4(65) 2016

ISSN 1429-2939

BEZPIECZNY BANK

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4(65) 2016

BFG

BANK GUARANTEE FUND

ISSN 1429-2939

No. 4(65) 2016

BEZPIECZNY BANK

SAFE BANK

BFG

BANK GUARANTEE FUND

SAFE BANK is a journal published by the Bank Guarantee Fund since 1997. It is devoted to issues of financial stability, with a particular emphasis on the banking system.

All articles published in "SAFE BANK" are reviewed.

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ul. Inflancka 15/198, 00-189 Warszawa
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Contents

Introduction

Problems and Opinions

Miscellanea

Book Reviews

A WORD FROM THE EDITOR

Dear Readers,

You have another issue of the English edition of "Bezpieczny Bank" magazine in your hands. The selection of publications for this issue is prompted by the idea of popularising selected themes on academic and practical activities by Polish academics and banking practitioners. Here you will find topics related to central banking, in particular the problem of measuring the transparency of the central bank's activities; a cross-country study on determinants of leverage and liquidity versus bank size; an approach to issues related to temporary funding in the resolution process, which are a serious problem for regulators and bank owners in crisis situations; a characterisation of the role of green banking in a sustainable industrial network; and, finally, post-crisis perspectives on reputational risk in banking.

In the Miscellanea section we present the results of a survey conducted by a group of experts of more than 70 specialists (representing universal banks, auto loan companies, insurance undertakings, regulatory bodies, consulting firms and academia), within a project executed in Poland by the European Financial Congress, concerning consultation on the supplementary supervision of financial conglomerates as a reply to the European Commission's consultation document – *Directive 2002/87/EC on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate.*

In the part dedicated to book reviews, two volumes published in Poland this year are our chosen recommendations.

The problem of the high share of foreign capital in the ownership structure of the Polish banking system arouses controversy, and theoreticians, politicians and practitioners have ambiguous opinions thereon. Lech Kurkliński's book, dedicated to the results of research into the relationship between foreign capital and cultural conditions of bank management in Poland, is an important contribution to this debate. The review of the book explains to the readers the topics addressed therein.

The issue of the transformation of the so-called monobank created under the command and quota economic regime and the planned economy into a two-

tier and diversified banking system in the market economy under construction in Poland is not only interesting in terms of the content, but is also an original contribution by Polish practitioners and academics to the process of capital and organisational transformations of public banks into commercial entities. In the Book Reviews section, we describe the thematic scope of a book dedicated to the reform of the Polish banking system that took place between 1987 and 2004 and present brief information on the several persons who, in the form of interviews, share their memories regarding the problems that had to be faced while modelling the processes of bank and banking system transformation in Poland at that time. These memories contain unique information, which cannot be found in other publications or documents. They are also a valuable contribution to the pool of resources for economic historians.

Enjoy reading!

Jan Szambelańczyk

Problems and Opinions

Magdalena Szyszko[*]

IS IT WORTH REVEALING MORE? CENTRAL BANKS' TRANSPARENCY AND ITS MEASUREMENT

1. INTRODUCTION

The discussion on central banks' transparency commenced with the analysis by Cukierman and Meltzer[1], which provided a theoretical model of a central bank's ambiguity and credibility under the assumption that the central bank acts discretionally under information asymmetry. The model was developed for the central bank that tries to control money growth but whose impact on monetary aggregates is limited: it can decide only partially the extent to which it controls money growth. Less control over the instrument expresses lower transparency, which results in slower adjustment of economic agents' expectations. Ambiguity may be beneficial for policymakers when they wish to support economic growth. The current discussion on the central bank's transparency draws the same

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[1] A.C. Cukierman, A.H. Meltzer, *Theory of Ambiguity, Credibility and Inflation under Discretion and Asymmetric Information*, "Econometrica", 1985, Vol. 54, No. 5, pp. 1099–1128. There are previous papers on the time inconsistency problem and central bank credibility that indirectly cover the transparency of the policymaker: F. Kydland, R. Prescott, *Rules rather than Discretion: The Inconsistency of Optimal Plans*, "Journal of Political Economy", 1977, Vol. 85, No. 3, pp. 473–492, R.J. Barro, D. Gordon, *Rules, Discretion and Reputation in a Model of Monetary Policy*, "*Journal of Monetary Economics*", 1983, Vol. 12, No. 1, pp. 101–121.

general conclusion: there are pros and cons to revealing policymakers' goals, actions, forecasts and intentions. However, due to the broad acceptance of New Neoclassical Synthesis (NNS), which highlights expectations as the transmission channel of monetary policy, among policymakers a somewhat broad transparency is standard. Moreover, this transparency is continuously rising, and the practice of central bankers shows that the limits of transparency shift quite quickly. The National Bank of Poland in its comprehensive report on the evolution of inflation targeting (IT) mentions two dimensions of such modification – the increasing transparency of policymakers, especially in the field of decision-making and intentions, and incorporation of financial stability issues into the monetary policy optics[2]. Communication of the central bank's intentions is crucial in this period of low inflation or deflation and zero lower bound (ZLB) reached by several central banks. It generates new practices as forward guidance.

Standard tools of transparency assessment do not capture monetary policy innovations in communication. Forward-looking announcements have the impact on the financial markets while pricing the assets and on the expectations of economic agents. If a standard signalling tool – an interest rate – loses its impact, new paths of communication are explored. New boundaries of transparency are set nowadays and new measures should follow this practice. This is the main motivation for the following research.

Transparency is an unobservable variable. Rather it is a concept of a qualitative nature, defined with the flexibility according to the perspective of the research. If one desires to check whether transparency has any impact on the possibility of the central bank's goal achievements, a transparency measure is needed. Some transparency indices exist and are broadly explored in the empirical research. Their remarkable shortcoming is that they depend on the actual central banks' practice and become stale over time, as they do not capture up to date practices. Which is why there is room for their methodological development and as such the goal of this paper is of a methodological nature. The paper aims at modification of the most commonly used transparency measures. As a result, it should capture the central banks' most up to date practices in the field of communication. A four-step methodology is applied to develop the tool and prove its applicability. The first step covers a comparative analysis of transparency indices and their forward-lookingness (FL). The second step offers a subindicator of central banks' forward-lookingness (FR) in communication with the markets. The index can be incorporated into standard measures of transparency. In the third step, new measures of transparency are created. These are the results of an extension procedure.

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[2] W. Grostal, M. Ciżkowicz-Pękała, J. Niedźwiedzińska, E. Skrzeszewska-Paczek, E. Stawasz, G. Wesołowski, P. Żuk, *Inflation Targeting Evolution. Some Examples*, National Bank of Poland, Warsaw 2015, Chapter II.

In the last step, the transparency of the central banks is assessed using the three indicators and their extension – the FL subindex.

The research covers the Czech National Bank (CNB) and the National Bank of Poland (NBP). These are IT central banks, where IT is a strategy promoting transparency and a clear commitment to achieving inflation goal[3]. They are quite natural candidates for the comparison due to their recent experiences of transformation as well as European Union accession. The CNB and NBP apply different practices in the field of communication so they are quite a reasonable choice with regard to methodology testing. The indices are calculated for three years: 2005, 2010 and 2015. This time range captures the pre-crisis and post-crisis situation. The following paper contributes to the literature on monetary policy transparency and implementation of IT. The paper is organised as follows: section 2 follows with a literature review on transparency measurement and enhancement of forward-looking communication. Section 3 presents the research methodology. Section 4 contains the results. The final section concludes the paper.

2. LITERATURE OVERVIEW

As transparency is of a qualitative nature, there can be difficulties in its measurement. Measurement makes it possible to compare a central bank's practices and their evolution over time. Moreover, it paves the way to including transparency in more methodologically developed research and drawing conclusions on its relations to the central bank's results. Usually, when measurement of a qualitative concept is applied, an index is created on the basis of the factor analysis – possible variables influencing transparency are identified theoretically and empirically. A broad set of such factors is usually captured by the index, as a central bank's practice does not vary greatly. This is why an index limited to only a few factors would not capture any change over a longer period. Categories that assess the aspects of transparency related to strategic choices tend to reveal slow-moving values, whereas they are more volatile when central banks' day-to-day challenges are covered[4]. This research focuses on transparency in the field of signalling intentions.

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[3] B. Bernanke, T. Laubach, F.S. Mishkin, A.S. Posen, *Inflation Targeting: Lessons from the International Experience*, Princeton University Press, Princeton 2001, p. 36.

[4] P.L. Siklos, *Transparency is Not Enough: Central Bank Governance as the Next Frontier*, in:, *Handbook of Central Banking, Financial Regulation and Supervision. After the Financial Crisis*, Eds.: S. Eijffinger, D. Masciandaro, Edward Elgar Cheltenham, UK, Northampton, US, 2010, pp. 133–157.

Table 1. Transparency measures – examples

Authors	Factors covered	Comment
Fry et al. (2000) FRY	– prompt public explanation of policy decision, – **frequency and form of forward-looking analysis provided to the public**, – assessment and analysis,	**Policy explanation** index. First approach to this measurement presented in the literature, covering 94 countries. Narrow approach to transparency: it does not cover strategic announcements. This was in line with the authors' intentions as they focused on measurement of policy explanation. The index has been used in other research (Łyziak, Mackiewicz, Stanisławska, 2007).
Bini-Smaghi & Gros (2001) **BSG**	– objectives, – strategy, – **publication of data and forecasts**, – communication strategy,	Joint analysis of transparency and accountability. Transparency is the precondition of accountability so it is covered by the index. Points range: 0–2 for each criterion. Total index value: 30.
Fracass, Genberg, & Wyplosz (2003) **FGW**	– quality of information provided, – assumptions about key macroeconomic variables, – quantity of information provided, – finding information, – presentation of policymaking process, – **inflation forecast**, – **underpinnings of inflation forecasts**, – executive summary: number of pages and readability, – executive summary: quality,	Index produced on the basis of Inflation Reports (IR) analysis. The authors delivered an overall rating of IR: quantity, quality and accessibility of information are assessed. As the most important information about monetary policy actions is revealed in IR the index can be interpreted as a transparency measure. Each of the criteria enumerated in the middle column is divided into subfactors. Points attribution from 0 to 10 (when the quality of information is assessed) and 0–1 (when the appearance of information or non-appearance is assessed).
Eijffinger & Geraats (2006) **EG**	– political transparency, – **economic transparency**, – procedural transparency, – **policy transparency**, – operational transparency,	The background of the index was the taxonomy of transparency (Geraats, 2001). This measure is frequently used in the literature (Crowe, Meade, 2008), (Dincer, Eichengreen, 2007), (Dincer, Eichengreen, 2014) (Siklos, 2011) to compare across countries and over time.

Authors	Factors covered	Comment
		Wide coverage of transparency aspects, consistency with IT and good description of the points attribution, which facilitates measurement. It inspires other measurements (Bajalan, Raei, Tehrani, 2012).
Bajalan, Raei & Tehrani (2012) **BRT**	**– openness o**f the policy (based on the Eijffinger-Geraats index), – clarity referring to presentation and analysis of information, – honesty: the intentions of the information sender, – common understanding referring to the linguistic code of the sender and receiver.	More developed conceptual framework of the index. It tries to capture the possible gap between the intentions of the sender and the understanding of the receiver of the information. Points attribution depends on the question., The index still refers to the extent of information revealed by the central bank but analysed in a detailed way. The idea of the index derived from the transparency concept given by Winkler (2000).

Note: full references to the literature mentioned in the column *Comment* are given in the references section.

Source: author's own on the basis of: S. Bajalan, T. Raei, R. Tehrani, *Development of an Index for Measuring the Central Bank's Transparency*, "Argumenta Oeconomica", 2012, Vol. 1, No. 28. pp. 14–40; L. Bi- ni-Smaghi, D. Gros, *Is the ECB Sufficiently Accountable and Transparent*? European Network of Economic Policy Research Institutes Working Paper, 2001, No. 7, pp. 1–28; A. Fracasso, H. Genberg, Ch. Wyplosz, *How Do Central Bank Write? An Evaluation of Inflation Targeting Central Banks*, Geneva Reports on the World Economy Special Report 2, International Center for Monetary and Banking Studies, 2003, pp. 11–30; M. Fry, D. Julius, L. Mahadeva, S. Roger, G. Sterne, *Key Issues in the Choice of a Monetary Policy Framework*, [in:] *Monetary Policy Frameworks in a Global Context*, Eds.: L. Mahadeva, G. Sterne, Routledge, London, 2000, pp. 1–16; S.C.W. Eijffinger, P.M. Geraats, *How Transparent Are Central Banks*? "European Journal of Political Economy", 2006, Vol. 22, pp. 1–21.

Even broad-coverage indices become stale over time. It is not possible to create an index that is not time-related. They usually refer to the central bank's actual practice. When Cukierman and Meltzer conducted their analysis, central banks were opaque and used monetary control as the way to achieve their main goal. No clear commitment to inflation was made. During the second decade of the 21st century, monetary policy has mostly been conducted within the IT framework. Table 1 presents the most popular measures of transparency applicable to modern monetary strategy. Only subsections of factors covered by the measure are enumerated in the second column. Bolded subsections refer to the central bank's forward-lookingness and its signalling of subsequent steps. The first measure

focuses on particular aspects of a central bank's communications. The remaining ones account for summary measures of transparency.

Transparency measures differ according to the authors' assumptions about the factors influencing it and the goal of the research. Nevertheless, when the index is created, the authors refer to the up to date solutions applied by the central banks. Each of the indices presented in table 1 refers to signalling intentions by the central banks, whether directly or indirectly. Recently, the field of forward-looking communication has been enhanced. There are at least two remarkable developments: extension of the way in which a macroeconomic forecast is presented and published, and forward guidance implementation. These are not captured in the standard transparency measures.

Table 2. Evolution of revealing the forecast

Stages	Information content on the future development of the economy
I: Inflation outlook	Descriptive analysis of future trends in the economy, especially inflation. This is produced when the central bank does not wish to reveal the inflation forecast explicitly. It presents the view of the central bank on the inflation trend. It covers some inflation factor analysis as well.
II: Inflation forecast	Numerically at least, the inflation forecast is revealed on the fan chart. When the economic model is advanced enough to produce a macroeconomic forecast, the GDP forecast is revealed as well. Some other macroeconomic forecast outcomes may be published: unemployment or bilateral exchange rate.
III: Policy path	The macroeconomic forecast is produced under assumption of endogenous interest rates consistent with some rule (usually a Taylor-type rule). The policy path is the sequence of current and expected interest rates consistent with the achievement of central bank goals. It can be revealed verbally, as a description of the next change in rates, or numerically – usually on the fan chart.

Source: author's own.

Central banks' practice in the field of forecasting – and publishing the forecast – moves towards greater transparency over time. This is a result of recent economic development as well as change in central banks' attitudes. Three main steps may be enumerated regarding the extent of the information revealed here. These are presented in table 2. The transparency measures mentioned in table 1 were developed when stage 2 of revealing the forecast was the standard.

In contrast to a broad consensus in favour of publishing an inflation forecast, the discussion on the pros and cons of revealing the policy path continues. As it is probably the most obvious way of signalling a central bank's subsequent actions,

the discussion on its revealing is summarised here. There are some benefits to interest rate publication: enhanced accountability due to raised transparency (here: publication of policy path); a commitment to achievement of long-term goals by showing the path toward this achievement; improved assets pricing due to better anchoring of short term expectations; and greater leverage of policymakers over long-term interest rates[5]. Moreover, the central bank uses analytical and forecasting models that assume that economic agents are rational (or near-rational) and thus forward-looking. They require at least an implicit time profile for future policy actions[6]. Policy path announcement or qualitative communication of a central bank's intentions improves the ability of market operators to predict monetary policy decisions. Empirical research for the Reserve Bank of New Zealand, which has been releasing a quantitative assessment of its future policy intentions since 1997, shows that even for a very transparent central bank, the publication of the expected interest rate path has a significant impact on market expectations[7].

Some theoretical papers also give support to publishing the policy path when there is an information asymmetry between the public and the central bank[8]. They develop a standard New-Keynesian framework to examine the macroeconomic effect of revealing a central bank's own policy path. These papers conclude that the publication of additional information (policy path) raises economic performances. However, in the analysis of Brzoza-Brzezina and Kot, the marginal benefits from revealing a path are relatively small in comparison with the situation when the central inflation path is published. The conclusion of the theoretical analysis depends on the model specifications and some underlying assumptions.

There are several disadvantages to publishing the policy path as well[9]: starting with the one that such a path does not exist. Creating a plausible approximation of it may be a daunting task. Moreover, central banks' procedures are not in line with making decisions over a longer timeframe. Today's meeting brings only today's decisions. Any other information revealed is just the signal, not a commitment. The central banks do not follow their own, previously published paths: interest rate forecasts had little or no informational value when the horizon exceeded two quarters, although they were good for the next quarter after their production

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5 G.A. Kahn, *Communicating a Policy Path: the Next Frontier in Central Bank Transparency?* Federal Reserve Bank of Kansas City Economic Review, Q1, 2007, pp. 30–33.

6 A.S. Blinder, *Central Banking in Theory and Practice*, MIT Press, Cambridge, MA 1998.

7 G. Ferrero, A. Secchi, *The Announcement of Future Policy Intentions*, Economic Working Papers, No. 720, Bank of Italy, 2006, pp. 17–37.

8 G.D. Rudebusch, J.C. Williams, *Revealing the Secrets of the Temple: The Value of Publishing Central Bank Interest Rate Projections*, Federal Reserve Bank of San Francisco Working Paper, 2006, No. 31, pp. 267–280; M. Brzoza-Brzezina, A. Kot, *The Relativity Theory Revised: Is Publishing Interest Rate Forecast Really so Valuable? National Bank of Poland Working Paper Series*, 2008, No. 52, pp. 14–17.

9 G.A. Kahn, *Communicating a Policy Path…*, *op. cit.*, pp. 33–36.

and reasonable for the following one[10]. Regardless of this reproach, the current policy decision is the result of thinking through both the first and the subsequent steps, considering the magnitude of the policy problem to be solved and the degree of uncertainty[11]. So in fact, the central banker's decision is the first step along the path. The path, if revealed, may be seen as the central bank's unconditional commitment by economic agents; it can force the central banks to follow the path even if unexpected economic issues make it invalid. Regardless of the drawbacks of publishing the policy path, the title of Kahn's paper: *Communicating a Policy Path: the Next Frontier in Central Bank Transparency*, gives quite an obvious conclusion to the subject. The question is when and how rather than whether to publish the policy path. The checklist of criteria to fulfil prior to such a decision is also proposed in the literature[12]. It covers assessment of a central bank's strategic choices, its technical preparation and markets' ability to capture the message of the forecast. However, central banks are rather cautious when it comes to revealing policy path. There are only a few examples of inflation targeters that do so: New Zealand, the Czech Republic, Israel, Norway and Sweden.

Besides revealing the policy path there are other possibilities for signalling central banks' intentions. Central banks' qualitative announcements have a somewhat longer history. Traditionally the central banks produced some description of the economic outlook. In some countries this was formalised in the monetary policy indications or the risk balance for inflation. When the central bank started to release the inflation forecast, such commentary became a general summary of the message of the forecast. Verbal indications usually denote the central banks' intentions over the shorter term; up to a quarter. The latest economic developments have brought the need for a longer-term approach to suggestion of the central banks' intentions. Except for the standard need for shaping economic agents' expectations in the uncertain environment and under lag existence, the central banks of some countries reach the zero lower bound. Their standard instrument – the interest rate – is no longer effective. The central banks' longer-term commitment generates a boom through the expectations channel. The commitment may refer to keeping low interest rates, stabilising the exchange rate or supporting the economy via quantitative easing programmes. While implementing the forward guidance, the central bank announces the period for implementing special conditions. It can do so qualitatively – when the period during which the central bank intends to

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10 Ch.A.E. Goodhart, W. Bin Lim, *Interest Rate Forecast: a Pathology*, International Journal of Central Banking, 2011, Vol. 6, pp. 135–171.

11 D. Archer, *Central Bank Communication and the Publication of Interest Rate Projections*, A paper for a Sveriges Riksbank conference on inflation targeting, Stockholm, June 2005, http://www.riksbank.se/Upload/Dokument_riksbank/Kat_foa/Archer17May.pdf (accessed 10.08.2014).

12 T.A. Phan, *Should Central Banks Publish Interest Rate Forecasts*? *A Survey* (March 1, 2013). http://ssrn.com/abstract=1913990 (accessed 10.05.2015).

maintain a very loose monetary policy stance is defined in rather general terms (e.g. for a considerable period), with fixed date (e.g. until mid-2016), and with some conditions that may trigger a policy shift (e.g. until the unemployment rate falls below 9%)[13].

Some authors identify policy path publication as quantitative forward-guidance[14]. Forward guidance, when held verbally, does not require revealing the policy path, so it can be implemented by those central banks that are reluctant to employ such a practice. It is also easier to communicate that forward guidance is a tool for special times and abandon this practice when standard conditions for monetary policy conduct reappear. Description of the future policy actions is less costly in terms of the time and effort paid to producing the forecast. Finally, the policy path is not the central bank's commitment. At special times, more engagement is obviously needed.

3. METHODOLOGICAL ISSUES

The study consists of 4 steps (scheme 1). The first step compares the transparency indices from table 1 in the light of the forward-looking component's importance. The relative importance of FL analysis is calculated here. The FGW index is excluded from further examination as the measure is built to assess each part of the Inflation Report separately. The points attribution across sections is not consistent and extension of the index would impose further arbitrary decisions on the points attributions. BRT is excluded as well. The index captures more than the scope of information revealed. Clarity of information, honesty and common understanding are not evaluated by the simple points attribution procedure. Moreover, the openness of the central bank in the BRT proposal is just the EG index. The other subsections of the index do not refer to the forward-looking component. Three indices covered by the further examination refer to signalling intentions.

The second step of the research results in the development of the FL component of transparency measurement, which can be an extension to any transparency index. It should capture up to date practices of communication with the markets.

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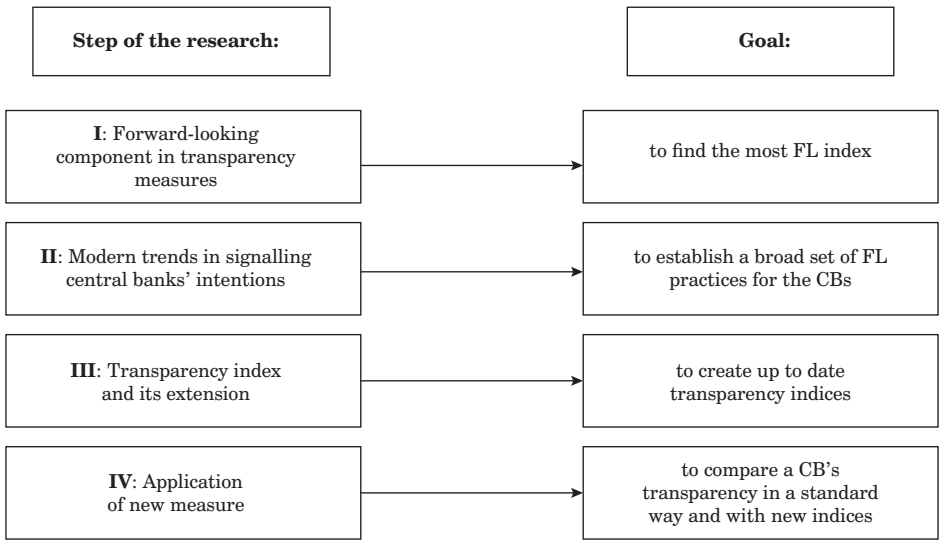
[13] NBP, *Inflation Report*, Warsaw, November 2013, pp. 40–43.

[14] P.M. Geraats, *Monetary Policy Transparency*, CESifo Working Paper Series 2014, No. 4611; L.E.O. Svensson, *Forward Guidance,* "International Journal of Central Banking", 2015, No. 1, Supplement 1; M. Woodford, *Forward Guidance by Inflation Targeting Central Bank*, Paper prepared for the conference Two Cambridge Decades of Inflation Targeting: Main Lessons and Remaining Challenges, Sveriges Riksbank, June 3, 2013. http://www.columbia.edu/~mw2230/RiksbankIT.pdf (accessed 10.05.2015).

As so, it is based on the central banks' practice analyses: these were discussed in the previous section.

Scheme 1. Steps of the research



FL – forward-looking
CB – central bank

Source: author's own.

The third step of the research is an extension procedure: each index is reconstructed to cover the forward-looking component. The newly created indices should be consistent with their genuine form. The genuine and extended indices are then compared to find the importance of the direct forward-looking component (DFLC). The DFLC covers information on future economic conditions or the central bank's next possible decision. It does not cover information that may help shape expectations indirectly; for example, publication of the central bank model is excluded.

The last step of the research covers the measurement of transparency in the Czech Republic and Poland at three points – the ends of 2005, 2010 and 2015 – with standard and newly developed transparency measures. Table 3 presents the sample and the sources of information used to assess transparency.

Table 3. Sample and the data

Features	Description
Central banks	Czech National Bank, National Bank of Poland
Points of indices calculation	Ends of the three years: 2005, 2010, 2015
Data sources	Central banks' web sites, Inflation Reports for the year under examination, Annual Reports, Minutes, Decision rationale
Search for information	The last publication from the calendar year was checked first; to detect regularity of publications the rest of the documents for the calendar year were checked

Source: author's own.

4. EMPIRICAL RESULTS

Table 4 compares the direct forward-lookingness (DFLC as defined in the methodological section) of the three transparency indices described in table 1. FRY, as the index of policy explanation, does this in the most detailed way: the forward-looking analysis component accounts for 35% of the index. At the same time this index does not cover the central bank's strategic choices.

Table 4. Weight of DFLC in indices of transparency

Index	Direct FL component	
	Originally	**After extension**
FRY	35%	47%
BSG	13%	38%
EG	13%	38%

Source: author's own.

Table 5 presents a possible extension of the measures with a direct forward-looking component. There are two possible groups of FL factors: model-based and verbal explanations. Model-based factors refer to the way in which the inflation forecast is presented together with the macroeconomic forecast. The proposition includes the most common practices of the central banks; even if not all of them are widespread and some of them – as described in the literature section – are disputable. Verbal explanations may deliver other, non-forecast-related suggestions on the outcomes for the economy and possible decision by the central bank. Expectations analysis, except for signalling possible threads for inflation, can be held in terms of additional

intermediate targets[15], as the expectations interchangeably with inflation forecast are accounted to inflation gap. The Monetary Policy Committee (MPC) may react to the divergence of the longer-term expectations for the target as well as to the forecast divergence. The indication of the MPC means direct verbal signalling of the next movements of the central bank's instrument. It refers to the short-term horizon and can be announced as expansionary, neutral, restrictive or in any other consistent way, i.e. balance of risk for inflation. Forward guidance shows the longer-term position of the central bank. This also covers possible MPC engagements besides the interest rate change adjustment. For the purposes of this analysis, the indications and forward guidance are distinguished on the basis of the way in which they are expressed. If the central bank's intentions are presented qualitatively, with a fixed date or conditionally, they are classified as forward guidance (as described at Section 2).

Table 5. DFLC in central bank's communication

Group	Information covered	Explanation
Model-based factors	Macroeconomic forecast: – central path of inflation, – policy path, – GDP/ unemployment forecast, – risk/uncertainty, – past forecast errors/forecast decomposition.	Broad approach to revealing the forecast. Except for the central path of inflation, the forecast for the real sphere should be conveyed as the central bank loss function capturing the inflation gap and real sphere component. The policy path directly presents a model-consistent interest rate forecast. The risk/uncertainty description presents the possible alternative developments of the economy. Past forecast errors or decomposition of two subsequent forecasts show the reliability of the forecast and reasons underlying their divergences. The information presented in IR or equivalent documents.
Verbal description of FL factors	Central bank's statements/ declarations: – expectations analysis, – inclinations, – forward-guidance.	Verbal declarations of the central banks expressed at decision rationale, minutes, press conferences. Inclination refers to short-term declaration (one quarter ahead) about policy perspective. Forward-guidance refers to any information of longer-term policy stance. Expectation analyses in discussion of the MPC are considered as they help to assess future inflation development.

Source: author's own.

[15] D. Pfajfar, E. Santoro, *News on inflation and the epidemiology of inflation expectations*, "Journal of Money, Credit and Banking", 2010, Vol. 45, Issue 6, p. 1045.

The way in which the FL component is incorporated into the indices (table 6) and the way in which the points are attributed (table 7) are consistent with the original index. In some cases some factors were replaced with a group of factors to avoid multiplication of the same variable in the index.

Table 6. FL component incorporation

Index	Subsection	Variables changed
FRY	Frequency and form of forward-looking analysis provided to the public	Deleted: – forward-looking analysis in standard documents, – the way forecasts are presented, – risks to the forecasts, – discussion of past forecast errors. Inserted: all factors from table 5.
BSG	Publication of data and forecast – model-based factors Communication strategy – with verbal description of FL factors	Inflation forecast replaced with detailed model-based factors. Statement of future moves replaced with verbal description of FL factors.
EG	Economic transparency – model-based factors Policy transparency – with verbal description of FL factors.	Inflation forecast replaced with detailed model-based factors. Inclinations replaced with verbal description of FL factors.

Source: author's own.

After simple reconstruction of the indices with broadened DFLC, the FL component weight in total for the index rose for all three indices (table 3). The difference is more remarkable for BSG and EG as they initially covered the more general aspects of policy-making and less of its forward-looking attitude. As genuine indices do not capture enhanced transparency in the field of signalling possible central bank actions, the extension seems reasonable.

The transparency measures for the two central banks in standard and extended versions are presented in graphs 1 (NBP) and 2 (CNB). CNB outperforms the NBP regardless of the measure and the time. As the CNB is a Central Banking Publications Award 2015 winner in transparency this result is not surprising. The CNB has paid great attention to openness of monetary policy since its switch to IT in 1998. It was very quick to reveal its inflation forecast and then its policy path as well (for 6 years – verbally, since 2008 – numerically). At the beginning of the

2009 as the first central bank, the CNB started to reveal a bilateral exchange rate forecast on the fan chart. According to the Dincer and Eichengreen transparency measure[16] the CNB was one of the five most transparent central banks worldwide. The CNB sets the standards for transparency. This extraordinary approach to transparency seems to be the philosophy of the CNB's actions.

Table 7. FL component points attribution

Index	FRY	BSG	EG
Model-based factors			
Central path of inflation	100 quarterly or more often 50 triannually, biannually 25 once a year 0 none	2 quarterly or more often 1 1–3 times per year 0 none	1 quarterly or more often ½ 1–3 times per year 0 none
Policy path	100 quarterly or more often 50 biannually 25 once a year 0 none when only verbally – half of the points	2 numerically 1 relation to the inflation target described 0 none	1 numerically ½ relation to the inflation target described 0 none
GDP/ unemployment forecast	100 quarterly or more often 50 biannually 25 once a year 0 none	2 numerically 1 relation to the inflation target described 0 none	1 numerically ½ relation to the inflation target described 0 none
Risk/uncertainty	100 graphs and text 50 one of them 0 none	2 graphs and text 1 one of them 0 none	1 graphs and text ½ one of them 0 none
Past forecast errors/forecast decomposition	50 for each of them	1 for each of them	½ for each of them

[16] N.N. Dincer, B. Eichengreen, *Central Bank Transparency and Independence: Updates and New Measures*, "International Journal of Central Banking", 2014, Vol. 10, Issue 1, pp. 189–253.

Index	FRY	BSG	EG
Verbal explanations			
Expectations analysis	100 yes 50 sometimes 0 none	2 yes 1 sometimes (or superficially) 0 none	1 yes ½ sometimes (or superficially) 0 none
Indications	100 yes 50 sometimes 0 none	2 yes 1 sometimes 0 none	1 yes ½ sometimes 0 none
Forward-guidance	100 yes 50 sometimes 0 none	2 yes 1 sometimes 0 none	1 yes ½ sometimes 0 none

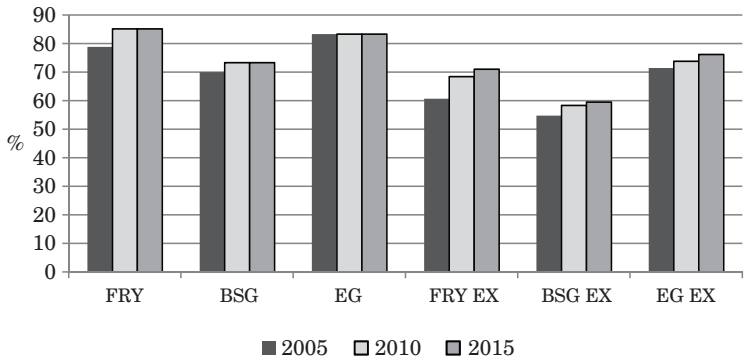
Source: author's own.

Besides the more prolonged transparency of the CNB some remarks on the indices are needed. The indices extended with the FL component are more detailed as they capture some aspects not captured or captured in an aggregated way by the original measures. In the case of Poland transparency is increasing mainly due to the rise in the FL component. The CNB reached a high level of transparency in the field of signalling intentions at an earlier stage. One substantial change besides signalling intentions was made in 2008. The CNB started to reveal voting patterns with the names of the Board Members. The CNB did not publish monetary policy indications. However, as it started to publish an inflation forecast with a policy path quite early, the quantitative guiding seemed to be enough for the markets. Forward guidance as a communication tool was introduced in November 2013 when the Bank Board launched the koruna exchange rate as an additional instrument for easing monetary conditions. Since then, the Bank Board has repeatedly confirmed the validity of this exchange rate commitment. For some time after the rates were cut to historically low levels in 2013, the NBP published information on its intentions to keep rates low for some time. In 2015, however, this practice was abandoned.

As extended indices are prolonged measures – in comparison to the genuine version – the relative level of transparency may be lower. They also capture innovations in monetary policy communications. It takes time for the central banks to accept the next step in transparency. As a result, the differences between countries are larger. A revealing policy path consistent with the central bank's inflation forecast is quite a meaningful example. As theoretical and empirical research does not bring unambiguous conclusions on the benefits and costs of such publication, only a few central banks instigated publication of a policy path. These

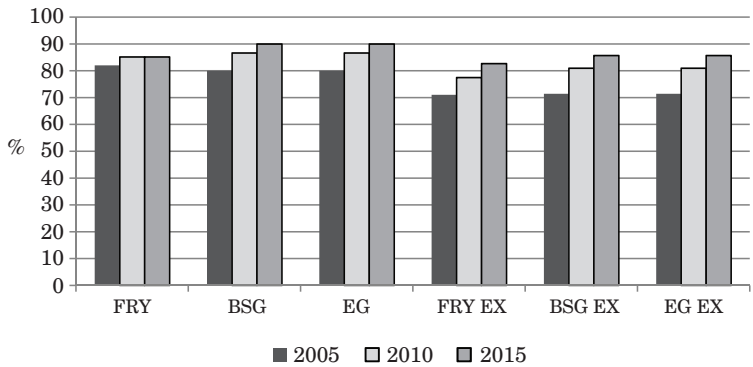
are enumerated in section 2. Iceland abandoned this practice with the outbreak of the recent financial crisis. NBP prepared itself for such publication in 2010, and then this idea was discontinued. In the long run, the number of central banks revealing a policy path will grow – it is the next step in central bank transparency.

Graph 1. Transparency of the NBP



Note: names of the indices according to tab. 1. EX means extended version
Source: author's own.

Graph 2. Transparency of the CNB



Note: names of the indices according to tab. 1. EX means extended version
Source: author's own.

Besides revealing the policy path, forward guidance can be considered as an innovation in monetary policy communication. It is certainly needed when the central bank hits the zero level bound and the expectations channel becomes the

only one. It is uncertain whether the central banks will keep to such a long-term commitment when the situation normalises and interest rates regain their position as the main monetary policy tool. Because they cover innovations it is possible that extended measures will exhibit volatility.

5. CONCLUSION

The following paper presents a possible enlargement to the standard transparency measures. The qualitative indices are not resistant to the changes. When the Fry et al. index was developed there was no discussion on revealing central banks' policy path. Nowadays, the transparency in the field of goals is quite obvious. The discussion on optimal transparency focuses on signalling the central bank's intentions. That is why the three indices of transparency, widely used in the literature, were rebuilt to capture the up-to-date practices of the central banks in revealing their intentions. Some central banks – including the CNB – almost reach the limits of transparency expressed by the maximum levels of standard measures. This does not mean that there is no room for further transparency. It just signals that the central bank's practice has been significantly changing and new tools are needed to capture this evolution. It is possible that the new economic environment together with technological change have shifted the natural limits of transparency. Blog posts from CNB senior officials and use of social networks, in particular Facebook and Twitter, are the best examples. Up to now the central banks have addressed their information to mysterious *market participants*. The language of the message suggested that they have to be specialists to understand it. Nowadays the central banks address their explanation to ordinary citizens: they use infographics, simple words and social media. The Bank of England's explanation of its extraordinary measures undertaken in August 2016 was entitled: *How will the changes help you?* During turbulent times the central bank's practice, including communication, varies substantially. If one wants to assess the effectiveness of the innovations in communication, a tool tailored to the new conditions is needed. Extended transparency measures may become such tools. Moreover, there is room for further development and elaboration of the measures that focus on a chosen aspect of monetary policy. Possible extension of the research may cover more countries and a longer time span. It will possibly bring more conclusive remarks on the transparency of the modern central bank.

Eventually, more general concluding remarks on measurement of central bank transparency will be needed. Enhanced communication between the policymaker with the market participants in the post-crisis era is a reality. It is not possible to identify additional or alternative ways of communication that will be implemented in the future. Transparency measures should vary and adjust to the situation. And

they do. Otherwise it is not possible to assess transparency in light of the most recent developments. Some innovations in communication that nowadays seem above standard – such as blogs conducted by policymakers – may become standard tools of communication tomorrow. From the other hand – a measure must not capture everything: the natural limits to transparency which exist, impose some limits to assessing the central banks' communication.

Abstract

This paper focuses on monetary policy transparency. Central banks' practice in the field of communication, especially while signalling their intentions, is not reflected in most known transparency measures. The following paper presents a comparison of the best-known transparency indices and offers an extension to them that focuses on the forward-lookingness of the central bank. A more elaborate approach to signalling intentions is not covered by transparency measures developed in the pre-crisis period. Thus the purpose of this paper is methodological: developing extended transparency measures. Additionally, the application of these extensions is presented. The empirical part of the research covers the Czech Republic and Poland.

Key words: forward-looking central bank, transparency, transparency measurement, signalling intentions

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DETERMINANTS OF LEVERAGE AND LIQUIDITY AND BANK SIZE – CROSS-COUNTRY STUDY

1. INTRODUCTION

In the current debate on macroprudential policy, the excessive procyclicality of leverage and liquidity risk in the banking sector have gained a lot of attention. In this respect, both practitioners and academics are looking for solutions that may be helpful in constraining the excessive procyclicality of banking activities, in particular those that could tame the leverage and maturity mismatch between assets and liabilities. In spite of this focus on leverage and liquidity risk in international standard setters' fora (Basel III, CRR/CRDIV) and the related academic literature, relatively little is known about the drivers of leverage and funding risk for individual banks; in particular in a cross-country context. Our study aims to bridge this gap by looking at bank specific and macroeconomic drivers of leverage and funding liquidity risk. We also attempt to identify whether bank size determines the sensitivity of leverage and funding liquidity risk to the business cycle, in particular during crises. Our study is related to three streams in the literature. The first focuses on the determinants of bank risk. This literature focuses on mainly on the drivers of equity risk measures (i.e. systematic risk proxied by beta coefficient; idiosyncratic risk;

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total risk, i.e. bank equity return standard deviation; interest rate risk, i.e. interest rate beta[1]) and credit risk (measured as loan loss provisions divided by total assets). In a recent paper Haq and Heaney[2] find mixed evidence on the relation between bank specific factors and bank risk measures in 15 European countries. Although their study analyses the drivers of bank specific risk measures, it does not consider determinants of leverage and liquidity risk.

The second stream in the literature stresses the link between leverage and liquidity in the banking sector. Studies in this stream focus on the role of liquidity in asset pricing[3], and on the role of leverage and liquidity in amplification of financial shocks through balance sheets[4]. These studies show that there is some link between leverage and liquidity in investment banks[5], and that market liquidity and funding liquidity are affected by the build-up of leverage in financial sector[6]. However, none of these studies looks for potential determinants of leverage and liquidity.

The third stream in the literature focuses on the role of macroprudential policy instruments for leverage and liquidity risk[7]. This literature stresses the need to curb the excessive procyclicality of leverage and liquidity, in particular in large banking organisations. However, in its concentration on the impact of macroprudential policy instruments on leverage and liquidity risk (measured in a specific way, as a real asset growth), this literature does not analyse the relative importance of bank specific and macroeconomic factors on leverage and liquidity risk.

Our study contributes relative to the literature in several important respects. First, we identify factors that affect the leverage and liquidity risk of banks. This strategy gives us the opportunity to show which banks' specific and macroeconomic factors are relatively more vital for solvency and liquidity risk formation. Second, as we focus on banks that differ in size (large, medium and small), we are able to identify what is the role of bank size in the link between leverage and liquidity funding risk. Third, we look at the relationship between leverage and liquidity, and ask whether bank leverage is affected by liquidity risk and vice versa, and show the diversity of association between leverage and liquidity risk and vice versa. In particular, following the gaps in previous research and considering the theoretical background, we test several hypotheses. First, increases in leverage (and thus solvency risk) for large banks are associated with increases in liquidity risk for these banks. Second, increases in liquidity risk for large banks are associated with

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1 See Kane and Unal (1988); Flannery and James (1984) and Haq and Heaney (2012).
2 Haq and Heaney (2012).
3 Adrian and Shin (2010).
4 *Ibidem*; Acharya and Viswanathan (2010).
5 Adrian and Shin (2010).
6 Acharya and Viswanathan (2010).
7 Lim et al. (2011); Cerutti et al. (2015); Claessens et al. (2014).

increases in leverage (and thus solvency risk) for these banks. Third, during a non-crisis period the business cycle does not affect bank leverage in an economically significant way. Fourth, large banks' leverage is procyclical during a crisis period. Fifth, during a non-crisis period liquidity risk is procyclical. Sixth, during a crisis period liquidity risk is countercyclical. And finally, during a crisis period the liquidity risk of large banks is more countercyclical than the liquidity risk of medium and small banks. We examine the determinants of banks' leverage and liquidity for 383 banks across 67 countries for the period 2000–2011. To estimate the models we apply the two-step dynamic GMM Blundell and Bond[8] estimator, with Windmejer's correction. The findings show that increases in previous period funding liquidity risk are associated with increases in leverage in the full sample and in large banks, but not in other banks. With reference to the impact of macroeconomic conditions on the leverage of banks we find mixed results. On the one hand, during a non-crisis period the large business cycle is not a significant driver of leverage. On the other hand, during a crisis period seems to be procyclical in the case of large banks. With reference to the impact of leverage on liquidity risk we find that large banks with high solvency risk also have high funding liquidity risk. As for the impact of the business cycle on liquidity risk, we are able to confirm the view that liquidity risk is procyclical during a non-crisis period. By contrast, during a crisis period this liquidity risk is countercyclical, because the worsening economic environment is related to increasing liquidity risk (consistent with the potential for panic and bank runs during crisis periods). This counter-cyclicality is particularly strong in large banks, which suffer the most from the limited access to interbank funding during a crisis period.

The rest of the paper is organised as follows. Section 2 provides an overview of the literature. Section 3 describes the methodology applied in the study and data used in this paper. Section 4 includes our empirical results, and a review of robustness tests conducted to analyse the sensitivity of the results. Section 5 concludes.

2. LITERATURE REVIEW

Our study is related to three streams in the literature focusing generally on bank risk-taking. The first stream focuses on the drivers of bank risk. One recent study investigates bank capital, charter value, off-balance sheet activities, dividend payout ratio and size as determinants of bank equity risk (systematic risk, total risk, interest rate risk and idiosyncratic risk) and credit risk[9]. Their paper uses

[8] Blundell and Bond (1998).
[9] Haq and Heaney (2012).

information for 117 financial institutions across 15 European countries over the period 1996–2010, and finds evidence of a convex (U-shaped) relationship between bank capital and bank systematic risk and credit risk. They also find mixed evidence on the relationship between charter value and our measures of bank risk. This paper also shows that large banks reflect a higher total risk and lower credit risk. Considering the importance of bank size to the level of bank risk, we ask how bank size affects the sensitivity of leverage and liquidity risk to bank-specific and macroeconomic determinants.

The second stream is represented by studies from Adrian and Shin[10] and Acharya and Viswanathan[11]. In an explorative study, Adrian and Shin analyse the activities of several large investment banks, and argue that aggregate liquidity can be understood as the rate of growth of the aggregate financial sector balance sheet. Considering the fact that fair value accounting has been increasingly popular with banks[12], when asset prices increase, financial intermediaries' balance sheets generally become stronger, and without adjusting asset holdings, their leverage tends to be too low (as was the case in investment banks in the period before the crisis of 2007/8, but also in the case of commercial banks). The financial intermediaries then hold surplus capital, and in the search for yield, they will attempt to find ways in which they can employ their surplus capital. As Adrian and Shin suggest, for such surplus capacity to be utilised, the intermediaries must expand their balance sheets. On the liability side, they take on more short-term debt. On the asset side, they search for potential borrowers. According to Adrian and Shin, aggregate liquidity is intimately tied to how hard the financial intermediaries look for borrowers. Another paper in this stream by Acharya and Viswanathan[13] is theoretical, and presents a model of the financial sector in which short-term or rollover debt is an optimal contracting response to risk-shifting or asset-substitution problems. Their analysis helps in understanding the deleveraging of the financial sector during crises, including the crisis of 2007–09. In particular, they show that the extent of the funding liquidity problem and related deleveraging or fire sales faced by each financial firm are determined by the extent of its own short-term debt, the adversity of the asset shock, the specificity of assets to borrowers relative to lenders, and the extent of short-term debt of potential buyers of assets, i.e., other financial firms. Following those two papers we ask to what extent is bank leverage affected by liquidity and bank liquidity by leverage. Looking at the results of an explorative study by the Bank of England[14], which

10 Adrian and Shin (2010).
11 Acharya and Viswanathan (2010).
12 CGFS (2009).
13 Acharya and Viswanathan (2010).
14 Bank of England (2009).

shows that large banks' leverage and liquidity risk may be positively related, we hypothesise that:

Hypothesis 1a: Increases in leverage (and thus solvency risk) of large banks are associated with increases in liquidity risk of these banks;

Hypothesis 1b: Increases in liquidity risk of large banks are associated with increases in leverage (and thus solvency risk) of these banks.

The third stream in the literature focuses on the role of macroprudential policy instruments for leverage and liquidity risk[15]. This literature underlines the necessity to affect the excessive procyclicality of leverage and liquidity, in particular in large banking organisations. However, in its concentration on the impact of macroprudential policy instruments on leverage ratio and liquidity risk (measured in a specific way, as a real asset growth), this literature does not analyse the relative importance of bank-specific and macroeconomic factors on leverage and liquidity risk. In particular, this literature omits the role of bank size for the sensitivity of leverage and liquidity to their drivers. Previous research shows that bank size may have an impact on bank risk and therefore affect the sensitivity of bank risk to the business cycle[16]. Large banks may have better chances for diversification, and could therefore better reduce overall risk exposure as compared to smaller banks that do not have much opportunity to diversify their loan portfolio[17]. Government protection of larger banks could also result in large banks becoming "too big to fail" or "too interconnected to fail"[18], in particular financial conglomerates operating in a few sectors of the financial market (e.g. banking, insurance and other financial products), and as the economic theory predicts, such banks undertake too many risky investments[19]. Large banks could also be more sensitive to general market movements than small banks focusing on traditional loan extension activity, which may lead to a positive relationship between bank size and systemic risk[20]. From an EU context, the problem of bank size has been accounted for in the analysis of factors determining bank risk[21]. In 15 EMU countries the relationship between banking sector systemic risk (proxied by bank equity market beta) and bank size has been found to be positive[22]. But can we state the same about the relationship between leverage and liquidity risk and the business cycle during non-crisis and

15 Lim et al. (2011); Cerutti et al. (2015); Claessens et al. (2014).
16 Olszak et al. (2016).
17 Konishi and Yasuda (2004); Stiroh (2006).
18 Schooner and Taylor (2010); Stiglitz (2010); De Haan and Poghosyan (2012).
19 See also Freixas et al. (2007).
20 Anderson and Fraser (2000); Haq and Heaney (2012).
21 Haq and Heaney (2012).
22 *Ibidem*.

crisis periods? As for the role of the business cycle on leverage during a non-crisis period we may predict two types of links. On the one hand, due to the fact that in such periods banks' profits are increasing, the stock value of equity is increasing and additionally, access to external finance is relatively easy[23], macroeconomic conditions may have an insignificant impact on leverage. However, during crisis periods, when access to external finance is limited, banks may feel constrained by the macroeconomic environment, and thus their leverage may become procyclical, i.e. banks will deleverage when the economy is in the bust. Following this, we hypothesise that:

Hypothesis 2: During a non-crisis period the business cycle does not affect bank leverage in an economically significant way.

However, due to the fact that large banks tend to be affected more by external market movements and have a generally more fragile business model, which creates more systemic risk[24], their leverage may be more sensitive to business cycle movements, in particular during a crisis period. We therefore expect that:

Hypothesis 2a: Large banks' leverage is procyclical during a crisis period.

As for the impact of the business cycle on liquidity risk during non-crisis period, we expect that independent of bank size, liquidity risk is procyclical, i.e. when macroeconomic conditions improve, banks take on more liquidity risk. This is due to high liquidity on the wholesale interbank market and on other markets where banks operate (including the real estate market, which is highly liquid during non-crisis periods and is financed by banks). We therefore hypothesise that:

Hypothesis 3: During a non-crisis period liquidity risk is procyclical.

The crisis period may, however, change this procyclical pattern of liquidity risk, due to the drying up of liquidity during such period, in particular, in the interbank market (as was the case during the last financial crisis[25]). Thus even if macroeconomic conditions improve, banks reduce their exposure to liquidity risk during the crisis period. On the other hand, when the economy is going down, banks' liquidity risk is increasing, due to the fact that bank deposits are prone to panics and runs. We thus expect that:

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23 Myers and Mayluf (1984).
24 Laeven et al. (2014).
25 See e.g. Schooner and Taylor (2010).

Hypothesis 3a: During a crisis period liquidity risk is countercyclical.

Large banks are more vulnerable to access to external finance[26]. Therefore we expect the liquidity risk of large banks to be more countercyclical during crisis period than the liquidity risk of other banks. We thus hypothesise that:

Hypothesis 3b: During a crisis period the liquidity risk of large banks is more countercyclical than the liquidity risk of medium and small banks.

3. RESEARCH METHODOLOGY AND DATA DESCRIPTION

3.1. Research methodology

To measure the leverage of a bank, we apply the ratio of total assets divided by equity capital, as suggested by the BOE[27]. As the BOE[28] shows, such a ratio among major UK banks tended to increase in economic booms (i.e. the balance sheets of banks grew quicker than their capital, necessary to cover unexpected losses). To quantify the liquidity risk, we include a simple loans-to-deposits ratio. This ratio is one of recommended indicators of liquidity risk in a macroprudential policy context[29]. It may be helpful in identification of the structural and cyclical dimension of systemic risk resulting from maturity mismatch (i.e. the funding risk). This ratio is a promising leading indicator of systemic liquidity risk and seems to have some signalling power regarding the build-up of this risk[30].

To compute the sensitivity of individual banks' leverage and funding risk to bank-specific and macroeconomic factors, and to crisis periods, we estimate two separate equations, of which equation 1 [EQ1] is our model of determinants of leverage, and equation 2 [EQ2] is our model of determinants of liquidity.

Model of determinants of leverage [EQ1]

$$Leverage_{i,t} = \alpha_0 + \alpha_1 Leverage_{i,t-1} + \alpha_2 Liquidity_{i,t-1} + \alpha_3 Loans/TA_{i,t-1} + \alpha_4 \Delta Loans_{i,t-1} + \\ + \alpha_5 DEPOSITS/TA_{i,t-1} + \alpha_6 QLP_{i,t-1} + \alpha_7 SIZE_{i,t-1} + \alpha_8 GDPG_{j,t} + \alpha_9 \Delta UNEMPL_{j,t} + \\ + \alpha_{10} CRISIS + \alpha_{11} CRISIS * GDPG_{j,t} + \vartheta_i + \varepsilon_{i,t}$$

[26] Laeven et al. (2014).
[27] (2009), p. 14 and Adrian and Shin (2010).
[28] BOE (2009).
[29] ESRB (2014, p. 121.
[30] See CGFS (2012), p. 10; ESRB (2014), p. 16.

Model of determinants of liquidity [EQ2]

$$Liquidity_{i,t} = \alpha_0 + \alpha_1 Liquidity_{i,t-1} + \alpha_2 Leverage_{i,t-1} + \alpha_3 Loans/TA_{i,t-1} + \alpha_4 \Delta Loans_{i,t-1} + \\ + \alpha_5 DEPBANKS/TA_{i,t-1} + \alpha_6 QLP_{i,t-1} + \alpha_7 SIZE_{i,t-1} + \alpha_8 GDPG_{j,t} + \alpha_9 \Delta Uempl_{j,t} + \\ + \alpha_{10} CRISIS + \alpha_{11} CRISIS * GDPG_{j,t} + \vartheta_i + \varepsilon_{i,t}$$

where:
- i – the number of the bank;
- j – the number of country;
- t – the number of observation for the i-th bank or j-th country;
- *Leverage* – total assets divided by equity capital;
- *Liquidity* – Loans of nonfinancial sector to deposits of nonfinancial sector (i.e. loans-to-deposits ratio, LTD); this ratio is a proxy for maturity mismatch of the bank's balance sheet; it measures funding liquidity risk;
- *Loans*/*TA* – loans to total assets; is our measure of credit risk;
- Δ*Loan* – real annual loans growth rate; measures sensitivity of solvency and Liquidity risk to changes in bank lending activity;
- *Deposits*/*TA* – deposits from nonfinancial customers divided by total assets;
- *DEPBANKS*/*TA* – deposits from banks divided by total assets;
- *QLP* –quality of the lending portfolio; it equals loan loss provisions divided by average loans;
- size – logarithm of assets;
- *GDPG* – real GDP per capita growth. A positive coefficient suggests procyclicality of leverage or liquidity risk, respectively, during a non-crisis period. A negative coefficient would imply economic insignificance of the business cycle to levels of leverage and liquidity risk during a non-crisis period;
- Δ*Unempl* – annual change in unemployment rate;
- *CRISIS* – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise;
- *CRISIS * GDPG* – interaction term between CRISIS and GDPG, this informs the sensitivity of leverage or liquidity risk to GDPG during crises; a positive coefficient in equation 1 suggests procyclicality of leverage'; a positive coefficient on Crisis*GDPG in equation 2 implies counter-cyclicality of LTD.

Our econometric model involves explanatory variables, in particular bank-specific variables, which may be endogenous and this may result in estimation bias. In order to limit this possible estimation bias we consider the system of generalised method of moments (GMM) developed by Blundell & Bond[31] with Windmejer's[32] finite sample correction. We control for the potential endogeneity of bank-specific variables in the two-step system GMM estimation procedure, by the inclusion of

[31] Blundell & Bond (1998).
[32] Windmejer's (2005).

up to two lags of explanatory variables as instruments. The UNEMPL, as well as the country and the time dummy variables are the only variables considered exogenous. The GMM estimator is efficient and consistent if the models are not subject to serial correlation of order two and the instruments are not proliferated. Therefore, we apply the test verifying the hypothesis of absence of second-order serial correlation in the first difference residuals AR(2). We also use the Hansen's J statistic for overidentifying restrictions, which tests the overall validity of the instrument tests[33].

3.2. Data description

We use pooled cross-section and time series data of individual banks' balance sheet items and profit and loss accounts from 67 countries and country-specific macroeconomic indicators for these countries, over a period from 2000 to 2011. The balance sheet and profit and loss account data are taken from consolidated financials available in the Bankscope database, whereas the macroeconomic data were accessed from the Worldbank and the IMF web pages. We exclude from our sample outlier banks by eliminating the extreme bank-specific observations when a given variable adopts extreme values. Additionally, in order to conduct the analysis only the data for which there were a minimum of 5 successive values of dependent variable from the period 2000 to 2011 was used (in effect the number of banks included in the study is 1105 from 67 countries[34], and the number of observations eventually amounted to approximately 10974).

As for the influence of bank size, we divide banks into three subsamples: large, medium and small (in each country separately: 30% of banks with the largest assets constitute our largest banks' sample and 40% of banks with the smallest assets constitute the smallest banks' sample; 30% of banks with assets that are in between are included in the medium-sized banks subsample). In this step we test the impact of different methods of division on the estimated results. We divide our banks according to the average-value-of-assets method[35]. In this method we

[33] See Roodman (2009), for more details.

[34] All countries included in the research: Australia, Austria, Belgium, Bulgaria, Canada, China Rep., Colombia, Croatia, Cyprus, Czech Rep., Denmark, Ecuador, Salvador, Estonia, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea Rep., Latvia, Lithuania, Luxemburg, Malaysia, Malta, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Uganda, Ukraine, UK, USA.

[35] Beck and Levine (2002).

firstcalculate the average assets of a bank over the whole period of 2000–2011, and then apply this average value at the next stage of division.

In table 1 and 2 we present descriptive statistics for our sample and subsamples and correlation matrices.

Table 1. Summary descriptive statistics

	Mean	**Median**	**Min**	**Max**	**Std. Dev.**	**# banks**	**#observ**
	full sample						
Leverage	14.40	12.54	1.00	97.60	9.05	1105	10794
Liquidity	65.81	68.65	0.10	199.14	23.19	1090	10114
Loans/TA	54.89	58.61	0.07	99.92	19.92	1101	10758
ΔLoans	14.24	6.67	–53.13	884.39	37.34	1022	9478
Deposits/TA	76.19	81.07	0.13	98.97	16.81	1102	10779
Depbanks/TA	12.37	6.80	0.00	96.22	15.24	1044	9002
QLP	1.22	0.66	–18.78	19.46	2.04	1084	9722
size	6.75	6.76	3.26	9.49	0.94	1105	10853
GDPG	2.51	2.20	–16.59	30.34	3.69	1105	13260
ΔUnempl	–0.04	–0.10	–5.40	9.70	1.20	1105	13260
	large						
Leverage	16.18	12.92	1.54	97.60	9.73	383	3887
Liquidity	65.16	66.67	0.23	179.75	20.48	380	3797
Loans/TA	55.18	55.92	0.19	93.24	17.69	381	3896
ΔLoans	12.63	7.62	–53.13	794.79	32.62	365	3578
Deposits/TA	74.14	79.51	0.16	96.83	15.72	382	3901
Depbanks/TA	11.82	8.10	0.00	95.44	12.18	363	3384
QLP	1.15	0.67	–10.07	17.04	1.72	380	3711
size	7.42	6.98	5.07	9.49	0.83	383	3912
GDPG	2.47	2.35	–16.59	30.34	3.63	383	4596
ΔUnempl	–0.02	–0.10	–5.40	9.70	1.21	383	4596

	Mean	Median	Min	Max	Std. Dev.	# banks	#observ
	medium						
Leverage	14.46	12.84	1.00	94.20	8.59	399	3914
Liquidity	67.43	68.26	0.23	199.14	22.94	397	3730
Loans/TA	56.58	58.58	0.16	99.92	19.33	399	3927
ΔLoans	14.83	7.36	–49.43	579.24	33.63	365	3420
Deposits/TA	78.08	82.30	0.28	98.97	16.49	399	3924
Depbanks/TA	11.83	6.88	0.00	96.22	15.67	385	3340
QLP	1.22	0.69	–18.78	19.26	2.07	394	3564
size	6.69	6.69	4.22	8.25	0.65	399	3938
GDPG	2.60	2.41	–16.59	30.34	3.74	399	4788
ΔUnempl	–0.06	–0.10	–5.40	9.70	1.17	399	4788
	small						
Leverage	12.00	11.55	1.00	63.71	8.14	323	2993
Liquidity	64.44	67.84	0.10	194.92	26.86	313	2587
Loans/TA	52.25	56.38	0.07	98.49	22.99	321	2935
ΔLoans	15.75	7.20	–51.36	884.39	47.22	292	2480
Deposits/TA	76.38	81.73	0.13	97.60	18.26	321	2954
Depbanks/TA	13.97	7.43	0.00	89.40	18.26	296	2278
QLP	1.34	0.71	–15.87	19.46	2.40	310	2447
size	5.96	6.28	3.26	7.42	0.70	323	3003
GDPG	2.46	2.40	–16.59	30.34	3.70	323	3876
ΔUnempl	–0.05	–0.10	–5.40	9.70	1.22	323	3876

Notes: Leverage – total assets divided by equity capital; Liquidity – loans to deposits (LTD ratio); Loans/TA – loans to total assets; DLoans – annual loans growth real; Deposits/TA – deposits of nonfinancial sector divided by total assets; Depbanks/TA – deposits of banks divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; DUnempl – annual change in unemployment rate; # denotes number of banks and observations (denoted as observ).

Table 2. Correlation matrices

	Leverage	Liquidity	Loans/TA	ΔLoans	Deposits/TA	Depbanks/ TA	QLP	size	GDPG	ΔUNEMPL
full sample										
Leverage	1									
Liquidity	–0.124***	1								
Loans/TA	0.038***	0.926***	1							
ΔLoans	–0.087***	0.005	–0.014	1						
Deposits/TA	0.153***	–0.036***	0.157***	–0.035***	1					
Depbanks/ TA	0.088***	–0.027**	–0.018*	0.048***	–0.009	1				
QLP	–0.151***	0.013	–0.040***	0.024**	–0.076***	0.030***	1			
size	0.507***	0.006	0.112***	–0.131***	0.032***	–0.040***	–0.156***	1		
GDPG	–0.128***	–0.020**	–0.040***	0.241***	0.005	–0.048***	–0.122***	–0.126***	1	
ΔUnempl	0.032***	0.014	0.025**	–0.150***	0.001	0.026**	0.155***	0.047***	–0.572***	1
large										
Leverage	1.000									
Liquidity	–0.273***	1.000								
Loans/TA	–0.196***	0.957***	1.000							
ΔLoans	–0.065***	0.048***	0.045***	1.000						
Deposits/TA	–0.241***	0.010	0.098***	0.017	1.000					

Depbanks/ TA	0.218***	–0.030*	–0.024	0.060***	–0.039**	1.000				
QLP	–0.185***	–0.034**	–0.072***	–0.005	0.024	0.030*	1.000			
size	0.495***	–0.148***	–0.121***	–0.114***	–0.267***	0.051***	–0.179***	1.000		
GDPG	–0.128***	–0.025	–0.030*	0.251***	0.103***	–0.081***	–0.1736***	–0.154***	1.000	
ΔUnempl	0.017	0.0324**	0.043***	–0.178***	–0.017	0.053***	0.202***	0.053***	–0.579***	1
medium										
Leverage	1.000									
Liquidity	–0.096***	1.000								
Loans/TA	0.078***	0.912***	1.000							
ΔLoans	–0.108***	0.030*	–0.012	1.000						
Deposits/TA	0.310***	–0.130***	0.098***	–0.052***	1.000					
Depbanks/ TA	0.108***	–0.049***	–0.019	0.068***	0.007	1.000				
QLP	–0.146***	0.064***	–0.008	0.025	–0.121***	0.040**	1.000			
size	0.464***	0.088***	0.216***	–0.199***	0.220***	–0.045***	–0.190***	1.000		
GDPG	–0.131***	–0.029*	–0.058***	0.272***	–0.033**	–0.040**	–0.08***	–0.185***	1.000	
ΔUnempl	0.059***	0.0113	0.026	–0.163***	0.020	0.037**	0.13***	0.062***	–0.573***	1
small										
Leverage	1.000									
Liquidity	0.014	1.000								
Loans/TA	0.240***	0.915	1.000							
ΔLoans	–0.084***	–0.052	–0.059***	1.000						
Deposits/TA	0.539***	0.013	0.273***	–0.082	1.000					

	Leverage	Liquidity	Loans/TA	ΔLoans	Deposits/TA	Depbanks/ TA	QLP	size	GDPG	ΔUNEMPL	
Depbanks/ TA	–0.040*	0.005	0.004	0.013	–0.004	1.000					
QLP	–0.111***	0.000	–0.043**	0.043	–0.139***	0.012	1.000				
size	0.607***	0.116	0.265***	–0.127	0.435***	–0.038*	–0.150***	1.000			
GDPG	–0.134***	–0.006	–0.034*	0.211	–0.064***	–0.027	–0.123***	–0.146***	1.000		
ΔUnempl	0.012	–0.0027	0.0038	–0.116	0.003	–0.010	0.142***	0.031*	–0.565***	1	

Notes: Leverage – total assets divided by equity capital; Liquidity – loans to deposits (LTD ratio); Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Deposits/TA – deposits of nonfinancial sector divided by total assets; Depbanks/TA – deposits of banks divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUnempl – annual change in unemployment rate; ***, **, * denote significance at the 1%, 5% and 10% rates, respectively.

4. RESULTS

We present the main results in Section 4.1 and sensitivity analyses in Section 4.2.

4.1. Main results

Due to the fact that our sample includes a large number of banks operating in the United States, in this section we present the main results for leverage and liquidity risk separately in tables including US banks (denoted with letter a) and in tables excluding Japanese banks (denoted with letter b).

Tables 3a and 3b show the coefficients obtained with the model of determinants of leverage (EQ1). Specification 1 is our baseline model analysing determinants of leverage in the full sample and specifications 2–4 show the effects of bank size on the sensitivity of leverage to its determinants. Funding liquidity ratio (LTD) enters specifications 1 and 2 positively and significantly. This indicates that increases in previous period funding liquidity risk are associated with increases in leverage in the full sample and in large banks. Such effect is not found in medium and small banks, whose leverage is not statistically significantly affected by LTD ratio. We thus find empirical support for our prediction expressed in hypothesis 1a, that increases in leverage (and thus solvency risk) of large banks are associated with increases in liquidity risk of these banks.

The lagged loans to total assets ratio enters the full sample and large banks sample negatively and statistically significantly. Such a result implies that large banks decrease leverage in response to increases in credit risk. However, lagged credit risk does not seem to affect the leverage of medium and small banks. As for the impact of real loans growth we find that it does not affect bank leverage (all coefficients are statistically insignificant).

The results reported in Tables 3a and 3b are mixed with regard to the association between leverage and the nonfinancial sector deposits to assets ratio (see columns 2 and 3). On the one hand, greater access to stable retail deposits is related to lower leverage in large banks. In contrast, medium banks tend to increase their leverage in response to better access to nonfinancial sector deposits.

A negative regression coefficient on QLP (and statistically significant in the full sample and marginally significant in large banks) implies that banks decrease their leverage in response to the deprecated quality of the loans portfolio in the previous year. As can be inferred from the table (see specification 2), this effect is definitely strongest in the sample of large banks.

The size enters all specifications positively and statistically significantly, implying that large banks have higher leverage. As can be seen from the table, this effect is very strong in the case of large and small banks (see columns 2 and 4).

With reference to the impact of macroeconomic conditions on the leverage of banks we find support for hypothesis 2, which predicts that during non-crisis periods the business cycle does not affect bank leverage in an economically significant way. In particular, the coefficient on GDPG enters all specifications negatively and significantly in Table 3a, and insignificantly in Table 3b. However, the unemployment rate enters these specifications negatively and statistically significantly in all estimations, suggesting procyclicality of leverage, with leverage of large banks the most procyclical.

We note from column 2 of Tables 3a and 3b that the relationship between leverage and the business cycle during a crisis is positive and statistically significant (see Table 3b) in the case of large banks. This positive relationship suggests that when economic conditions worsen, large banks tend to decrease their leverage. Such a result implies procyclicality of leverage for large banks. Such a result supports the view expressed in hypothesis 2a, that large banks' leverage is procyclical during a crisis period. In the remaining samples of banks, we do not find a statistically significant impact of the business cycle on leverage in crisis times.

Table 3a. Determinants of leverage and bank size

Dependent variable: Leverage	**full sample 1**		**large 2**		**medium 3**		**small 4**	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Leverage (-1)	0.930 (52.32)	0.000	0.889 (29.19)	0.000	0.869 (26.77)	0.000	0.798 (18.48)	0.000
Liquidity	0.082 (4.02)	0.000	0.094 (2.73)	0.006	0.005 (0.29)	0.773	0.008 (0.51)	0.610
Loans/TA	–0.070 (–3.16)	0.002	–0.091 (–2.47)	0.013	0.006 (0.26)	0.792	0.025 (1.36)	0.173
ΔLoans	–0.002 (–0.98)	0.325	0.000 (0.06)	0.953	0.001 (0.34)	0.732	0.000 (0.05)	0.958
Deposits/TA	0.011 (1.37)	0.169	–0.021 (–1.77)	0.077	0.017 (2.19)	0.029	0.008 (0.7)	0.483
QLP	–0.095 (–2.18)	0.029	–0.094 (–1.45)	0.147	–0.037 (–0.6)	0.548	–0.035 (–0.51)	0.611
size	0.211 (1.6)	0.109	0.665 (3.5)	0.000	0.331 (1.69)	0.092	0.971 (3.21)	0.001

Dependent variable: Leverage	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
GDPG	–0.054 (–1.69)	0.091	–0.073 (–1.78)	0.075	–0.073 (–1.98)	0.048	–0.115 (–2.04)	0.042
ΔUnempl	–0.556 (–4.54)	0.000	–0.461 (–2.5)	0.013	–0.467 (–2.28)	0.023	–0.308 (–1.47)	0.143
Crisis	0.287 (1.59)	0.112	–0.221 (–0.87)	0.385	0.072 (0.25)	0.801	0.018 (0.06)	0.956
Crisis*GDPG	–0.047 (–0.94)	0.348	0.104 (1.53)	0.125	–0.116 (–1.15)	0.251	–0.058 (–0.65)	0.514
cons	–2.836 (–2.47)	0.014	–2.484 (–1.46)	0.145	–2.239 (–1.61)	0.107	–5.463 (–2.99)	0.003
AR(1)	–6.04	0.000	–3.95	0.000	–4.54	0.000	–3.51	0.000
AR(2)	2.4	0.016	2.16	0.031	0.53	0.598	1.12	0.262
Sargan (p val)		0.000		0.000		0.000		0.000
Hansen (p val)		0.000		0.091		0.015		0.396
# observ	7 961		3 265		2 896		1 800	
# banks	994		362		357		275	

Notes: This table presents full sample estimation of equation 1 [EQ1]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Leverage – total assets divided by equity capital. As explanatory variables we include: Leverage (-1) – lagged dependent variable; Liquidity – loans to deposits (LTD ratio); Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Deposits/TA – deposits of nonfinancial sector divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis * GDPG – interaction between Crisis and GDPG; # denotes "number of", observ denotes observations, cons denotes intercept; t-statistics are given in brackets.

Table 3b. Determinants of leverage and bank size – banks operating in Japan are excluded

Dependent variable: Leverage	full sample	p-ist	large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Leverage (-1)	0.926 (50.23)	0.000	0.901 (30.26)	0.000	0.880 (29.35)	0.000	0.784 (21.21)	0.000
Liquidity	0.079 (3.81)	0.000	0.088 (2.49)	0.013	0.000 (–0.01)	0.993	0.006 (0.41)	0.683
Loans/TA	–0.067 (–2.990)	0.003	–0.082 (–2.14)	0.032	0.012 (0.65)	0.513	0.017 (0.94)	0.349
ΔLoans	–0.002 (–1.040)	0.298	0.000 (0.07)	0.943	0.001 (0.18)	0.854	0.001 (0.53)	0.596
Deposits/TA	–0.004 (–0.45)	0.653	–0.024 (–1.66)	0.096	0.010 (0.86)	0.389	0.001 (0.10)	0.918
QLP	–0.116 (–2.61)	0.009	–0.119 (–1.910	0.056	0.000 (0.00)	0.998	–0.041 (–0.63)	0.530
size	0.109 (0.87)	0.383	0.551 (2.81)	0.005	0.239 (1.29)	0.196	0.603 (2.17)	0.030
GDPG	–0.012 (–0.37)	0.713	–0.037 (–0.990	0.324	–0.044 (–1.00)	0.318	–0.061 (–1.15)	0.250
ΔUnempl	–0.362 (–2.83)	0.005	–0.375 (–1.91)	0.057	–0.452 (–1.99)	0.047	0.077 (0.45)	0.656
Crisis	0.041 (0.21)	0.834	–0.263 (–1.02)	0.310	–0.012 (–0.03)	0.975	–0.447 (–1.23)	0.217
Crisis*GDPG	0.025 (0.48)	0.629	0.140 (1.96)	0.050	–0.062 (–0.52)	0.605	0.106 (1.11)	0.265
cons	–0.883 (–0.73)	0.466	–1.817 (–0.94)	0.346	–1.365 (–0.73)	0.463	–2.202 (–1.17)	0.243
AR(1)	–5.64	0.000	–3.84	0.000	–3.95	0.000	–2.94	0.003
AR(2)	2.56	0.010	2.13	0.033	0.73	0.464	1.84	0.066
Sargan (p val)	930.81	0.000	646.17	0.000	628.79	0.000	401.23	0.000

Dependent variable: Leverage	full sample	p-ist	large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Hansen (p val)	410.39	0.000	271.42	0.168	271.77	0.115	230.36	0.644
# observ	6,891		3,021		2,398		1,472	
# banks	883		338		307		238	

Notes: This table presents full sample estimation of equation 1 [EQ1]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Leverage – total assets divided by equity capital. As explanatory variables we include: Leverage (-1) – lagged dependent variable; Liquidity – loans to deposits (LTD ratio); Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Deposits/TA – deposits of nonfinancial sector divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis * GDPG – interaction between Crisis and GDPG; # denotes "number of", observ denotes observations, cons denotes intercept; t-statistics are given in brackets.

Tables 4a (all banks from 65 countries) and 4b (with exclusion of the US banks) show the estimations of equation 2 [EQ2], where we regress a series of explanatory variables on liquidity risk (i.e. LTD ratio). With reference to the impact leverage on LTD we find mixed results. Leverage enters with a positive (but insignificant) coefficient only in the case of small banks in Table 4a and with marginally statistically significant and positive coefficient in the case of large banks in Table 4b (see column 2). Such a result for large banks implies increases in solvency risk results in increases in funding liquidity risk. We thus find support for the view expressed in hypothesis 1b, that *increases in liquidity risk for large banks are associated with increases in leverage (and thus solvency risk) for these banks*. In contrast, a negative coefficient (but insignificant) on leverage in medium banks suggests that in response to increases in solvency risk, banks tended to decrease liquidity risk. Traditional bank lending activity and credit risk (as proxied by the loans to total assets ratio), do not significantly affect banks' LTD. However, increases in previous years' bank lending lead to increases of funding liquidity risk in the large banks sample, because the regression coefficient on ÄLoans enters the specification in column 2 positively and statistically significantly.

With reference to the impact of access to interbank market financing our findings are mixed. On the one hand, better access to the wholesale markets

financing (interbank deposits) results in decreased funding liquidity risk in the case of large banks (see column 2). Such a result may imply that large banks with better access to interbank funding extend fewer loans and invest more in other financial instruments. In contrast, the effect of Depbanks/TA on LTD of medium banks is positive, implying that better access to financing by other banks induces medium banks to take on higher levels of liquidity risk. The access to interbank funding does not significantly affect the funding liquidity risk of small banks.

A negative regression coefficient on QLP implies that banks decrease their liquidity funding risk in response to deprecated quality of the loans portfolio in the previous year. As can be inferred from the table (see specification 3), this effect is definitely strongest in the sample of medium banks.

We note from the results in Tables 4a and 4b that the role of size on LTD is diversified and seems to be related to the size category of banks. A negative and statistically significant coefficient on size in large banks (see specification 2) implies that large banks tend to decrease their liquidity funding risk, as their assets get higher. In contrast, size enters specifications 3 and 4 positively (and significantly) suggesting that medium and small banks with higher assets are more exposed to liquidity risk.

As for the impact of the business cycle (proxied by the real growth in GDP per capita, GDPG and change in unemployment rate) our findings lend empirical support to the view expressed in hypothesis 3; that d*uring a non-crisis period liquidity risk is procyclical*. GDPG enters all specifications positively and ÄUnempl negatively – implying procyclicality of LTD, because LTD tends to increase in good economic conditions and decrease in unfavourable times. There is, however, a visible diversity of impact of the business cycle on LTD – which seems to be related to the bank size category. Generally, medium and small banks' LTD seems to be procyclical in a significant way relative to large banks' LTD. This procyclical pattern of liquidity risk is confirmed in Table 4b, when we exclude US banks.

Additionally, we find that during a crisis period GDPG exerts a negative impact on LTD in all subsamples of banks. Such a result implies that even when economic conditions improve in some countries during a crisis, banks tend to decrease their LTD relative to boom periods. This may be an effect of banks' attempts to decrease liquidity funding risk. Thus our findings support the view expressed in hypothesis 3a, predicting that during a crisis period liquidity risk is countercyclical. The counter-cyclicality hypothesis is particularly evident in the sample of large banks, because the negative coefficient on Crisis*GDPG is the strongest in the subsample of these banks, both in Table 4a and 4b. As can be inferred from Tables 4a and 4b, the association between LTD and Crisis*GDPG is –2.072 (Table 4a) and –0,727 (Table 4b) for large banks, -0.401 (Table 4a) and –0.289 (Table 4b) for medium banks, and –0.592 (Table 4a) and -0.534 (Table 4b). Such results thus provide evidence of greater sensitivity to liquidity risk for large banks to the business

cycle during non-crisis periods and are consistent with the view expressed in hypothesis 3b, that during a crisis period the liquidity risk for large banks is more countercyclical than the liquidity risk for medium and small banks. In particular, these results imply that even improvements in GPDG do not stimulate large banks to increase their exposure to liquidity risk (maturity mismatch). In effect, the counter-cyclicality of liquidity risk for large banks may result in weaker access to the bank financing necessary to stimulate investments in the real economy. This may have further negative consequences for the real economy, generating an extended period of sluggish economic growth.

Table 4a. Determinants of Liquidity (LTD) and bank size

Dependent variable: Liquidity	**full sample 1**		**large 2**		**medium 3**		**small 4**	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Liquidity (-1)	0.756 (9.7)	0.000	1.418 (4.1)	0.000	0.908 (7.51)	0.000	0.786 (7.00)	0.000
Leverage	–0.015 (–0.36)	0.718	–0.174 (–0.24)	0.813	–0.052 (–0.81)	0.420	0.062 (0.64)	0.520
Loans/TA	0.076 (0.89)	0.376	0.000 (0.00)	0.000	–0.071 (–0.49)	0.624	0.040 (0.29)	0.768
ΔLoans	0.006 (0.93)	0.352	0.001 (0.01)	0.989	0.007 (0.86)	0.391	–0.001 (–0.08)	0.935
Depbanks/TA	0.009 (0.37)	0.711	–0.318 (–1.44)	0.149	0.044 (2.18)	0.029	–0.019 (–0.65)	0.514
QLP	–0.303 (–2.42)	0.015	0.771 (0.62)	0.537	–0.443 (–2.73)	0.006	–0.085 (–0.41)	0.680
size	0.422 (0.92)	0.360	10.420 (0.88)	0.379	1.297 (1.83)	0.068	1.946 (1.90)	0.057
GDPG	0.440 (4.67)	0.000	0.278 (0.73)	0.467	0.389 (3.02)	0.003	0.647 (3.16)	0.002
ΔUnempl	–1.313 (–3.48)	0.001	–8.433 (–0.97)	0.334	–0.863 (–2.05)	0.040	–0.962 (–1.65)	0.098
Crisis	2.209 (4.74)	0.000	5.153 (1.61)	0.107	1.529 (2.7)	0.007	1.857 (1.88)	0.061
Crisis*GDPG	–0.627 (–4.66)	0.000	–2.072 (–0.5)	0.620	–0.401 (–2.44)	0.015	–0.592 (–2.28)	0.023

Dependent variable: Liquidity	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
cons	8.388 (2.73)	0.006	–95.204 (–0.98)	0.326	1.522 (0.29)	0.773	–2.193 (–0.36)	0.717
AR(1)	–11.94	0.000	–2.31	0.021	–6.99	0.000	–6.3	0.000
AR(2)	–0.44	0.660	–0.5	0.615	–0.47	0.641	0.06	0.951
Sargan (p val)		0.000		0.000		0.000		0.000
Hansen (p val)		0.000		0.000		0.065		0.923
# observ	6 508		2 771		2 402		1 335	
# banks	885		337		328		220	

Notes: This table presents full sample estimation of equation 2 [EQ2]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Liquidity – total loans divided by deposits (LTD ratio). As explanatory variables we include: Liquidity (-1) – lagged dependent variable; Leverage – assets to equity capital ratio; Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Depbanks/TA – deposits of banks divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis* GDPG – interaction between Crisis and GDPG; # denotes "number of"; observ denotes observations, cons denotes intercept; t-statistics are given in brackets.

Table 4b. Determinants of Liquidity (LTD) and bank size – banks operating in the US are excluded

Dependent variable: Liquidity	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Liquidity (-1)	0.761 (7.95)	0.000	0.910 (14.36)	0.000	0.890 (6.45)	0.000	0.802 (6.81)	0.000
Leverage	0.008 (0.17)	0.868	0.045 (1.530	0.126	–0.051 (–0.78)	0.433	0.097 (0.85)	0.395
Loans/TA	0.079 (0.70)	0.487	–0.042 (–0.57)	0.570	–0.049 (–0.29)	0.770	0.032 (0.220	0.825

Dependent variable: Liquidity	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
ΔLoans	0.006 (0.92)	0.359	0.012 (1.67)	0.094	0.007 (0.84)	0.403	–0.001 (–0.13)	0.897
Depbanks/TA	0.004 (0.16)	0.869	–0.041 (–1.88)	0.060	0.043 (1.55)	0.121	–0.025 (–0.80)	0.425
QLP	–0.279 (–2.13)	0.033	–0.367 (–3.05)	0.002	–0.421 (–2.37)	0.018	–0.034 (–0.16)	0.869
size	0.460 (0.96)	0.339	–1.008 (–3.02)	0.003	1.282 (2.91)	0.004	2.198 (2.16)	0.031
GDPG	0.473 (4.51)	0.000	0.503 (5.37)	0.000	0.401 (3.08)	0.002	0.591 (2.81)	0.005
ΔUnempl	–1.173 (–2.94)	0.003	–1.380 (–3.56)	0.000	–0.655 (–1.39)	0.165	–1.060 (–1.76)	0.079
Crisis	2.314 (3.64)	0.000	3.337 (6.64)	0.000	1.365 (1.76)	0.079	1.520 (1.25)	0.210
Crisis*GDPG	–0.560 (–3.62)	0.000	–0.727 (–5.16)	0.000	–0.289 (–1.54)	0.124	–0.534 (–1.94)	0.052
cons	7.212 (2.36)	0.018	14.032 (5.21)	0.000	1.524 (0.44)	0.659	–4.325 (–0.72)	0.469
AR(1)	–11.79	0.000	–7.52	0.000	–6.85	0.000	–6.27	0.000
AR(2)	–0.43	0.671	–0.1	0.918	–0.5	0.619	0.07	0.944
Sargan (p val)	5025.56	0.000	2059.67	0.000	1815.26	0.000	1140.41	0.000
Hansen (p val)	502.24	0.000	274.09	0.132	254.46	0.294	185.08	0.987
# observ	5,779		2,536		2,055		1,188	
# banks	785		313		280		192	

Notes: This table presents full sample estimation of equation 2 [EQ2]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Liquidity – total loans divided by deposits (LTD ratio). As explanatory variables we include: Liquidity (-1) – lagged dependent variable; Leverage – assets to equity capital ratio; Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Depbanks/TA – deposits of banks divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis* GDPG – interaction between Crisis and GDPG; # denotes "number of"; observ denotes observations, cons denotes intercept; t-statistics are given in brackets.

4.2. Robustness checks

To build more confidence in our main findings, we employ several robustness checks. In particular, we control for the impact concentration of our sample in one and three research countries with the largest number of banks and observations. Thus in this section we exclude a further two countries, in which we find the number of banks to be the greatest. These countries include the Russian Federation and the United States. We also look at the role of the number of instruments in the 2-step GMM model, due to the fact that the excessively large number of instruments validates the Hansen test[36]. To test the sensitivity of our results, we collapse the number of lags of endogenous variables to 1. The results for the effect of a reduced number of countries are presented in Table 5 (for the determinants of leverage) and in Table 6 (for the determinants of liquidity risk). As can be inferred from these tables, our main findings are further supported. In particular, with reference to hypotheses 1a and 1b, we still find the association between solvency and liquidity risk to be positive, implying interdependence between these two types of risks. Our conclusions on the impact of the business cycle on leverage are further supported. As can be seen from Table 5, the association between leverage and GDPG is negative (and statistically insignificant), implying the economic insignificance of the business cycle to leverage levels during non-crisis periods (and thus confirming the view expressed in hypothesis 2). The positive link between leverage and GDPG during crisis periods in large banks (see the coefficient on Crisis*GDPG in column 2 in Table 5), suggests procyclicality of leverage during a crisis period (supporting hypothesis 2a). As for the impact of the business cycle on liquidity risk, we still find that liquidity risk is procyclical during non-crisis periods (see coefficients on GDPG in Table 6) – consistent with the prediction expressed in hypothesis 3. We also find further support to hypothesis 3a, that liquidity risk is countercyclical, and to hypothesis 3b, that this counter-cyclicality of liquidity risk is particularly evident in the subsample of large banks.

Table 5. Determinants of leverage – sensitivity of results to exclusion of three countries with the largest number of observations

Dependent variable: Leverage	full sample		large 2		medium 3		small 4	
Explanatory variables:	coef (t val)	p val	coef (t val)	p val	coef (t val)	p val	coef (t val)	p val
Leverage (-1)	0.916 (48.00)	0.000	0.888 (27.97)	0.000	0.904 (43.06)	0.000	0.779 (20.18)	0.000
Liquidity	0.061 (2.68)	0.007	0.094 (2.86)	0.004	0.003 (0.20)	0.838	0.003 (0.19)	0.845

[36] See Roodman (2009).

Dependent variable: Leverage	full sample		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Loans/TA	–0.047 (–1.88)	0.060	–0.090 (–2.48)	0.013	0.010 (0.70)	0.482	0.019 (1.01)	0.310
ΔLoans	–0.002 (–0.71)	0.476	0.000 (–0.10)	0.924	–0.002 (–0.53)	0.598	0.003 (1.07)	0.287
Deposits/TA	–0.002 (–0.18)	0.858	–0.022 (–1.46)	0.144	0.014 (0.90)	0.368	0.005 (0.44)	0.663
QLP	–0.136 (–2.48)	0.013	–0.108 (–1.47)	0.143	–0.085 (–1.13)	0.258	–0.023 (–0.30)	0.762
size	0.061 (0.45)	0.651	0.575 (2.78)	0.006	–0.087)	0.563	0.619 (1.95)	0.051
GDPG	–0.041 (–1.19)	0.236	–0.063 (–1.55)	0.122	–0.045 (–0.91)	0.364	–0.076 (–1.35)	0.178
ΔUnempl	–0.339 (–2.47)	0.013	–0.470 (–2.31)	0.021	–0.417 (–1.68)	0.092	0.045 (0.26)	0.795
Crisis	–0.054 (–0.26)	0.798	–0.386 (–1.28)	0.200	0.158 (0.41)	0.685	–0.373 (–1.00)	0.316
Crisis*GDPG	0.048 (0.79)	0.427	0.142 (1.73)	0.084	–0.093 (–0.72)	0.473	0.094 (0.81)	0.416
cons	–0.392 (–0.30)	0.768	–1.763 (–0.86)	0.392	0.174 (0.08)	0.933	–2.445 (–1.17)	0.242
AR(1)	–5.52	0.000	–3.74	0.000	–3.87	0.000	–2.87	0.004
AR(2)	2.56	0.010	2.1	0.035	0.69	0.493	1.82	0.069
Sargan (p val)	827.08	0.000	588.16	0.000	511.26	0.000	395	0.000
Hansen (p val)	398.96	0.000	250.33	0.447	251.2	0.345	210.06	0.896
# observ	6,017		2,510		2,144		1,363	
# banks	771		279		271		221	

Notes: This table presents full sample estimation of equation 1 [EQ1]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Leverage – total assets divided by equity capital. As explanatory variables we include: Leverage (-1) – lagged dependent variable; Liquidity – loans to deposits (LTD ratio); Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Deposits/TA – deposits of nonfinancial sector divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm

of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis * GDPG – interaction between Crisis and GDPG; # denotes "number of", observ denotes observations, cons denotes intercept; t-statistics are given in brackets.

Table 6. Determinants of liquidity – sensitivity of results to exclusion of three countries with the largest number of observations

Dependent variable: Liquidity	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Liquidity (-1)	0.873 (7.15)	0.000	0.940 (14.86)	0.000	1.038 (6.25)	0.000	0.819 (7.31)	0.000
Leverage	0.018 (0.36)	0.720	0.051 (1.66)	0.096	–0.053 (–0.78)	0.436	0.094 (0.89)	0.372
Loans/TA	–0.025 (–0.17)	0.867	–0.061 (–0.81)	0.421	–0.197 (–0.97)	0.334	0.023 (0.16)	0.870
ΔLoans	0.008 (1.09)	0.274	0.011 (1.37)	0.172	0.014 (1.68)	0.093	–0.003 (–0.26)	0.791
Depbanks/TA	–0.006 (–0.25)	0.803	–0.028 (–1.33)	0.185	0.053 (1.79)	0.073	–0.038 (–1.21)	0.228
QLP	–0.284 (–2.23)	0.026	–0.438 (–3.21)	0.001	–0.432 (–2.45)	0.014	–0.018 (–0.09)	0.928
size	0.211 (0.44)	0.656	–1.245 (–3.33)	0.001	1.319 (1.77)	0.077	1.986 (1.97)	0.049
GDPG	0.504 (4.02)	0.000	0.526 (5.32)	0.000	0.475 (2.94)	0.003	0.572 (2.33)	0.020
ΔUnempl	–1.200 (–3.34)	0.001	–1.157 (–2.93)	0.003	–0.760 (–1.85)	0.064	–1.027 (–1.77)	0.077
Crisis	2.661 (3.76)	0.000	3.219 (5.99)	0.000	1.830 (2.32)	0.020	1.356 (1.08)	0.279
Crisis*GDPG	–0.621 (–3.37)	0.001	–0.621 (–4.24)	0.000	–0.497 (–2.32)	0.020	–0.492 (–1.60)	0.110
cons	7.098 (2.23)	0.026	14.744 (5.03)	0.000	–0.710 (–0.14)	0.888	–3.379 (–0.57)	0.571
AR(1)	–11.28	0.000	–7.53	0.000	–6.43	0.000	–6.04	0.000
AR(2)	–0.87	0.382	–0.20	0.839	–0.40	0.689	–0.59	0.554
Sargan (p val)	4638.26	0.000	1989.67	0.000	1660.03	0.000	1074.08	0.000

Dependent variable: Liquidity	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Hansen (p val)	467.25	0.000	258.4	0.296	242.86	0.454	169.35	0.999
# observation	5,375		2,369		1,893		1,113	
# banks	701		270		252		179	

Notes: This table presents full sample estimation of equation 2 [EQ2]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Liquidity – total loans divided by deposits (LTD ratio). As explanatory variables we include: Liquidity (-1) – lagged dependent variable; Leverage – assets to equity capital ratio; Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Depbanks/TA – deposits of banks divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis* GDPG – interaction between Crisis and GDPG; # denotes "number of"; observ denotes observations, _cons denotes intercept; t-statistics are given in brackets.

As can be inferred from Tables 7 and 8, our specifications of equation 1 [EQ1] and equation 2 [EQ2] do not differ significantly from the baseline results presented in Tables 2 and 3. What's more, our sensitivity analysis increased the economic and statistical importance of our baseline results.

Table 7. Robustness – leverage (reduced number of instruments, number of lags of endogenous variables collapsed to 1)

Dependent variable: Leverage	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Leverage (-1)	0.942 (53.72)	0.000	0.927 (33.5)	0.000	0.911 (34.42)	0.000	0.805 (20.02)	0.000
Liquidity	0.083 (3.18)	0.001	0.128 (3.14)	0.002	0.012 (0.35)	0.729	0.011 (0.74)	0.459
Loans/TA	–0.071 (–2.55)	0.011	–0.132 (–3.03)	0.002	–0.007 (–0.16)	0.870	0.023 (1.13)	0.260

Dependent variable: Leverage	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
ΔLoans	–0.005 (–2.05)	0.040	0.000 (0.04)	0.971	0.001 (0.23)	0.815	–0.002 (–0.59)	0.552
Deposits/TA	0.003 (0.28)	0.779	–0.019 (–1.97)	0.049	0.009 (0.61)	0.541	–0.002 (–0.18)	0.858
QLP	–0.097 (–1.89)	0.058	–0.085 (–1.27)	0.203	–0.109 (–1.42)	0.154	–0.026 (–0.40)	0.687
size	0.217 (1.58)	0.114	0.472 (2.28)	0.023	0.126 (0.75)	0.451	0.948 (3.3)	0.001
GDPG	–0.052 (–1.52)	0.129	–0.058 (–1.25)	0.211	–0.040 (–0.89)	0.371	–0.134 (–2.46)	0.014
ΔUnempl	–0.535 (–4.01)	0.000	–0.276 (–1.45)	0.148	–0.522 (–2.39)	0.017	–0.405 (–1.87)	0.061
Crisis	0.244 (1.33)	0.184	–0.257 (–0.96)	0.335	0.293 (1.24)	0.216	–0.004 (–0.01)	0.990
Crisis*GDPG	–0.038 (–0.78)	0.437	0.134 (1.80)	0.072	–0.132 (–1.82)	0.068	–0.075 (–0.86)	0.388
cons	–2.271 (–1.75)	0.080	–1.772 (–1.06)	0.291	–0.738 (–0.38)	0.707	–4.650 (–3.09)	0.002
AR(1)	–6.03	0.000	–3.95	0.000	–4.51	0.000	–3.51	0.000
AR(2)	2.38	0.017	2.17	0.030	0.52	0.604	1.13	0.258
Sargan (p val)		0.000		0.000		0.000		0.000
Hansen (p val)		0.000		0.005		0.001		0.090
# observation	7 961		3 265		2 896		1 800	
# banks	994		362		357		275	

Notes: This table presents full sample estimation of equation 1 [EQ1]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel data with lagged dependent variable. In each regression, dependent variable is Leverage – total assets divided by equity capital. As explanatory variables we include: Leverage (-1) – lagged dependent variable; Liquidity – loans to deposits (LTD ratio); Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Deposits/TA – deposits of nonfinancial sector divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis * GDPG – interaction between Crisis and GDPG; # denotes "number of", observ denotes observations, _cons denotes intercept; t-statistics are given in brackets.

Table 8. Robustness – liquidity (reduced number of instruments, number of lags of endogenous variables collapsed to 1)

Dependent variable: Liquidity	full sample 1		large 2		medium 3		small 4	
Explanatory variables:	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**	**coef (t val)**	**p val**
Liquidity (-1)	0.740 (8.49)	0.000	0.977 (13.36)	0.000	0.916 (8.44)	0.000	0.807 (7.71)	0.000
Leverage	–0.013 (–0.29)	0.770	0.063 (1.92)	0.054	–0.052 (–0.77)	0.441	0.105 (0.93)	0.351
Loans/TA	0.095 (1.00)	0.316	–0.113 (–1.3)	0.192	–0.079 (–0.59)	0.555	–0.001 (–0.01)	0.991
ΔLoans	0.009 (1.15)	0.249	0.008 (1.04)	0.297	0.005 (0.57)	0.571	0.001 (0.06)	0.954
Depbanks/TA	0.016 (0.57)	0.565	–0.056 (–2.22)	0.026	0.049 (2.48)	0.013	–0.034 (–0.99)	0.323
QLP	–0.395 (–2.57)	0.010	–0.447 (–3.41)	0.001	–0.571 (–3.17)	0.002	–0.111 (–0.47)	0.636
size	0.248 (0.49)	0.623	–1.217 (–3.47)	0.001	1.102 (1.66)	0.098	1.615 (1.87)	0.061
GDPG	0.426 (4.11)	0.000	0.528 (5.37)	0.000	0.359 (3.49)	0.000	0.695 (3.10)	0.002
ΔUnempl	–1.326 (–3.05)	0.002	–1.604 (–3.78)	0.000	–1.193 (–2.51)	0.012	–1.035 (–1.56)	0.118
Crisis	2.221 (4.27)	0.000	3.657 (6.75)	0.000	1.477 (2.66)	0.008	2.196 (2.09)	0.036
Crisis*GDPG	–0.575 (–3.97)	0.000	–0.864 (–5.82)	0.000	–0.396 (–2.47)	0.013	–0.734 (–2.72)	0.006
cons	9.585 (2.77)	0.006	15.104 (5.32)	0.000	3.159 (0.91)	0.363	0.288 (0.07)	0.948
AR(1)	–11.55	0.000	–7.59	0.000	–7.11	0.000	–6.28	0.000
AR(2)	–0.31	0.756	–0.14	0.889	–0.44	0.662	0.01	0.995
Sargan (p val)		0.000		0.000		0.000		0.000
Hansen (p val)		0.000		0.001		0.012		0.451
# observation	6 508		2 771		2 402		1 335	
# banks	885		337		328		220	

Notes: This table presents full sample estimation of equation 2 [EQ2]. Reported regressions are estimated with the dynamic two-step system-GMM estimator as proposed by Blundell and Bond (1998) with Windmejer's (2005) finite sample correction for the period of 2000–2011 for panel

data with lagged dependent variable. In each regression, dependent variable is Liquidity – total loans divided by deposits (LTD ratio). As explanatory variables we include: Liquidity (-1) – lagged dependent variable; Leverage – assets to equity capital ratio; Loans/TA – loans to total assets; ΔLoans – annual loans growth real; Depbanks/TA – deposits of banks divided by total assets; QLP – is quality of lending portfolio, it equals loan loss provisions divided by average loans; size – logarithm of assets; GDPG – real GDP per capita growth; ΔUNEMPL – annual change in unemployment rate; Crisis – dummy variable equal to one in 2008, 2009, 2010 and 0 otherwise; Crisis* GDPG – interaction between Crisis and GDPG; # denotes "number of"; observ denotes observations, _cons denotes intercept; t-statistics are given in brackets.

6. CONCLUSIONS

We examine the determinants of leverage and liquidity of banks for 383 banks across 67 countries over the period 2000–2011. To resolve this problem we applied a 2-step GMM robust estimator to a sample of over 60 countries in the years 2000–2011. Our findings show that increases in previous period funding liquidity risk are associated with increases in leverage in the full sample and in large banks, but not in other banks. What's more, large banks' liquidity risk tends to increase with increasing leverage. Thus we find support for the view that leverage and liquidity risk are interrelated.

With reference to the impact of macroeconomic conditions on the leverage of banks we find results that are economically important. In particular we find support for the view that leverage is not affected significantly by the business cycle during non-crisis periods – consistent with the view that the business cycle does not have economic meaning for leverage level during a non-crisis period. On the other hand, during a crisis period the leverage of large banks is statistically significantly and positively associated with the real growth of domestic product per capita, but only in the subsample of large banks, implying procyclicality of leverage for these banks. As for the impact of the business cycle on liquidity we find support for the prediction that liquidity risk is procyclical during non-crisis periods, i.e. it tends to increase when the economy is booming. In contrast during a crisis period, liquidity risk seems to be countercyclical (i.e. negatively related to real GDP per capita growth). Such a result implies that even when economic conditions improve in some countries during crisis, banks tend to decrease their liquidity risk relative to boom periods. This may be an effect of banks' attempts to decrease liquidity funding risk and thus may result in increased procyclicality of bank lending. There is, however, a visible diversity of impact of the business cycle on liquidity during a crisis period – which seems to be related to bank size category. Generally, medium and small banks' liquidity risk seems to be less countercyclical than the liquidity risk for large banks

Our study contributes relative to the literature in several important respects. First, we identify factors that affect the leverage and liquidity risk of banks. This strategy gives us the opportunity to show which banks' specific and macroeconomic factors are relatively more vital for solvency and liquidity risk formation. Second, we focus on banks that differ in their size (large, medium and small), we are able to identify what is the role of bank size in the link between leverage and liquidity funding risk. Third, we look at the relationship between leverage and liquidity, and ask whether bank leverage is affected by liquidity risk and vice versa, and show the diversity of association between leverage and liquidity risk and vice versa. Our study is important for the current debate on macroprudential policy, and in particular its implementation in the financial sector. As our results show that the association between leverage and liquidity funding risk (and vice versa) is statistically significant and positive in large banks, we are able to confirm the view that macroprudential policy instruments which affect leverage of those banks will also have the potential to stimulate liquidity funding risk (and vice versa) of large banks.

Acknowledgements

The authors gratefully acknowledge that this study has been financed by the Faculty of Management of the University of Warsaw from funds delivered by the Ministry of Science and Higher Education to increase the research potential of the Faculty. The Authors would like to thank an anonymous referee for fruitful comments and suggestions which helped improve the quality of this paper.

Abstract

This paper aims to identify the role of bank size for the sensitivity of leverage and liquidity funding risk to their determinants (both bank-specific and macroeconomic). Applying the two-step robust GMM estimator to individual bank data from over 60 countries covering the period 2000–2011 our study shows that increases in previous period funding liquidity risk are associated with increases in leverage in the full sample and in large banks, but not in other banks. The liquidity of large banks tends also to increase with leverage levels. With reference to the impact of macroeconomic conditions on leverage of banks we find that leverage of large banks is the most procyclical during a crisis period. Liquidity risk is procyclical during non-crisis periods. However, during a crisis period this liquidity risk is countercyclical, consistent with the view that even slight improvements in

macroeconomic environment do not stimulate banks to increase their exposure to this risk. Such effect is particularly strong in the case of large banks. Generally, such counter-cyclicality of liquidity risk of large banks may result in weaker access to the bank financing necessary to stimulate investments in the real economy during a crisis period. This may have further negative consequences for the real economy, generating an extended period of sluggish economic growth.

Key words: leverage, liquidity, funding risk, business cycle, bank size

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Bezpieczny Bank
4(65)/2016

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TEMPORARY FUNDING IN THE RESOLUTION PROCESS

INTRODUCTION

This article aims to present the opinions of Polish experts regarding several crucial issues related to funding the *resolution* process. These concepts arose out of a certain sequence of corrective actions taken by the global and European financial systems, which requires a brief introduction.

Since the 1990s, the processes of financial market globalisation have intensified. However, the banking globalisation processes have not been accompanied by adequate changes to the architecture of the financial safety net[1]. As a result of liberal precautionary resolutions, an extreme degree of bank leverage was possible. Rapid development of banks across borders led to an enormous risk for the stability of national financial systems not adapted for global challenges.

This was accompanied by banks implementing the VBM (*Value Based Management*) principles oriented towards maximisation of benefits for shareholders and related aggressive incentive systems.

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1 Cf. D. Schoenamaker, *The financial trilemma*, Economics Letters 111 (2011), pp. 57–59.

The phenomenon of moral hazard intensified – especially dangerous in the case of banks that were *too big to fail* (TBTF). The issue of TBTF banks is not new. This term was used for the first time in the United States in the '80s, but real consequences arising from the moral hazard of the TBTF banks reached European taxpayers thirty years later. The problem of a TBTF bank default risk for public finance does not stem from the fact that they are too big, but from the fact that they have too low an equity capital to absorb the losses arising out of their default. At the beginning of the 21st century, it still seemed that due to the extremely high financial leverage of big cross-border banks, the risk of their default was illusory. There was a prevailing conviction that the inconceivably harsh consequences of such defaults would force politicians to decide to bail them out using public funds. By the time of the default of Lehman Brothers, shareholders and creditors of TBTF banks felt safe.

In the literature before the spectacular default of Lehman Brothers, the following question started to occur: who will pay for the insolvency of large banks[2]? Various concepts emerged with regard to sharing the costs of cross-border financial crises, the so-called *burden sharing*[3]. Today, the problem is still controversial from the political point of view[4].

A partial solution to this problem is the creation of the European capital buffer in case it is necessary to cover the costs of the resolution of an insolvent cross-border bank[5]. Long discussions accompanied the emergence of this fund regarding a formula according to which the banks belonging to the Banking Union would pay contributions[6].

The ramifications of the default of Lehman Brothers for the stability of the global financial system showed explicitly that systemically important banks cannot be subject to classic bankruptcy procedures.

In such conditions, the only realistic idea substituting the classic bankruptcy procedures towards TBTF banks were the procedures of orderly bank resolution – the so-called *resolution regime* – the aim of which is to enable their default, but with limited consequences for the stability of the financial system and public finances. A key element of this concept is the *bail-in* mechanism, which burdens the owners and creditors with the costs of bank resolution. The main problem lies

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2 D. Mayes, A. Liuksila (Eds.), *Who Pays for Bank Insolvency?*, Palgrave Macmillan UK, 2004.

3 Ch. Goodhart, D.Schoenmaker, *Fiscal Burden Sharing in Cross-Border Banking Crises*, International Journal of Central Banking, March 2009.

4 Cf. e.g. W. Krzysztofiak, *Deutsche Bank bankrutem? Czy Niemcy pogrążą światową gospodarkę?*, pl.blasingnews.com, 09 February 2016.

5 The so-called Single Resolution Fund, *Banking Union: Single resolution fund on schedule for 1 January 2016*, www.consilium.europa.eu, 30 November 2016.

6 L. Pawłowicz, *Kto ma złe banki powinien więcej płacić za ich ratowanie,* www.obserwatorfinansowy.pl, 24 April 2013.

in the availability of the so-called unsecured debts that could be transformed into the equity capital (*bail-in-able debt*) of an insolvent bank.

In summation, as a consequence of adapting the *burden sharing* theory for the purpose of solving the problem of moral hazard caused by cross-border TBTF banks, the Banking Union was founded – and especially the so-called *Single Resolution Fund*. The fact that it will be fully capitalised in no sooner than eight years and its target capitalisation is just EUR 55 billion makes it a buffer that is too low to cover the consequences of the default of a large cross-border bank and related costs of the systemic risk.

Considering the current global and European reality, the employment of the *bail-in* mechanism for the resolution of a systemically important bank seems virtually impossible, mainly because of the banks' too low equity capital and the limited value of debts which could be converted into capital[7].

The following path towards higher stability of the financial system both on a global and European scale seems realistic:

- ❖ increasing the possibility for the orderly resolution of systemically important banks gradually with the use of the *bail-in* mechanism. This requires both higher equity capital and debt buffers (*bail-in-able debt*);
- ❖ creating cross-border capital buffers in case the *bail-in* mechanism turns out to be insufficient to cover the consequences of a TBTF bank resolution. European institutions responsible for conducting an orderly resolution of the so-called systemically important financial institutions (SIFIs) in particular countries (such as Poland – Bank Guarantee Fund) were obliged by the Bank Recovery and Resolution Directive (BRRD) to develop the so-called *Resolution Plans*. These plans are perceived as a catalyst for global financial reforms[8].

Discussions regarding global financial reform concepts are mainly initiated by the Financial Stability Board (FSB). This is as a result of the political will of the G-20 countries[9].

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7 Cf. S. Johnson, *Failure at the Financial Stability Board*, Project Syndicate, www.project-syndicate.org, 30 November 2015.

8 E. Avgouleas, Ch. Goodhart, D. Schoenmaker, *Bank Resolution Plans as a catalyst for global financial reform*, Journal of Financial Stability, vol.9/2011.

9 Cf. J.K. Solarz, *Strategia Financial Stability Board wychodzenia z globalnego kryzysu finansowego*, a paper delivered at the Scientific Conference of the Financial Institute entitled "Consequences of the global financial crisis", Academy of Finance in Warsaw, www.pte.pl, 26 November 2009.

1. TEMPORARY FUNDING IN THE RESOLUTION PROCESS

In November 2015, the Financial Stability Board presented a final standard that aimed to increase the capital requirements for the systemically important banks[10]. In short, the new requirements oblige the systemically important banks to build capital buffers able to absorb the total loss (*Total Loss Absorbing Capital*, TLAC). Although the remission and conversion of liabilities is one of the crucial tools of the process of recovery and orderly resolution, it does not provide the answer for the increased liquidity needs of recovered banks.

This is because the recapitalisation of systemically important institutions in the *resolution* process is not sufficient in itself to provide the continuity of critical functions if the bank cannot maintain access to liquidity to refinance maturing liabilities. In the period after the *resolution* process begins, even a recapitalised bank may wrestle with liquidity problems due to high market volatility and information asymmetry arising out of the lack of confidence regarding the bank's financial condition. Although the recapitalisation process has been successful, market participants may be reluctant to supply the bank with liquidity and creditors may want to recover their receivables if they lack trust towards the bank and its ability to face the increased liquidity needs during the *resolution* process.

During the first round of the resolvability assessment process (RAP), the FSB indicated that financing constitutes a significant obstacle for the *resolution* of a systemically important bank to be effective. Especially, that the possible occurrence of a financing liquidity risk, e.g. due to difficulties in the refinancing of short-term liabilities or the loss of access to alternative financing sources, may effectively hinder the maintenance of critical bank functions[11].

In order to remove liquidity obstacles making an orderly bank resolution impossible, FSB has developed a set of guidelines that should be applied by relevant authorities (supervisory authorities, *resolution* authorities, central banks, institutions managing the deposit guarantee schemes, and ministries of finance) while planning an orderly resolution[12].

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10 *Total Loss-Absorbing Capacity standard for global systemically important banks,* FSB, 9 December 2015.

11 *Removing Remaining Obstacles to Resolvability – report to the G20 on progress in resolution*, FSB, 9 November 2015.

12 *Guiding principles on the temporary funding needed to support the orderly resolution of a global systemically important bank ("G-SIB")*, FSB, 3 November 2015.

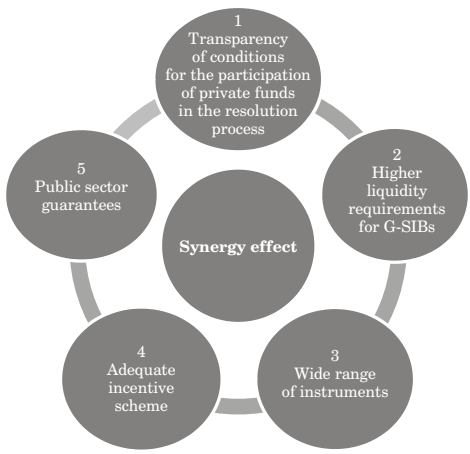
The proposed guidelines[13] aim to provide banks with access to temporary financing in order to enable the effective *resolution* process, with preference to supplying liquidity to the private sector, without the need to employ public funds and in a way that restricts moral hazard.

2. SIZE AND ACCESSIBILITY OF PRIVATE FUNDS

In the presented guidelines regarding the principles of temporary financing to support the bank orderly resolution process, the FSB postulates the lowest possible employment of public funds, which is to limit the phenomenon of moral hazard. In order to reduce the need for temporary financing from the public sector, private funds should constitute a preferred source of financing, provided that such financing is available and consistent with the objectives of the orderly resolution[14].

Considering the above priorities, the relevant authorities should maximise the use of private financing sources both before and during the *resolution* process. Since access to private financing during periods of increased risk aversion is often limited, the maximisation of availability and employment of private funds must strive for a synergy effect between different levels of actions (Fig. 1).

Figure 1. A set of factors influencing a successful synergy effect as part of financing an orderly bank resolution



Source: authors' own study based on *Guiding principles…*, *op. cit.*

[13] Complimentary to the guidelines listed in *Key Attributes of Effective Resolution Regimes for Financial Institutions* – Chapter VI, FSB, 15 October 2014.

[14] *Guiding principles...*, *op. cit.*

Ref. 1. Financing of the *resolution* process from private sources requires total openness, transparency and communication on the part of public authorities. Irrespective of the scale and type of problem, participation of the private sector may be relied upon only if the private sector is provided with sufficient information regarding the risk underlying the involvement in a given process. Otherwise there is a danger that, in the future, the private sector will avoid any types of activities that could launch the *resolution* process again against its will.

Ref. 2. In order to maximise the availability of private financing sources in the *resolution* process, appropriate buffers should be built ex ante at the highest possible level to enable covering extraordinary needs when there are tensions regarding liquidity. It is worth considering the idea of introducing another liquidity buffer for G-SIBs that, as part of the going concern of these banks, would have a function analogous to capital buffers when it comes to solvency. The buffer would be implemented through a requirement to maintain a higher Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR). The institution, however, would not be obliged to maintain the buffer as a whole – instead it could pay proportionally higher contributions for the recovery or deposit guarantee funds.

Ref. 3. The effectiveness of the use of private funds will depend on proper legal standards and as wide a range of instruments allowing the use of private financing sources in the *resolution* process as possible. Special attention should be drawn to private consortia, which would finance a bank in the *resolution* process if a liability scale were too large for one entity[15]. However, it should be emphasised that private consortia require well-organised private entities and reliable legal mechanisms. A good example of such a solution is Liko-Bank in Germany, which acts as a lender of last resort. Its reliability as a mechanism for supporting bank liquidity is determined by the fact that ca. 30% of the shares of Liko-Bank are owned by the Bundesbank[16].

Ref. 4. Providing a reliable recovery plan and appropriate level of incentives in relation to participation in a given programme is crucial for maximising the availability and use of private financing sources in the *resolution* process. This is especially important in the face of the assumed participation of private investors and creditors in the loss absorbency process in accordance with the requirements (MREL/TLAC)[17]. In that regard, it is required that the balance be maintained between the provision of a proper liquidity level to a resolved financial institution

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15 In order to reduce individual losses and to protect better against negative external effects of a bank default, private consortia composed of entities from the financial sector may, in certain circumstances, have a common incentive to combine funds to provide financing for the bank during the *resolution* process.

16 M. Wolgast, *'Too big to fail': Effects on competition and implications for banking supervision,* Journal of Financial Regulation and Compliance, Vol. 9, Iss: 4, pp. 361–372.

17 Szerzej M. Borsuk *Adequate loss-absorbing capacity in the resolution proces*, Bezpieczny Bank, 3(60)/2015.

and the sufficient return level for private investors, considering their potential participation in the absorbency of further losses (e.g. through remission or conversion of receivables into the capital instruments of the bank as part of the *bail-in* process). It seems that one of the possibilities could be fiscal incentives (e.g. tax preferences) and incentives in the form of regulatory exemptions and preferences (e.g. lower contributions to the resolution fund). Otherwise, the interest of the private sector in the financing of the *resolution* process can turn out to be low and may only come from institutions oriented towards larger-than-average rates of return, which would bring opposite results to those intended.

Ref. 5. In the opinion of Polish experts, the most effective way to maximise the private sources of liquidity for G-SIBs during *resolution* could be granting public guarantees. This does not cause an immediate engagement of public funds, but at the same time, it considerably improves the reliability of an institution, increasing its access to private markets (e.g. the interbank market) almost immediately and affects the level of risk evaluation by the potential liquidity suppliers. Unfortunately, public guarantees may turn out to be equivalent to the financing of the *resolution* process by the state. Therefore, in the case of public guarantees, the state would have to have the priority to recover the funds it provided.

The current experience shows that the possibilities of sourcing private financing in the *resolution* process during crisis are very limited. Usually other financial entities also seek additional liquidity sources to reduce any tensions. This is accompanied by lower mutual trust and higher risk aversion. In such conditions, the sourcing of liquidity in the private market may turn out to be difficult in practice. The situation following the default of Lehman Brothers is the best example. Therefore, anticipatory reactions towards a too low capital level and liquidity disturbances by supervisory authorities are the most important. If activities making up the *resolution* are already launched, it is often too late to maximise the available private funds. This in turn means that various entities should be involved in the planning of the *resolution* process – not only the *resolution* authorities, supervision, central bank and government, but also those market entities that would bear the costs of the bank resolution. Then, non-standard approaches may occur, which will lead to the same effect, but with a lower cost for the private sector and – most probably – within a longer period of time and, as a result, less turbulently.

3. PUBLIC SUPPORT AND MORAL HAZARD

Enabling the continuity of critical functions of a systemically important bank in the *resolution* process by only using private funds is often problematic due to their limited availability. The trust of private investors towards the *resolution* procedures is crucial. In order to improve that trust, a clear declaration of support

for the liquidity from public funds is necessary. Hence, a solution based on support from the public sector through the use of protection guarantees in order to mobilise private funds is acceptable. Sources of temporary financing for a systemically important bank by the public sector may differ depending on jurisdiction. Liquidity support from the public sector may be based on one of the following mechanisms or several simultaneous mechanisms: *resolution* fund, deposit guarantee fund, *resolution* authority, central bank, ministry of finance.

The provision of temporary liquidity support from the public sector may entail a serious risk arising out of the phenomenon of moral hazard (such as no incentives to use the more expensive market financing and to manage liquidity risk carefully). The employment of mechanisms in their final form of the liquidity support protection should be performed in a way that allows the maintenance of market discipline, minimisation of moral hazard, and mobilisation of private financing sources. The granting of the public financing should be subject to specific terms and conditions to reduce the risk of moral hazard.

The basic condition to reduce moral hazard will be the previously mentioned principle according to which public funds are used as a last resort, although this will not be possible in every case. First of all, the owners' funds should be mobilised with the assumption of the bank's going concern. Their decision to become a shareholder was deliberate and they must bear the unexpected costs of an investment risk. If the owners' funds are not sufficient to cover the losses or to recapitalise the resolved bank, TLAC/MREL should be first turned to and then private investors should be sought. If it is not possible to obtain further private support, the state may tap into public funds and recapitalise the bank. In exceptional cases it is then worth considering whether a temporary takeover of the financial institution's assets should be a condition for the public financing or not. Considering the fact that liquidity is substantially supplied by central banks, it seems that they may turn out to be the most reliable source of liquidity. An important factor here is to determine an appropriate penalty rate and assume an adequate protection. Additionally, a central bank may supply liquidity in foreign currencies at lower rates than market rates.

However, it is necessary to determine and provide a proper level of resources accumulated in a fund to minimise the necessity of using additional public financing sources and to draw up the precise rules for returning the support after the resolution process is over[18].

[18] It should especially be explicitly determined at what point of the *resolution* the funds will be returned to the state – at the beginning of the *resolution*, which is the preferred option, or no earlier than at the end, along with other creditors. It is important in this context that proper instruments exist that would make the recovered entities return the support in due time. Such instruments may include both an intensified supervision and regulatory requirements, as well

In order to minimise the risk of moral hazard when it is necessary to provide public financing, an incentive scheme must be properly developed so that the public financing is treated as a last resort while the private financing is a target financing source. Practical solutions will depend on specific circumstances; nevertheless, the general characteristics of a financing scheme can be determined, which, if followed, should ensure that the risk of moral hazard related to the use of public funds is mitigated (Table 1).

Table 1. Desired characteristics of financing structure

Reaction time	Supplied as fast as possible so that the institution's problems do not escalate, which would lead to further limitation or draining of the financing
Supervision	Public financing should be granted with strict public control (supervision over the entities, administrative sanctions)
Form	Various forms of temporal and repayable support along with establishing as effective securities backed by the bank's assets as possible (conditionally, financing using the equity capital should be acceptable with determination of its duration and the method for ending it)
Price of financing	Sufficiently high to serve as an incentive to treat it only as extraordinary/temporary funds, but, at the same time, not too high as not to make it impossible to perform the resolution process successfully (at the beginning, it may be preferential, but should be gradually made more costly)
Temporal structure of financing	The financing should be provided for a sufficiently long period so that a bank's critical functions are maintained during the period when public financing is unavailable, making it possible at the same time that the institution withdraws from relying on public funds when an opportunity to return to the private financing market occurs
Security level	Sufficiently high to serve as an incentive to withdraw from public financing when it is possible

Source: own study based on *Guiding principles..., op. cit.*

as, for example, restrictions regarding external financial transfers (e.g. investment and dividend restrictions) until the entire public support received is returned.

In principle, however, it should not be assumed that private funds might not be available or sufficient to perform the *resolution* process. Such an approach leads to the banks' moral hazard[19]. In order to avoid it, public authorities should make every effort to ensure that the funds that the public authorities considered to the best of their knowledge the minimum necessary to perform the process are actually held by the bank.

Such a policy could involve a determination of an amount of liquid funds and assets that could constitute a pledge for liquidity support with regard to each bank (e.g. through introducing an additional liquidity buffer for G-SIBs) and then systematic control as to whether the bank is secured as planned. However, in case the amounts turned out to be too small during the plan's implementation, then after exhaustion of the bank's and its investor's resources, the public authorities could support the bank's liquidity, especially in order to encourage other market participants to provide the same. Such behaviour could serve as an express signal to investors that the state intends to rescue the bank and not resolve it due to the lack of further private funds.

In summation, following an analysis, the authorities should determine the necessary amount of funds and then ensure that the funds are available. The plan may also provide for additional support after exhaustion of all the private funds specified in the plan, but the state should have a guarantee that the resources invested in the resolution process will be returned to it.

4. CROSS-BORDER BANKING – BURDEN SHARING IN THE RESOLUTION PROCESS

A lesson learned from the financial crisis was, among other things, that the national authorities lacked both the legal instruments and collaboration agreements needed to perform the *resolution* process of cross-border banking groups. National authorities had to face the enormous challenge of taking actions in reaction to potential and real defaults of banks – both systemically important and the smaller ones. Unilateral reactions became normal, which in some cases led to the dissolution of groups into national components and engagement of large amounts of public funds. When it comes to countries with better financial standing, the restoration of stability was achieved through providing public support to parent banks, which allowed the group structures to be left untouched. This turned out to be beneficial for host countries, which received access to the group's capital and liquidity support.

[19] Cf. Y. Kim, *Bank Bailouts and Moral Hazard? Evidence from Banks' Investment and Financing Decisions*, Job Market Paper, November 2013.

This minimised the consequences of cross-border external effects (*spillovers*), but on the other hand, it exposed national authorities to high fiscal and political costs[20]. One of the methods to overcome the issue of TBTF institutions is to ensure that they have sufficient loss absorbing capacity (LAC). Hence, the creation of loss absorbing buffers based on the principle in which lenders participate in the public support provided to financial institutions is one of the crucial instruments of *resolution*. Localisation of a loss absorbing buffer in a banking group and its form should be fully adapted to a given *resolution* strategy (centralised SPE or decentralised MPE). In the European Union, a document that establishes common legal framework in that regard is the Bank Recovery and Resolution Directive (BRRD)[21]. The Directive obliges the bodies responsible for the *resolution* process from parent and host countries to cooperate. As a result, resolution colleges are founded for cross-border banking groups to develop resolution strategies and plans for those groups[22]. Such an approach is to aim at avoiding inconsistent decisions regarding the recovery of cross-border groups and eliminating the feedback loop between the situation of countries and the situation of banks.

In the case of a G-SIB – an institution operating across borders – a cooperation and full information flow between the bodies engaged in the resolution process (resolution bodies from home and host countries, supervisory bodies, central banks and banks themselves) is crucial for the effective development (by the resolution bodies) of feasible and effective resolution plans. Furthermore, the resolution bodies in a home country and host countries should establish a clear division of responsibilities for providing temporal bank financing during the resolution process in accordance with legal regulations and resolution strategies applicable in given countries. It is vital that entities from host countries have real influence on the decisions made as part of the recovery and orderly resolution process (including on the choice of the resolution strategy).

Note that incentives for cooperation within a cross-border recovery procedure are often weak and have not yielded significant results yet. In practice, the process of recovery and resolution of cross-border banking groups is complex and it is difficult to achieve consensus with regard to loss sharing (if private funds are insufficient)[23]. First of all, facing the external (foreign) shock, national authorities yield to the temptation

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20 *Cross–Border Bank Resolution: Recent Developments*, IMF, June 2014.

21 *Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms, OJ UE 2014 L 173.*

22 O. Szczepańska, A. Dobrzańska, B. Zdanowicz, *Resolution czyli nowe podejście do banków zagrożonych upadłością*, Narodowy Bank Polski, Warszawa 2015.

23 See: F. Allen, T. Beck, E. Carletti, P.R. Lane, D. Schoenmaker, W. Wagner, *Cross-Border Banking in Europe: Implications for Financial Stability and Macroeconomic Policies*, Centre for Economic Policy Research (CEPR), June 2011.

of a unilateral policy protecting the country's interests and do not internationalise the costs of financial instability. Although the maintenance and protection of international business lines, financial links and operational relationships during the resolution process may lead to the minimisation of total economic losses induced as a consequence of a bank's default, the perspective of an individual country may differ from a solution that is effective from a global point of view. Unilateral protection operations may provide protection against the risk of destabilisation of national operations at the expense of a minor mistake in the risk evaluation in comparison with the uncertainty arising out of an orderly international intervention burdened with the risk of obtaining a worse result[24]. When public funds are exposed to a risk, taking a joint financial responsibility for the cost of the materialisation of the risk, which can later be perceived as unfair or disproportional, may lead to significant political costs[25].

If national authorities especially safeguard the interests of national parliaments, creditors and taxpayers, cross-border cooperation will then always be exposed to risk of destabilisation in extreme conditions. First of all, an efficient and effective transfer of resources between subsidiaries during the periods of favourable economic conditions or shifting funds to entities having financial problems from properly functioning subsidiaries would be difficult and politically impossible for global banks[26]. Second, it is unlikely that a host country's supervisory bodies would let its properly functioning subsidiary reallocate resources to a subsidiary having financial problems abroad. In practice, this means that at cross-border level, the MPE approach, according to which losses are assigned to local subsidiaries, seems to be more effective from the point of view of burden sharing between countries.

In conclusion, the issue of burden sharing in cross-border resolution processes has been solved only in part.

5. SUMMARY

One of the biggest revolutions that took place following the financial crisis in the period 2007–2009 was the redesigning of classic bankruptcy procedures for TBTF banks to replace them with an orderly bank resolution. Public authorities

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[24] Between a home country – where a parent entity is located – and a host country – where a subsidiary is located – there may be contradictory incentives for cooperation if the subsidiary is significant for the host country, but insignificant for the group, or significant for the group, but insignificant for the host country. In both cases, one of the parties may be strongly motivated to take unilateral actions even if it has negative influence on the entire group and generates negative consequences and side effects for other countries.

[25] *Cross–Border Bank Resolution…*, *op. cit.*

[26] E. Faia, B. Weder di Mauro, *Cross-Border Resolution of Global Banks*, Discussion Paper 011, European Comission, September 2015.

prioritised the protection of the stability of the financial sector and taxpayers against bearing losses due to defaults of big and systemically important banks. Initiatives taken at an international level and in the European Union itself constitute significant progress towards an efficient framework with regard to corrective actions and orderly resolution, taking into account the cross-border nature of some of the banking groups.

Nevertheless, a controlled resolution procedure for a systemically important bank is still burdened with a high level of uncertainty, which mostly arises out of a too low value of banks' equity capital and the limited value of debts that could be subject to conversion into capital with the use of a crucial component of the resolution concept, which is the bail-in mechanism. Hence, in order to reduce the phenomenon of moral hazard in the banking system and increase the stability of the financial system, it is necessary to tighten further the requirements regarding banks' capabilities for loss absorbency and create cross-border capital buffers in case the *bail-in* mechanism turns out to be insufficient to cover the effects of the resolution for a TBTF bank.

Considering the principles for providing temporary financing to banks in the *resolution* process, it seems that the guidelines presented in the consultative document constitute a good step towards higher stability in the global financial system. Prioritising private funds and using public support only as a last resort should be deemed appropriate in the process of temporary financing. However, the consultative document does not sufficiently address the risk of the occurrence of liquidity drain between entities in a cross-border group and the crucial issue of burden sharing between countries when private funds turn out to be insufficient.

Abstract

Following the default of Lehman Brothers, governments around the world had to mobilise enormous rescue packages to cope with widespread financial panic. In these efforts a fundamental flaw in the international financial architecture became apparent, namely the inability of national supervisors to orchestrate orderly bank resolutions across borders. Since then, the international regulatory community has made efforts in devising the best approach to resolving large and cross-border banking groups. This article presents reflections on the recent regulatory initiatives in the field of loss-absorbing capital buffers and temporary funding needed to support the orderly resolution of a global systemically important bank ("G-SIB").

Key words: resolution, resolution funding, capital buffers, G-SIBs, TLAC, MREL, burden sharing

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THE ROLE OF GREEN BANKING IN A SUSTAINABLE INDUSTRIAL NETWORK

INTRODUCTION

In the 21st century, modern finance overlaps more and more with other economic disciplines, as well as other science disciplines. Over time, it becomes more and more problematic to set constant limitations between them. S. Flejterski has written on the limitations problem in comparative finance. This is used to determine the limits of transferability[1]. Additionally, however, this problem is interconnected with the interdisciplinary approach in finance and economic science. For example, G. Borys makes an attempt to research finance from the viewpoint of the sustainability development paradigm[2]. It is worth mentioning that E. Kulińska-Sadłocha and J. Szambelańczyk regarded, *inter alia*: sustainable development, corporate social

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1 S. Flejterski, *Ekonomia, finanse i zarządzanie w perspektywie metodologicznej i interdyscyplinarnej*, [in:] B. Fiedor (Ed.), *Nauki ekonomiczne. Stylizowane fakty a wyzwania współczesności*. Polskie Towarzystwo Ekonomiczne, Warszawa 2015.

2 G. Borys, *W kierunku finansów zrównoważonego rozwoju*, [in:] (Ed.) T. Famulska, *Szkice o finansach. Księga jubileuszowa prof. zw. dr hab. Krystyny Znanieckiej*, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2012, p. 43.

responsibility (CSR) and socially responsible investment (SRI) as concepts for diminishing the adverse effects of differentiation processes, in particular degradation and polarisation in the economy. They can therefore be considered as having positive influence on the economy, society and the environment[3].

L. Dziawgo sees SRI and CSR as interdisciplinary concepts. Although the SRI concept concerns capital investment and the CSR concept pertains to business undertakings, both concepts are interrelated, because they take into account the ethical, social and ecological aspects in relationships with shareholders[4]. Similarly, D. Dziawgo addresses the SRI concept. According to the SRI concept, financial assessment of business activities requires taking non-financial criteria into consideration[5]. Additionally, L. Dziawgo positively appraises CSR as an uncontested standard for business activities in the financial sector, because it improves the social quality of the economic and financing process. One of the key aspects of CSR is environmental protection. It's a more and more commonly accepted concept and is also actively supported by society. In these circumstances, we are witnessing a pro-ecological evolution of the modern economy and finance[6]. Scientists emphasise the necessity of the CSR concept not only in the area of finance research, but also in banks' practice. It should take into account this finance research area, because so far the available research results reveal the incoherence of the credit institutions' declarations with their implementations[7]. In this modern banking activities' context, the CSR concept is connected with the SRI concept, because the non-financial criteria for both concepts include environmental, social and ethical criteria.

The overlapping complex problems in research areas: sustainable development, CSR, SRI and finance, constitute green finance. In S. Flejterski's opinion, green

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3 E. Kulińska-Sadłocha, J. Szambelańczyk, *Lokalne instytucje kredytowe w koncepcji zrównoważonego rozwoju Polski*, [in:] (Ed.) K. Pietraszkiewicz, *Sektor finansowy. Stymulatory i zagrożenia rozwoju*, Polskie Towarzystwo Ekonomiczne, Warszawa 2015, p. 241.

4 L. Dziawgo, *Zielony rynek finansowy. Ekologiczna ewolucja rynku finansowego*, Polskie Wydawnictwo Ekonomiczne S.A., Warszawa 2010, p. 15–16.

5 D. Dziawgo, *Transparentność i zaufanie jako wyzwania dla rynku finansowego i gospodarki XXI wieku*, [in:] (Eds.) B. Kołosowskiej, P. Prewysz-Kwinto, *W świecie finansów i prawa finansowego. Działalność dydaktyczna Profesora Jana Głuchowskiego*. Wyższa Szkoła Bankowa w Toruniu, Toruń 2010, p. 220.

6 L. Dziawgo, *Produkty finansowe a ochrona środowiska. Proekologiczna ewolucja współczesnego rynku finansowego*, [in:] (Eds.) B. Kołosowskiej, P. Prewysz-Kwinto, *W świecie finansów i prawa finansowego. Działalność dydaktyczna Profesora Jana Głuchowskiego*, Wyższa Szkoła Bankowa w Toruniu, Toruń 2010, p. 257.

7 For example: J. Szambelańczyk, *Finanse wobec problemów teorii i praktyki bankowości w Polsce*, [in:] (Eds.) J. Czekaj, S. Owsiak, *Finanse w rozwoju gospodarczym i społecznym*. Polskie Wydawnictwo Ekonomiczne S.A., Warszawa 2014, p. 125; M. Marcinkowska, *Ocena banku w kontekście relacji z interesariuszami*, t. 3, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2013 and M. Marcinkowska, *Corporate Governance w bankach. Teoria i praktyka*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2014.

finance is one of the new finance sub-discipline[8]. Because of green finance's complexity, in this article we focus on a narrower part – green banking combining business, society and ecology.

The paper is based on the critical interpreting and modifying of economic approach and concept of industrial network to hypothesise and theorise on the role of green banking in the sustainable development of industry. It serves for conceptualisation of a green banking sustainable industrial network using a modified model of business interactions with stakeholders in which the industrial network is being considered as the main reason for connecting individuals, resources and activities for creating new industrial ecosystems based around the main financier, i.e. the green bank supporting the creation of a new industrial ecosystem as a sustainable industrial network.

The paper is organised as follows. In the first part of the paper the research background has been presented, i.e. insight into the concepts, theories and methods applied within the areas of industrial networks. In this part of the paper the genesis, system and structural orientations, paradigms and ideas, methods and practices of the network approach is discussed. The second part of the paper presents the concepts, aims and activities of green banking. It starts with a presentation of the concept of green banking, its definition, aims and activities. It comprises a discussion on the activities of the green banking community in Poland. The paper closes with a conceptual analysis of the green bank as a participant in a sustainable industrial network. Its role is understood as a motivator and initiator of an ecologically and socially responsible industrial network.

1. BACKGROUND AND METHODOLOGY

The descriptive literature review for discussing the research background has been used. Subsequent theoretical conceptualisation has been proposed for envisioning a network of green banking as an example of a sustainable industrial network. An industrial network is one of the approaches developed since early 70's by the Industrial Marketing and Purchasing Group (the IMP Group). This approach's authors assume that no business is an island[9]. The main subject of business, therefore, is the relationship with buyers, suppliers and other companies'

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[8] S. Flejterski, *Współczesna nauka finansów w systemie nauk ekonomicznych*, [in:] (Ed.) S. Rudolf, *Sektor finansowy – dylematy i kierunki rozwoju*. Polskie Towarzystwo Ekonomiczne, Warszawa 2008, p. 358.

[9] H. Håkansson, H. and I. Snehota, *No business is an island: The network concept of business strategy*, Scandinavian Journal of Management, 5(3), 1989 and H. Håkansson, H. and I. Snehota, *"No business is an island" 17 year later*, "Scandinavian Journal of Management", 22(3), 2006.

related actors. The approach assumes that the entire activity and each change in the company's activities takes place within the relationship and those relationships are a central feature of business and the organisational landscape of modern industries. The approach is concerned with the understanding of the content and shape of business relationships. This approach, known as an industrial network or just the network, exemplifies that an economic world consists of networks of business relationships. The approach has prevailed over the idea that atomistic companies are doing business in a world of anonymous suppliers and anonymous consumers. The main phenomena observable in networks are cooperation, competition, interactions, business relationships, movement, relatedness and exchange.

The main feature of business is interaction which, according to D. Ford and H. Håkansson has several key characteristics: time, interdependence, relativity, jointness, and subjective interpretation. The interaction that takes place between single actors is always the outcome of their previous interactions, as well as of their current interactions with others and their anticipation of future interactions of others. Therefore, business interaction is embedded in past, current and future time. The inherent characteristics of interacted network structures are interdependencies. In networks they are built mainly on technological, economic and resource dimensions. These interdependencies bring different kinds of organisational, social, strategic and logistical consequences as well as effects on production structure, product development and economic effectiveness. The observable phenomenon shows that efficiency of resources evolves together with exploitation of considered interdependencies by the network partners. Since interaction always takes place in relation to others, there are no simple or stable rules as well as everything is time relative. The next key characteristic of business interaction, i.e. jointness, develops in many aspects: combined intentions, specific investments, mutual commitment and the common aims of network partners. The last but not least characteristic –subjective interpretation – means that all actors have their individual interpretations of the actions of others and their interactions are based on those interpretations[10].

The interactions evolve into a temporal relationship with specific features typical for business. H. Håkansson and I. Snehota distinguished two main kinds of characteristics for a business relationship. They are: structural characteristics, as follows: continuity, complexity, symmetry and informality; and process characteristics, as follows: adaptations, cooperation and conflict, social interaction and rutinization[11]. A company's major customer and supplier relationships show

[10] D. Ford, and H. Håkansson, *The Idea of Business Interaction*, "The IMP Journal", 1(1), 2006, pp. 7–16.

[11] H. Håkansson and I. Snehota, (Ed.), *Developing Relationships in Business Networks*. Routledge, London and New York 1995, pp. 35–104.

continuity and relative stability. The long-term relationships are a precondition for change and development in the network. Business relationships are complex in many ways, e.g. number, type, contact pattern. Typical business relationships appear symmetrical in terms of resources and initiative of the parties involved. They often have a low degree of formalisation. Mutual adaptations are a prerequisite of the development and continued existence of the relationship between two companies. Elements of cooperation and conflict coexist in business relationships. Despite business relationships being essentially about business-specific behaviours – subjective values – the personal bonds and convictions that are always present play an important role in the formation of a relationship. While business relationships are often complex and informal, they tend to become institutionalised over time[12].

Regardless of the type of industry, a company always operates within a texture of interdependencies that affects its development. A few are repeatedly encountered in various business relationships, i.e.: technology, knowledge, social relations, administrative routines, systems and legal ties[13]. In networks technical development within one company and in its relationships is dependent on other companies' technologies. This is facilitated or constrained not only by those with whom the company maintains direct relationships but also by the technology of other third parties. In the same way, the know-how of the company reflects not only the knowledge of its personnel but also that of the other companies and organisations to which it is connected through business relationships. The solutions adopted in one (or several) relationship(s) will affect what is possible or necessary to do in some other relationships. The legal texture is of interest as it can connect different business units with privileged ties. This applies especially to different forms of ownership control or other forms of agreements. Social bonds that arise among individuals in the two companies are important for mutual trust and confidence in interactions between individuals.

By and large, the network is considered as a structure with a number of nodes related to each other by specific threads. Business threads are distinguished from social threads or market threads by their complex interactions, resource ties, knowledge exchange, reciprocal adaptations and common specific investments as well as unique technical and human resources. Business relationships are recognised as complex and long-term and their current form is the outcome of: previous interactions between the business units, learned knowledge about the partner and the relationship, other relationships with other partners, the expectations of future interactions and what happens in the wider network of relationships.

H. Håkansson and D. Ford underline three paradoxes that take place within the network. The first paradox is that networks create opportunities as well as

[12] *Ibidem*, pp. 9–10.
[13] *Ibidem*, pp. 12–13.

constraints for the participants; which actions should be considered as a part of the whole network activity. The second paradox is that each action influences other actions and each network partner influences others and is being influenced by others. The third paradox is about control and its effects for the network's development. This is connected with the governance and management aspects of the network. In general, network ties should be strong, well-established and cooperative, but uncontrolled. The more the one company controls the network, the less effective and innovative is the network[14].

The reciprocal relatedness in networks results in the strategy decisions undertaken by companies within the network. The network's efficiency and effectiveness are determined by the way in which activities are configured and integrated, how resources are combined and which are the positions of the actors. These network structures are affected by, and affect, the three elements of supply strategy: relating, bounding and organising. These elements mixed in numerous ways give the opportunity to choose different network strategies[15]. In the network strategy the business relationship is regarded as a resource that the company can control and which can change the position of the company in the network. The strategy analysis of business networks consists of: network picture, networking and outcomes. The first is visualisation and verbalisation of the network by a particular actor. The second is initiating, responding and maintaining the substantive networking. The third is analysing all evolving effects of interactions, *inter alia* economic, social and technical results[16].

The last, but not least, feature of the business network is that building up the activity patterns, webs of actors and resource constellations takes time. The network is a temporally evolving phenomenon; movement, change, flow and process consisting of events, activities and choices. L. Bizzi and A. Langley highlight the fact that networks among organisations are not seen as structures that change over time, but rather as dynamic inter-relationships reconstituted incessantly by ongoing activity; adapted and reproduced through space and time[17]. According to A. Halinen, Ch.J. Medlin and J.-Å. Törnroos, time and space are the central constructs by which humans grasp and comprehend change. In network analysis, they consider time as an individually and socially constructed event-time, and suggest that using the entities' event times together with clock time can notably

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14 H. Håkansson and D. Ford, *How should companies interact in business networks? "*Journal of Business Research", 55(2), 2002.

15 L.-E. Gadde, H. Håkansson, G. Persson, *Supply Network Strategies*. John Wiley & Sons Ltd, West Sussex, 2010, p. 242.

16 H. Håkansson, D. Ford, L-E. Gadde, I. Snehota, and A. Waluszewski, *Business in Networks.* John Wiley & Sons Ltd, West Sussex, 2009, pp. 180–197.

17 L. Bizzi and A. Langley, *Studying processes in and around networks*, "Industrial Marketing Management", 41, 2012.

improve the understanding of processes, change and development in business networks[18].

To sum up, a business network is a specific quasi-organisation with a specific structure of interactions and interdependencies and specific economic, technical and social dimensions. Nowadays, industry networks are the main feature of business landscapes. The network approach is an evolving academic field enclosing different kinds of studies, research and analysis of business networks. Within the framing of the network approach a general model of business relationships has been developed in terms of activities, resources and actors. The model is widely used for different kinds of analyses, e.g. the positive and negative effects of strong ties on innovation, processes of network evolution, network performance effects, effective change of management practices, interplay between network structures, process of resource development and many others.

2. CONCEPTS, AIMS AND ACTIVITIES OF GREEN BANKING

The main mission of the green bank is to combine business and ecology for the benefit of customers. The approach to green banking varies from bank to bank. Generally, the term green banking refers to banking practices that foster environmentally responsible financing practices and environmentally sustainable internal processes[19]. A survey of further literature reveals several more different interpretations of green banking (Table 1). According to the Coalition for Green Capital a green bank is a state-chartered and state-capitalised lending institution designed to fill gaps in private market finance for clean energy generation and energy efficiency. A green bank is a public or quasi-public financing institution that provides low-cost, long-term financing support to clean, low-carbon projects by leveraging public funds through the use of various financial mechanisms to attract private investment so that public money supports multiple moneys from private investment[20].

Depending on the state, a green bank may conform to a variety of structures, utilise many different public funds and create a diverse array of financial products. Although a green bank may take a variety of forms, there are generally three structures to consider. First, the green bank can be standalone as a quasi-independent entity. This structure allows for the most flexibility and autonomy. Another option is for the green bank to be housed within an existing state agency.

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18 A. Halinen, Ch.J. Medlin, J.-Å. Törnroos, *Time and process in business network research*, "Industrial Marketing Management", 41, 2012.

19 S.M.M. Rahman, and S. Barua, *The Design and Adoption of Green Banking Framework for Environment Protection: Lessons from Bangladesh,* "Australian Journal of Sustainable Business and Society", 2(1), 2016, p. 2.

20 Coalition for Green Capital, *Report: Green Bank Academy*, Washington, 2014, p. 2.

Lastly, a green bank may be incorporated into an infrastructure bank, where it would likely be established as a separate subsidiary. Generally, there are three stages to establishing a new state green bank. In the first stage, a coalition of stakeholders (e.g., clean energy organisations, clean tech trade associations, environmental groups and state agencies) establishes a base of support for a green bank. This support is critical to passing legislation or achieving the required regulatory change to legally create a green bank. In the second stage, the green bank organisation is established, which includes hiring staff, building capabilities, identifying goals, assessing markets and developing products. In the final stage, the green bank actually begins acquiring customers, lending in partnership with private investors, and recycling funds in order to recapitalise the bank. A green bank is a state-chartered and state-capitalised lending institution designed to fill gaps in private market finance for clean energy generation and energy efficiency. A green bank is a public or quasi-public financing institution that provides low-cost, long-term financing support to clean, low-carbon projects by leveraging public funds through the use of various financial mechanisms to attract private investment so that public money supports multiple moneys from private investment[21].

Ultimately, all green banks will exhibit several common characteristics:

- encourage a shift from one-time subsidies and grants towards market-catalysing financial tools,
- push innovation in policy, incentive structures, financial tools and marketing,
- spur private sector growth and competition in order to give consumers energy choices,
- stimulate demand by covering one hundred per cent of the upfront costs with a mixture of public and private financing,
- leverage public funds by attracting much greater private investment to clean energy and efficiency markets,
- recycle public capital so as to expand green investment and leave taxpayers unharmed,
- reduce market inefficiencies,
- scale up clean energy solutions as fast as possible, maximising clean electricity and efficiency gains per state money[22].

The broad objective of green banks is to use resources with responsibility and give priority to interaction of the environment with society. Green banks promote social responsibility, because they consider before financing a project whether it is environment-friendly and has any future environmental implications[23]. Therefore,

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21 Coalition for Green Capital, *Report: Green Bank Academy*, Washington, 2014, p. 2.

22 *Ibidem*, p. 1.

23 S.C. Bihari, *Green Banking Towards Socially Responsible Banking in India,* "International Journal of Business Insights and Transformation", 4(1), 2011, p. 82.

green banks are gradually coming to realise that there is need for a shift from the "profit, profit and profit" motive to "planet, people and profit" which in fact establishes the rationale for green banking[24]. Green banking is a concept of shifting banks' objectives from "profit only" to "profit with responsibility"[25]. Over a period of time, the concept of sustainability has evolved and its meaning transformed from only achieving higher profitability towards achieving the social and environmental objectives of the projects as well, and this concept is termed as corporate social responsibility (CSR)[26].

Table 1. Definitions of Green Banking

Author(s)	Definition
Azman 2012	Eco-friendly or environment-friendly banking to stop environmental degradation to make this planet more habitable
Bahl 2012	Green banking is a kind of banking conducted in selected areas and techniques that helps in reduction of internal carbon footprint and external carbon emissions
Singh and Singh 2012	Green banking signifies encouraging environment-friendly practices and reducing carbon footprint by banking activities through various environment-friendly acts
Bai 2011	Banks' environmental accountability and environmental performances in business operation
Thombre 2011	Green banking is functioning like a normal bank, which considers all the social and environmental/ecological factors with an aim to protecting the environment and conserving natural resources
Goyal and Joshi 2011 Habib 2010	Ethical bank – environmentally responsible bank Socially responsible bank or sustainable bank – considers all the social and environmental issues
Schultz 2010	This means promoting environmentally-friendly practices and reducing carbon footprint from banking activities

Source: authors' own elaboration based on: S.M.M. Rahman, and S. Barua, *The Design and Adoption of Green Banking Framework for Environment Protection: Lessons from Bangladesh*. Australian Journal of Sustainable Business and Society, 2(1), 2016, pp. 1–19.

[24] M.K. Verma, *Green Banking: A Unique Corporate Social Responsibility of Indian Banks*, "International Journal of Research in Commerce and Management", 3(1), 2012, p. 110.

[25] S.M.M. Rahman, and S. Barua, *The Design…*, *op. cit.*, p. 2.

[26] J. Amin, and M. Maran, *Bankruptcy and Sustainability: A Conceptual Review on Islamic Banking Industry*, "Global Business and Management Research: An International Journal", 7(1), 2015, p. 110.

The current trend in the literature on sustainability and finance is shifting from the idea that sustainability is a constraint on the profit function of firms towards a vision that financial markets can promote sustainability because of its many linkages with the rest of the economy. There are two major trends in the literature on sustainability and the banking industry, divided into external and internal practices. The external practices analyse the relevance of sustainability in the communication of banks with shareholders and stakeholders, and how investors use it as a measure in optimal portfolio allocation. The internal practices relate to the integration process of sustainability criteria into risk management towards lending practices[27].

Green banks' activities for sustainability concern external activities improving sustainability: offering preferential interest rates for credit borrowers who intend to use solar energy or encouraging borrowers to apply environmentally-friendly management systems, offering of affinity cards (credit cards where a certain amount of money (part of the commission charged by the bank) is given to a charity every time the card is used; they are issued with the approval of non-commercial organisations and are issued for philanthropic purposes), running sponsorship and humanitarian campaigns, satisfying customers' needs and simultaneous respect for law and ethics, honest communication with the banks' clients, providing complete information about an offer, prices, etc.[28]. Green banks' activities for sustainability concern internal activities improving sustainability: saving energy, reducing paper use, making use of paperless cash turnover, switching off or using reduced cooling after hours, using natural lighting where possible, use of ventilation by opening windows instead of full air conditioning, installing of modern thermal windows, controlling for dripping taps, rewards programme for good performance, implementing policies on sick leave and/or maternity leave, staff training and updating of training, developing of internal communications system, implementing preventive health security for their employees, and adequate employee wages (Table 2). Generally, economic sustainability deals with micro, macro, and industry-specific factors[29]. Therefore, green banks promote: forest preservation, water production, responsible farming practices, recycling, eco-tourism loans to displaced timber workers to help them start environmentally friendly businesses, help for low-wage earners to purchase homes, community education and mentoring programmes.

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[27] R. Zeidan, C. Boechat, and A. Fleury, *Developing a Sustainability Credit Score System*, 2016, pp. 1–2. Accessed on April, 2016 from: *https://umsbe.wufoo.com/*

[28] E. Rudawska, and S. Renko, *Sustainability as the Direction for the Long-term Success in Banking:* Poland *vs. Croatia*, "Folia Oeconomica Stetinensia", 1, pp. 106–107 and 112–113.

[29] J. Amin, and M. Maran, *Bankruptcy…*, *op. cit.*, pp. 113–114.

Table 2. The activities of Green Banks for sustainable development in Poland

Bank	Activities
Bank Ochrony Środowiska SA (Bank for Environmental Protection)	– The key component of the bank's mission is to contribute to environmental protection as its statute assumes an obligation to cooperate with ecological organisations, – Establishing and maintaining lasting relations with the National Environmental Protection and Water Management Fund, regional environmental protection and water management funds, the Polish Countryside Development European Fund, – It supports: the Natura 2000 Programme, donating part of the profit to All-Poland Society of Birds Protection and Green Lungs of Poland Fund by offering EKOKONTO and EKOPROFIT services, – The award of "Solid Employer" for modern and ethical human resources management.
PeKaO SA, PKO BP SA, Citi Handlowy SA, Fortis SA, Kredyt Bank SA	– Include developing relationships with their employees in their mission and their strategic goals, – Strive to provide a pleasant and favourable working environment for their employees and to maintain balance between their professional and personal lives, – Emphasise their aspirations to be perceived as the best employers in the banking sector, – Support charities and maintain good relationships with local communities by sponsoring cultural and artistic events and concerts by establishing their own charities.
ING Bank Śląski	– ING Foundation for Children whose aim is equal opportunities by providing chronically ill children with education,by promoting business awareness among young people and by helping young people from poor families gain access to higher education, – Running a programme called "In the company of a Lion" whose aim is to provide aid for children with cancer. The programme was honoured in the Golden Clip 2005 competition in the category of CSR.
BGŻ BNP Paribas (earlier Fortis Bank)	– Foundation BGŻ BNP Paribas whose objective is to counteract social exclusion of children and young people; the foundation entered into a strategic partnership with the Society of Children's Friends, – Joining the Strategic Partners of the Responsible Business Forum.

Bank	Activities
mBank (earlier BRE Bank)	– Joining the Strategic Partners of the Responsible Business Forum.
PKO BP SA	– Affinity cards support the Programme of Building Polish Artificial Heart.
BISE, BPH, BZ WBK, Polbank EFG	– Affinity cards support the Fund for Fulfilled Dreams.
Bank Millennium	– Affinity cards support the WWF.

Source: authors' own elaboration based on: E. Rudawska and S. Renko, *Sustainability as the Direction for the Long-term Success in Banking: Poland vs. Croatia*, "Folia Oeconomica Stetinensia", 1, 2012, pp. 106–108 and the banks' Internet pages.

P. Kotler, H. Kartajaya and I. Setlavan are strongly opposed to the influence of short-term focused shareholders. They support the conclusion that most stock-owned companies are aimed at meeting the shareholders' expectations to such an extent that it severely impacts the company's long term investments and perspective[30].

M. Porter and M. Kramer noted that in the long run social and economic goals are not inherently conflicting but integrally connected[31]. They see a symbiosis between economic and social goals, and also between economic and social investments/returns; more precisely organisations must focus on what actions bring benefits both for them and for society. In L. Dziawgo's opinion, it is not a strategic conflict between economy and ecology in the long run. In the short run, it is only a tactical conflict between them. In this case, the company is not taking into account all the costs concerning natural resource utilisation[32]. The green bank's economic calculus, therefore, should take into consideration not only economic costs, but also environmental and social costs. This results in some important benefits for green banks: they increase their image, goodwill, reputation, attract capital, partners, gaining or retaining customers, reduce costs, increase environmentally-friendly loans, increase competitiveness and environmentally-friendly use of resources[33]. The green bank, therefore, should avoid pro-ecological activities that are only for

[30] P. Kotler, H. Kartajaya and I. Setlawan, *Marketing 3.0: From Products to customers to the human spirit*. Times Group Book, New Delhi 2010, p. 106.

[31] M.E. Porter and M.R. Kramer, *The competitive advantage of corporate philanthropy.* "Harvard Business Review", 80(12), 2002, p. 5.

[32] L. Dziawgo, *Zielony…*, *op. cit.,* p. 10.

[33] M. Dumitraşcu, L. Feleaga and N. Feleaga, *Green Banking in Romania.* "Annals of the University of Oradea Economic Series", 23(1), 2014, p. 617.

PR (public relations), IR (investor relations) and marketing in the short-run. They may result in greenwashing[34]. Instead of this, the green bank's activities should focus on creating value for the shareholder, taking into account the economic, environmental and social costs in the long-run.

The green bank realises its three-dimensional activities, not as a piece of property, but as a nexus of contractual and non-contractual relationships between and among a range of groups, of which the shareholders are but one[35]. Thus, the bank directors' obligation is to act in the best interests of the bank; not only in the best interests of the shareholders, but also the non-shareholder interests of its network. However, in this case, the directors are required to consider the social or environmental good of all participants in this web of relationships, besides profits for shareholders, in the discharge of their duty.

To sum up, the social sustainability of banking industry deals with minimising the impact of banking activities on society. Banks are aiming to achieve social sustainability. They need to develop ethical lending standards. Additionally, banks deal with the active involvement of their staff to take an active part in community fund rising, charity and other philanthropic work. The environmental sustainability of banks deals with avoiding and minimising the effects of banking activities that have a negative impact on the environment. Banks can achieve environmental sustainability by avoiding lending funds to those organisations whose businesses have a negative impact on the green environment. On the other hand, banks can grant funds to those organisations that are involved in renewable energy products and programmes. And last but not least, the economic sustainability of banks deals with the ability of business to maintain its high earnings along with the successful continuation of business activities in the longer run of the business cycle.

3. THE GREEN BANK NETWORK INTERACTIONS AND RELATIONSHIPS WITH STAKEHOLDERS

The analysis of industrial networks and green banking led to the conclusion of their important role in the development of sustainable industry. Nowadays, all business decisions are undertaken in relation to other industrial actors. Ecological decisions are also undertaken in relation to other industrial actors[36]. As stated

[34] L. Dziawgo, *Zielony…*, *op. cit.*, p. 185.

[35] Australian Conservation Foundation, *Submission to Parliamentary Joint Committee on Corporations and Financial Services*, 2005, pp. 12–13.

[36] H. Håkansson and A. Waluszewski, *Managing Technological Development, IKEA, the Environment and Technology*. Routlege, London, 2002 and E. Baraldi, G.L. Gregori and A. Perna, *Developing and embedding eco-sustainable solutions: the evolution of the Leaf House network*, 26th IMP-conference in Budapest, Hungary 2010.

above, the green banks are the main linkage for different rationalities of actors and different roles of investments in place as is stressed in industrial network theory, because green banks' main mission is to combine business and ecology for the benefit of customers.

All activities of the bank are accounted in the balance sheet (Table 3). The green bank aims at achieving profit only in financing pro-ecological business undertakings[37]. The balance sheet consists of assets and liabilities. On the assets side two groups of positions are distinguished, i.e. financial assets and fixed assets. The green bank uses its financial assets and fixed assets for its own sustainability and its stakeholders' sustainability. All the liability side deposits, internal funds, securities and profits also support sustainable development and oppose laundering money and doing dirty business.

Table 3. The model of balance sheet for sustainability of green bank

ASSETS	LIABILITIES
– Financial Assets (not for laundering money and doing "dirty business" – only ethical, social and ecological business – by stakeholders) 1) Cash 2) Loans 3) Securities – Fixed Assets (green building, green house, green investing by green bank)	– Deposits and Securities (not for laundering money and doing "dirty business" by stakeholders) – Own Funds (no owners or co-owners from "dirty business" or from laundering money procedures) – Profit (for owner or co-owner of green bank) for: 1) social activities (foundation of charities, education programmes, volunteering and philanthropy) 2) ecological activities (green investment, eco-parks, environmental programmes) 3) economic sustainable development – Reserve (for sustainability of green bank)

Source: authors' own elaboration based on the subject literature.

The basic activity of the green bank is lending by loans or securities. For that reason the main users of green banks are credit departments and treasury departments, which use deposits and securities to collect resources. The green bank is a nexus of stakeholders' relationships. This is particularly noticeable in the connection between lending and green investments. The bank has to assess the credit risk of investment and later has to monitor the process of investing.

[37] L. Dziawgo, *Zielony…*, *op. cit.*, p. 62.

The green bank and the investor are bounded by the credit contract. Both bank and investors in business networks are never independent, isolated or alone; they are formed in their perceptions, knowledge, capabilities and intents by others[38].

The bank and the investors connect their resources. A relationship connects two heterogeneous collections of the two parties' resources – the bank (takes deposits and sells securities or issues its own securities) and the investor (deposits money and buys securities). As it develops, the two companies direct and orient some of their resources towards each other. Adaptations are made in resource features and in the use combinations. A relationship between two companies can tie together more or less tightly some of their resources in a specific way[39].

In the network, lending by the bank interconnects stakeholders. It limits the freedom of stakeholders in using the bank's money for an aim other than sustainable business. These independencies provide a way for bank and stakeholders together to capitalise on the specific investments that they make in their own and each others resources[40]. It serves for building trust, commitment and reciprocity.

The model for business interactions of the green bank with stakeholders has been based on the industrial network model (Figure 1). Specialisation reduces the cost of the bank's services and costs to stakeholders through adjustments and adoptions. Resource constellation overtime depicted as a lifecycle seems to be based on two basic features of most resources of bank E3 Money, otherwise known as ethical, ecological and electronic money. This money is created in a sustainable bank and is being lent to the sustainable businesses of stakeholders. Sustainable business is ethical, ecological and economic. Interaction enables the heterogeneity of the bank's resources to be exploited as a means of value creation for stakeholders and the bank. Actor webs link to co-evolution and jointness. Co-evolution strengthens the trust, commitment and common motivation in solving problems for sustainable development. On the other hand jointness limits the autonomy of bank and stakeholders and requires interactions. The green bank will attach a price to this reduction uncertainty through interest rate and provision. So tariff differentiation for sustainability can be justified from a risk standpoint: clients with high environmental risks will pay a higher interest rate. The possibilities for tariff differentiation will be even larger if banks can attract cheaper money – by paying less interest for their own funding because of the relatively high quality and lower risk of their credit portfolio. This tariff differentiation by banks will stimulate the internationalisation of environmental costs in market prices. In

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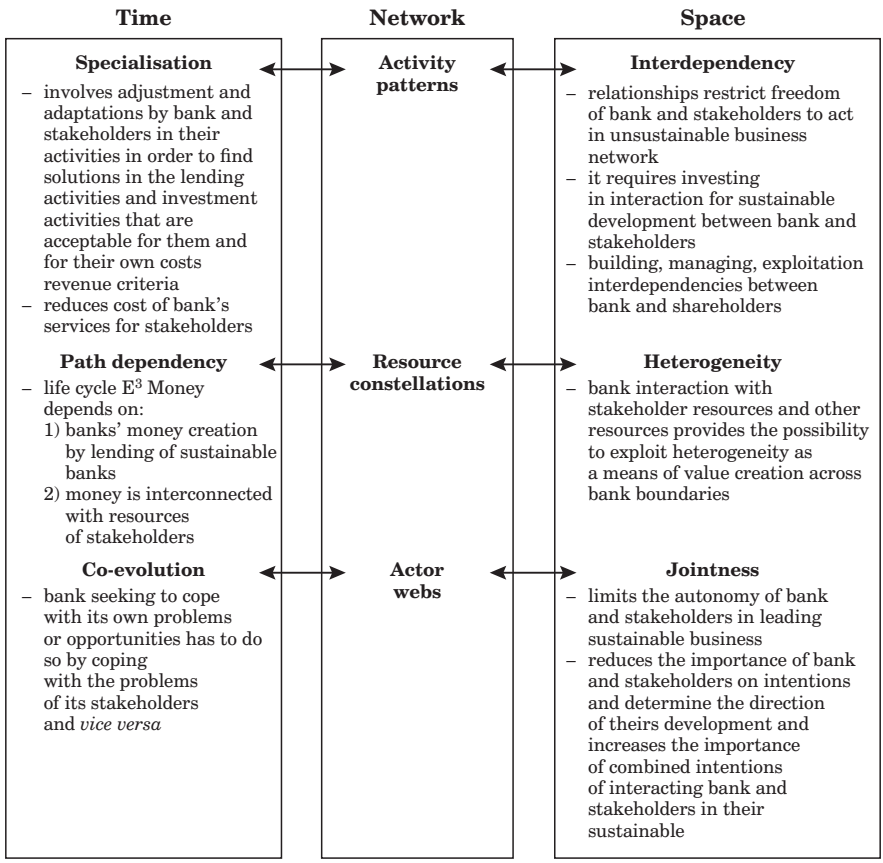
38 H. Håkansson and I. Snehota, (Ed.), *Developing…*, *op. cit.*, p. 193.

39 *Ibidem*, p. 136.

40 D. Ford and H. Håkansson, *The Idea of Business Interaction*, "The IMP Journal", 1(1), 2006, p. 11.

this sense, banks are a natural partner of governments[41]. The green bank with the main public shareholder is facilitated in offering ecological credits. Although, playing the high role of public government in supporting green banking is extended worldwide. It gives also a perspective of the long-term value.

Figure 1. The model of business interactions of green bank with stakeholders



Source: authors' own elaboration based on: H. Håkansson, D. Ford, L.-E. Gadde, I. Snehota and A. Waluszewski, *Business in Networks*. John Wiley & Sons Ltd, West Sussex 2009.

[41] M. Jeucken and J.J. Bouma, *The changing environment of banks*, [in:] J.J. Bouma, M. Jeucken, and L. Klinkers, (Eds.) *Sustainable Banking. The greening of finance*, Deloitte & Touche, Greenleaf Publishing, UK 2001.

The green bank may well go a qualitative step further and contribute to sustainability on ideological grounds as well on risk assessment grounds. Through their intermediary role, green banks may be able to support progress toward sustainability by society as a whole – for example, by adopting a 'carrot-and-stick' approach, where environmental front-runners will pay less interest than the market price for borrowing capital, while environmental laggards will pay a much higher interest rate. This may result, at least initially, in a loss of profitability, but certainly doesn't require a loss of continuity[42].

Green banks support a long-termist and profits-only mentality that appreciates much environmental and social reality. Therefore green banks are not hindering the achievement of sustainability. Although non-green banks play a hindering role in the achievement of a sustainable industrial network, in contrast to green banks. First, non-green banks prefer short-term payback periods, while many investments necessary for achieving sustainability must be long-term. Second, investments that take account of environmental side-effects usually have a lower rate of return, while non-green banks usually look for investments with the highest rate of return[43].

To sum up, in sustainable industrial networks of profit and benefit maximisation, companies will take account of the environmental side-effects of their economic decisions as long as the environment is represented in the prices on which they base these decisions. Green banks facilitate in taking these decisions. As a financial intermediary between market players, a bank has four important functions. First, it transforms money by scale. The money surpluses of one person are mostly the same as the shortages of another person. Second, banks transform money by duration. Creditors may have short-term surpluses of money, while debtors mostly have a long-term need for money. Third, banks transform money by spatial location (place). For example, a bank brings money from a creditor in Stockholm to a debtor in Warsaw. Four, banks act as assessors of risk. As a rule, banks are better equipped to value the risks of various investments than individual investors who have surpluses available. In addition, through their larger scale, banks are more able to spread the risks[44].

4. CONCLUSIONS

In the paper the industrial network model has been applied for conceptualisation of the green bank model as a network of participants, resources and activities in time and in space. It is observed that the interdependency of network nodes exists.

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42 *Ibidem*.

43 *Ibidem*.

44 *Ibidem*, X. Freixas, and J.-Ch. Rochet, *Microeconomics of Banking*, MIT, USA 2008 and K. Matthews, and J. Thompson, *The Economics of Banking*, John Wiley & Sons Ltd, England 2005.

The network nodes are investing in long-lasting relationships. In the long run, environmental, social and economic goals are not inherently conflicting, they are integrally connected.

The relationships of the green bank with the stakeholders analysed using the industrial network model show the complexity of the business network it creates and the heterogeneity of its business partners, its interconnections and business relationships. Both bank and investors in business networks are never independent, isolated or alone; they are formed in their perceptions, knowledge, capabilities and intents by others. Green banks in a sustainable industrial network allow the development of activities, resources and actors combining business and ecology.

The green bank works to mobilise other industrial actors to undertake activities and devote resources to implement network strategies of sustainable development. Therefore, green banks in sustainable industrial network allow the development of activities, resources and actors combining business, society and ecology. In this way, green banks serve to aid the process of combining business, society and ecology and they will have added value for the sustainable development playing the role of investor, financier, educator, adviser, promoter and coordinator of sustainable industrial networks.

Abstract

The paper aims to analyse the role of green banking in organising a sustainable industrial network. The main hypothesis of the paper is that the green bank works to mobilise other industrial actors to undertake activities and devote resources to implement network strategies of sustainable development. The main contribution of the paper is the proposition of integrating network analysis into the complex structure of green banking system interactions and relationships with the industrial system, which aim at eco-development into a coherent industrial ecosystem. The conceptualisation of a green banking network using the industrial network approach is configured to address explicit environmental and social issues. The main assumption of the sustainability network model is that the relationships of banks with stakeholders (i.e. suppliers, employers and customers) are based on mutual benefit and sustainability outcomes.

Key words: Green banking, ecosystem, industrial network, sustainable development

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Bezpieczny Bank
4(65)/2016

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REPUTATIONAL RISK: PROBLEMS WITH UNDERSTANDING THE CONCEPT AND MANAGING ITS IMPACT

1. INTRODUCTION

Crisis and post-crisis restructuring always result in an increased interest in the issues of trust and corporate culture, as scandals and excesses of the pre-crisis period comes to light, and the amounts spent to rescue banks raise public opposition[1]. Therefore, the post-crisis period has brought an increased interest in reputational risk, particularly within the banking sector and among its customers. Reputational risk is not a new concept, but the efforts to manage it as a self-standing type of risk, rather than within an operational risk framework, are quite recent. The methodology to manage and measure operational risk has been advancing rapidly in recent years, fuelled by a number of well-publicised case studies, such as the bankruptcy of Barings and problems of Societe Generale due to rogue traders, the Allied Irish Bank and UBS losses due to unauthorised trading, or huge sums paid by banks and insurance companies to settle allegations of sales abuses. However, reputational risk is more difficult to define and manage, as it

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[1] Walter (2013).

relies heavily on external perceptions and is sometimes viewed as a "risk of risks" or as an impact of other event[2]. As it took over a decade to develop an acceptable infrastructure for operational risk management, reputational risk is most probably at the beginning of a similar process.

Thus the aim of this paper is to analyse reputational risk as a self-standing type of risk and to trace its sources and consequences, particularly in the context of the drastic drop in confidence in banks in the post-crisis period. In the empirical part, the paper suggests a new methodology to measure reputational risk, by approximating it by a new indicator: Stakeholder Reputation Score (SRS) and running panel models, examining its impact on bank performance in listed banks in CEE-11 countries.

The paper is organised as follows: sections 2 and 3 review the approaches to define reputational risk, section 4 analyses the literature on factors causing reputational risk and its impact, section 5 reviews the approaches to measure reputational risk, section 6 describes the proposed index of reputational risk (Stakeholder Reputation Score, SRS) and summarises the results of the panel data models aimed at measuring the reputational performance premium for CEE banks, while the last section concludes the paper.

2. REPUTATIONAL RISK FROM A REGULATORY PERSPECTIVE

Risk appears with every banking product and operation, and managing risk constitutes an everyday banking activity. Risk can be defined as uncertainty concerning the return or outcome of an investment or an action, and risk management is a process by which managers identify, assess, monitor and control risks associated with financial institutions' activities[3]. Its objective is to minimise negative effects on the financial result and capital of a bank. However, in financial institutions risk can be treated both as a threat and also as an opportunity[4]. Banks manage risk at many levels, taking account of both macro and micro factors, in many cases external to the decisions taken by bank. Moreover, in many cases risk is interconnected, both within a bank and in the whole system. Risk management generally encompasses the process of identifying risks to the bank, measuring exposures to those risks, ensuring that an effective capital planning and monitoring programme is in place, monitoring risk exposures and corresponding capital needs on an ongoing basis, taking steps to control or mitigate risk exposures and reporting to senior management and the board on the bank's risk exposures

[2] ACE (2013).
[3] Koch, Scott MacDonald (2015).
[4] Marcinkowska (2014).

and capital positions[5]. In the future, the new challenges will come from expanding regulations, raised customer expectations due to technological progress and the emergence of new types of risks[6].

Historically, banks' efforts in managing risk have tended to focus on credit and market risk. However**,** risk management in banking has been transformed over the past decade, largely in response to regulations that emerged from the global financial crisis. The Basel 2 Agreement stressed the importance of three main categories of risk: credit, market and operational risk; the Basel Committee[7] described the latter as the possibility of direct or indirect loss resulting from inadequate or failed internal processes, actions of people or systems, or losses related to the impact of external events. Although the definition was quite broad, reputational risk, as well as strategic risk, have not been included. Basel 2[8] and Basel 3[9] kept reputational risk out of the pillar 1 capital requirement and reputational risk is currently not subject to any specific capital requirements in the EU. Capital Requirements Directives[10] applicable to EU countries require only that the competent authorities evaluate reputational risks arising from securitisation transactions and that financial institutions develop methodologies to assess the possible impact of reputational risk on funding positions[11]. In the US, reputational risk is one of the Federal Reserve System's categories of safety and soundness and fiduciary risk (credit, market, liquidity, operational, legal and reputational) and one of three categories of compliance risk[12].

In light of the significant number of recent operational risk-related losses incurred by banks, in June 2011 the Basel Committee published the "Principles for the Sound Management of Operational Risk", which incorporated the lessons from the financial crisis. The eleven principles cover governance, the risk management environment and the role of disclosure, and address the three lines of defence: business line management, an independent operational risk management function and an independent review. In 2014, the Committee conducted a review in the form of a questionnaire, involving 60 systemically important banks in 20 countries, in which banks self-assessed their implementation of the Principles. A key finding of the review was that banks have made insufficient progress in implementing the Principles[13]. Hence in 2014 the Basel Committee proposed a revision to

5 Basel Committee (2011).
6 McKinsey (2015).
7 Basel Committee (2001).
8 Basel 2 (2004).
9 Basel 3 (2010).
10 Capital Requirements Directives (2011).
11 Dey (2015).
12 Business Insurance (2016).
13 Basel Committee (2014).

its operational risk framework that sets out a new approach for calculating operational risk capital. Also, the Financial Stability Board stressed the importance of operational risk in the post-crisis environment, defining it as a synthetic one, including people risk, outsourcing risk, internal and external fraud, money laundering and technology risk[14].

In 2009, the Basel Committee passed the document addressing the need to strengthen risk management by banks, in which reputational risk was defined as a multidimensional process, based on the perception of other market participants[15]. More precisely, reputational risk was explained as the actual or potential risk related to earnings or capital, arising from negative perception of financial institutions by the current and potential stakeholders (customers, counterparties, shareholders, employees, investors, debt-holders, market analysts, other relevant parties or regulators) that can adversely affect a bank's ability to maintain existing, or establish new, business relationships and its continued access to sources of funding, including the interbank market or the securitisation processes. In this document, the Basel Committee stressed the need to manage reputation risk, identifying its sources and taking it into account when testing the resilience of the bank business model to external shocks [Basel Committee 2009]. The Fed's *Commercial Bank Examination Manual* defined reputational risk as "the potential that negative publicity regarding an institution's business practices, whether true or not, will cause a decline in the customer base, costly litigation or revenue reductions"[16].

3. REPUTATIONAL RISK AS A BROAD AND MULTIDIMENSIONAL CONCEPT

Reputational risk – damage to an organisation through loss of its reputation – can arise as a consequence of operational failures, as well as from other events. Both operational and reputational risks belong to a similar area, as operational problems can carry negative consequences for a bank's reputation, affecting client satisfaction and shareholder value. However, those risks can also include a broader set of incidents, such as fraud, privacy protection, legal risks, physical (e.g. infrastructure shutdown) or environmental risks. Reputational risk exists on many levels and is difficult to quantify. It can also be defined as the risk of economic loss associated with a negative image of the bank by the clients, supervisors, regulators and the public. Risk management is result-oriented, with different priorities given to avoidance of operational problems or reputational risk, and a different time

14 FSB (2012).
15 Basel Committee (2009).
16 Business Insurance (2016).

horizon for maximising the value of the company. Reputational risk is associated with faulty strategy, poor management and leadership, or a wrong system of incentives, inadequate supervision and problematic corporate culture.

Steinhoff and Sprengel[17] observed that risk awareness is probably the most important factor for risk reduction, so it should be placed inside the corporate governance framework, particularly from a "who is responsible for what" angle. Reputational risk is not regulation or compliance-driven, but determined by stakeholder expectations. However, corporate culture is also a very broad concept and can be defined in many ways[18]. The development of corporate culture is a long-term, continuous process, where the results are visible in the long term. The definitions emphasise that it rests on a set of values shared by a community, which affects its organisation and motivate behaviour within the organisation[19]. The period of crisis often results in an increased interest in corporate governance, however, changes in prudential regulations correcting errors in risk management are usually easier than the long-term changes in the corporate culture of market participants[20].

Traditionally, the financial services industry worked according to easily understandable principles, with clearly defined risk profiles: for a loan, an enterprise went to a commercial bank, to raise funds on capital markets it turned to an investment bank. In the last twenty years those divisions were blurred, and new players, such as hedge and equity funds were offering para-banking services[21]. However, from the crisis perspective, the strategy of a "financial supermarket" and a "too big to fail" scale turned out to be very risky. Although systemic risk associated with the activities of large, global banks was among the top causes of the global financial crisis, after the crisis, their role has been further strengthened. In many countries, post-crisis restructuring took the form of mergers and acquisitions, particularly of investment banks by universal ones in the US, or merging the nationalised banks to control losses (the Netherlands, the UK). So the question of managing reputation risk in the process of acquisition is another important challenge[22]. Consistency of culture ensures a friendlier merger, but the not necessarily homogeneous cultures of the merging companies can have a positive effect on the results of the merger[23].

The 2007–2009 crisis caused multibillion losses and reviled the weaknesses of the growth foundation and failure of risk management systems in large global

17 Steinhoff and Sprengel (2014).
18 Guiso, Sapienza, Zingales (2006).
19 Carretta, Farina, Schwizer (2007).
20 Walter (2013).
21 Rajan (2005).
22 Schoenmaker (2011); Dermine (2006).
23 Fiordelisi, Soana, Schwizer (2013).

banks. Consequently, there has been a renewal of interest in the creation of a stable and functional risk culture. This includes, among others, a broadening of the scope of analysed risks beyond the regulatory requirements. Moreover, as the empirical research has indicated, reputational risk increases with the scale and profitability of banks, making the subject even more relevant in a global system characterised by a highly concentrated banking markets[24]. A series of scandals revealed during the crisis and in the post-crisis period strongly influenced the deterioration of reputation and loss of confidence in the banking market. While building and maintaining a solid reputation is important for all types of organisations, it is especially important for financial institutions. Trust in the integrity of the financial sector is the cornerstone of its stability and growth. The concept of trust is closely related to that of reputation, the latter is past and the former is forward-oriented. Both depend on the operational decisions taken by banks in the past. There are some mechanisms that can be used in enhancing trust, such as codes of ethics, internal anti-fraud systems, independent ethics audits and reputational indices. Indirect measures involve membership of a professional association or in self-regulatory organisations, which protect the reputation and discipline among its members, setting standards in codes of conduct and developing mechanisms of better risk assessment process[25].

Many definitions stressed that reputational risk is multidimensional and reflects the perception of other market participants. It can also be defined as the risk to bank goodwill that is not associated with deterioration of book value and is typically reflected in a falling stock price[26]. There is also a problem of time frame. In most cases, the effects of a scandal or unexpected loss are immediate. The loss is seen as a signal that the company has a weak control environment. Shareholders may also sell shares if they believe that future losses are inevitable. However, there are also cases of more prolonged problems with corporate culture which gradually erode customers' and business partners' trust. In some cases, reputational problems have a negative impact on the financial results, but there are also opposite cases[27].

The growing awareness of reputational risk is also reflected in annual surveys conducted by the European Banking Authority and reported in *Risk Assessment of the European Banks*. This document includes a section on reputational risk, particularly assessing its impact on consumer confidence[28]. The reports showed growing awareness of reputational risk in the European banking sector, as indicated

[24] Fiordelisi, Soana, Schwizer (2013).
[25] Morris and Vines (2014); Marcinkowska (2013).
[26] Walter (2013).
[27] Marcinkowska (2013).
[28] EBA (2014, 2015, 2016).

by 33% of responding banks in 2013, 44% in 2014, and 68% in 2015. According to EBA reports, what had a particularly detrimental impact on consumers were failures with regard to rate benchmark-setting processes, the mis-selling of banking products, and more recently misconduct related to foreign exchange rates, violations of trade sanctions and redress for payment protection insurance, and floors for mortgage loans at variable interest rates. The range of identified detrimental business practices remains wide and misconduct costs remain high. The share of banks indicating that they have paid out more than EUR 1 billion in compensation, litigation and similar payments increased in 2015 to 32% of participating banks (16% in 2014 and only 8% in 2013)[29]. Efforts to adjust culture and risk governance are the most widely considered approach to addressing reputational and legal risks (85% in 2016), an increase from less than 50% of respondents in previous surveys. However, in the 2016 Report, only about 10% of surveyed banks indicated their intent to adjust products and business models in an effort to address reputational and legal risks. Other empirical studies show that reputational risk is particularly important for large global banks and those with relatively low capitalisation, so it should be an important subject of supervisory concerns.

4. BENEFITS FROM REPUTATION AND TRUST IN BANK SURVEYS

Reputational risk is usually due not to incidental events, but is the result of poor long-term decision-making processes. The causes are often linked to the pressures on results, the asymmetry of the profit to risk ratio, conflict of interest related to the complexity of bank business models and to compensations based on bonuses[30]. Financial services differs significantly from the industrial sector. Key stakeholders of banks are depositors, creditors and the government (insurance). As banks are financed largely through debt, shareholders have a lesser importance than in corporations. However, bank governance prioritises shareholder interests and bank ownership to be concentrated in institutional investors with a bigger risk tolerance than other stakeholders. Consequently, governance of financial institutions facilitates operational risk, which may erode shareholder wealth and may fail to meet the expectations of other stakeholders[31].

The 2008 financial crisis had a significant effect on banks' reputations and trust, and only recently can we observe a gradual rebound of trust: financial services has recorded an 8-point increase from 43% in 2012 to 51% in 2016 on a global basis. Financial services, however, is still the least trusted industry

[29] *Ibidem*.
[30] Waler (2013).
[31] Dow (2014).

among those surveyed by the Edelman Trust Barometer[32]. Inside the industry, employees are more trusted than senior executives and CEOs to communicate on topics like financial earnings, crises and the treatment of customers. In the US, the Reputation Institute compared the financial industry problems with the past reputation of tobacco firms. In the post-crisis period the financial sector has been obliged to pay incredible amounts of litigation expenses, with the most notable being JP Morgan paying 13 billion of dol. settlement to the US government over behaviour leading to the crisis in 2014, Deutsche Bank investigated for tax evasion and money laundering, in addition to Libor fixing in 2012, or large banks fined for the Libor scandal in 2015. However, in 2016 for the first time the large banks gain in the US ranking – of the 33 banks evaluated, 10 banks had an "excellent" reputation among their customers, compared to eight in 2015[33]. Other surveys have also shown that inside the banking industry, those with the best reputation have divisions related to new technologies, eg. internet banking and ATMs, though not telephone banking[34].

Inside the banking sector, reputation is often treated in the same way as a "brand", i.e. an intangible asset that can be impaired by operational mistakes or inappropriate behaviour. In this approach reputational risk is a derivative risk, arising as a result of damaging action[35]. Reputation may also serve as a cushion against losses, i.e. companies with a better reputation suffered less severe declines in market value during the crisis periods although the empirical evidence varies in this respect – in some cases a good reputation softens the impact of failures, in others it may be dangerous, as other objective indicators of strength, such as capital or liquidity, might seem irrelevant. The third way is not to treat it as an asset, nor as a kind of equity capital, but as a set of obligations towards stakeholders, which have to be fulfilled[36].

Thus, reputation can be summed up as having three main manifestations:

- reputation as asset (stakeholders' goodwill),
- reputation as liability (stakeholders' expectations),
- reputation as capital (buffer against failure, helping to maintain goodwill when failing to meet expectations).

The impact of reputation on performance is a direct consequence of interaction of those domains[37].

As early as 2005, the Economist Intelligence Unit Report observed that protecting a firm's reputation is the most important and difficult task facing the

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32 Edelman Trust Barometer (2016).
33 American Banker (2016).
34 Ernst and Young (2014).
35 Steinhoff and Sprengel (2014).
36 *Ibidem*.
37 *Ibidem*.

firm's managers and reported that in a survey of 269 senior executives responsible for managing risk, reputational risk emerged as the most significant threat to business out of a choice of 13 categories of risk. Reputational risk was defined as an event that undermines public trust in bank products or brands[38]. Reputation is based on aggregate past experience; however, it is directed towards the future and reflects the expectations concerning the firm[39]. Customers satisfied with the services of the bank have a greater loyalty, which helps to improve the bank's image and its competitive position[40]. In contrast, problems with a bank's reputation can lead to[41]:

- loss of current or prospective customers,
- loss of employees or managers in the organisation,
- departure of current or future business partners,
- an increase in the cost of financing through a loan or capital markets.

Moreover, reputational problems of large commercial or investment banks have been widely publicised, aggravating the problem and the damage. The most famous reputational problems include[42]:

- bad strategy – for example, a failed attempt to build a "financial supermarket" by American Express in the 80s and Citigroup in the 2000s. Combining commercial and investment banking has always been difficult, as these areas have fundamentally different corporate cultures, risk profiles and environmental control. The investment part feels unduly "insured" by the stable commercial part, which, however, is not able to cover the losses conglomerated during the crisis;
- poor risk management, such as widely publicised problems with internal control and fraud in Barings Bank, and later on in Societe General and UBS,
- aggressive strategy and problems with corporate culture, leading to market manipulation, as with the investment bank Salomon Brothers in the 1970s;
- incompetently applied new products, such as an excessive expansion of the "junk bonds" market in the 1980s and securitisation transactions before the crisis, particularly on the part of the US investment banks,
- abuse of market power: most recent examples include Libor manipulation and FX manipulation by large global banks.

Reputational problem in the above-mentioned institutions often resulted in either immediate bankruptcy, or long-term loss of customers and business partners, leading to the destruction of the brand and perception of the company. An example

38 The Economist (2005).
39 Edelman Trust Barometer (2014).
40 Fiordelisi (2009).
41 Eccles, Newquist, Schatz (2007).
42 Masiukiewcz (2009); Docherty and Viort (2014).

is the decision of the Citigroup in 2003 to abandon the name "Solomon" in its investment part, because it placed too much of a burden on the bank's reputation. In contrast, one can cite many positive examples of the beneficial role of reputation and positive perception of corporate culture that have stabilised or increased the market position of the bank. As an example can serve a specific corporate culture developed by Santander Bank, managed through three generations by the Botín family, giving the bank's corporate culture a sense of stability and continuation of[43].

Kaiser[44] analyses two surveys conducted by KPMG among the G-SIBs (the Global Systemically Important Banks) in 2013 and 2014 and responded to by 10 banks and a survey of the German banks, responded to by 18 institutions, 13 of which belonged to the 20 biggest German banks in 2012. In the surveys, 60% of both global and German banks asserted that reputational risk stands in its own, rather than being a consequential risk, or trigger to other risks; however, most banks did not include it in their risk inventory and admitted that it is not explicitly addressed in their risk strategy. Another question showed that only 55% of the G-SIBs and 60% of the German banks prioritised their stakeholders in order to manage reputational risk more efficiently. German banks gave the highest priority to customers, while global banks gave top priorities to customers, employees and regulators. The surveys demonstrated that banks put the main emphasis on self-assessment of reputational risk, only supplementarily including expert opinions, interviews with senior management and analysis of press and social media; and that they register and report losses due to reputational risk mainly as a part of the operational risk database, so although banks were aware of the need to include reputational risk in their overall risk mapping, in everyday life they dealt with it in the operational risk management framework.

5. PROBLEMS WITH MEASUREMENT OF THE REPUTATIONAL RISK

The efforts to manage operational risk have been successfully quantified in the last decade, but for reputational risk the typical approach is still to monitor it inside the broadly defined "risk culture". What gets measured gets managed [Diermeier 2008]. However, quantification of reputation risk is extremely difficult as there is no universally accepted methodology and the concept is quite broad. If we define reputational risk as unexpected losses due to the reaction of stakeholders to an altered perception of an institution[45], there are many possible ways of

[43] Guillén, Tschoegl (2008).
[44] Kaiser (2014).
[45] *Ibidem*.

approximating this risk. Moreover, reputational risk does not act in isolation; on the contrary, it is interrelated to many other types of risk. Some sources of gain/loss in reputational capital include: economic performance, stakeholder interface and the legal interface, which can be reflected in client flight, loss of market share, investor flight and increase of cost of capital, talent flight and increase of contracting costs[46]. Assuming that reputational risk is managed through strong corporate governance, another approach is to create indices that measure the quality of firms' corporate governance structure and link it to the stock price-based performance of the company, assuming that the change in corporate governance index is a signal of quality of firm management[47].

The empirical studies typically focus on various surveys, case-studies or media coverage of detrimental events. There is also a lack of tools to link reputational risk with financial performance and it is unclear how reputation risk can impact capital[48]. In many companies, reputational problems are still considered rather as a problem of public relations than a strategic one and the response is frequently inadequate to the scale of the damage. The problem of reputational risk measurement is further aggravated for CEE banks, as the stock markets there are not efficient in discounting information[49], so the panel data models using stock market information may be misleading.

Assessing reputational risk is most often not an objective process, but rather it is a subjective assessment that could reflect a number of different factors. Reputation could be perceived as an intangible asset, synonymous with goodwill, which is difficult to measure and quantify. Consistently strong earnings, a trustworthy board of directors and senior management, loyal and content branch employees, and a strong customer base are just a few examples of positive factors that contribute to a bank's good reputation[50].

Establishing a strong reputation provides a competitive advantage. A good reputation strengthens a company's market position and increases shareholder value. It can even help attract top talent. Communication between a bank and its stakeholders can be the foundation for a strong reputation. Bank examiners may consider whether an institution responds to customer concerns; whether the stock analyst recommends buying or selling and why; and what the shareholders, employees or general public are saying about the institution. They also consider whether the institution is expanding outside its normal geographical area and is supportive of the community. On-site, examiners will talk to both bank employees

46 Walter (2016b).
47 Fox, Gilson, Palia (2016).
48 Diermeier (2008).
49 Kil (2015).
50 Business Insurance (2016).

and management to get a sense for corporate ethics. Examiners will assess whether an institution's expertise is adequate and controls are in place to oversee growth if the institution should engage in riskier products or enter into new business lines[51]. Also the rating agencies, such as Standard & Poor's Corp., Moody's Investors Services Inc. and Fitch have significantly increased their emphasis on reputational risks related to corporate governance. The rating agency's primary focus is the ability and willingness of an entity to make full and timely payment of debt service on its financial obligations. However, a damaged reputation can significantly affect the performance and, ultimately, the ability to borrow capital. For example, S&P issued a statement saying that costs associated with the Costa Concordia disaster had negatively affected the firm's operating performance in 2012. Another example of the importance of reputation in obtaining the rating score are public universities in the US, which rely heavily on their reputation and brand as a strategic asset[52].

A measure that is sometimes used is the difference between the immediate costs of a crisis versus damage to a firm's market capitalisation in the period following a crisis event[53]. Another frequent approach in modelling reputational risk is to analyse it within an operational risk framework, assuming that operational loss events can lead to significant reputational losses, and to the check the impact of bank reputational problems on bank market capitalisation. Reputational loss is there defined as market value loss that exceeds the announced operational loss[54]. Another frequent approach is to conduct an event study analysis of the impact of operational loss events on the market values of financial institutions by examining a firm's stock price reaction to the announcement of particular operational loss events such as internal frauds, estimating the Reputational Value at Risk at a given confidence level, which represents the economic capital needed to cover reputational losses over a specified period[55].

6. EMPIRICAL ANALYSIS OF THE REPUTATIONAL RISK IN THE CEE BANKING: STAKEHOLDER REPUTATION SCORE

Reputation can be perceived not only as a problem, but also as a positive factor contributing to the performance premium. The empirical part adopts this approach, aiming to examine the relationship between a synthetic indicator of a reputational risk and bank performance, asking the question as to whether there is a reputational premium. To test the role of reputational risk for bank

51 Brown (2016).
52 Business Insurance (2016).
53 ACE (2015).
54 Eckert, Gatzer (2015).
55 Micocci et al.

performance in CEE (11) countries, a panel data model with fixed effects was used (with Hausman and Breuscha-Pagana tests), based on individual bank data from the Bankscope database. In the sample, 42 banks listed on CEE stock exchanges were analysed, for which the rating information from at least one of the three major agencies: Standard & Poor's Rating Services ("Standard & Poor's"), Moody's Investors Service Inc. ("Moody's") or Fitch Ratings Ltd. ("Fitch") were accessible: 15 from Poland, 12 from Croatia, 4 from Bulgaria and Slovakia, 3 from Romania and 1 each from the Czech Rep., Hungary, Lithuania and Slovenia. The first step was to establish a reputational risk index; the following one was to test its impact on bank performance.

Reputational risk was represented by a synthetic index: Stakeholder Reputation Score (SRS), comprised of three indicators, based on the perspective of the three major bank stakeholders. It was defined according to the following formula:

SRS = market perspective + client perspective + investor perspective.

The fourth important stakeholder would be the government, but this was omitted due to the lack of appropriate indicator. In the index, these three perspectives were approximated by:

SRS = (a) credit agencies' ratings + (b) deposit growth + (c) bank stock returns.

There is a long debate on the relevance of the rating information and rating agencies' credibility, particularly after the global crisis[56], but nevertheless the credit rating encompasses a broach range of information. Credit ratings express credit rating agencies' forward-looking opinion about the creditworthiness of an obligor and its capacity and willingness to meet its financial obligations in full and on time[57]. The credit rating represents an evaluation by the credit rating agency of the qualitative and quantitative information for the prospective debtor[58]. In the paper, the ratings were employed both at a country level (CR) and at the bank level (BR).

The sub-indexes in SRS (a,b,c) were calculated as follows:

a. ratings: scores from major credit agencies were used and the average score (arithmetic mean; in points) was established as in table 2, in a scale 1–16, adjusted by rating perspective of +/– 0.5 percentage points; a stable outlook did not cause adjustments in the assessment;

[56] Grothe (2013); Eckert, Gatzer (2015).
[57] S&P (2016).
[58] ECB (2009).

b. deposits: the annual growth rate of current deposits from the non-financial sector was used (converted to points);
c. stock return: the annual rate of return from bank stock was used, adjusted by splits and dividends paid (in points).

Table 1. Scoring scale used in the model

Rating Agency assessment			Model score
S&P	**Fitch**	**Moody's**	
AAA	AAA	Aaa	16
AA+	AA+	Aa1	15
AA	AA	Aa2	14
AA–	AA–	Aa3	13
A+	A+	A1	12
A	A	A2	11
A–	A–	A3	10
BBB+	BBB+	Baa1	9
BBB	BBB	Baa2	8
BBB–	BBB–	Baa3	7
BB+	BB+	Ba1	6
BB	BB	Ba2	5
BB–	BB–	Ba3	4
B+	B+	B1	3
B	B	B2	2
B–	B–	B3	1

Point values of the sub-indices (a,b.c) of the SRS were calculated by assigning a numerical value each year to the corresponding decile for each indicator and for the whole group, in the following way: from –5 to –1 respectively for deciles from 1 to 5; 0 points for the median for the entire group; from 1 to 5 respectively for deciles from 6 to 10. Consequently, the SRS index ranges from –15 to +15 points for the three indicators and represents an approximation of the bank's reputational risk.

The next step was to run a panel data model, for the period 2009–2014. The dependent variable was a Multi Level Performance Score (MLPS), which was defined as the sum of points awarded in five key areas for long-term evaluation of bank performance: three performance indicators (ROE, C/I, and loans to assets), and two sustainability indicators (Z-Score and NPLs). Thus, MLPS = ROE + C / / I + L / A + Z- Score + NPLs[59].

[59] Miklaszewska, Kil (2015).

The MPL Score was calculated as follows: for each indicator the whole group was divided into ten deciles, the median value is 0 (neutral); each subsequent decile above the median for the ROE, L/A, and Z-score ranged from 1 to 5, and each successive decile below the median had a negative value and ranged from –1 to –5. For C/I and NPLs the signs were the opposite. This indicator has a simple interpretation: the higher the value of the MLP Score, the better the assessment of the bank's results.

A panel data model with fixed effects was used, which measured the impact of reputational risk (approximated by the SRS score) on bank performance, measured by the comprehensive index Multi Level Performance Score (MLPS). However, for a robustness check simple indicators were also tested, such as profitability (ROE) and bank stock rate of return (RR). The explanatory variables are defined in table 2.

Table 2. Description of explanatory variables

Symbol	Description	Rationale/data source
a. macroeconomic variables		
Δ GDP	Real GDP growth rate (%)	Macroeconomic business cycle (World Bank: World Development Indicators)
HHI	Herfindahl-Hirschman Index for Credit Institutions	Banking market concentration (BSCEE Review and ECB Database)
SB	Total bank assets (% of GDP)	Size of the banking sector (Raiffeisen Research)
CR	Country LT credit rating	Country credit standing (Bankscope, rating agencies' internet sites)
b. bank-level variables (data source: Bankscope)		
ln_TA	Logarithm of Total Assets (in USD)	Bank size
SRS	Reputational risk index	Approximation of reputational risk
L_D	Loans to Deposits ratio	Bank funding risk
NeII_NoIOI	Net Interest Income/ Total Non-Interest Operating Income	Income diversification (bank business model)
S_TA	Securities/Total Assets	Market risk
LA_DSTF	Liquid Assets / Deposits and Short-Term Funding	Liquidity risk

The results of estimations are summarised in tables 3–4 for the reputational effects on bank performance, measured by ROE and the comprehensive MLP Score.

Table 3. Panel data estimations for MLPS, CEE 2009–2014

Control variables:	2009–2014	
const	–79,050 *0,121*	
Δ GDP	0,369 *0,068*	*
HHI	–249,297 *0,078*	*
SB	2,351 *0,827*	
CR	–3,789 *0,008*	***
ln_TA	7,173 *0,030*	**
SRS	–0,265 *0,011*	**
L_D	0,218 *0,000*	***
NeII_NoIOI	–0,012 *0,017*	**
S_TA	–0,039 *0,688*	
LA_DSTF	0,178 *0,026*	**
R^2	0,856	
R2 corrected	0,837	

Note: ***, ** and * correspond to 1%, 5% and 10% significance level.

Source: author's own calculation.

The estimation results presented in tables 3 and 4 indicate that analysing bank performance, both approximated by short-term ROE and by the comprehensive indicator: MLP Score, the index of bank reputation SCR (similar to the country's rating on a macroeconomic level) not only did not have a positive impact, but affected bank performance strongly negatively, similar to the HHI concentration index. Factors with the most positive efficiency impact were the size of the bank, its financing risks and the high level of GDP growth.

Table 4. Panel data estimations for ROE, CEE 2009–2014

Control variables:	2009–2014	
const	–187,278	*
	0,082	
Δ GDP	0,121	
	0,747	
HHI	–504,163	*
	0,076	
SB	21,042	
	0,288	
CR	–2,037	
	0,424	
ln_TA	12,325	*
	0,072	
SRS	–0,357	*
	0,081	
L_D	0,168	**
	0,048	
NeII_NoIOI	–0,003	
	0,672	
S_TA	0,488	**
	0,012	
LA_DSTF	0,292	*
	0,067	
R^2	0,639	
R2 corrected	0,489	

Note: ***, ** and * correspond to 1%, 5% and 10% significance level.

Source: Own calculation.

7. CONCLUSION

The reputational risk literature and surveys analysed in the paper,suggested that banks should treat reputational risk as a separate class of risk and analyse it beyond the framework of operational risk and corporate governance. It should not

be narrowed down to a "public relations" response to crisis events, but treated as a strategic type of risk, with a strong potential to harm the value of the company.

However, as the reputational literature and many case studies indicate, it is very difficult to categorise and quantify reputational risk, as it can arise as a consequence of other risks and many events. The panel data models for banks from the CEE-11 countries analysed in the paper, have also indicated that proper management of reputational risk may not be important (and even harmful) for assessment of bank performance, which may explain why many banks dealt with reputational risk mainly in the context of minimising the loss after a scandal, which constitutes crisis management, rather than management of reputational risk.

Abstract

Interest in reputational risk as a self-standing type of risk is relatively new. The research is driven not so much by regulatory requirements, but by stakeholders' interest. Therefore, the purpose of this article is to trace the sources of reputational risk and consequences of the problems associated with a bank's negative reputation. The paper focuses on the differences in the definitions and methodological problems of its measurement. The empirical part proposes a new index measuring reputational risk, based on the perspectives of important stakeholders. The panel models analyse the impact of the index on bank performance in CEE.

Key words: reputational risk, reputational index, performance of CEE banks

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Miscellanea

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POSITION OF THE EUROPEAN FINANCIAL CONGRESS ON THE SUPPLEMENTARY SUPERVISION OF FINANCIAL CONGLOMERATES

INTRODUCTION

The authors developed the position of the European Financial Congress (EFC) on the supplementary supervision of financial conglomerates. The position was based on opinions of stakeholders in the Polish financial market, collected in research performed by the EFC[1]. The position of the EFC was a reply to the European Commission's

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1 A group of experts, from more than 70 specialists (representing universal banks, auto loan companies, insurance undertakings, regulatory bodies, consulting firms and academia), were invited to participate in a survey. They received selected extracts from the consultation document as well as the consultation questions. The authors selected questions from a broader pool of queries provided in the European Commission's consultation document. Experts were guaranteed anonymity. There were 17 replies from key financial market institutions in Poland and from individual experts. All responses were grouped, made anonymous and presented to experts who took part in the consultations. They were asked to mark in the other consultation participants' opinions the passages that should be included in the final position, as well as the passages they did not agree with. Experts could also adjust their positions under the influence

consultation document – *Directive 2002/87/EC on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate*[2].

The consultation of European Commission was designed to gather evidence on the Directive (FICOD)[3]and its implementation to date, including regulatory technical standards[4]. The evaluation looked at whether the current FICOD regulatory framework is proportionate and fit for purpose, if it is delivering on its objective to identify and manage group risks, and in particular whether FICOD has:

- ❖ contributed to enhanced financial stability;
- ❖ safeguarded creditors' and policyholders' interests; and
- ❖ promoted the competitiveness of financial conglomerates within the EU and at international level.

In line with better regulation principles, the evaluation was to assess the relevance[5], effectiveness[6], efficiency[7], coherence[8] and EU added value[9] of the legislation.

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of arguments presented by other participants that they had not previously known. On the basis of the final responses received, the authors developed the synthesis of the Polish stakeholders' view, which became the position of the European Financial Congress.

2 http://ec.europa.eu/finance/consultations/2016/financial-conglomerates-directive/docs/consultation-document_en.pdf

3 *Directive 2002/87/EC of the European Parliament and of the Council of 16 December 2002 on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate and amending Council Directives 73/239/EEC, 79/267/EEC, 92/49/ EEC, 92/96/ EEC, 93/6/EEC and 93/22/EEC, and Directives 98/78/EC and 2000/12/EC* (OJ L 35, 11.2.2003, s. 1).

4 *Commission Delegated Regulation (EU) 2015/2303 of 28 July 2015 supplementing Directive 2002/87/ EC of the European Parliament and of the Council with regard to regulatory technical standards specifying the definitions and coordinating the supplementary supervision of risk concentration and intra-group transactions* (OJ L 326, 11.12.2015, p. 34); and *Commission Delegated Regulation (EU) No 342/2014 of 21 January 2014 supplementing Directive 2002/87/EC of the European Parliament and of the Council and Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for the application of the calculation methods of capital adequacy requirements for financial conglomerates* (OJ L 100, 3.4.2014, s. 1).

5 Relevance looks at the relationship between the needs and problems in society and the objectives of the intervention. In other words: "Is EU action still necessary?"

6 Effectiveness analysis considers how successful EU action has been in achieving or progressing towards its objectives. In other words: "Have the objectives been met?"

7 Efficiency considers the relationship between the resources used by an intervention and the changes generated by the intervention (which may be positive or negative). In other words: "Were the costs involved reasonable?" Typical efficiency analysis will include analysis of administrative and regulatory burden and look at aspects of simplification.

8 Coherence involves looking at how well or not different actions work together. In other words: "Does the policy complement other actions or are there contradictions?" This encompasses both "internal" coherence, e.g., the different articles of a piece of legislation, and "external" coherence, e.g., between interventions within the same policy field or in areas that may have to work together.

9 EU-added value looks for changes that it can reasonably be argued are due to EU intervention, rather than any other factors. In other words: "Can or could similar changes have been achieved at national/regional level, or did EU action provide clear added value?"

I. REGULATORY CHALLENGES OF FINANCIAL CONGLOMERATES

Before turning to some of the specific issues involved in regulating and supervising a financial conglomerate, it is useful to clarify what is meant by the term financial conglomerate. There are differing perceptions as to what exactly constitutes a financial conglomerate. To a large extent, these perceptions depend upon custom and practice in different countries, but they are also influenced by the existence of specific rules and laws.

In general, the financial conglomerate can be defined as any group of companies under common control, whose exclusive or predominant activities consist of providing significant services in at least two different financial sectors (banking, securities, insurance)[10]. Such an entity is likely to combine businesses that are subject to different schemes of supervision. It might also include financial activities which, in many countries, are not conducted in an entity that is subject to individual prudential supervision (e.g. leasing, consumer credit, certain financial derivatives)[11]. Disintermediation, globalisation and deregulation have triggered cross-sector consolidation. Consolidation has been driven by the search for revenue enhancement and cost savings and has been encouraged by developments in information technology[12]. Some authors argue that combining insurance and banking services creates economies of scale in terms of monitoring the customers, so the competition increases in the financial markets as a result of financial conglomeration. Increased competition drives the prices of financial services down, increases monitoring and improves financial stability. Increased monitoring allows financial regulators to apply lower capital requirements to financial conglomerates[13].

On the other hand, the corporate complexity of international financial conglomerates is likely to impede timely regulatory intervention and disposition. This exacerbates the moral hazard implicit in the financial safety net and diminishes market discipline of some of the most systemically important institutions. At the same time it constrains the supervisory authorities to substitute regulatory discipline for market discipline. In effect, several of these institutions may have become too complex to fail[14].

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10 G. Kaufman, R. Bliss, *Financial Institutions and Markets: Current Issues in Financial Markets*, Palgrave Macmillan, 2008.

11 *The supervision of financial conglomerates*, Bank for International Settlement, July 1995.

12 I. Lelyveld, A. Schilder, *Risk in financial conglomerates: management and supervision,* Research Series Supervision no. 49, November 2002.

13 M.M. Schmid, I. Walter, *Do financial conglomerates create or destroy economic value?*, *Journal of Financial Intermediation*, 18, issue 2, 2009.

14 R. Herring, J. Carmassi, *The Corporate Structure of International Financial Conglomerates: Complexity and Its Implications for Safety & Soundness*, The Oxford Handbook of Banking, January 2012.

The financial crisis that began in 2007 highlighted the significant role that financial groups play in the stability of global and local economies. During the crisis, many of the institutions that ran into trouble were financial conglomerates. In the US a number of financial conglomerates were rescued by the Troubled Asset Relief Program (TARP), whereas Citigroup and Bank of America received equity infusions. In Europe, large groups like Fortis, ING, ABN Amro, RBS and Lloyds bank also had to be saved[15].

Due to their economic reach and their mix of regulated and unregulated entities across sectoral boundaries (such as special purpose entities and unregulated holding companies), financial conglomerates present challenges for sector specific supervisory oversight. In hindsight, the crisis exposed situations in which regulatory requirements and oversight did not fully capture all the activities of financial conglomerates or fully considered the impact and cost that these activities posed to the financial system[16].

II. SCOPE OF THE FINANCIAL CONGLOMERATE DIRECTIVE

1(a).[17] How successful has FICOD been in identifying the right entities and activities to fall within the scope of the Directive? Has there been any lack of legal clarity and/or predictability about what entities and activities fall within the scope of FICOD, and if so, has that had any impact on: (i) risks to financial stability; (ii) the level playing field; and (iii) the level of protection of creditors and policyholders?

The Directive, as it currently stands, is not sufficiently successful in identifying the entities to fall within the scope of supplementary supervision. This creates risks to financial stability, to the level playing field and to the level of protection of creditors and policyholders.

Every financial activity needs to be supervised. This applies in particular to entities performing activities similar to those of banks, insurance undertakings, brokerage houses, investment funds/asset managers etc., which are currently not, or are insufficiently, supervised. Loan companies, debt collection agencies and hedge funds should, therefore, be subject to supervision.

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15 N. Martynova, *Internal Asset Transfers and Risk Taking in Financial Conglomerates*, De Nederlandsche Bank – Research Department November 20, 2013.

16 *List of Identified Financial Conglomerates. As per 31 December 2014 figures. Financial Conglomerates with head of group in the EU/EEA*, Joint Committee of the European Supervisory Authorities (European Securities and Markets Authority, European Banking Authority, European Insurance and Occupational Pensions Authority), 19 Oct. 2015.

17 The original numbering of the consultation document has been preserved.

In order to better reflect the risks posed by conglomerates to financial stability and to improve the level of protection for creditors and policyholders, it would be advisable that ancillary insurance service undertakings, SPVs, pension funds and shadow banking entities be covered by the Directive.

It may be questioned why special purpose vehicles (SPV), which are used in particular for structured transactions, are excluded from regulation. Such transactions are not common on the Polish market and, therefore, the number of such vehicles, and the risks they pose, do not seem to be significant. However, considering the EU market as a whole, the experience of the financial crisis shows that it would be recommended to place such entities under control and ensure proper risk management.

In its present form, the Directive places too much emphasis on regulated entities, regarding them as the sole threat to the financial stability of conglomerates. Meanwhile, ancillary financial services undertakings and unregulated entities are disregarded, even though they are playing an increasingly important role in modern conglomerates. For example, it is becoming a widespread practice to set up separate entities within groups and task them to provide other group members with IT services. Debt collection undertakings are similarly spun-off to take over part of banks' loan portfolios.

Furthermore, special attention needs to be paid to undertakings providing regulated entities with business continuity services or with access to infrastructure, since their supervision is critical from the viewpoint of the level of risks to a financial group and the security of assets entrusted by clients.

In this way, some of the risks are transferred away from regulated entities, and thereby outside the scope of the Directive, but not away from the group. Therefore, while the risk is still there, it is no longer subject to as restrictive rules of management and monitoring. This negatively affects the risk of financial stability of conglomerates, and hence the level of protection of creditors or policyholders. It should also be noted that regulatory gaps pave way for a sort of profitability engineering both at the level of a conglomerate and at the level of its constituent entities. This may have negative consequences for the level playing field in the market. Intra-group transactions (particularly those between countries) and transfer of risks outside an area protected by regulation may be used as a means to artificially improve the situation and artificially reduce costs of a regulated entity forming part of a conglomerate. As a result, it will be able to continue its inefficient, unprofitable or excessively risky operations while still pursuing the goal of expanding its customer base at the cost of safely operating companies in which no such transfer takes place.

Insurers increasingly often form part of non-financial groups and, therefore, it would be advisable to take into account their specific regulatory and security

requirements. This would contribute to increasing the level of stability of the financial system while creating a more level playing field.

While the idea of increasing the stability and security of the financial sector is, in itself, reasonable, the Directive suffers from generalisation and vagueness in defining the concept of a financial conglomerate and of a mixed financial holding company. The definitions, as currently worded in the Directive, will allow ownership structure to be designed in a way that will enable some players to avoid an extended regulatory oversight, and thereby improve their competitiveness and market position.

The definition of eligible entities is not precise. The key is the phrase "the most important sector". It can be interpreted in many, mutually opposed, ways, e.g. as the largest assets, the largest source of profits, the largest liabilities, capital allocation, risk accumulation, etc. This makes it open to individual interpretation. In identifying financial conglomerates, it is also necessary to take into account what is known as prudential consolidation, which affects the risk profile and the integration of risk management processes at group level within the meaning of prudential consolidation.

Unless specific (qualitative and quantitative) criteria for the identification of a financial conglomerate are clarified, there is a risk that risks will be transferred away from a supervised area to unsupervised areas, thereby increasing the level of risk implied by groups that could be considered a financial conglomerate. This contributes to increasing risks to the financial stability of individual Member States, decreasing the level of protection of creditors and policyholders and reducing a level playing field. The Directive fails to adequately identify entities and areas of activity that should be subject to supplementary supervision. To this end, however, it would be necessary to significantly increase the professional competence of supervisors in intersectoral terms.

The scope of the Directive should be regularly expanded to include further entrants to the financial market, particularly fintech institutions, purely online institutions (e.g. e-currency exchanges) and payment institutions. In view of their increasing popularity and tendency to merge into groups, there is a risk that the stability of the financial sector will be threatened from an unexpected quarter. Furthermore, high-technology institutions often operate outside a strictly defined legal framework. Companies from other sectors increasingly often engage in financial activities (e.g. Google or Facebook). Further risks come from the fact that a majority of these institutions are not subject to the CRR/CRDIV and not all banks fall within the scope of BRRD regulation. Compliance with the principle of a level playing field must, at the same time, be kept in mind as one of the cornerstones of the European financial market and one intended to ensure that institutions are not discriminated against on the financial market.

2(a). Mixed financial holding companies, financial holding companies and insurance holding companies fall within the scope of FICOD and in particular a capital requirement is imposed at the level of the group. However, supervisory authorities may not have direct powers of supervision over those holding companies such that they can require those holding companies to change their capital structure. Has this had any impact on the effectiveness of FICOD in identifying and managing group risk?

The lack of direct instruments and powers of supervision to require holding companies to change their capital structure clearly has a negative impact on the effectiveness of identifying and managing risks posed by these companies.

The provision of supervisory authorities with the necessary supervisory tools is crucial for the effectiveness of supervision. This applies both to the powers to collect relevant reporting data and to the powers to issue recommendations to supervised entities. The inclusion of financial conglomerates within the scope of supplementary supervision will be meaningful on the condition that supervisory authorities are equipped with the necessary tools. Otherwise such supervision will be ostensible. Therefore, when considering the advisability of placing further entities under supplementary supervision, it is first of all necessary to determine whether the supervisor will be able to exercise oversight in an effective manner.

While the identification of risks created by mixed financial holding companies, financial holding companies and insurance holding companies does not seem problematic, the provision of the regulator with appropriate tools to restore law and order is a condition *sine qua non* for the proper operation of the regulation. Therefore, in addition to the laconic provision in Article 17 (namely that competent authorities shall have the power to take any supervisory measure deemed necessary in order to avoid or to deal with the circumvention of sectoral rules by regulated entities), the Directive should address in more depth matters such as non-compliance with its provisions, penalties and supervisory measures to enforce obligations.

On the other hand, it should be noted that in order for supervisory authorities to enforce changes in the structure of a group of holding companies, it is necessary to clarify the standard on how to design a group so as to minimise risks. Considering the complexity of groups as they currently exist, it is not possible to address all options of their design. Yet it is rather risky to leave such powers entirely to supervisors, as this exposes owners engaged in supervised activities to an unquantifiable risk of carrying out difficult-to-accept changes required by supervisory authorities. As a rule, it is advisable to design regulations in such a way that it is clear what a supervisor regulating the level of systemic risk can expect from entities that are part of financial holding companies, while providing

the supervisor with a wide range of instruments to deal with the particular issues depending on how the current and future market conditions evolve. The absence of regulatory instruments giving a say on the capital structure reduces the effectiveness of the supervisor's efforts to identify and, above all, manage risks before the group's situation nears the point of being unsatisfactory.

If focus is placed solely on the group's capital requirement, i.e. on a single metric, incentives are weakened for sound risk management and monitoring in relation to the individual group members. This is due to the fact that instead of allocating capital in proportion to the level of risk generated, it is sufficient to maintain total capital to cover overall group risk. If financial problems arise within the group, this capital will be used in the order in which an entity is losing its financial stability rather than being allocated in proportion to the actual share it has in overall risk. Unless supervisory authorities have the right tools to enforce a possible change to the capital structure, the direct link between sources of risk and the capital to cover that risk will disappear and the instrument itself will prove to be ineffective.

Supervisory authorities may establish an entity within the group that will be responsible for risk control and compliance with regulations/recommendations in relation to capital structure, as well as enforce performance of these obligations by such entity (parent company). Such a solution would be operationally simpler to implement and would not require complex and costly organisational changes. At the same time, it would be important to introduce uniform rules in all Member States.

2(b). Other unregulated, non-financial entities (and their activities) that are relevant to the risk profile of the financial conglomerate are not included within the scope of supplementary supervision – for instance mixed activity holding companies are excluded. Has this had any impact on the effectiveness of FICOD as a tool to identify and manage group risk?

The fact that other unregulated financial entities (and their activities) that are relevant to the risk profile of the financial conglomerate are excluded from the scope of supplementary supervision affects the effectiveness of identifying and managing risks created by those entities; however, they should not be crucial to the risk profile of the financial conglomerate.

Mixed conglomerates, whose financial assets are significantly higher than those of purely financial companies, are currently outside the scope of regulation.

The European legislator's exclusive focus on regulated entities would have negative effects in the long term, which would be evidenced in particular by attempts to transfer risk to companies excluded from supplementary supervision. It

would then hinder effective supervision and the proper performance of obligations. It should be borne in mind that these are often companies of key importance for the proper operation of the entire financial conglomerate; one example is provided by entities from the IT sector.

In modern conglomerates, risks are beginning to increasingly accumulate in non-financial, unregulated entities (e.g. shared financial, maintenance and IT services for groups, based in a country chosen for, e.g., tax reasons). Exclusion of such entities from the scope of supervision would mean that risks present in a conglomerate would be understated and so would be the capital needed to protect the interests of creditors and policyholders.

Due to insurers' regulatory requirements, some of the risk management standards are usually carried over. This is, however, a decision groups make on a case-by-case basis. Risk is, therefore, analysed only from the viewpoint of a regulated company. This could potentially be a gap in risk identification. However, any imposition of additional requirements on companies which do not currently fall within the scope of regulation would need to be consistent with the principle of proportionality so as not to create excessive regulatory burdens where they are not needed.

In order to prevent, or manage, a crisis situation, supervisors would additionally need to be equipped with instruments that would also be effective with regard to unsupervised activities. To this end, an approach could be applied in which supervised parent companies would identify and assign risks to specific entities within the group. This would allow the identification of entities (other than supervised entities) that generate a certain level of risk for the group. Using defined supervisory tools, it would then be possible to make adjustments to the group's financial activities in order to prevent the level of risk from exceeding regulatory thresholds, including exerting an influence on unregulated entities which have been identified as the source of a material level of risk for the group.

The question of whether effective risk control tools can be developed for this type of entity is another matter to consider. Unregulated, non-financial entities (and their activities), should not, however, be crucial for the risk profile of financial conglomerates.

A decision on whether or not a given entity should fall within the scope of supplementary supervision is currently determined by organisational and formal considerations rather than by the actual level of risk associated with its activities or the direct or indirect impact the entity exerts on the level of risk of other entities. For this reason, supervision should be extended to entities that have an impact on the group's risk, whatever their place within the group. It would, therefore, be advisable to consider replacing the organisational criterion with the risk assessment criterion.

2(c). What would be the costs involved in including such entities and activities, including legal and operational?

The costs involved in including such entities and activities in supplementary supervision, including legal and operational, are difficult to estimate but can be expected to be considerable, depending on the scope of supervision and the risks covered. The advisability of including such entities remains an open question.

The costs and legal and operational consequences could be severe and the effectiveness of such supervision by financial supervisory authorities could be insufficient. First of all, expansion of the subjective scope of the Directive would make it necessary to provide additional personnel and financial resources.

The costs involved in including other, previously unsupervised entities would probably be very high, not least because of the cost of capital that would need to be additionally maintained or additional human resources required to exercise supervision in an operational sense (both on the part of groups and on the part of the regulator). Therefore, it seems reasonable to adopt appropriate materiality thresholds above which supervision would be exercised.

High costs would also result from the need to integrate legal regimes and IT systems and to revise supervisory procedures.

The question of how to organise supplementary supervision for that category of entities poses a significant challenge. Is it at all possible, in practical and legal terms, to include non-financial within the scope of supervision, especially if some of them are located in a third country? Such supervision would entail that they would be subject to reporting, capital requirements, leverage ratio, or the requirement to prepare recovery plans. In the case of, for example, a processing or outsourcing centre this would be difficult to implement.

A question, therefore, arises as to whether the inclusion of activities of non-financial entities within the scope of supervision would represent an effective use of resources and would not cause an unreasonable regulatory burden. The answer depends on the scope of supervision (information or decision-making supervision), the type of entity, the regulatory environment and granted supervisory powers.

3. To what extent are the quantitative threshold rules in FICOD: (a) clear and effective (in terms of, for example, the parameters used to calculate them, *e.g.*, assets and capital requirements, accounting treatment of assets across various sectors. Are indicators that apply to all relevant sectors in a financial conglomerate equivalent, do all financial institutions that are part of a banking group have solvency requirements?); (b) predictable for the industry; (c) create costs either for supervisors or entities? Are any of the costs unnecessary? (d) is the application of the thresholds transparent?

The quantitative thresholds proposed in the Directive do not appear to create significant costs, are basically clear, predictable and transparent, yet this does not prejudge their effectiveness. An alternative solution could be to make inclusion within the scope of supplementary supervision dependent on risks generated by these entities to the financial system.

Supervision of conglomerates has a complementary nature. The aim of supplementary supervision is to identify and mitigate additional risks arising from intersectoral interactions, which can go unnoticed by sectoral supervisory authorities. Supplementary supervision should not duplicate the work of sectoral supervisors. The findings and assessments made by sectoral supervisors should form a starting point for supplementary supervision. An assumption should also be made that, save for exceptional situations, supervised entities are healthy and meet the required standards. If this is not the case, the task of remedying the situation of supervised entities and bringing them into compliance with standards and legal requirements should be the responsibility of sectoral supervision rather than supplementary supervision. Its task should be to assess additional risks, which may stem from intersectoral interactions but also from interactions between supervised and unsupervised entities in the same sector of the financial market. The actual status quo of the particular entities, regardless of whether or not the applicable standards (if any) are met, should be a starting point for the assessment of additional risks.

Financial conglomerates are structures that are much more complex than the individual components of a conglomerate. Therefore, in practice, they differ significantly from each other. For this reason, it is difficult to specify conditions that must be fulfilled in order for a diverse group of entities to be considered a financial conglomerate. In particular, a threshold for inclusion within the scope of supplementary supervision may differ for each conglomerate. Therefore, the threshold would need to be established at a sufficiently low level to apply to all conglomerates, or at a higher level, leaving it within the discretion of the supervisor to include conglomerates within the scope of supplementary supervision if, in the judgment of the supervisor, they generate risks justifying the adoption

of supplementary supervisory measures. The assessment of the fulfilment of prudential standards by each of the entities forming part of a conglomerate should be regulated at the level of sectoral legislation.

Considering that conglomerates are characterised by a high degree of complexity and diversity of structures, and parent companies may be unsupervised and unregulated, it is very difficult to establish specific criteria for inclusion. It is, therefore, necessary to leave the final decision to the discretion of the parent company supervisor in consultation with the local supervisor.

Each reporting requirement creates costs for supervisors and supervised entities. In the case of quantitative thresholds that decide whether or not a group is to be included in supplementary supervision, these costs can be expected to be low, as such thresholds make use of easily measurable indicators. Given the scale of these costs, there seems to be no reason to reduce them.

Every financial activity targeted at external clients needs to be supervised. Different entities, particularly those currently operating on an unregulated basis, may easily evade the above-mentioned thresholds by recourse to the use of various types of mechanisms. As the solution currently in place leaves a lot open to interpretation and doubt, the question remains whether inclusion within the scope of supplementary supervision could be based on the criterion of risk generated.

Quantitative thresholds, which trigger supplementary supervision, are transparent; it is sufficient to compare the calculated ratio with the threshold value. If the thresholds are supplemented with discretionary decisions by supervisory authorities, the transparency of the approach will be preserved if supervisors state reasons for their decisions.

The quantitative thresholds set out in the Directive are simple and predictable, and thus do not create significant additional costs either for supervisors or for entities. This also contributes to their transparency, as they apply throughout the European Union. This does not, however, automatically make them effective. To be effective, a threshold needs to be sufficient for the goal to be achieved, namely the financial security of groups.

The establishment of thresholds at fixed levels is debatable. This similarly applies to the application of parameters (e.g. capital requirements) that are not entirely equivalent between the sectors. However, the biggest drawback of this approach is that it is focused solely on financial institutions and disregards other entities, which distorts the perception of the actual risk concentrated in the activities of a given conglomerate.

The rules for identifying financial conglomerates are generally clear with the exception of the issue of whether or not intragroup transactions are to be taken into account in the calculation of the balance sheet total and capital requirements. On the one hand, such transactions are relevant to the financial sector, but on the other hand it would appear more advisable to omit them. Moreover, the inclusion

of unregulated financial entities in the calculations, to which no prudential requirements apply, will cause inconsistencies in the identification of financial conglomerates.

The simplicity of the rules, and thereby ease of application, are the advantages of the current proposal. The type of valuation (at book value vs market value) is a matter for consideration.

4. Considering the quantitative threshold rules in FICOD, has the effectiveness of FICOD in identifying and managing group risks been affected to any extent by the fact that thresholds are not risk based?

The fact that thresholds are not risk based negatively affects the effectiveness of the Directive in identifying and managing group risks. The incorporation of risk assessment would surely allow for better alignment of available supervisory tools to the risk scale and profile of financial conglomerates.

Given a rather arbitrary definition of thresholds, differences in prudential requirements for the particular sectors, as well as differences between entities forming part of conglomerates, identification based solely on thresholds, without taking into account the specific features of a conglomerate, must be subject to considerable inaccuracy. The identification process should also take into account risk factors, but risk assessment cannot be described by means of a mathematical procedure and will require recourse to supervisory assessment.

The lack of thresholds could be a better solution because it would provide a rationale for the use of company figures in the risk analysis. Companies can generate a high risk even without a high balance sheet total (e.g. reputational risk). Reliance on subjective criteria could be a prerequisite for proper risk assessment.

It is financial activities as they are widely understood that give rise to considerable risks in both purely business terms (operational) and in intangible terms (reputational). To recognise it *de jure* as an activity with a significant risk profile would mean that if at least one of the entities forming part of a conglomerate or a holding company carried out such activity, the whole group would be subject to supplementary supervision, which would discourage attempts to circumvent prudential rules.

Financial conglomerates are usually groups that are led by regulated entities. In these cases, materiality thresholds are based, *inter alia*, on solvency requirements, which in part addresses the issue of group risk assessment. Moreover, competent authorities may choose the off-balance sheet criterion instead of the balance sheet total criterion, which makes it possible to base risk assessment on, for example, quantitative or qualitative criteria.

On the other hand, however, a situation may easily be imagined where the presence of banking sector entities in the group is insignificant (within the meaning

of the above-mentioned provisions) compared to unregulated entities, but they have a large share in the banking sector of a given country. The loss of financial stability in such a group would then bring forth significant negative consequences for the entire banking sector. Yet the group would not be subject to supplementary supervision and the actual risk would not be subject to proper control.

It should be noted, however, that in the case of unregulated companies forming part of a group, reliance on risk as the sole criterion of inclusion within the scope of supplementary supervision might pose significant difficulties (e.g. in outsourcing entities where human capital is the main asset).

6. To what extent has current national discretion to use waivers impacted: (i) financial stability; and (ii) the level playing field, both within Europe and internationally?

In principle, the discretionary nature of exemptions at the level of the Member States may affect both financial stability and the level playing field. At the same time, however, it may be regarded as a factor enhancing effective supervision.

Generally, the focus of EU legislation on financial markets is shifting away from waivers and discretions towards maximum harmonisation (e.g. the Five Presidents Report or plans to create the Capital Markets Union). This is intended to ensure a level playing field for the sector's players both locally, within the EU, and globally.

The provision of national legislators with a considerable degree of freedom in excluding certain entities or groups of entities from the scope of the Directive entails a significant risk of disrupting financial stability, as well as of weakening the competitive position in micro and macro terms. The current regulation in the form of a directive (rather than a regulation) creates a natural opportunity to exert pressure on and lobby local parliaments to adopt legislation that will favour national players and will relieve them from the burden of increased regulatory requirements. In the short term, this will probably benefit both conglomerates and consumers. Nevertheless, the championing of what may be called "national" interests is not always consistent with the global nature of the business an entity conducts and the potential effects that, for example, its bankruptcy or unethical conduct may have. No such developments would take place if there was no such arbitrariness of criteria and if there was a proper exchange of information.

The discretionary powers involved in some arrangements always carry a risk of certain injustice or incomparability. The impact of such discretionary arrangements can be very significant, both in terms of financial stability and a level playing field for groups. Many of these groups have an international dimension. In such a situation, the differences in rules governing their supervision will create an incentive for a sort of arbitrage – by concentrating more risky activities (and therefore those requiring more capital) in countries where regulations are less

restrictive (to avoid excessive oversight). However, driven by a desire to optimise costs/capital, such concentration will result in undermining the adequacy of risk and capital, which in the long run will be detrimental to the financial stability of groups. Similar to the use of tax havens, it will also negatively affect the level playing field in the market.

On the other hand, the discretionary nature of waivers is an indispensable feature of the Directive. It may also be regarded as a factor that enhances rather than weakens supervision. Assuming the rationality of supervision, the aim of which is to protect deposits and maintain the stability of financial markets, properly functioning supervision will be guided by the goal of ensuring security of entities forming part of a conglomerate and the financial stability of the state.

The discretionary nature of waivers from the Directive applied at the Member State level poses a challenge for the supervision of conglomerates, particularly those operating in an international arena. However, the lack of an option to adapt criteria in quantitative and subjective terms may result in the inability to include certain entities within the scope of the Directive.

The discretionary nature of waivers will always create the risk of distorting a level playing field for similar entities. If the special discretionary powers granted to the coordinator were exercised only in exceptional circumstances and were well motivated, it seems that their impact on financial stability would not be significant. If, however, they become a market making tool, financial stability could be undermined not only because of weakened prudential requirements, but also because of regulatory uncertainty and unpredictability.

In normal situations, waivers undermine the level playing field in the market; however, in crisis situations, the state should be able to intervene and that is why such arrangements are valuable.

III. GROUP RISK MANAGEMENT

7. Are the rules in FICOD (including Annex 1) clear as to what capital adequacy at the level of the conglomerates means and what calculations are required from a financial conglomerate? Are the relevant entities included for the purpose of calculating the capital adequacy requirements?

To ensure regulatory consistency in the EU, basic regulations on the financial market should be consistent with each other and complementary.

The rules in the Directive are clear as to what capital adequacy at the level of the conglomerates means but are vague and need to be clarified with regard to

the inclusion of entities within the scope of supervision and the calculation of the capital adequacy requirements.

On the one hand, the regulator intends to unify requirements both at the individual and consolidated levels; yet, on the other hand, one should bear in mind the sectoral provisions that may set out entirely different requirements in relation to the issue of adequacy. This is due to the differences between the banking, investment and insurance industries: it is difficult to imagine that the capital adequacy of, for example, banks could be applied directly to brokerage houses.

As a result, the rules are not clearly defined and leave much to the discretion of management of the conglomerates and the competent supervisory authorities. In this situation, it is indeed difficult to achieve the comparability of capital adequacy levels of conglomerates. It should, however, be considered whether such comparability would provide meaningful information and whether it should constitute the goal of supplementary supervision. It is important that the requirements are met at the level of each entity or at the sectoral level. The level of capital adequacy of a conglomerate will depend on the choice of method. However, given the huge differences between the conglomerates, their composition and structure, the adequacy of individual conglomerates is hardly comparable.

Information on the level of adequacy is important mainly for the conglomerate's supervisor and, therefore, it should be up to the supervisor what method to choose. At the same time, it is important to keep in mind that the comparability of the capital adequacy of a conglomerate does not provide any meaningful information if these requirements are met at the sectoral level or at the level of the individual entities. If it is assumed that maintaining capital adequacy is primarily intended to serve the interests of the conglomerate itself, it is necessary to continue sanctioning the existence of several methods and leave it to the discretion of supervisory authorities to choose the best method, taking into account the structure and risk factors of a given conglomerate.

It must be further considered whether only entities with defined levels of capital adequacy (in practice these would be supervised entities) should be included in the calculation of capital adequacy requirements, or should we also include entities offering additional insurance services, SPVs, pension funds and shadow banking entities. The fact that the regulatory approach should be holistic and address the risks implied by unregulated entities forming part of a conglomerate with a significant risk profile argues for the choice of the latter approach.

8(a). What is the added value of the FICOD capital adequacy calculation, taking into consideration that each financial sector in the financial conglomerate is subject to capital adequacy rules at the sectoral level?

The FICOD capital adequacy calculation enables taking into account the risk of a conglomerate as a group, which is not simply the sum of risks of the individual entities forming part of the conglomerate.

While the individual entities of the group may not generate certain types of risk, such risks may occur within the group as a whole as a result of interactions between entities from different sectors, as well as the concentration of certain risks.

In the case of a conglomerate, the sectoral capital adequacy calculation does not take into account links between entities forming part of a single conglomerate but originating from different sectors. It is even possible to imagine a situation where the capital adequacy requirement is met in each sector but is not satisfied at the conglomerate level. The calculation and limitation of capital adequacy at the conglomerate level makes sense if it leads to an increase in the capital requirement for the conglomerate to reflect an increased risk resulting from the scale of operations, links within the conglomerate and the contagion effect, as well as preventing the multiple use of capital to cover the risks of various entities.

The capital adequacy calculation at the financial conglomerate level thus ensures both an adequate level of internal funds to cover capital requirements of all sectors forming part of the conglomerate, as well as full coverage of the group's risks through specific recognition of equity interests in the group. The added value refers to the allocation of capital to risks that are not identified through the standard approach to capital adequacy requirements, beyond sectoral requirements. In addition, the ability to compensate for the deficit of internal funds between the group's entities is possible only in the absence of formal obstacles to their transfer, which is essential for effective risk management at the level of the group and its individual entities.

Another added value of the Directive is that it harmonises actions in Member States where financial supervision is not integrated but sectoral. Furthermore, the existing and planned prudential regulations (including CRDIV/CRR and Solvency 2) are adapted to the specific nature of activities in the specific sectors and may form a basis for the capital adequacy calculation of a financial conglomerate. This factor would have a positive impact on the coherence of sectoral regulations and those concerning conglomerates.

9. FICOD does not contain any explicit provisions allowing supervisors the discretion to require additional capital to be held against specific cross-sector risks in the financial conglomerate. Has this had any impact on the supervisory effectiveness of FICOD?

In order to exercise proper control of the financial sector generating risks to financial stability, supervisors must be equipped with adequate instruments. National regulators should be provided with the powers and tools that will allow them not only to maintain but also effectively exercise supervision and enforce regulations. The lack of such powers and tools may lead to a situation where requirements are either excessive or underestimated.

The monitoring of institutions for the provision of adequate capital should form one of the pillars of prudential supervision. The development of new lines of business within the financial conglomerates is conducive to the creation of new risks which – in the case of failed decisions – should be remedied by the conglomerates and should not give rise to negative consequences for the clients. Conglomerates by their very nature can have a domino effect. The bankruptcy of a single conglomerate (or one of its company members) may cause the crisis to spread to other groups. It is, therefore, important to provide sufficient capital so as to properly cover and secure each of the activities carried out and the risks they generate.

In accordance with sectoral regulations, supervisors are provided with powers to appropriately burden operations carried out in the particular sectors. However, while the capital adequacy calculation is well established and its design does not give rise to doubts at the sectoral level, it is difficult to clearly and correctly define it at the conglomerate level, at the junction of interrelated sectors. Therefore, the assessment of the capital adequacy of a conglomerate will depend on its structure, internal relations and organisation. In such case, it would be advisable that the conglomerate's coordinator be provided with sufficient freedom to be able to flexibly adapt the calculation to the specific features of the conglomerate.

It would be reasonable if the competent supervisory authorities could establish additional capital buffers for financial conglomerates. This would require the fine-tuning of the method of capital allocation within the group, particularly as regards the proportion in which the particular entities would be burdened with additional capital. At the same time, the host supervisor should retain a say on decisions on the amount of the requirement allocated at the conglomerate level, as otherwise this amount may not fully reflect the scale and risk profile of the local entity.

12(a). Have the FICOD rules on governance, risk management (including capital management) and internal controls contributed to sound governance in financial conglomerates and has there been an impact on the organisation of conglomerates?

The rules on governance, risk management (including capital management) and internal controls have created conditions for the improvement of the quality of owner supervision and may have an impact on the organisation of conglomerates, as well as constitute an essential tool for supporting the actions taken by supervisory authorities.

In this context, what is extremely important is the awareness of the legislator itself, who continuously emphasises and strengthens the importance of a proper and efficient organisational structure not only in the FICOD but also in other regulations (e.g. MiFID II).

The regulations themselves are quite general and need to be fine-tuned in terms of the required elements of the risk management process, the minimum scope of the risk management process, internal controls and the management of significant risk concentrations.

The Directive envisages the appointment of a lead entity that will be accountable to the supervisor for proper management of the conglomerate, including risk controls, compliance with capital structure regulations and implementation of responsibilities in the group. This enforces a consistent approach to risk management, provides an additional "safeguard" for local risk functions and leads to the transfer of good management standards and experience from other markets. Conglomerates differ in composition and organisation to a much greater extent than homogeneous groups operating within a single sector of the financial market. For this reason, it does not seem advisable to further fine-tune the rules on the designation of the coordinator. This matter should be decided by supervisors on a case-by-case basis, taking into account the composition and organisation of a conglomerate, with a particular focus on the actual rather than formal relationships between the entities and the question of which of them plays the leading role. It would, therefore, be advisable to put more emphasis on the qualitative nature of the rules to give the authorities, which exercise supervision or supplementary supervision of conglomerates, more flexibility in shaping those rules.

An analysis of the ownership structure of a financial institution is another issue which is relevant to risk management but which is also virtually ignored in the current legislation. Many problems, especially in large financial institutions, stem from the lack of large and stable investors (the shareholder structure is highly dispersed). This often results in excessively risky behaviours by their management boards, which tend to look for short-term gains and ignore long-term risks.

13. To what extent, if any, does the absence of an EU wide resolution framework for financial conglomerates impact the effectiveness of FICOD?

There are two different positions on the issue of resolution and recovery of financial conglomerates:

- there is no need to set up a rule that the conglomerate as a whole must be subject to resolution,
- the absence of a resolution framework for conglomerates constitutes the weakness of regulation.

The former advocates that resolution should be reserved only for banks forming part of a conglomerate rather than to all of its constituent entities. This position stems from the fact that the harmonised rules of resolution and recovery (BRRD) were designed primarily with deposit and credit institutions in mind. One of the goals is to prevent, or at least limit, the negative feedback between banks and the state, and to minimise the financing of that process with taxpayers' money. There seems, however, to be no need to set up rules of resolution for financial conglomerates, particularly considering that the process could be too complicated and thus ineffective. Banks have their own rules of resolution and, in most cases, operate as independent entities. The need, if any, for any of the entities forming part of a conglomerate to provide financial support should be laid down in the resolution plan of a banking group.

The opposite viewpoint claims that this should be one of the main supervisory tools to be used in the event of developments that may lead to the bankruptcy of a financial conglomerate. It should be noted that the financial system is functioning in a global environment and adverse events for one group may cause an identical effect for other groups (*vide* the financial crisis of 2008). We should always keep these lessons in mind and adopt regulations that will protect the market against similar negative implications in the future. Resolution may be one of such safeguards. Due to the complexity of its structure, cross-border nature and the volume of transactions and assets, the resolution of a financial conglomerate requires a strong supervisor and harmonised actions by the supervisory authorities involved. A resolution framework is currently in force for groups but is missing for financial conglomerates. For this reason, there is an urgent need to implement such a framework. The key issue is to enable the detection of risks to the group's stability at a sufficiently early stage, as these procedures are triggered before the group becomes insolvent. The absence of a resolution framework deprives the supervisor of an effective tool for enforcement of the Directive, thereby significantly undermining its effectiveness. Furthermore, this may have a negative impact on the stability of the financial sector in emerging economies, as the poor financial situation of parent companies will be transmitted to the subsidiary level in a way

that does not take into account the interests and financial security of the country in which the subsidiary is located. To this end, it is necessary to set up rules on the bankruptcy of conglomerates (as a part of or a complement to the BRRD).

It should be noted that due to the scope of the BRRD, not all entities of the group would be subject to the BRRD and the bankruptcy of some of them would be governed by the general rules applicable to ordinary insolvency proceedings. This could lead to conflicts between the authorities in charge of the proceedings, expose creditors to unequal treatment and expose the companies to unjustified financial losses.

14. To what extent, if any, have the rules in FICOD on intra-group transactions and risk concentrations that empower supervisors to monitor intra-group transaction and risk concentration enhanced the supervision of financial conglomerates, taking into consideration that each sector is subject to its respective sectoral legislation?

The monitoring of intra-group transactions and risk concentrations at the financial conglomerate level appears to serve a different purpose than the monitoring of those aspects as part of sectoral requirements.

From the point of view of supervision of conglomerates, the rules on intra-group transactions and risk concentrations are extremely important, as they provide a picture of the conglomerate as a whole rather than of its individual entities or sectors.

Each sector of activity is subject to its own sectoral regulations. Such regulations focus only on the particular parts of the conglomerate and disregard interactions between them (both in terms of capital and risk). Compliance with standards in the particular sectors of the conglomerate does not, however, translate into the safety of the conglomerate as a whole.

Relationships between the entities (including those from different sectors) are very strong in modern conglomerates, which is why additional risks evolve and it is possible to underestimate the necessary capital. Therefore, intra-group transactions or those between a financial institution and its owner, as well as concentration risks, are a source of new/additional risks that may disturb the stability of the conglomerate. This risk exists regardless of whether or not the entity at risk is a regulated entity.

The supervision and monitoring of intra-group transactions, or the requirement to obtain the supervisor's approval for certain types of transactions, are intended to prevent transactions aimed at risk transfer. Another purpose is to detect transactions that are designed to circumvent sectoral requirements. For this reason, the overriding principles, at the FICOD level, are very important and useful in the business practice of companies and represent an important supervisory tool that supports sector-specific regulations.

The monitoring of intra-group transactions and risk concentrations based on the reports required by the Directive is an important source of information for supervisors and gives a fuller picture of what is going on within a financial conglomerate. Any solution to improve the control of this process will strengthen the supervision of conglomerates.

What seems to be important is that the coordinator verifies threats to the above-mentioned transactions at the conglomerate risk level (as opposed to a single sector). This seems to be essential in financial conglomerates that comprise unregulated entities.

The absence of a harmonised approach to intra-group transactions is an obstacle to full comparability of how supplementary supervision of financial conglomerates is exercised in the European Union. It is necessary to continue efforts towards greater harmonisation. Such harmonisation should take into account the principle of proportionality and focus on significant intra-group transactions.

15. To what extent, if any, do you observe a difference in the treatment of banking-led and insurance-led conglomerates with respect to risk concentrations and intra-group transactions?

The Directive and the specific regulations permit the conclusion that there is a difference in the way the EU legislator approaches banking-led and insurance-led conglomerates.

This is evidenced by the differences in definitions, the group solvency calculation and the calculation of internal funds. As regards the approach to risk concentrations and intra-group transactions, the type of conglomerate may be relevant if it is necessary to use supervisory tools and impose sanctions on a conglomerate. The sectoral rules will then apply – and these are not identical for banking-led and insurance-led conglomerates.

It would be advisable to harmonise an approach to the identification of significant risk concentrations. In the case of identification of significant intra-group transactions, an approach based on the capital adequacy of a financial conglomerate is used. This represents an attempt to harmonise the approach for the different sectors forming part of a financial conglomerate, subject to the aforementioned doubts regarding the capital adequacy of a financial conglomerate. In the case of a financial conglomerate, there is a criterion of determination of significant risk concentrations (if, due to the exposure to a given risk, a regulated entity may incur a financial loss equal to or exceeding 25 % the equivalent of the solvency capital requirement applicable to that entity).

The specific features of transactions within insurance groups are reinsurance and the longer period of time it takes for an infection to spread and be diagnosed compared to transactions within banking groups.

17. To what extent has FICOD provided supervisors or Member States with tools and powers to address the risks that may stem from the new structures mentioned above?

There are two opposing positions as to whether the Directive provides supervisors and Member States with tools and powers to address the risks that may stem from new conglomerate structures in today's markets:

- the Directive largely adequately identifies risks and provides the right tools for the supervision of the new structures of conglomerates;
- the Directive is increasingly losing its validity and the tools it provides are not very effective.

The first of the above-mentioned positions argues that the Directive effectively determines the scope of supplementary supervision of regulated entities, as well as the rules for the supplementary supervision of capital adequacy and risk concentration. Transactions between companies belonging to the same group are subject to supervision. Internal control mechanisms and risk management processes are defined. The Directive requires implementation in a manner adapted to the specificity of each jurisdiction. Supervisors and Member States have at their disposal adequate tools and powers. If financial entities originate entirely from the banking segment or the insurance segment, they do not form a conglomerate and there is no reason to introduce supplementary supervision. A similar situation occurs if the operations of the non-financial part generate much higher risks than the financial part. Therefore, in the case of a conglomerate in which new non-financial structures appear, they should be treated in a manner similar to that applicable to ordinary consolidated groups.

The alternative position argues that the EU legislation should follow market trends in the development of financial instruments and capital links between the financial and non-financial sectors. By defining a conglomerate solely from the perspective of financial entities, the Directive is increasingly losing its validity and the tools it provides are not very effective. In this situation, it is difficult to conclude with high probability that preventive and remedial measures are able to ensure the adequate enforcement of rights. Modern conglomerates shift weight away from financial sectors towards non-regulated sectors. Financial institutions often become a mere appendage, as is the case with the Tesco Group or the Ikea Group (and its Ikano bank). In these cases, the risk of financial entities is very often linked to the risks arising from the trading activities of other entities, while the latter are completely disregarded. To conclude, at the current stage of the market's development, the Directive provides supervisors and Member States with insufficient tools and powers to address the risks that may stem from new conglomerate structures in today's markets. The evolution of conglomerate structures calls for revision of the proposals contained in the Directive.

IV. SUPERVISORY POWERS AND COORDINATION

18.To what extent is FICOD clear on how to identify the coordinator?

Generally speaking, the Directive is quite clear on which institution should be the coordinator of supervision, while allowing the necessary flexibility for specific situations. The exception is the situation where the tasks of the coordinator are exercised by the competent authority of the regulated entity operating in the most important financial sector. The definition of the most important financial sector is not sufficiently precise.

The cooperation between home and host supervision is, however, worth noting in this respect. The problem of cooperation and enforcement of capital requirements, buffers or instruments at the consolidated level under Pillar 2 has been addressed in detail in the CRR/CRDIV. The solutions adopted therein and the methods of cooperation between home and host supervisors should be preserved for the sake of regulatory consistency.

First of all, supplementary supervision from the perspective of the parent company only is not sufficient to ensure early identification of risks and hazards.

Cooperation should in particular ensure the correlation of the strength of supervision with the risk level. This is because it is often the case that a subsidiary company is subject to local supervision rather than the SRM, yet it plays an important role for the entire group, even though it is a subordinate and not a parent company.

In addition, the consolidated accounts capture all the companies of the group, including non-financial and unsupervised ones. Such a direct link means that in the case of financial problems of a mixed-activity holding company, the funds of a financial company may suffer. The problem is all the more relevant considering that, in extreme cases, such company may no longer meet the capital requirements, which will automatically, and without any fault on its part, trigger appropriate prudential mechanisms.

Furthermore, due to the lack of supervision of non-financial companies, the supervisor does not have an insight into the state of their finances, stability and the quality of the balance sheet.

19.To what extent does the identification of a subset of relevant competent authorities out of a group of competent authorities benefit or hinder supplementary supervision?

The identification of a subset of relevant competent authorities was intended to improve the operation of supplementary supervision and decision-making.

The limitation of the number of authorities allows for more efficient group supervision and improves decision-making. On the other hand, the exclusion of

certain supervisory authorities, which were not deemed competent, from decision-making may constitute a negative effect.

All the countries, even those in which the relevant supervisory authorities are not included in the subset of relevant competent authorities, must be able to implement a supervisory policy on their own. Compliance with the ESA guidelines by supervisors, including the coordinator, should prevent situations in which supervisory authorities are unreasonably excluded. The proper and effective operation of supplementary supervision requires that all the entities involved in such supervision are aware of their powers and scope of operation.

In Poland, there are no domestic financial conglomerates but the national authorities supervise companies that are part of international, EBA-recognised conglomerates. The risks associated with the operation on the local market of an entity which is part of a conglomerate (and hence has financial, economic or legal links with that conglomerate and participates in losses or even bears the costs related to the bankruptcy or financial difficulties of another company of the group) are relevant to the local market and, therefore, supervision should remain the responsibility of the local supervisor. In addition to ensuring protection for other entities in the sector, this will allow for ongoing and thorough monitoring of the state of the company, early warning of and rapid response to risks, as well as providing a variety of essential tools.

20. To what extent is FICOD effective in ensuring that supervisors can enforce compliance with the ultimate responsible parent entity in a financial conglomerate?

There is a difference of opinion on whether the Directive is effective in ensuring that supervisors can enforce compliance with the ultimate responsible parent entity in a financial conglomerate.

Compliance with supervisory recommendations is certainly easier if the parent entity in a financial conglomerate is a supervised entity. The Directive lays down the necessary requirements in this respect. However, these provisions are transposed to the national legislation and the actual impact depends on the transposition of the Directive. The concept of creating a harmonised approach in this area should be carefully considered in order to provide local supervisors with the necessary freedom in pursuing the objectives in the light of local conditions and needs.

An alternative viewpoint claims that if a conglomerate is headed by an unregulated entity, the effectiveness of the Directive itself appears to be low. Furthermore, the main weakness of the Directive stems from its failure to provide the competent authorities with adequate tools that would allow them to effectively enforce compliance with financial conglomerates. The perfunctory statement on the necessity to use all available means (Article 17) is not enough. What is needed

are the provisions defining behaviours that constitute a legal infringement, a list of penalties and measures to restore compliance, as well as the individuals and entities accountable to the supervisory authorities. Another important issue is the powers of the coordinator, which come down to the use of the measures and tools set out in the sectoral regulations (in relation to the lead entity). Such measures and tools are, by design, applied only to the selected part of a conglomerate and not to the group as a whole. Moreover, they differ for banking-led and insurance-led conglomerates. As a result, the supervisor is often unable to enforce optimal solutions (e.g. changes in the capital structure) that go beyond the scope of a given sector.

21. Please make any further comments on FICOD that you may have.

The role of non-financial, unregulated entities has been growing in many conglomerates along with the development of cross-border activities and outsourcing. Hubs, which are concentrated in a particular country or region and operate as service centres (accounting, information technology, settlement services, etc.) for the other entities of the conglomerate, are increasingly common. As their role grows, so does the risk they generate. However, under the legislation currently in force, such activities are not controlled, as controls target only regulated entities. It seems, therefore, that the regulations currently in force are increasingly outdated and require the adoption of arrangements that would take into account all types of entities and the appropriate valuation of their role and risks, as well as of the necessary capital. This should be accompanied by uniform, cross-sectoral powers of supervisory authorities so that they are able to enforce compliance with the Directive.

The frequency of the identification of financial conglomerates and the discretion of the coordinator in deciding whether supplementary supervision must be maintained for a group that no longer meets the criteria of recognition as a financial conglomerate call for a review.

The introduction of the supplementary supervision of financial conglomerates is expected to create a level playing field between insurers forming part of an insurance group (regulated by Solvency II – where the provisions on group supervision apply) and of other conglomerates.

The Directive in its current form permits cooperation by the competent authorities in the situation where the regulated entity is a member of a group which, in the opinion of the competent authority, qualifies as a financial conglomerate but cannot yet be identified as such in accordance with the Directive. This provision can provide a basis for proceeding with the identification of a conglomerate as part of defined identification exemptions. The provisions of the Directive would need to be revised as far as other structures of conglomerates in today's markets are concerned.

The design of additional supervision is problematic: the rules of identification of entities subject to such supervision are not transparent, the eligible entities are not defined with sufficient precision and the supervisory tools are insufficient. A group may comprise more than one supervised entity (insurer, bank, investment fund, etc.). Different types of institutions may play the role of a parent company, and even that may not be easy to determine given cross-ownership of shares. In this situation, the Directive should state explicitly that, for example, every group that owns a regulated entity would itself become a supervised entity (as soon as it exceeds a certain threshold defined by participation in corporate governance). Likewise, a supervisory body should be clearly defined. The choice is simple if supervision is consolidated in a given country. If not, such body would need to be designated in a legal act (e.g. central bank). Cross-border supervisory cooperation is defined in other legal acts and reference to it would be sufficient. The Directive must explicitly provide supervisory powers over unregulated entities (impact on capital, etc.) if they control the financial entity.

Given the intrinsic conflicts of interest of nation states or groups of countries in relation to cross-border conglomerates, and also the early stage of implementation of the supervisory regulations adopted in the aftermath of the global financial crisis and subsequently expanded, there is a risk of creating a model that will be extremely difficult to implement in an effective and universal manner.

Abstract

This article presents the position of the European Financial Congress in relation to the European Commission's consultation document on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate. From 9th June till 20th September 2016, the EC ran a public consultation on the evaluation of the financial conglomerate directive (FICOD), whether it delivers on its objective to identify and manage group risks, i.e. multiple gearing, excessive leveraging of capital, contagion, complexity management, concentration and conflict of interest. Financial conglomerates were originally represented by bancassurance. Over time financial institutions have expanded into investment banking, asset management and other financial activities, with separate segment supervisions. Now, they are getting bigger, more complex and international, expanding into the real economy, outsourcing critical processes to non-regulated external offshore companies. Moreover, manufacturing companies are developing competencies in banking area and traditional financial institutions are being challenged by expanding fintech projects.

The evaluation of supplementary supervision shall lead to better regulation in terms of relevance, effectiveness, efficiency, coherence and added value. As a result, the legislation shall contribute to enhanced financial stability, safeguard creditors' and policyholders' interests, and promote the competitiveness of financial conglomerates within the EU and at international level. From the Polish perspective, FICOD shall protect the financial system from the import of group risks and lead to secure growth of local financial conglomerates, enjoying a level playing field in the EU.

The EC consultation paper was addressed by representatives of different groups of stakeholders in the Polish financial market, including in particular: universal banks, auto loan companies, insurance undertakings, regulatory bodies, consulting firms and academia.

Key words: financial conglomerates, financial conglomerate risk management, group risk management, financial conglomerates supervision, FICOD, financial stability

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Reviews

Aneta Hryckiewicz-Gontarczyk[*]

Lech Kurkliński, PhD, *Foreign capital and the impact of cultureon bank management in Poland* (*Kapitał zagraniczny a kulturowe uwarunkowania zarządania bankami w Polsce*)
ISBN 978-83-255-8623-2

The impact of the bank's country of origin, its culture and typical management styles in its operations in other countries has sparked keen interest for many years. The subject has been extensively discussed in the context of the recent crisis, during which banks in certain countries (*inter alia* Germany, the UK and the US) have grappled with a variety of problems, while those in other countries have barely been affected by the financial turmoil. This phenomenon has encouraged economists to examine the question of culture and the bank's approach to risk. Although it has recently gained attention, the subject matter has yet to be thoroughly researched, which is largely due to the fact that culture – and the management style it breeds – eludes definition, and is therefore difficult to measure. Given the above, the area explored by Lech Kurkliński, PhD seems all the more interesting and it fills a certain gap in academic research. The author's main research objective is to analyse the impact of cultural differences represented by foreign banks on their activities in Poland. The sample (banks listed on the stock exchange) operating in Poland seems to be representative, as the Polish banking sector has been dominated by foreign capital from different countries (mainly European), representing a great diversity of national and organisational cultures. In order to answer the research question, the author has carried out interviews among managerial staff from the

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banking sector and among representatives of regulatory institutions. Although the research method may seem valid at first, especially given the sheer number of interviewees involved in the process, it has a major flaw, namely the high degree of subjectivity of evaluation.

The book is divided into six chapters. In the first, the author defines culture as a phenomenon. He draws from the extant literature in order to formulate a definition of culture that would best render the phenomenon in the light of the subject matter explored in the book. He demonstrates the diversity of approaches to culture and its definitions in different disciplines. This observation is not without significance for the research undertaken by Kurkliński, i.e. the analysis of the impact of culture on the bank's operations. The plethora of existing approaches corroborates the complexity of a research problem that does not lend itself easily to examination. However, for the purposes of his analysis, the author distinguishes between the culture of the bank's country of origin and the organisational culture. He also argues that the two are not necessarily identical to each other, although the national culture often shapes the culture of the organisation and the management methods it employs.

Given the share of foreign capital in commercial banks, independently of a number of typical aspects in their operations, certain cross-cultural factors come into play, resulting in the confrontation of national and organisational cultures of foreign investors with local conditions. Cultural differences can be a source of competitive advantage, but only when they are acknowledged and properly managed. Otherwise, they may lead to the bank's failure, which is often the case when a foreign majority shareholder tries to impose a management style that is not in tune with local conditions. We can cite numerous examples of this phenomenon from different parts of the world, as well as from Poland, which is the subject of the author's thorough analysis. In order to understand potential problems and opportunities arising from the interaction of different cultures, we must refer to management theory, which most extensively examines problems associated with the management of multicultural organisations. This is, indeed, the approach of the author, who concentrates on five elements that are potentially most impacted by cultural differences:

a) transfer of capabilities
b) human resource management
c) flexibility in decision-making
d) control and communication
e) managers in foreign branches

Problems related to intercultural management in the above areas stem from differences in approach in the bank's management style, national culture, which can partly permeate the management style, as well as the behaviour of individuals influenced by specific cultures. On the basis of the conducted interviews, the author analyses and endeavours to understand how the culture of individual countries and the management styles of Western banks have been introduced into banking institutions

in Poland. Particular attention is paid to the impact of ethnocentrism and of expat communities on the operation of banks in Poland. The analysis of these aspects is, in my opinion, of utmost importance, as it affects the analysis of the research problem itself. Interestingly, no researcher has ventured to investigate these correlations, and many failures of banks in Poland (e.g. Deutsche Bank) have been put down to the unfavourable situation in the country. The conclusions presented by the author are compelling and could undoubtedly prove useful for numerous international banking organisations. It should be noted that many of them, for instance Citibank or HSBC, apply a similar model of management in each market they enter. The question arises, though, whether the model actually works and if these organisations should blindly follow the same policies they have followed for many years. Although the analysis of the situation in Poland does not suffice to adjudicate in the matter, it may be the first step towards a study of the impact of cultural differences on the operation of banks. The conclusions of the reviewed study seem to be congruent with the above observations. First, the level of ethnocentrism of foreign investors in the Polish banking sector is uneven, and average values should be regarded as high. However, significant differences come to the fore depending on the country of origin of the capital. The author cites interesting examples of banks whose operation has been greatly impacted by the country of origin, not only in terms of their financial results, but also the organisation's failure or success on the Polish market.

Second, the author demonstrates the vital role of expatriates in the Polish banking sector. This mainly concerns the transfer of foreign management practices, including elements of organisational culture, as well as expert knowledge. While respondents evaluate the first aspect positively, the second is claimed to have adversely affected banks' operations.

Even if foreign investors decide to transpose their cultural patterns and styles of management onto local markets, they must take into account the characteristics of the local environment. The attitude of Poles towards foreign capital is multifarious. In the third chapter, the author confronts the culture and strategy of organisations entering the Polish market with the reactions of the general public. In order to analyse the attitude of Poles to capital inflows, the author had recourse to existing studies, the majority of which had been carried out by sociologists and psychologists. They analysed the attitude of Polish society towards the inflow of foreign capital. At the other end of the spectrum, on the basis of interviews, the author investigates the attitude of foreign investors towards the cultural and institutional setting of Poland. Several intriguing conclusions are drawn, for instance the absence of a clear correlation between the origin of the capital and the attitude of customers towards it, or the organisation's management style. Two good examples are Deutsche Bank and mBank, which, despite their common country of origin, are poles apart in terms of their management styles and, consequently, are perceived differently by society and consumers. An interesting observation is that foreign banks are concerned to

a lesser extent by how they are perceived by the public. Instead, they tend to focus on pursuing their corporate vision and on implementing models. Aspects of the foreign market that seem to matter to these organisations are the regulations and supervisory rules in force. Nevertheless, even in this respect, stark differences have been observed between banks depending on their country of origin, with some of them admittedly more compliant with the rules than others.

Not only does his survey concern attitudes towards banks themselves, but also the habits and the use of financial services provided by banks is important to analyse while discussing the operating environment of foreign banks in Poland. To this end, the author examines the level of knowledge of Poles on financial matters, which, according to recent studies, has a bearing on their saving preferences and investment decisions. It transpires that Poles, in general, rarely have recourse to banking services and, compared to other nations, rank very low in terms of savings. An interesting aspect discussed in this chapter is the attitude of Poles towards banking institutions themselves. Although this chapter is mostly devoted to the analysis of existing studies, it provides an interesting backdrop for examining the environment in which foreign banks operate in Poland.

Taking into account local cultural factors, as well as the regulatory, structural or macroeconomic aspects that potentially affect the activities of foreign banks, the author tries to determine which banks have fared best in the Polish market. The results of the author's interviews show that the cultural factor affects to the greatest extent the functioning of banks from the Mediterranean region, the UK, Ireland and Belgium, while it seems to have least influence on the activity of Scandinavian, American and German banks. The author has analysed the seven aspects that determine the success or failure of a bank within a given market: market position, cost position, reputation, technological advancement, financial results, the level of equity and the level of risk. The results of the author's research indicate the absence of a clear correlation between the bank's country of origin and the above indicators. German banks score better in some of these categories (with significant differences within this group of organisations), while Dutch or Polish banks seem to succeed in other areas. Interestingly, both Italian and German banks have good financial results, although the former emphasised the existence of a significant cultural dissonance between their country of origin and operations in Poland, while the latter did not. It is, therefore, not solely the country of origin or its culture that determines the success of a particular bank, but also the organisation's management style that comes into play. Consequently, the methodology applied by the author has failed to capture a clear relationship between the country of origin and the banks' performance. In the final chapter, the author argues that the approach of banks towards their operations abroad is contingent not so much on their country of origin, but on religion. It is a thought-provoking point that certainly deserves to be explored further.

Jan Szambelańczyk*

Piotr Aleksandrowicz, Aleksandra Fandrejewska-Tomczyk,
Reform of the Polish banking system from 1987 to 2004 in the memories of its authors
(*Reforma polskiego system bankowego w latach 1987–2004 we wspomnieniach jej twórców*).
Wydawnictwa Uniwersytetu Warszawskiego,
Warsaw 2016, ISBN 978-83-235-2268-3

The work of Piotr Aleksandrowicz and Aleksandra Fandrejewska-Tomczyk is original from a number of aspects. First of all, it documents the processes and activities of the people engaged in the reform of the Polish banking system that was unprecedented in the history of Poland and probably unique on a global scale. In addition, it addresses issues either presented very modestly or absent from the national literature, which are of great importance to the careers of thousands of professionals and managers and, more importantly, fulfilment of the personal plans of millions of Poles and entities operating in the Polish system. Third, the book documents the experiences of the people who were the architects of transformation of the Polish banking sector at its various levels, with information coming from interviews with more than 30 people. As Prof. Marek Belka, President of the National Bank of Poland writes in his preface to the work: *The reader is presented with a rich, multidimensional look at phenomena important in the Polish financial sector in the period when it broke off ties with the era of socialist central control and crossed into the world of the market economy; of rapid transformation from the centrally planned economic system to the market economy. The multi-*

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dimensional nature allows correlation of the viewpoint of the first-line politician with the viewpoint of a banker on high or top-level financial structures or a banker operating in front-line units. At the same time, as one can realise when reading the book, its content presents diverse or even opposing views or opinions on the issues discussed.

It is worth remembering that a book on similar topics entitled "Transformation of the Polish banking sector in 1988–1995. Monograph and comparative study" (*Transformacja bankowości polskiej w latach 1988–1995. Studium monograficzno-porównawcze*) edited by Władysław Baka was published in 1997 by Zarządzanie i Finanse Publishing House as part of the Biblioteka Menedżera i Bankowca series[1]. This monumental work (1031 pages, 15 chapters and 300 pages of attachments) has been a true goldmine of information on banking reform in Poland and contains analyses of the results of the reform from an empirical aspect, with particular focus on nine commercial banks established from 430 operating branches of the National Bank of Poland on 12 April 1988 with a resolution by the Council of Ministers. It is important to mention that the book was edited by Prof. Władysław Baka, PhD, the initiator and first person to implement this reform as the President of the National Bank of Poland. His archives, supplemented by the truly painstaking work of members of the Students' Scientific Circle at the Faculty of Economic Sciences of the University of Warsaw in search of statistical data and original information in researched banks permitted documenting this process – unprecedented in banking history –of commercialisation of some resources and structures of the central bank under conditions of transformation from the monobank system to a two-tiered banking system typical of a market economy. Results of the analyses presented in the work by Baka documented the unique process of development of nine independent commercial banks established at the same time, which began operations in comparable, yet rapidly changing systemic and institutional conditions. Attempts were made to answer what factors and processes led to the diversified development of commercial banks in the decade from the start of the banking reforms and their different rankings after 10 years.

Starting with the transformation of the banking system in Poland in 1986, the reformers did not suspect that 30 years later the banking system would have to prove that there is no conflict between stability and effectiveness and that the rational prudential principles are more important than innovative financial instruments directed at profit maximisation. Although mistakes and bankruptcy were unavoidable in the first decade after the system's transformation, thanks

[1] The bibliography of the monograph on the banking sector in Poland includes other publications (e.g. P. Wyczański, M. Gołajewska, *Polish banking system 1990–1995*, Fundacja im. Friedrich Eberta, Warsaw 1996; J. Szambelańczyk, *Cooperative banks in Poland during system transformation*, Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań 2006).

to the prudence of the reformers, the Polish banking system made it through the global financial crisis in relatively good condition. In Poland the economy slowed down slightly, but the banking sector did not require financial support. Comparison of both above-mentioned works on the transformation and reform of the Polish banking system proves that not only events, phenomena or processes were important, but also the people who initiated and animated them. This involuntarily resembles the forgotten principle, at least in the media, that everything is determined by people.

The thing that distinguishes the monograph by W. Baka from the book by

P. Aleksandrowicz and A. Fandrejewska-Tomczyk is mainly the method of analysing the researched processes and phenomena. W. Baka's team worked on statistical documentation and source materials to analyse the dynamics of processes and phenomena via a uniform substantive and methodological structure, through the prism of consequences, and primarily results achieved by the banks being researched. In some parts of the monograph, the analyses went beyond the set of nine commercial banks established in 1988 and also encompassed other commercial banks that made up the Polish banking sector. The book by P. Aleksandrowicz and A. Fandrejewska-Tomczyk, besides the introduction, widely presents the functioning of the banking sector in Poland over the next 17 chapters. Each chapter is preceded with synthetic information on the issues discussed in the interviews that form the basic part of the chapter.

Chapter 1 is entitled: From assumptions behind the reform of the banking system in Poland until the beginnings of the National Bank of Poland as a modern central bank (1987–1990). These issues are discussed with the authors of the book by Andrzej Topiński (among others Vice-President and President of the National Bank of Poland, President of Bank PKO B.P., President of the Polish Banks Association) and Ryszard Kowalski (among others adviser to the President of the National Bank of Poland and member of the banking system reform team).

Chapter 2 is entitled "Establishment of commercial banks separated from the National Bank of Poland (1988–1989)". These issues are presented by Maria Pasło-Wiśniewska (among others Vice-President of Wielkopolski Bank Kredytowy S.A, President of Bank PeKaO S.A and a Polish MP) and Dariusz Daniluk (among others employee of the National Bank of Poland, undersecretary of state in the Ministry of Finance, chairman of the Council of the Bank Guarantee Fund, President of Bank Gospodarstwa Krajowego and Bank Ochrony Środowiska).

Chapter 3 is entitled "Reforms of the economic system from 1989 to 1992. Balcerowicz's Plan". These topics are discussed in interviews with Jerzy Koźmiński (among others undersecretary of state in the Office of the Council of Ministers, Vice-Minister of Foreign Affairs and the Ambassador of Poland in Washington); Wiesława Ziółkowska (among others an MP, chairman of the Committee on Economic Policy, Budget and Finance of the Parliament, member of the Monetary

Policy Council, professor of the Higher Banking School in Poznan) and the author of the reform, Leszek Balcerowicz (among others twice Deputy Prime Minister and Minister of Finance and President of the National Bank of Poland, an honorary doctor of over 30 national and foreign universities, a professor at the Warsaw School of Economics).

Chapter 4, entitled "News and early times – establishment of private commercial banks and changes in the state-owned banks (1989–1992), includes an interview with Sławomir Sikora (among others employee of the Ministry of Finance responsible for the governmental programme of bank restructurisation, long-time President of Bank Handlowy in Warsaw/City Handlowy), Cezary Stypułkowski (among others adviser to the Minister in the Office of the Government Plenipotentiary for the Economic Reform, secretary of the Committee of the Council of Ministers for the Economic Reform, President of Bank Handlowy w Warszawie, President of Polski Zakład Ubezpieczeń and CEE Managing Director of JPMorgan in London, finally President of mBank) and Bogusław Kott (among others, long-time president of banks and the creator of Bank Inicjatyw Gospodarczych and Bank Millenium).

Chapter 5 is entitled: "Transformation on our own, but with international help". These issues are presented by Alicja Kornasiewicz (among others auditor at Moore Stephens, MP, senior banker at the European Bank for Reconstruction and Development, secretary of state in the Ministry of Treasury, President of Bank PeKaO) and Jerzy Koźmiński (see above).

Chapter 6 is entitled "The second stage of development of the banking system (1991–1995)". The topic is discussed in two interviews by Jerzy Stopyra (among others member of the Management Board and First Vice-President of the National Bank of Poland, employee of the University of Warsaw) and Hanna Gronkiewicz-Waltz (among others President of the National Bank of Poland, Vice-President of the European Bank for Reconstruction and Development, MP, president of the capital city of Warsaw and professor of the University of Warsaw).

Chapter 7 is entitled "Institutions and infrastructure of the banking system (1990–2004)". These topics are presented by Krzysztof Pietraszkiewicz (among others long-time President of the Polish Banks Association, co-founder and member of supervisory authorities of the Bank Guarantee Fund, Credit Information Bureau, Economic Information Bureau – InfoMonitor, Krajowa Izba Rozliczeniowa, TelBaank, Warszawski Instytut Bankowości) and Ewa Kawecka-Włodarczak (among others a dealer in Bank Handlowy in Warsaw and Bank PeKao in Paris, President of Powszechny Bank Kredytowy, long-time President of the Management Board of the Bank Guarantee Fund in Warsaw).

Chapter 8 describes the costs of transforming the economic system (1992–1999). These topics are presented by Hanna Gronkiewicz-Waltz (see above), Stefan Kawalec (among others chief adviser to Deputy Prime Minister Leszek Balcerowicz in the Ministry of Finance, and Vice-Minister, adviser to banks and insurance

companies and international institutions, such as the World Bank and IMF) and Jan Szambelańczyk (among others cooperated with the Mission of the World Bank for Restructurisation of Co-operative Banking, was the First Vice-President of Gospodarczy Bank Wielkopolski, represented Polish cooperative banks in the European Association of Co-operative Banks in Brussels, was a long-time member of the Council of the Bank Guarantee Fund in Warsaw, a professor of economy, lecturer at the Poznań University of Economics and Business).

Chapter 9 is entitled "Microeconomics of banks from 1989 to 2000" and the issues are discussed in interviews with Ewa Kawecka-Włodarczak (see above) and Andrzej Topiński (see above).

Chapter 10 is entitled "Macroeconomics of the banking system from 1987 to 2004" as discussed by Józef Sobota (among others employee and member of the Management Board of the National Bank of Poland and a member of the Statistics Committee of the European Central Bank) and Paweł Wyczański (among others specialist of the National Bank of Poland and chairman of the Supervisory Board of Bank Zachodni S.A in Wrocław).

Chapter 11 is entitled "Transformation of the banking system in Poland and in other post-communist countries". These topics are discussed in interviews with: Rafał Juszczak (among others President of the Management Board of Bank PKO BP, President of the First Ukrainian International Bank, President of the Management Board of Getin Holding, President of Alfa-Bank in Belarus), Stanisław Pacuk (among others a long-time employee of the National Bank of Poland and President of the Management Board of Kredyt Bank) and Sławomir Lachowski (among others Vice-President of PKO Bank Polski S.A., Vice-President and later President of Bank Rozwoju Eksportu S.A., creator of online mBank and Bank SMART – the first European mobile bank as well as the author of several books on management and finance).

Chapter 12 is entitled "Banking supervision and scandals during 1990–1997" and is based on interviews with Ewa Śleszyńska-Charewicz (among others general inspector of banking supervision, member of the Management Board of the National Bank of Poland, member of the Council of the Bank Guarantee Fund) and Wojciech Kwaśniak (among others general inspector of the banking supervision, member of the Polish Financial Supervision Authority, member of the Bank Guarantee Fund, adviser to the President of the National Bank of Poland, deputy president of the Polish Financial Supervision Authority).

Chapter 13 is entitled "Privatisation of commercial banks (1991–2000)" and is based on interviews with Alicja Kornasiewicz (see above) and Wiesław Rozłucki (among others adviser to the Minister of Finance, director of the Capital Markets Development Department at the Ministry of Privatisation, President of the Warsaw Stock Exchange, President of the Stock Exchange Board, member of the Council for the Economic Development to the President of the Republic of Poland).

Chapter 14 is entitled "Banking system – consolidation and competition (1997–2001)". The authors interviewed Anna Fornalczyk (among others President of the Anti-Monopoly Office, head of political cabinet of the Minister of Finance Leszek Balcerowicz, chairwoman of the Supervisory Board of ING Bank, long-time academic lecturer) and Maria Pasło-Wiśniewska (see above).

Chapter 15 is entitled "Internal development of banks" and is based on interviews with Tomasz Sielicki (among others President of the ComputerLand and Sygnity Group) and Sławomir Lachowski (see above).

Chapter 16 is entitled "Development of the final model of monetary policy and preparation of the banking system for EU accession". Interviews were carried out with Marek Dąbrowski (among others First Deputy Minister of Finance, member of Monetary Policy Council – 1998–2004, consultant to the World Bank, IMF and EU, OECD, USAID I UNDP, professor of economy), Wiesława Ziółkowska (see above), Aleksander Kwaśniewski – President of the Republic of Poland, Jan Truszczyński (among others diplomat, ambassador of the Republic of Poland to the European Communities in Brussels and ambassador of the Republic of Poland to the European Union, secretary of state in the Ministry of Foreign Affairs).

Chapter 17 is entitled "Final evaluation of transformation – a trilateral voice from the year 2015". The evaluation from this perspective was presented by Leszek Balcerowicz, who is commonly associated with the Polish economic reform (see above), Władysław L. Jaworski (among others long-time employee of the National Bank of Poland, head of the team of scientific advisers, Vice-President of the National Bank of Poland, member of the Council of the Bank Guarantee Fund, professor of economy, long-time head of the Department of Banking of the Warsaw School of Economics, academic teacher) and Krzysztof Pietraszkiewicz – co-founder and long-time President of the Polish Banks Association (see above). Leszek Balcerowicz said, among others "If you leave the state in banks, it is like leaving mines in the field, sooner or later they will explode". Władysław L. Jaworski summed up his attitude to the changes as follows: "All around the world, a central bank is somebody important. In Poland, we do not know what it is". President K. Pietraszkiewicz presented the transformation process and concluded as follows: "Banks are a certain form of an agreement that links all the Poles".

It is worth noting that each interview carries a title that synthetically and graphically reflects the essence of the interview. The substantive layer of the book, especially introductions to individual chapters, was significantly influenced by comments submitted by the following professors: Ryszard Kokoszczyński, Witold Koziński, Wojciech Morawski and Wojciech Roszkowski.

By studying this book by Aleksandrowicz and Fandrejewska-Tomczyk, financed by the Foundation of the National Bank of Poland, readers have access to information that cannot be found in statistical yearbooks or scientific monographs. The authors planned and interviewed a very wide range of persons, from top

functions in the state to high class specialists and academics (President, Deputy Prime Minister, Ministers and Vice-Ministers, MPs, presidents and members of the Management Board of the Central Bank; management of the banking supervisisory body; president, chairman and members of the Council of the Bank Guarantee Fund; presidents of commercial banks, specialists in central offices and academics from the leading Polish universities). Information, reflections and evaluation not captured in official documents or reports are particularly valuable. Persons interviewed shared their memories or information, often citing events or characterising their context, which if not explained or interpreted could not be actually determined or the material truth could not be ascertained. Unfortunately for objective reasons many persons of merit to the reform of the banking system could not have been interviewed, just to mention former presidents of the National Bank of Poland Władysław Baka and Janusz Wójtowicz, the first President of the Polish Banks Association Marian Krzak or Andrzej Szukalski, the first presidents of the nine commercial banks: Jan Cesarz, Franciszek Pośpiech, Tadeusz Żywczak or Marian Kanton who rendered great service to Bank PeKaO S.A. and the banking sector, and many others.

The book is worth recommending to a wide audience ranging from policy-makers, regulators and politicians to academics and students, especially students of economics and undoubtedly students of finance and banking. It would be beneficial if the interviews contained in the book reached both adamant critics and advocates of the good name of banks, which are institutions of public trust. The book's content provides an invaluable goldmine of information for researchers into the banking sector in Poland and abroad, as most of it cannot be obtained otherwise than from persons who participated in the reformation of the banking sector in Poland.

Words of praise for the initiative and its implementation are due to the individuals who personally worked on the creation of the work or supported these activities in a variety of ways. It is a great pity that an esteemed economic journalist, Piotr Aleksandrowicz, who prepared the assumptions and layout of the reviewed book, proposed the list of persons to be interviewed, and worked on the book until the last hours of his life could not see its final form, as he was defeated by a severe illness.