the Italian UniCredit Group.

Both banks have established the institutional background for setting and implementing their risk management policies. In addition to the Management Committees, separate bodies are responsible for further strengthening risk control such as independent Risk Assumption and Risk Management Committee in case of CIB.

### 5.1. Credit Risk

Credit risk on loans and receivables is managed by the Management Board, through the Credit Committee, the Asset Quality Session and the Problem Asset Committee, which establish credit regulations including the approval process, the discretionary limits, standards for the measurement of credit exposure, risk ratings of clients and assessment of management quality and financial performance. Ratings refer to the probability of default (PD) of the borrower<sup>3</sup>.

Clients are classified at least yearly based on a rating system, which incorporates qualitative and quantitative factors, or in case of retail clients the classification is based on scorecards. Client classification is not equivalent to loans classification. Loans are assessed with internal rating system, which differentiates the quality of non-overdue loans. Performing loans are usually rated A – Excellent, B – Stable, C – Acceptable, D – High risk.



**Figure 1.** The credit quality of performing loans based on CIB Group's credit rating system

Sources: Own construction.

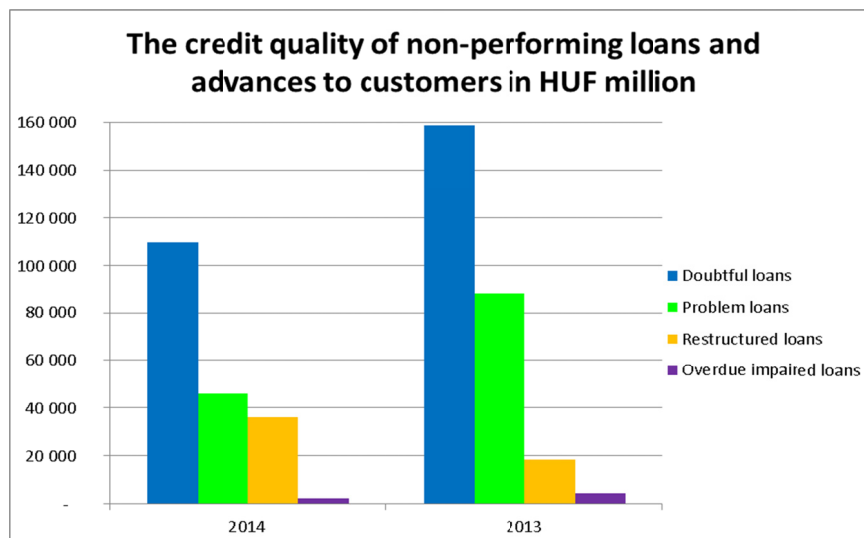
<sup>3</sup> 'Other' rating refers to clients who were assessed with a previous rating model.

Figure 1 shows the rating system differentiating the quality of performing loans. The bar chart describes how non-overdue loans have changed in quality from 2009 to 2014. Compared with 2010, high-risk loans show a 30% decline, whereas performing retail loans dropped by more than four times.

Banks lay a strong emphasis on all elements of collection. In addition to the programs prescribed by law like the early repayment of FX loans, the exchange rate cap, and the Forint Conversion of FX loans, they continuously offer the possibility of renegotiation to their private individual clients in payment delay caused by the negative effects of the unfavourable exchange rate movements or unfavourable economic conditions.

CIB Bank has been using the non-performing loan definition of the Intesa Sanpaolo Group since 2012. In this way, loans are reported as impaired if they are past due, i.e. they are overdue by more than 90 days; restructured, i.e. they cause present value loss to the Bank as a result of restructuring; substandard, i.e. due to the clients' poor financial situation loans may not be repaid; doubtful, i.e. the clients are insolvent [CIB, 2014].

Figure 2 presents that the value of doubtful loans sharply decreased from 2013 to 2014 and the value of restructured loans almost doubled during the same period indicating that borrowers took advantage of the exchange rate cap or the HUF conversion of FX loans.

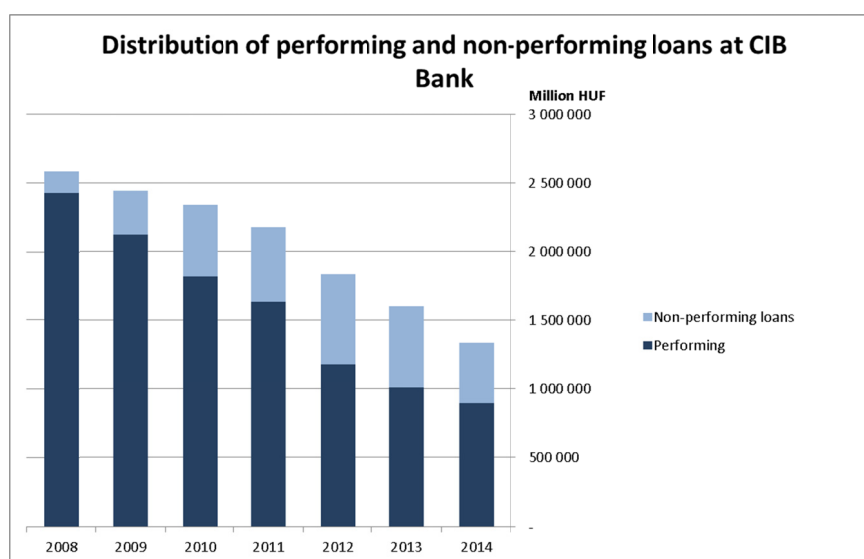


**Figure 2.** The credit quality of non-performing loans based on CIB Bank's rules

Sources: Own construction [CIB, 2014].



*Figure 3* highlights two facts. In 2008 the crisis reached Hungary at the time of excessive lending activity, which gradually declined during the past six years. That was mainly due to an increase in lending costs and a setback in solvent demand. At the same time the continuous deterioration of the loan portfolio started, which was mainly the result of the dramatically increasing instalment costs of FX loans leading to the default of borrowers. After 2012 the NPL portfolio started to decline mainly due to the restructuring facilities and banks' more responsible lending policies.



**Figure 3.** Distribution of performing and non-performing loans at CIB Bank between 2008-2014

Sources: Own construction.

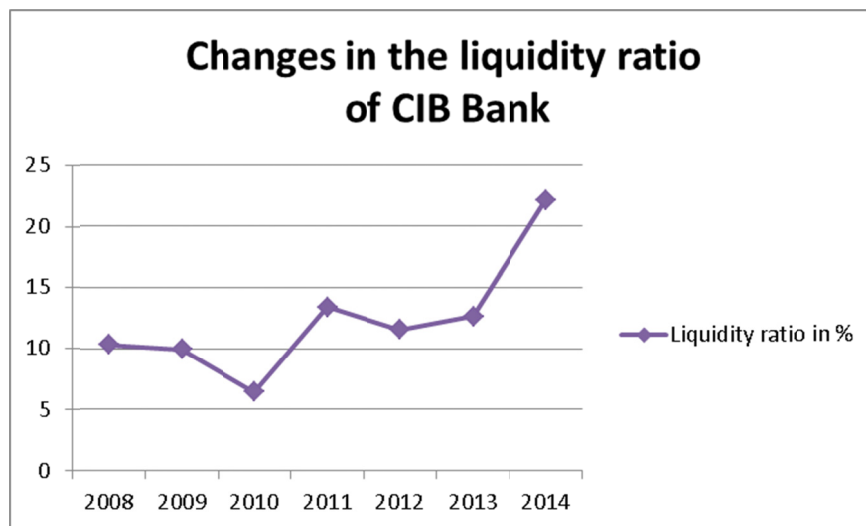
## 5.2. Liquidity risk

Liquidity risk is monitored by the Management Board, which is responsible for maintaining the level of liquidity and defining the control policies and management processes related to the specific risk profile. The Financial Risk Committee monitors the implementation of the liquidity management policy. Key elements of the liquidity policy include increasing the self-financing capacity in all segments, strictly respecting all regulatory liquidity ratios in line with the new regulations recently introduced in Hungary.

UniCredit Group has created its own short-term and structural liquidity models similar to the efforts of the Basel Committee. The Group also takes into

account the local legal requirements of asset, deposit coverage ratio and foreign funding adequacy ratio limitations and monitors the Basel III liquidity ratios besides its own internal regulations in managing liquidity. Limits regarding the maximum net outflow of funds in a particular period (typically short-term) and in a particular currency and all currencies are in place and are monitored daily. The long-term funding and structural liquidity are monitored by the Bank's Asset Liability Committee (ALCO) [UniCredit, 2014].

Figure 4 indicates that after fluctuations between 2008 and 2013 the liquidity ratio of CIB Bank – the ability to pay short-term debt obligations – sharply increased by 2014. Generally, the higher the value of the ratio is, the larger is the margin of safety that the company possesses to cover short-term debts. The liquidity ratio doubled from 10.3% in 2008 to 22.08% by 2014.



**Figure 4.** Changes in the liquidity ratio of CIB Bank

Sources: Own construction.

### 5.3. Market risk

Exposures to market risk are managed and monitored based on a VaR (Value at Risk) methodology, which reflects the interdependency between different risk factors [CIB, 2014: 74].

Since VaR is an integral part of CIB Bank's market risk management VaR limits have been established for all trading operations with separate limit amo-

units for interest rate, foreign exchange, equity and total VaRs. Exposures are reviewed daily against the limits by the management [CIB 2014: 75].

In addition to the VaR limits positions and stop-loss limits have been set up in line with the internal regulations of the bank's parent, Intesa Sanpaolo Group. Position limits enable the monitoring of exposures at real time, and as a robust measurement technique can be relied upon in case of error in the VaR model. Stop-loss limits are designed to control the downside movement of profit and loss in a particular position.

Banks reduce the interest rate risk by matching the repricing of assets and liabilities using pricing/maturity techniques including the use of derivative products. In case of CIB Bank interest rate risk is managed by the Treasury in the Group, day-to-day operation is supervised by the Management. Risk tolerance limitation and the related policy are set by the Management Board. On the tactical horizon, interest rate risk is managed by the Financial Risk Committee, which proposes position and sensitivity limits, and monitors such limits to restrict the effect of movements in interest rate on current earnings and on the value of interest-sensitive assets and liabilities [CIB, 2014: 76].

In case of UniCredit market risk management involves all activities in connection with the Treasury and Asset-Liability Management (ALM) operations. Risk positions are aggregated at least daily, analysed by the independent risk management unit and compared with the risk limits set by the Management Board and the ALCO designated by the Management Board. Market risk management includes ongoing reporting on the risk position, limit utilisation, and the daily presentation of markets' operations [UniCredit, 2014: 36].

#### **5.4. Operational risk**

In case of CIB Bank, Operational Risk Management measures and monitors exposures to operational risk. This unit is also responsible for the consistent application and operation of the Intesa Sanpaolo Group's operational risk management framework taking into account local idiosyncrasies. At CIB the operational risk management activities are supervised by the Operational Risk Committee (ORC).

For managing operational risk exposure both qualitative and quantitative tools are used. One of the qualitative tools is the annual operational self-diagnosis where operational criticalities are identified and mitigating actions are defined in response to those criticalities.

As a quantitative measure historical operational risk loss data have been collected and analysed since 2004. On the basis of analyses performed by the Operational Risk Management, mitigating actions are initiated to avoid the reoccurrence of similar losses or prevent the materialisation of potential risks. Since 2008 CIB Bank has been using the Standardised Approach (STA) for calculating the regulatory capital requirement of the operational risk proposed under Basel II. Under the STA banks' activities are divided into several business lines within each of which the gross income is a broad indicator that serves as a proxy for the scale of business operations and thus the likely scale of operational risk exposure within each of these business lines [Basel Committee on Banking Supervision, 2001].

UniCredit has used the Advanced Measurement Approach (AMA) since 1st July 2009, complying with all quantitative and qualitative requirements set by laws and regulations, the supervisor or even by internal Group rules. AMA is one of the three possible operational risk methods under Basel II with the highest risk sensitivity. Fundamental AMA tools include internal loss data, external loss data, risk scenarios and business environment and internal control factors, which are addressed through risk and control self-assessments and key risk indicators [Lubbe, Snyman, 2010].

The Group's Management Board is responsible for the effective oversight over operational risk exposure. The operational risk office (i.e. Operational and Reputational Risk Controlling) notifies the Management Board (partly via the Internal Control Business Committee, a.k.a. ICBC) about considerable operational risks, their changes as well as relevant breaches to policies and limits. The Management Board shall have an overall understanding of the operational risk control framework and of how operational risk affects the Group.

## **Conclusion**

The paper focused on the different types of risks in the Hungarian banking sector and the most important methods of risk management carried out by CIB Bank and UniCredit Bank based on the effective Hungarian regulation and EU rules and the guidelines of the parent banks. The analysis of the individual annual reports has proved that both banks take strict measures to control risk. The figures in the financial statements have revealed a continuous improvement in the liquidity ratio and a gradual decrease in the NPL portfolio. The extraordinary high risk appetite as a result of the lack of macro-prudential control in the pre-

crisis period was followed by the strengthening of the legal framework both in the field of macro- and micro-prudential regulation.

The crisis-related risk management measures have significantly contributed to the current stable operation of the Hungarian banking system. As a result, CIB Bank has a strong liquidity position. The high degree of dependency on Intesa Sanpaolo has begun to decrease over the past years as CIB has focused on enhancing its self-funding capacity. Consequently, the share of Intesa Sanpaolo funding within the total deposit fell from 37% as of December 2009 to 10% as of December 2014. Efforts in the previous years to increase the customer deposit base and the deleveraging have improved the loan-to-deposit ratio of CIB from 142.6% in December 2009 to 91.3% in December 2014 [Management Report, 2014: 15]. CIB Group has a solid liquidity position.

Alos UniCredit Bank has a solid capital position, as a result of which – similarly to the previous years – there was no need for capital injections in 2014 either, and the bank is going to pay dividends to its shareholders from last year's profits as well. The Bank's loan/deposit ratio decreased from 137 per cent in 2008 to 81 per cent and its market share grew in the more important market segments [UniCredit, 2014 Management Report, 8-9].

The findings of the paper also underpin the statement by the National Bank of Hungary according to which „due to risks, the banking system has built up significant capital and liquidity buffers which can reduce the impact of losses on lending. The measures to manage problematic assets contribute to the clean-up of banks' balance sheets and help to mitigate risks, which may accelerate consolidation in the sector” [Financial Stability Report, 2014 November: 7].

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## STRATEGIE ZARZĄDZANIA RYZYKIEM W INSTYTUCJACH FINANSOWYCH NA WĘGRZECH

**Streszczenie:** Kryzys finansowy zmusił instytucje finansowe do zaimplementowania znaczących zmian w strategiach zarządzania ryzykiem. Do 2008 r. stało się jasne, że rosnący apetyt banków na ryzyko w dużej mierze przyczynił się do ogromnych strat finansowych, których doznały instytucje. Węgierski system bankowy, składając się

głównie z banków zależnych od obcych banków-matek, był wysoce narażony na problemy związane z kryzysem.

Ten artykuł skupia się na sposobach, w jakie węgierskie banki dostosowały zasady zarządzania ryzykiem do wytycznych UE i reguł narzuconych przez National Central Bank (MNB).

Analizując roczne raporty niektórych spośród największych banków, artykuł ujawnia ryzyka, z którymi zmagaly się banki oraz środki, które zostały zastosowane, by nimi zarządzać.

**Słowa kluczowe:** kryzys finansowy, zarządzanie ryzykiem, ryzyko finansowe Basel III, kredyty zagrożone.