



**Doctoral School of Business
Administration**

THESIS SYNOPSIS

Banai Ádám

Bank Behavior before and in the Crisis

Ph. D. dissertation

Supervisors:

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Professor

Associate Professor

Budapest, 2016

Department of Finance

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Table of contents

1. Research background and objectives	4
2. Research methodology	7
3. Main results	11
3.1. <i>The demise of the halcyon days in Hungary: ‘foreign’ and ‘local’ banks – before and after the crisis</i>	11
3.2. <i>Topology of the foreign currency/forint swap market</i>	12
3.3. <i>Modelling probability of default and optimal PTI level based on a household survey.</i>	14
3.4. <i>Drivers of bank lending in Hungary – roles of bank-specific and macro factors</i>	15
3.5. <i>The drivers of foreign bank lending in central and Eastern Europe: the roles of parent, subsidiary and host market traits</i>	16
4. References	18
5. Relevant publications of the author	19

1. RESEARCH BACKGROUND AND OBJECTIVES

Foreign currency lending and its consequences were a definitive factor in how the global financial crisis unfolded in Hungary. Following 2008, it became obvious that the earlier practice of taking on debt denominated in foreign currencies placed a significant burden on all economic actors (corporations, households, the banking system and the state as well). Seven years after the onset of the crisis in Hungary, banking system processes are still defined by the legacy of earlier foreign currency lending. A thorough analysis of local events and a summation of the lessons learned are vital in order to avoid the reemergence of similar risks and to provide an example to other nations as well, seeing that foreign currency lending is still prevalent around the world.

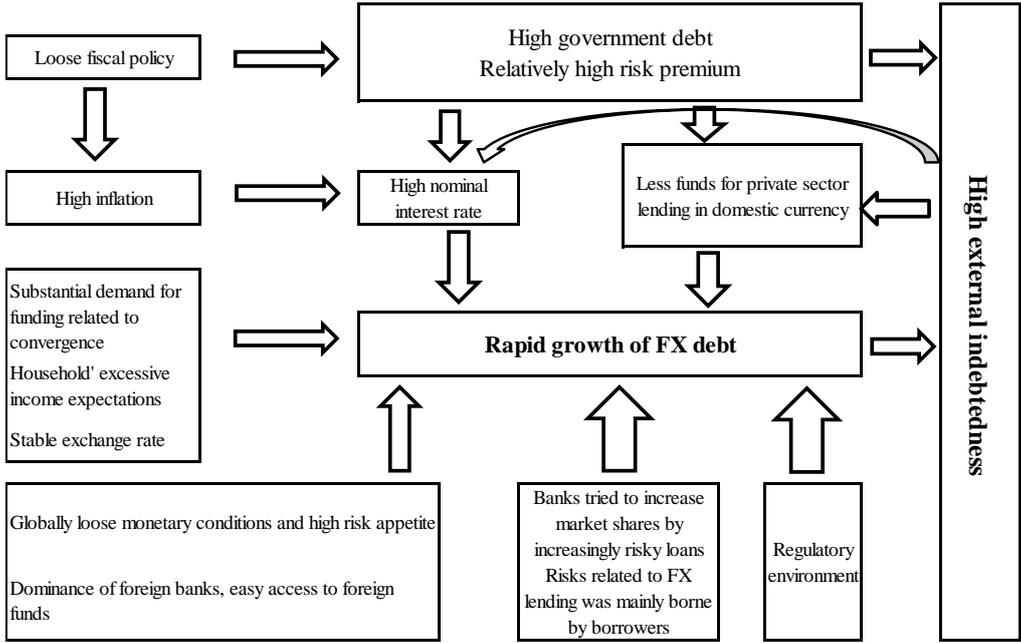
Before examining the consequences of FX lending in Hungary it is worth to summarize briefly the reasons behind its emergence. Chart 1 provides a good summary of which factors in particular led to the proliferation of foreign currency lending in Hungary. Government debt and external debt, increasing as a consequence of loose fiscal policy, increased Hungary's overall riskiness, which, in turn, resulted in high nominal forint interest rates. This was exacerbated by the fact that the inflation rate was high even in regional comparison, also due, at least in part, to fiscal expansion. Furthermore, high government debts led to a decrease in forint financing available for lending to the private sector, consequently it was an obvious choice for banks to raise foreign funds. They were able to do this, as the majority of the banking system was under foreign ownership, thus access to foreign financing was unhindered prior to the onset of the crisis.

This was further supported by the global abundance of liquidity as well. Foreign currency lending was also driven, from the banks' side, by the fact that banks' exchange rate positions remained closed, meaning they did not directly bear the risks stemming from any potential fluctuations of the exchange rate. Their risks were further tempered by the fact that they predominantly issued loans with real estate collateral. From the demand side, stable exchange rates compounded with a significant interest rate differential increased the demand for foreign currency loans. Facing constant inflation pressure, the central bank strived to keep the forint exchange rate stable with interest rates higher than average for the region. Thus, economic actors basing their decisions on historical data had every reason to underestimate any potential weakening of the exchange rate. Finally, general optimism regarding the country's convergence was also an important factor. Even after the onset of the crisis in 2008, the general assumption was that the country would be able to achieve stable 3-4 percent growth, and conse-

quently, repaying loans would not be an issue. Altogether, what we see is that the Hungarian economic policy mix was particularly favorable for foreign currency lending.

Among the region’s other countries, Slovakia and the Czech Republic were both able to reduce interest rates to relatively low levels as their foreign debt was not high and they were not plagued by high inflation. On the other hand, in Poland, proliferation of foreign currency lending had already begun by the dawn of the 2000s, driven by relatively high debt and high interest rates due to inflation. The monetary policy reform of 1998 was, however, able to significantly decrease inflation and, starting in 2002, the Polish central bank was also able to decrease the central bank rate considerably. It is important to note that this was also reinforced by Polish fiscal policy, which did not allow government debt to increase. Finally, they also implemented a number of interventions to decelerate the proliferation of foreign currency lending. The Romanian economy displayed the worst performance of all the countries examined, which in itself increased its overall riskiness. Meanwhile, they were constantly plagued by very high inflation, thus interest rates on foreign currency loans were also more favorable here than those of loans denominated in the domestic currency. As a consequence, by 2004-2005, half of all household loans were foreign currency loans. Romanian authorities did, however, attempt to curb the proliferation of foreign currency lending through regulatory interventions. Meanwhile, balanced fiscal policy made it possible for the central bank to steadily reduce the central bank rate and thus increase demand for leu loans.

Chart 1: Process diagram of foreign currency lending



After focusing on the factors contributed to the proliferation of foreign currency lending from the macroeconomic and economic policy side the question is: what impact may FX lending have on the banking system and the real economy? And what damage may it cause on a longer horizon?

From social and economic point of view, one of the most important problems with FX lending to households or SMEs and exchange rate risk is run by actors who are not able to manage it. Moreover, mostly they do not even know the risk they run. As a result, probability of default in case of FX loans is usually higher than that of domestic currency loans. It is not clear for borrowers how volatile the exchange rate movement can be so they are not prepared for it. Favorable instalments stemming from lower interest rate let borrowers to get indebted more and in many cases use this opportunity.

In addition to higher credit risk, FX lending may result higher liquidity risk as well. Savings of private sector are usually denominated in local currency which means that deposit base of the banking system i.e. the most stable funding source is denominated in local currency. FX liquidity for FX loans then should be ensured in a different way. It can be in the form of relatively stable long term interbank loans or bonds but it may be short term interbank loan or different types of off-balance sheet contracts (e.g. forwards, FX swaps etc.). Reliance on these latter types is risky since these markets may stop operating in crisis periods.

Huge losses may stem from these types of risks in unfavorable macroeconomic and financial environment. Due to the depreciation of local currency instalments of FX loans increase significantly so those customers who could expand their debt due to the favorable conditions of FX loans may default. It also results social tensions since real estates serving as collaterals of mortgages can be repossessed by the banks. Turmoil on interbank market is also very problematic for the banking system. Rolling over of maturing contracts may be very expensive or some banks may not meet their obligations.

These risks erode profits of banks due to high cost and losses. As a consequence even bank defaults may occur. Those banks which face these risks have to adjust their balance sheet and it mostly means a lower lending activity. At the end the lack of lending has a negative impact on the performance of the real economy.

2. RESEARCH METHODOLOGY

The five chapters of this dissertation are presenting individual researches on different aspects of risks and consequences stemming from FX lending. The papers are different in their main research questions so they also differ from methodological point of view. In this chapter we briefly summarize the main questions of the paper and also the methodology we used to answer them.

The demise of the halcyon days in Hungary: 'foreign' and 'local' banks – before and after the crisis

The first paper analysis in two separate parts the history of the Hungarian banking system until autumn 2009. We have a special focus on the differences between so called 'local' banks (those without strategic foreign owners) and 'foreign' banks. The first half of the study examines in detail the performance of banks from the end of the 1990s until the onset of the financial crisis in October 2008. At the beginning of the new millennium, increasing retail credit market competition among foreign and local banks determined the similarities or differences in strategy. 'Local banks' began their expansion in Eastern Europe at this time, thereby competing with not just the subsidiaries, but also with the parent banks of 'foreign' banks'. In this period the balance sheets of the two groups were characterised by rapid credit expansion and high profitability. Our main goal is identifying those liquidity and credit risks which were built up during this period.

In the second half of the study we focus on the divergent behaviour of banks during the crisis. Following the October 2008 crisis, every bank faced a radically altered financial and macroeconomic environment, and had to adapt to the new conditions. Regarding this period, we concentrate on examining whether the different ownership structures and the various pre-crisis strategies required diverse crisis management practices. Since the paper was written in autumn 2009 due to the lack of data for long period making empirical tests were not possible. Although descriptive analysis based on available data could give a precise picture on the banking system. These findings are supported by latter papers.

Topology of the foreign currency/forint swap market

The second paper is focusing on the characteristics of the network based on the FX swap market and on the dynamics of these characteristics during the turbulent periods of the financial crisis. Many papers investigated the characteristics of interbank markets' network and made conclusion on the effect of credit risk. We were mainly focusing on network character-

istics of FX swap market which may stem from the special structure of the transaction. We also examined the potential risks of the banking system stemming from the reliance on the FX swap market.

We examined the transactions completed between 1 January 2005 and 1 December 2014. The actors selected to represent the vertices of the graphs included both domestic and international actors, whereas the MNB was excluded. Our analysis concerned only credit institutions, as a result of which we ignored transactions with the non-financial corporate sector, for instance. Domestic banking groups were included in the graphs on a consolidated basis, i.e. members of banking groups were represented by a single vertex standing for the entire banking group. We defined many different network measures (e.g. degree, closeness, betweenness, clustering coefficient) and we analyzed their dynamics during the observation period.

Modelling probability of default and optimal PTI level based on a household survey

Relying on micro data (based on a household survey), our research was primarily focused on exploring the macro, socio-demographic and loan characteristic variables that account for the probability of default in the case of Hungarian household mortgage loans. To that end, we applied binary estimation methods, mainly logit models, as modelling tools.

We chose the survey question pertaining to repayment delinquency as our response variable; if the instalment of the specific loan is 90 days past due, our dependent variable will take the value of one, otherwise it will be zero. A delinquency of over 90 days is customarily considered in the literature as a non-performing contract, and we followed the same practice.

$$y(0 = \text{performing}, 1 = \text{default}) \\ = G(\beta_0 + \beta_1 * \text{indebtedness} + \beta_2 * \text{income} + \beta_3 * \text{labour market activity} + \beta_4 \\ * \text{household expenditure} + \beta_5 * \text{loan characteristics dummy} + \beta_6 \\ * \text{household characteristics dummy})$$

$$\text{where } G(x) = \frac{e^x}{1+e^x}$$

We defined six variable group which might have significant effect on the probability of default: indebtedness of the household, income position of the households, labour market activity of the households, spending (not instalments) of households, characteristics of the loan contract, social characteristics of the households. There are several opportunities to measure these factors. E.g. different ratios can grab the labour market position of the household. In many cases these variables contains the same information (on PDs) but sometimes variables representing the same group can have relevant additional information comparing to each other. We

will use then the following strategy: we will keep the most significant variable of each group but other significant variables from the same group can be kept as well. While we wanted to use our model for policy simulations as well we decided to build a model where all the explanatory variables were significant.

Drivers of bank lending in Hungary – roles of bank-specific and macro factors

In this paper we aimed to identify the drivers of Hungarian banks' lending activity. To this end we applied panel regression where dependent variable is the annual credit growth, defined as the annual percentage change of the loan stock to household and corporate sector. The panel database we constructed for this analysis contains data of the 11 biggest Hungarian banks for the period 1999 – 2014. Let L_t^j denote the exchange-rate adjusted volume of lending¹ by bank j at time t (where t denotes the quarter). Then the dependent variable l_t^j is the annual flow of lending, defined as follows:

$$(1) \quad l_t^j = [\ln L_t^j - \ln L_{t-4}^j] * 100$$

$$(2) \quad l_t^j = \alpha_1 + \alpha_2 Y_{t-4}^j + \alpha_3 X_t^j + \varepsilon_t^j$$

Equation 2 defines our basic empirical specification. As mentioned before the dependent variable is the exchange-rate adjusted percentage change of loan stock. Y_{t-4}^j is the set of bank characteristics. The $(t - 4)$ formulation comes from the fact that the dependent variable is the annual (four quarter) change in the stock of claims and the dataset is with quarterly frequency. Bank characteristics contain information on banks' capital and liquidity position, their profitability and their size. The vector X^j contains the set of dummies controlling on effects of e.g. the crisis, early repayment scheme or mergers.

$$(3) \quad l_t^j = \gamma_1 + \gamma_2 Y_{t-4}^j + \gamma_3 X_t^j + \gamma_5 M_t + \varepsilon_t^j$$

The second specification (Equation 3) is an expanded version of the previous. It now includes macro variables 'M' to control for demand-side effects.

$$(4) \quad l_t^j = \gamma_1 + \gamma_2 Y_{t-4}^j + \gamma_3 Y_{t-4}^{j,g} + \gamma_4 X_t^j + \gamma_5 M_t + \varepsilon_t^{j,g}$$

¹ Exchange rate movements in Hungary has a significant effect on the stock of the loan portfolio since FX loans are dominant in the balance sheet of banks. For this reason we used 2013 year end data as an 'exchange rate deflator' and reevaluated the stock.

In Equation 4 parent group characteristics are taken into account. It must be emphasized that this specification is tested on a smaller sample for two reasons: (1) obviously domestic banks are left out since they have no parent institution, (2) only shorter time series are publicly available for some foreign groups. Finally, we also analyzed the effects of the crisis. Equation 5 incorporates interactions between the crisis dummy and bank-specific and macro variables.

$$(5) \quad l_t^j = \delta_1 + C_t \times [\delta_2 Y_{t-4}^j + \delta_3 X_t^{j,g} + \delta_4 M_t] + \varepsilon_t^c$$

The drivers of foreign bank lending in central and Eastern Europe: the roles of parent, subsidiary and host market traits

The last paper's main question is similar to that of the fourth paper although on an international sample. The paper is focusing on the drivers of lending activity of foreign owned banks in the Central and Eastern European region. The same panel regression methodology was applied in this case as well. The equations estimated were more or less the same in these two papers except for some control variables. The data set was constructed by using data from the Bankscope and we filled some gaps by collecting data from individual financial reports of certain banks. The dataset contains information on banks from 11 regional countries and 26 different foreign banking groups.

We examine four hypotheses related to the functioning of foreign banks in the CEE region. First, in line with recent policy initiatives we hypothesize that high non-performing loan ratios on banks' books significantly hinder lending activity. Second, we examine the hypothesis that better capitalization provided substantial support to CEE subsidiaries in their lending activities after the onset of the crisis, while capital played a less important role before the crisis. Our third hypothesis is that the financial and real economic benefits that foreign banks can bring to emerging financial markets depend on the health and characteristics of the parent banking groups. Our fourth and last hypothesis is that the collective commitment that parent banks made in the context of the Vienna Initiative not only stabilized the liquidity position of CEE subsidiaries (Banai et al. 2010), but also helped mitigate the crisis effect on their lending.

3. MAIN RESULTS

3.1. The demise of the halcyon days in Hungary: 'foreign' and 'local' banks – before and after the crisis

Prior to the 2008 crisis, Hungarian banks realised outstandingly high profits. The main source of bank income was rapid credit growth and wide interest margins. In addition to the strong demand for credit from households due to their positive income expectations, fast credit growth was also the result of strong loan supply pressure from banks. Competition between banks intensified, and increasing competition did not result in decreasing prices. Cost-based competition was reflected in higher advertising spending and network building, while risk-based competition was reflected in the sales of increasingly risky products to increasingly risky customers. Interest margins remained high for an extended period precisely because of weak price-based competition.

As our analysis shows the price of sustaining high profitability was the continuous increase of risk. Rapid credit growth significantly pushed up financing risks, reflected in an elevated loan-to-deposit ratio and a strong reliance on foreign funding and the FX swap market. At the same time, banks' credit risk also increased due to the high level of indebtedness of households and mounting exchange rate exposure. Both foreign and local banks assumed substantial liquidity and credit risk. In comparing foreign and local banks, however, the latter had higher liquidity risks, while the former had higher credit risks.

Following the October 2008 crisis, these risks materialised. Due to the liquidity crisis, banks had to rely on substantial external help, albeit temporarily. In the case of local banks, this was provided by the central banks and the state, while in the case of foreign banks, it was provided by parent banks. Materialization of financing risks forced all of the banks to adjust to the situation and to restrain their activities. The sharp economic slump – exacerbated by the adjustment of the Hungarian private sector and the banking system – led to the materialization of credit risks, while lending losses started growing – at a faster pace at foreign banks and a slower pace at local banks. (*Chart 2 and 3*)

The crisis made it clear that the higher the level of risks, the higher the real economic costs of the banking system to adjust to the shock. The 2008 financial crisis hit the Hungarian banking system, which had significant liquidity and credit risks, thus Hungarian banks reacted with strong procyclical behavior to the changed financial and macroeconomic environment. All of this, in conjunction with similarly procyclical fiscal and monetary policy, contributed to the Hungarian economy entering a deeper recession in 2009 than the rest of the region. In order to

avoid or to alleviate banks' procyclical behaviour, these risks must be reduced and new types of risks must be prevented from developing. The Hungarian banking system should not be allowed to once again become the source of risks which exacerbate the negative effects of an external shock.

Chart 2: Foreign banks' main risk indicators

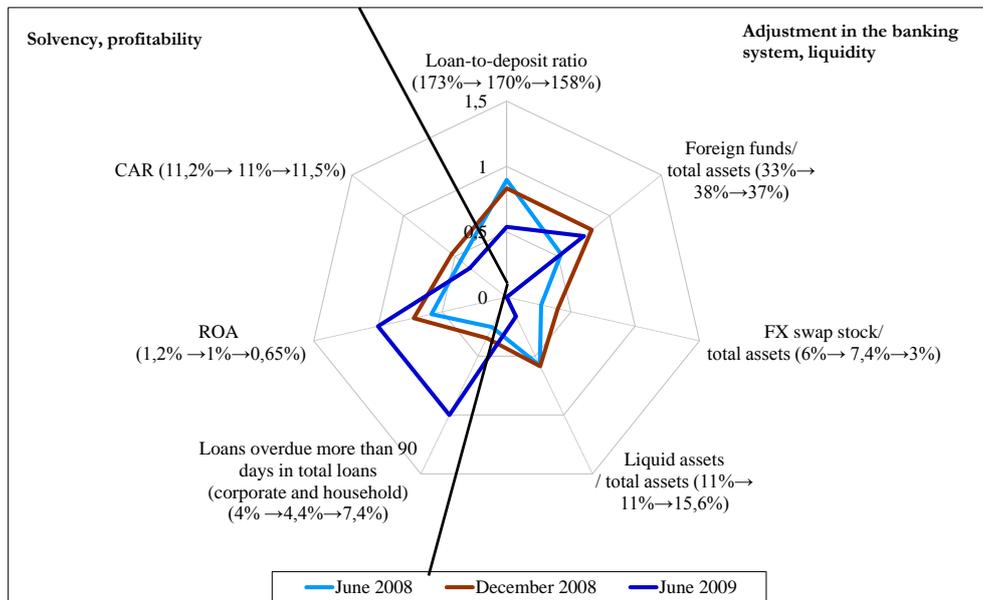
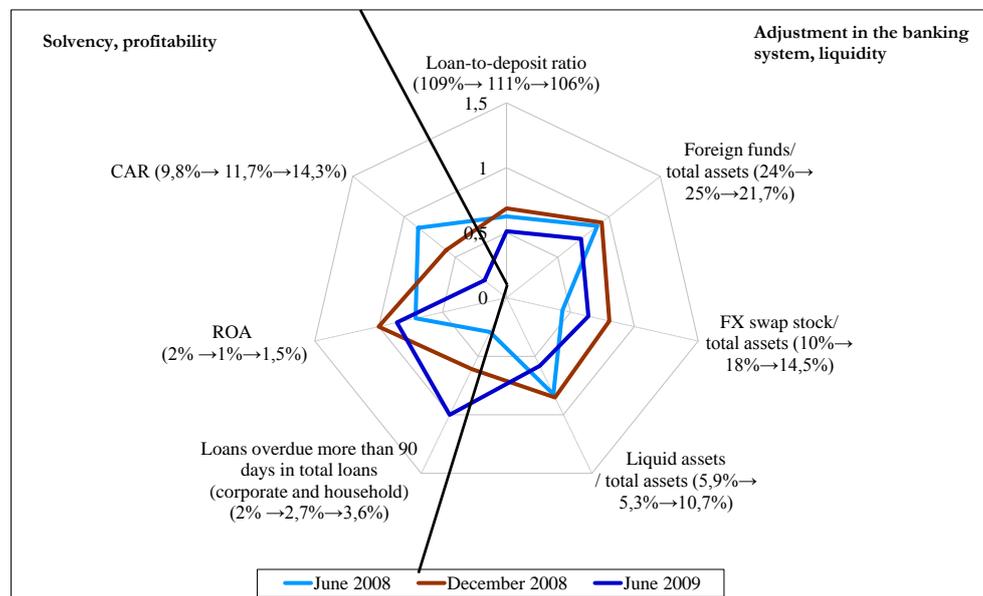


Chart 3: Local banks' main risk indicators



Note: Values falling further from the centre of the web indicate an increase in risks (Chart 39-40)

Source: MNB.

3.2. Topology of the foreign currency/forint swap market

As Banai et al. (2013) demonstrated in the context of the short-term FX swap market, in Hungary the disruptions were clearly shown by the network structure of the market in addition to

commonly used market indicators such as implied yield, liquidity indices, and turnover. The particular structural characteristics of the graph of the short-term market occasionally exhibited strong volatility during the crisis. In their analysis of the largest connected component, the authors found that the properties generally satisfied for financial markets were also characteristic of this market. We have seen that the degree distribution of the network follows power law. Most participants have a relative small number of connections, and there are only few large actors with outstandingly high degrees.

This study aimed to develop an understanding of the properties of networks derived from FX swaps of longer maturities, and to obtain a picture of the overall market. This also provided us with a more complete picture of the short-term market. Regarding the short market, one of our findings was that the number of participants decreased significantly, with a particular decline in the activity of marginal actors. Through an analysis of the overall market, we confirmed that this was not attributable to longer transaction maturities, since graph sizes decreased following the start of the crisis in longer markets as well. With the longest markets, however, the type of exiting actors is not certain.

In the one-day market, we have seen that the network was not connected at a daily frequency, and that there were isolated parts even at a weekly frequency. This property was intensified with longer transactions despite the monthly frequency used. At a monthly frequency, often only 60–70% of the vertices formed a connected component. With the longest transactions exceeding 3 months, occasionally only 30% of the actors were connected. During the crisis, this property became particularly pronounced in the case of the longest transactions, which indicates that certain banks had the confidence to enter into long transactions only with a very small group of institutions.

In the case of the short-term market, we have seen the network to exhibit the small world property that is characteristic of financial networks. This also means that the market is especially sensitive to the behavior of a few actors, which presents a stability risk (Albert et al., 1999; Newman, 2003). The analysis of longer networks showed this small world property to be less prominent. It definitely applied to networks derived from transactions between 3 days and 1 month; however, the graph of transactions above 3 months increasingly approximated a random graph as the crisis developed. As the number of actors decreased, the network became less and less clustered, and groups gradually disappeared. This may indicate increasing distrust among the actors.

In our study, we paid particular attention to the network derived from the overall market regardless of maturities. Although a distinction between maturities was required due to differences in functions, we were also curious to see the behavior of the graph of the overall market. As expected, the trends observed here followed those of the one-day market, since a vast majority of the transaction volume is associated with that market. This confirmed our assumption that a segmentation of the overall market was reasonable. This enabled us to identify different trends for transactions of different maturities. Finally, we have shown that dynamics of FX swap market's network structure is similar to that of interbank deposit market (as seen at e.g. Berlinger et al. 2011). Abrupt changes in turbulent periods are usually considered to be stemming from credit risk. Our results suggest that liquidity risk may be also very important.

3.3. Modelling probability of default and optimal PTI level based on a household survey

In the model received as the final specification, the signs and magnitude of the variables were consistent with economic intuitions. The results proved to be robust to model specification, i.e., whether to include vintage effects and non-linearity. Of the features that purely characterize households, only one variable proved to be significant: the 'ratio of income earners to total household members', which captures the household's labour market activity and its composition according to income position. According to the estimate, more income earners within the same household reduce the probability of default proportionately.

As regards the features of the loan, two variables proved to be significant in the estimate: firstly, foreign currency loans are riskier than forint loans. Secondly, compared to directly disbursed bank loans, the default probability of loans via agents is higher.

As regards the rest of the indicators, 4 factors proved to have significant explanatory power. The PTI level measures the burden incurred by the household in repaying the loan amount, the level of indebtedness. The higher a household's indebtedness in proportion to its income (PTI), the higher the long-term PD of its loan. According to the estimate, the risk associated with a loan will be also greater if the household has debt service on other loans as well. This effect is captured by the variable 'payment-to-income ratio for other loans'. The ability to repay is not only influenced by instalments. Households with a higher level of 'expenditures above the instalment amount' also face a higher probability of default. Finally, 'per capita instalment amount' proved to be significant as well; however, the sign of the variable is negative. This means that a higher instalment amount induces lower long-term PD. Instead of indebtedness, this variable primarily captures income position and in line with this, instead of

the instalment amount it measures the instalment amount that a household is capable of paying. In consideration of this, the negative sign of the partial effect is understandable.

During our estimates we have also tested several variables which were not included in the final model (due to their insignificant effect), even though they may have considerable explanatory power based on empirical experiences. We demonstrated, however, that the effects reflected in them are captured by other indicators that proved to be significant in our model. For instance, distinguishing on the basis of loan purpose we can establish that home equity loans perform worse than housing loans. This, however, is due to the fact that households with home equity loans are more indebted with worse income and labour market positions. The situation is similar when we compare loans disbursed in the periods of 2004–2006 and 2007–2008: debtors' higher indebtedness explains the higher non-performance rate of loans disbursed during the latter period.

Based on the model estimated we examined the relationship between PTI and the probability of default in case of different loan denominations and different household incomes. The results carry two important messages from a regulatory perspective. Prescribing the same PTI for forint and FX loans may be unnecessarily restrictive for the former, and excessively permissive for the latter. Similarly, the uniform regulation of households with different income levels may also lead to undesired anomalies. In order to avoid this, a potential new PTI regulation should differentiate between loans based on denomination and between households based on income levels.

3.4. Drivers of bank lending in Hungary – roles of bank-specific and macro factors

Our newly constructed dataset contained some balance sheet traits of foreign parent groups which let us identifying the relative importance of bank and parent bank characteristics and demand-side factors. Although several papers have already analyzed lending activity of the Hungarian banking system, this is the first paper to examine it on micro data.

We found that during the observed one and a half decade, banks that were able to rely more on internal savings tended to lend more actively. The positive effect of better liquidity position on lending activity is also supported by another finding, which implies that higher reliance on the FX swap market hinders lending. Although many papers suggest that foreign-owned banks and domestic banks behave differently, our results on the Hungarian market did not support this notion. We have found the existence of a foreign owner to be insignificant in terms of lending activity. Nevertheless, parent group traits had significant explanatory power

on foreign-owned banks' loan growth. Banks which had a better capitalized, more profitable parent group with safer funding liquidity position tended to lend more.

The effect of the crisis was also examined. We found that from 2009, the importance of liquidity position has decreased significantly and solvency measures entered the spotlight. This result gives empirical proof to the idea set forth by Banai et al. (2010, i.e. the first paper of the dissertation). Our estimations showed that during the crisis, the explanatory power of individual bank characteristics weakened while macro factors gained relevance. This result suggests that demand-side factors became more dominant than the supply side during the crisis. An interesting extension of this paper would be to put this observation to further empirical testing.

3.5. The drivers of foreign bank lending in central and Eastern Europe: the roles of parent, subsidiary and host market traits

Our first hypothesis is supported by our results. We find strong evidence that a bank's non-performing loans (NPL) ratio forms a significant obstacle to lending growth, a result which prevails in the crisis period as well. We also found strong evidence on our second hypothesis. We see a very strong and sizable positive relationship between the subsidiary's capitalization and lending activity during the crisis period. This result is in line with Popov and Udell (2012) and Frey and Kerl (2015)'s findings, but our study goes further in that we extend the analysis to lending to the whole non-financial sector and we examine a longer time horizon including the crisis years. Our third hypothesis was motivated by Popov and Udell (2012) and De Haas and van Lelyveld (2010) who find that parent balance sheet effects can play an important role in subsidiary lending, we include a set of parent banking group traits as covariates. We find that the parent group's profitability (as measured by Return on Assets) encourages subsidiary lending before the crisis. It is also supported by our finding that lower funding liquidity of the parent encouraged lending before the crisis, but hindered subsidiary lending during the crisis. This result is also in line with Cetorelli and Goldberg (2011), who study U.S. banks' lending abroad to show that parent banks channel funds to and from subsidiaries via internal capital markets as their liquidity position changes. These results are also consistent with the findings of Giannetti and Laeven (2012) and De Haas and van Lelyveld (2006), who find that parent banks tend to withdraw funds from subsidiaries abroad during crisis times.

Finally, we find a very strong and negative crisis effect on CEE lending, despite the Vienna Initiative. This result is in line with the finding of De Haas et al (2015) and Cull and Martinez Pereira (2013), who show that the subsidiaries of foreign banks reduced their lending early

and quickly after the crisis hit. Based on De Haas and van Lelyveld (2014), the joint implication of the negative parent balance sheet effects and the quick reduction of subsidiary lending in the crisis is that parent banks did not provide sufficient support to their CEE subsidiaries during the crisis, leading to a substantial reduction in lending activity in these host markets.

Based on our results we can draw three policy conclusions. First, cleaning of non-performing portfolio is essential for the recovery of lending activity so it may worth to support is by regulatory tools. Second, due to the strong effect of parent groups it is important to take into account their impact in calculation of regulations like the CCB. Finally, this result also emphasizes the need of ‘home’ and ‘host’ supervisory and central bank cooperation.

Some important extensions remain, pending data availability. First, it would be instructive to examine the trends studied in this paper using higher frequency data on bank balance sheet conditions and lending. The gain in time-series variation (which would be particularly valuable in the crisis analysis) may reveal some additional important features. Second, it would be very interesting to carry out the same analysis using data on parent banking groups and their subsidiaries from other regions of the world as well. Comparing the behavior of foreign banks across regions (for instance, that of Western European banks in the CEE region with the behavior of U.S. bank subsidiaries in the Latin American countries) would make for some very instructive and important comparative analysis from a policy-making perspective. The effect of VI also should be more precisely investigated. VI and non-VI banks should be compared rigorously for this reason.

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