

*The Financial Crisis in the 2000s:
Further Effects Regarding Lending,
Regulation and Efficiency*
*Finanční krize v novém tisíciletí:
další dopady na úvěry, regulaci a ziskovost*

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Abstract

The global financial crisis starting in 2007 was a central element of the new millennium and had a major impact on the global economy. This paper deals with the underlying causes and fundamental conditions as well as research and insights on the financial crisis in the area of liabilities and future lending, effects of regulations and bank resilience, as well as the changes in the banking industry in relation to the determinants of profitability. With three hypotheses developed on the basis of existing literature, that is critically evaluated and appraised, the paper aims to explore the global economic crisis from perspectives and origins beyond the often analysed triggers. The focus is on the pivotal point of the economic crisis: the banks and their international interconnectedness regarding lending, durability, and efficiency. Among other things, the findings revealed that the effect of the external funding shock on banks' domestic lending is significant, strong regulation, characterized as one-size-fits-all international best practice, is not always the blueprint for bank resilience and that efficiency has been a determining factor in bank profitability. Furthermore, no paradigm shift took place after the global economic crisis, and banks still seem to have to be rescued by the state in the event of bankruptcy due to their size.

Keywords

financial crisis, liabilities, lending, regulation, resilience, profitability, banks

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Abstrakt

Světová finanční krize, která začala v roce 2007, byla ústředním prvkem nového tisíciletí a měla zásadní dopad na světovou ekonomiku. Tento článek se zabývá základními příčinami a základními podmínkami, jakož i výzkumem a poznatky o finanční krizi v oblasti závazků a budoucích úvěrů, dopady regulace a odolnosti bank, jakož i změnami v bankovním sektoru ve vztahu k determinantům ziskovosti. Pomocí tří hypotéz vytvořených na základě existující literatury, které jsou kriticky zhodnoceny a posouzeny, si článek klade za cíl prozkoumat globální hospodářskou krizi z perspektiv a příčin přesahujících často analyzované spouštěče. Zaměřuje se na klíčový bod hospodářské krize: banky

a jejich mezinárodní propojení, pokud jde o poskytování úvěrů, odolnost a efektivnost. Zjištění mimo jiné odhalila, že vliv šoku vnějšího financování na domácí úvěrování bank je významný, že silná regulace, charakterizovaná jako univerzální mezinárodní osvědčený postup, není vždy plánem odolnosti bank a že efektivita byla určujícím faktorem ziskovosti bank. Navíc po globální hospodářské krizi nedošlo k žádné změně paradigmatu a zdá se, že banky musí být v případě úpadku vzhledem ke své velikosti stále zachraňovány státem.

Klíčová slova

finanční krize, závazky, poskytování úvěrů, regulace, odolnost, ziskovost, banky

1 Introduction

The economic crisis of the late 2000s was a key event in the economic experience and thinking of the modern era. In addition to the occurrence of a steadily growing price bubble and its sudden bursting, what was particularly frightening at the time, were the far-reaching and global effects and linkages, as well as the central lack of foresight and initiation of countermeasures by governing authorities to prevent a crash at an early point in time.

Questionable is, in what way problems arising in a small class of assets in one region, such as the United States, could spread worldwide, triggering a great recession. To take a basic introductory approach to the topic, some studies tried to describe the course of events in a traditional stylized way by dividing the conditions into two sections with the bases in the globalization of the banking system. Firstly, strain in the US banking system and those specifically exposed to US mortgages and structured goods spread across foreign borrowing markets, causing a liquidity crisis for banks around the world. Second, the disruption to different countries' banking systems' international financing was conveyed domestically by a decline in credit availability (Aiyar, 2012).

Because of the multinational nature of the situation and the large number of participants affected, such as banks, there were significant differences in their resilience and effects. As a result, it is unclear how the banking sector's resistance to the global financial crisis of 2007–2008 can be clarified (Maxfield & Magaldi de Sousa, 2015). Furthermore, the global economy and many markets have been affected by the financial collapse. Consequently, it is reasonable to conclude that widely respected topics like the study of systemic parameter of profitability have shifted as a consequence, and that the crash has altered the relationship between bank market share, performance, and profitability, as well as the link between market risk and concentration (Azofra et al., 2013).

Before dealing intensively with partial aspects and the analysis of the financial crisis addressed here, it makes sense to look at the initial situation and the conclusions and assessments to be drawn from it accordingly. With the worldwide economic crisis, which started in late 2007, there emerged a problem to the financial sector's regulations, sparking intense discussion in several European nations (Mayntz, 2011). Politicians and decision-makers in general were compelled to reassess their long-held assumptions

about the finance industry and its control. The evident flaws in the regulatory system may have triggered mechanisms of policy learning and policy adjustment in the nations most impacted by the economic meltdown. In bank regulation, there was no comparable of a modern 'Keynesian' economic model.

What transpired in the summer of 2007 served as a wake-up call for policymakers. It became obvious that they had perhaps allowed bank supervision to go for much too long, for far too long, they had assumed that markets would self-regulate. During the crisis, however, they had to admit that they had made a mistake. As a result, in the fall of 2008, the leaders of the 20 most significant developed and rising nations pledged that no financial market, no participant, and no financial market product would be allowed to operate without proper oversight and regulation. As a result, banks are now required to set aside additional equity capital. Consequently, many institutions have had to improve, enhance their buffer for difficult times, and therefore boost their equity ratio. Nevertheless, a second factor must be considered: the leverage ratio (= equity-to-total-assets ratio). The issue here is whether the banks have put aside an adequate amount of money in relation to their scale. However, a shortage of reserving is simply one of the risks that banks face. Another factor is a drop in their wages. Banks are finding it increasingly difficult to generate income in these days of low-interest rates.

On the other hand, banks are experiencing significant expenditures at the time. Conventional banks have been hesitant to invest for a long period of time and, like many other traditional banks, have remained inactive in the field of digitalization for a long time. Another source of future problems might be the fact that many banks are still "too big to fail". Specifically, they are so large that their insolvency would cause many private households and corporations to lose money that it would trigger a new economic crash. Nevertheless, in terms of dealing with the financial meltdown caused by a banking crisis in greater depth and from a variety of perspectives, it is necessary to examine liabilities and future lending, the effects of regulations and bank resilience, as well as the changes in the banking industry's profitability, as detailed below. Since banks in particular are considered to be the initiators of the global crisis, the aim of this paper is to examine them and their influence on the emergence of the crash in more detail from rather unknown angles and links between perspectives that have not yet been created. As especially the international interconnectedness of banking was the root of a global spread of a downturn, it is relevant to approach the link between as well as influence of mutual lending of money, how the intervention of governments for example through regulation has an impact on banking as corrective measures, as well as the principle, profitable operation of banks, and consequently their resulting resilience, especially in times of economic crisis. The paper introduces, based on the relevant existing literature and studies, three hypotheses from slightly different fields (1. The relation between foreign liabilities and development of domestic lending, 2. The relation between liberalization of bank industry including its higher international openness and government regulation, 3. The importance of some economic theories during financial crisis). The hypotheses are analysed and tested, and the paper also finds their common ground.

The paper is structured as followed. Second chapter describes the link between foreign liabilities and future lending. Afterwards, the paper covers whether measures taken after

previous crises have protected countries in the financial crisis in the late 2000s. In addition, there is a focus on the systemic determinants of profitability as a constant theme in the banking research. The paper looks which theory regarding this topic (either the efficiency theory or the concentration-fragility theory) proved to be valid during the time of financial crisis. Hypotheses formulated in each area are then verified and revised in the results section. The paper ends with a corresponding conclusion and an evaluation of the past situation as well as future risks.

2 Link between foreign liabilities and future lending

Though there is a large analytical dataset on the tension in the US banking system, and therefore the country of origin of the crisis, there is little information on the disruption to foreign funding. Given the overwhelming policy consensus that this was a bank-led slowdown in most countries, with declining credit supply leading to the decline of the real economy rather than vice versa, this void in the literature is critical. However, defining a connection between the external funding shock and domestic credit availability is difficult. In a cross-country environment, it is important to separate the need and supply components of the domestic credit contraction. Scientists seldom have access to this kind of bank-specific data that might help them solve identifying issues. Shekhar Aiyar (2012) creates and uses a novel bank-level dataset to investigate how the foreign funding shock affects banks' domestic credit offering in a big, industrialized economy like the United Kingdom. Any resident banks in the United Kingdom are required to report accurate balance sheet details to the Bank of England every three months. This confidential data document resident banks' domestic loans, broken down by recipient industry, as well as their liabilities, which enclose varying reports about non-resident liabilities. As a previous work, Aiyar (2011) provides a more detailed overview of the dataset. The bank-specific funding shock is instrumented and thus identified using pre-shock data on market positions of various forms of liabilities, whilst the variation of banks' lending patterns across sectors is utilized to control for demand effects. As an example, the resident banking industry in the United Kingdom consists of UK-owned banks' domestically incorporated divisions, as well as units and branches of banks headquartered abroad (Aiyar et al., 2012). Moreover, it is the world's biggest financial industry in terms of asset value. At the end of 2009, the UK had over 300 banks, with combined reserves of £7.6 trillion, or more than 500 percent of the country's gross domestic product (GDP). Although UK-owned banks are in the mean larger than international branches and affiliates, the latter are more numerous, resulting in assets of 50.5 percent and 49.5 percent of total assets for foreign-owned and UK-owned banks, respectively. The accumulation of assets is significant, but not overpowering. As a result, the top ten banks own about 59.8 percent of all financial assets. Banks based in the United Kingdom are increasingly globalized, with large liabilities to non-residents, rendering them especially vulnerable to international contagion. After the worldwide recession, the disruption to foreign funding was not only high, but also unparalleled. The estimated foreign liabilities of all UK-resident banks dropped by 22 percent on an exchange rate-simplified level from their height in end-March 2008 to end-October 2009, when they began to stabilize one more time, according to data from the Bank for International Settlements (BIS). By contrast, the previous highest 6-quarter drop

in external liabilities occurred during the early 1990s European Exchange Rate Mechanism (ERM) depression, when external liabilities fell by just 9 percent (Aiyar, 2012).

A bank may respond to a disruption to external liabilities in one of three ways, or a mixture of them, according to its balance sheet (Aiyar, 2012):

1. It has the ability to expand its domestic liabilities. That includes borrowing more from local units.
2. By lending less to non-residents, it will flatten its foreign assets.
3. By lending less to residents, it will reduce its domestic claims.

Aiyar's publications (Aiyar, 2011, 2012) create the basis to enter a field for which there has been little data available so far: the disruption to foreign funding apart from the country of origin of the crisis, the United States. The advantage of these studies is that by choosing the United Kingdom as the country to be analysed, the banks provide corresponding regular reports that can be evaluated in a structured manner. In this way, it was also possible to evaluate pre-shock data from the market and compare it with more recent data sets. This also allows investigating how during the crisis foreign liabilities of domestic bank (e.g. in our case bank with a seat or a branch in UK) affect their lending. The following Hypothesis will be tested:

Hypothesis 1: *A reduction in banks' foreign liabilities causes a contraction in domestic lending.*

3 Possible protections due to measures taken after previous crises

There is a perception that countries that were affected by economic collapses before the Great Financial Crisis were in fact less distressed. One explanation may be that regulatory changes enacted in response to the previous meltdown discouraged them from participating in reckless practices to the degree that triggered such high exposure anywhere during the late-2000s financial crisis. Cases like Mexico, Thailand or other Asian countries, for instance, have seen banking problems and eventual banking restructuring in the decades leading up to the worldwide financial crisis, but have shown resiliency before and since the 2007–2008 crisis. Firm regulation has also been cited by academics as a reason for banking sector stability in other countries, including India, Egypt, Canada, and Islamic nations for that matter (Maxfield & Magaldi de Sousa, 2015).

Furthermore, some reports claim that financial deepening, or expanded availability of financial markets with a broader range of goods aimed at all layers of society, is a feature of the financial environment that has exacerbated crisis contagion (Reinhart & Rogoff, 2010, Aisen & Franken, 2010). According to this line of study, firms in more mature capital markets rely more heavily on foreign financing, meaning that when a monetary recession arises, the economy experiences a long decline due to the effect of credit contraction on the actual economy. It is indeed a point being made in case reports of nations such as Cyprus, whose underdeveloped financial institutions escaped the global financial crisis

largely uninjured (Besim & Mullen, 2009). Based on that logic, another justification for the banking sector's stability in Mexico and other areas is that they have weak financial institutions or so-called shallow banking structures (Maxfield & Magaldi de Sousa, 2015). Moreover, Maxfield and Magaldi de Sousa (2015) created a framework to classify four ideal forms of regulation and bank growth and allocate 129 countries along this typology to provide a summary of countries studied, which can be seen below.

Table 1: Listing of countries with strong regulation and shallow banking

<i>Deep banking & strong regulation</i>	<i>Shallow banking & strong regulation</i>	<i>Deep banking & weak regulation</i>	<i>Shallow banking & weak regulation</i>
Algeria, Australia, Bahrain, Bangladesh, Canada, China, Cyprus, Czech Republic, Denmark, Egypt, El Salvador, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Jordan, Kuwait, Malaysia, Malta, Mauritius, Morocco, Netherlands, New Zealand, Norway, Pakistan, Philippines, Portugal, Singapore, Slovenia, South Africa, Korea (Rep.), Spain, Sweden, Switzerland, Syrian Arab Republic, Thailand, UK, US	Argentina, Brazil, Dominican Republic, Estonia, Hungary, Jamaica, Kazakhstan, Kenya, Latvia, Lithuania, Mexico, Nicaragua, Papua New Guinea, Russian Federation, Sri Lanka, Zimbabwe	Antigua & Barbuda, Austria, Belgium, Bolivia, Chile, Dominica, Ethiopia, Grenada, Guyana, India, Lebanon, Luxembourg, Oman, Panama, Saudi Arabia, Seychelles, Slovak Republic, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines	Angola, Armenia, Belarus, Belize, Benin, Bhutan, Bosnia & Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Colombia, Congo (Rep.), Costa Rica, Côte d'Ivoire, Croatia, Equatorial Guinea, Fiji, Gabon, Ghana, Guatemala, Guinea-Bissau, Honduras, Indonesia, Kyrgyz Republic, Lesotho, Macedonia, Malawi, Maldives, Mali, Moldova, Mozambique, Niger, Nigeria, Peru, Poland, Romania, Senegal, Suriname, Tanzania, Togo, Trinidad & Tobago, Uganda, Uruguay, Vanuatu, Venezuela

Source: Own work based on Maxfield and Magaldi de Sousa (2015)

Therefore, the liberalization of access and operation conditions, the financial sector could overexpand, resulting in a boom-cycle and the accumulation of threats. Without judicious regulation interventions, these threats will ultimately result in economic crises, known

as a bust-cycle, reducing banking resilience (Maxfield & Magaldi de Sousa, 2015). In particular, Maxfield and Magaldi de Sousa (2015) show that international money lending channels between banks can represent a risk. If governments, among others, then want to intervene in the banking system accordingly, the effect must, however, be considered with regard to the corresponding structure of the country-specific banking system. Thus, there are differences between deep banking and shallow banking and corresponding interactions of these economic forms with respective regulatory attempts. Based on these impulses and findings, the paper formulates the following hypothesis:

Hypothesis 2: *Strong regulation allowed for bank resilience to the 2007–2008 financial crisis.*

4 Changes in banking industry

The evaluation of the systemic determinants of profitability is a constant theme in the banking research. Due to the consequences for competitiveness, rules, and bank management, several analyses have focused on the connection regarding profitability, market concentration, and performance (Demsetz, 1973, Berger, 1995). At the one hand, the market power theory holds that greater market concentration, or market power, makes it easier to establish higher prices for consumers, resulting in higher windfall profits for banks. The efficiency theory, on the other hand, suggests a favourable association among efficiency and bank earnings (Azofra et al., 2013).

Existing research (Hannan, 1991, Berger and Hannan, 1997, Berger et al., 1999) that investigated the link between profitability, market concentration, and productivity found that market share and market concentration lead to non-competitive rentals. Deregulation, technical advances, and the internationalization of capital markets have intensified challenges in the banking industry over the years. This may have resulted in a decrease in the impact of market concentration on profitability. New research, nevertheless, have shown that market concentration continues to be important in deciding bank profitability, particularly in certain goods. In this respect, Carbó-Valverde et al. (2007) observed that market power is greater in non-traditional practices. According to De Jonghe and Vander Vennet (2008), banks with a wide market share in concentrated markets also produce non-competitive rents. They also discovered that banks with the best management had a competitive advantage. Furthermore, several scholars demonstrated that the validity of the performance and market power theory varied across countries (Gonzalez, 2008, Hsieh and Lee, 2010, Goddard et al., 2011). One major disadvantage of these experiments is that they were undertaken during a time of economic recovery and expansion when banks were profitable (Azofra et al., 2013).

Economic collapse may cause significant shifts in the banking industry's relationship between profitability, market power, and efficiency. They have a negative impact on bank profitability. From the other hand, mergers and acquisitions boost the concentration of the banking sector. Industry shocks, as per Mitchell and Mulherin (1996), trigger takeover motions. Despite the fact that greater market concentration can improve bank profitability, acquiring rents from market power is more challenging during crises due to

decreased credits, higher borrowing costs, and a growth in non-payments (Demirgüç-Kunt et al., 2006, De Jonghe and Vander Vennet, 2008, Bolt et al., 2012). Furthermore, during a recession, the disparity in profitability between more and less effective banks becomes more apparent when the former are able to cut costs, prevent unnecessary delinquency, and obtain better financing terms (Dietrich & Wanzenried, 2011, Bolt, et al., 2012).

Azofra et al. (2013) investigated previously shifts in the link between bank market share, efficiency, and profitability caused by financial crashes. In addition, the 2008 financial meltdown offered an impetus to examine the consequences of instability and assess the situation before and after a recession. While the severity of the recession varies by region, the gradual departure and consolidation of banks, a huge wave of mergers and acquisitions (Wheelock, 2011), a rise in delinquency, and a downturn in banking operation (Ivashina & Scharfstein, 2010) could be seen. Not only can a crisis change the connection between profitability, efficiency, and market strength, but it could also change the relationship between market concentration and bank risk. Hence, the second approach of Azofra et al. (2013)'s study was to examine the adjustments that the collapse created in this link. Market power has the potential to enhance or reduce bank risk based on two conflicting assertions: concentration-stability and concentration-fragility (Uhde & Heimeshoff, 2009). There may be a suggestion that crises perpetuate the concentration-fragility theory, since there is a propensity to consider greater danger in more concentrated markets due to structural risk in the aftermath of a meltdown (Azofra et al., 2013). These aspects make it relevant to look at the changes in the banking industry in the context of a crisis and the various interactions between market concentration, profitability and efficiency. In particular, Azofra et al. (2013) show in a study how crises have an impact on the management and funding of banks. Consequently, and specifically based on this research, the following hypothesis can be formulated:

Hypothesis 3: *A financial crisis strengthens the efficiency theory as well as reinforce the concentration-fragility theory.*

5 Results

As it is mentioned in second chapter, Hypothesis 1 is tested on the banks operating in UK both with headquarters in this country and branches of banks headquartered abroad. Table 2 gives some summary data with a spotlight on the two primary factors of interest, domestic lending and foreign liabilities. Because there are significant variances by bank type – if a bank is wholly owned by the UK, a subsidiary, or a branch – reflecting differences in business models, the summary data are fragmented correspondingly. The stock of domestic loans and foreign liabilities is assessed at the start of the shock period, which is the time between the end of 2008 Q1 as well as the close of 2009 Q3, when external liabilities fell substantially. Variations in the variables of interest are assessed as fluctuations over the shock period and are corrected for exchange rate volatility using currency composition data. The graphic emphasizes both the high amount of the shock to banks' foreign liabilities and the typically considerable percentage of overall bank liabilities derived from foreign sources. Foreign-owned banks and affiliates, as one might

assume, get a greater percentage of their funding from foreigners than UK-owned banks, although even for the latter, the median part is well over a third (Aiyar, 2012).

Endogeneity and excluded variable bias are also potential issues with OLS estimation. These issues are addressed by instrumenting the conditioning variable, which is the shift in external liabilities over the shock period. Three different instruments are employed. The first instrument is a bank's repurchase agreement portion of total external liabilities. There is considerable indication that the financing shock was conveyed through the repo market, with haircuts on repurchase agreement shares reaching record levels in the consequence of the Lehman collapse. A second instrument is the ex-ante share of external obligations due to subsidiary companies. That is borrowing from within the company compared to debt from unrelated enterprises. In the event of liquidity shocks, there is strong sign that multinational banks with foreign subsidiaries activate internal capital markets. The third tool is a measure of banking system strain in the region where a bank is based during a shock. According to the data, a 1.0% decrease in external liabilities leads to a 0.6 percent decrease in domestic lending, a significant influence. Demand shocks, as proxied by bank-specific sectoral exposures, have the anticipated sign on domestic lending. Table 2's status quo represents the stock position as of end-March 2008, with a variation estimated between end-March 2008 and end-September 2009. The sample includes 141 UK-resident banks, 92 of which are foreign branches, 32 of which are foreign subsidiaries and 17 were owned by the UK (Aiyar, 2012).

Table 2: Summarized data of domestic lending and foreign liabilities with differences in bank type, UK-resident banks in the time period 2008 to 2009

	Stock			Percent change		
	Mean	Median	SD	Mean	Median	SD
<i>Panel A. £ millions</i>						
External liabilities						
All banks 2 /	23,593	3,245	65,332	-16.1	-15.7	25.9
UK-owned banks	62,436	3,120	131,069	-13.3	-11.4	27.2
Foreign subsidiaries	6,712	1,438	12,753	-20.3	-20.3	27.9
Foreign branches	22,287	5,082	55,740	-15.1	-16.2	25.0
Domestic lending						
All banks	20,434	1,310	69,160	-15.4	-12.6	33.9
UK-owned banks	93,912	6,647	169,303	8.6	10.5	26.0
Foreign subsidiaries	15,515	1,264	41,153	-19.9	-19.6	27.7
Foreign branches	8,568	1,106	24,134	-18.2	-18.3	35.6
<i>Panel B. Percent of total assets</i>						
External liabilities						
All banks	62.7	67.2	24.3			

		Stock			Percent change		
	Mean	Median	SD	Mean	Median	SD	
UK-owned banks	40.8	37.3	29.3				
Foreign subsidiaries	51.4	55.0	25.1				
Foreign branches	70.6	72.7	18.6				
Domestic lending							
All banks	33.6	29.4	23.6				
UK-owned banks	58.1	57.6	26.5				
Foreign subsidiaries	46.6	41.5	20.5				
Foreign branches	24.5	19.8	18.3				

Source: Own work based on Aiyar (2012)

Based on the strong assistance from post-estimation checks and the intuitive appeal of the tools used in Shekhar Aiyar (2012)'s study, it is possible to conclude that the effect of the external funding shock on banks' domestic lending is well known and significant, proving Hypothesis 1 correctly. Aiyar (2011) examines the transmission process in greater depth with the performance of multiple robustness tests. Given the variations in funding trends and the scale of the shock reported, differences in delivery by form of bank – UK-owned, international branch, or foreign affiliate – should be explored in particular. The implication is that foreign extensions and affiliates cut lending by a higher proportion than domestically owned banks, while the latter adjusted domestic lending reductions more similarly to the scale of the funding shock. This implies a race-to-the-exits reaction by foreign-owned banks compared to domestically owned banks, which is a turbulent rush to deleverage regardless of funding pressures. There is some indication that foreign currency lending was reduced more than sterling lending, although this is most definitely due to the fact that foreign-owned banks invest in foreign currency comparably more (Aiyar, 2012).

This is a fundamental problem of a highly globalized banking world. After failing to raise money from foreign banks, domestic lending is more difficult or only possible to a limited extent due to a lack of financial resources. This also shows the international networking of markets and their vulnerability. Regional as well as country-specific financial crises can spread to continental and ultimately global recessions due to practices that need to be critically scrutinized in retrospect as well as cross-national economic activities.

To further underline this factor, the international interdependence of credit institutions and thus the impact of liquidity shocks on bank lending are once again particularly evident. Cetorelli and Goldberg (2011), for instance, examined how the liquidity disturbance to industrialized nations' banking systems was transferred to developing economies using aggregate data from the Bank for International Settlements (BIS). Furthermore, financial globalization has a profound and widespread influence on the local and worldwide distribution of US monetary policy. While large banks are commonly thought to have lending activity that is immune to US monetary policy, if financial institutions are removed

from this group of major banks, the other domestically-oriented institutions show substantial lending sensitivity to monetary policy. A functional internal capital market among multinational parents in the United States and their foreign locations helps to insulate major global banks from policy or liquidity shocks in the United States. From the other side, the mechanism employed suggest that, as banking globalization increases, the influence of monetary policy on national bank lending and the US economy itself is lessened, while domestic shocks are communicated more extensively to international markets via connected banks (Cetorelli & Goldberg, 2012).

The liquidity effect can be applied to other firms as well. Considering that nearly 70 percent of companies are unable to hedge adverse lending channel shocks and so face an elevated risk of financial hardship, bank liquidity shocks have significant long-term distributional repercussions. These distributional shifts are inclined to maintain not just because the primary effect is persistent, but also because they are strengthened by the succession of liquidity shocks that affect economies. Small companies' failure to insure implies that the constant costs of developing new banking connections may be a significant restriction in capital markets. Some companies may be able to "purchase" their way into privileged banking arrangements based on their size or corporate and political links (Khawaja & Atif, 2008).

The above-mentioned studies emphasize the significance of understanding the dynamics of foreign financing and should thus contribute in the formulation of successful policies. As a result, a financial system that becomes more international may have more resilience and self-adjustment in periods of local liquidity problems. Nevertheless, as shown in the financial crisis, the larger international transmission of disruptions may highlight the need of particular types for coordinated action by domestic policymakers (Cetorelli & Goldberg, 2012).

The efficiency of such action depends on the structure of banking sector in each country. Maxfield and Magaldi de Sousa (2015)'s study, inspired by the Mexican situation, sought to investigate the impact of policy and banking sector growth on bank resilience in the aftermath of the 2007–2008 financial crisis. They separated bank stability into two parts in their research: resilience in terms of bank profitability and resilience in terms of credit provision. In addition, they developed new analytical metrics of resilience, strict regulation, and shallow banking for 129 countries. According to a large-n quantitative experiment, neither strong regulation nor the mixture of strict control and shallow banking may justify bank stability in terms of credit provision. The only plausible reason for the survival of bank credit after the recession is shallow banking. Solid regulation could not alleviate the influence of the crisis on bank profitability. Rather, it exacerbated the crisis's disruptive effects on profitability in nations with shallow banking (Maxfield & Magaldi de Sousa, 2015).

As shown in Table 3, one way to investigating the link between strong regulation, shallow banking, and their influence on banks' loan provision and profitability was to evaluate the mean object rating for each group of nations. Despite adjusting for other factors, it's worth noting that the mean object score for the average variance of credit provision between 2007 and 2009 is regularly greater in nations with shallow banking systems than in those

with deep banking systems. That outcome indicates, irrespective of the stringency of their regulation, deep banking nations were afflicted the most of the crisis's consequences affecting loan provision. In contrast, the nations with the lowest mean object score for the effects of the crisis on bank profitability were those with shallow banking systems but strict regulation. Stern regulation does not appear to have reduced the effects of the crisis on profitability in deep banking nations, but the disparity in means implies that it might in shallow banking economies (Maxfield & Magaldi de Sousa, 2015).

Table 3: Mean object scores for groups of countries

	<i>Bank resilience: Credit provision</i>	<i>Bank resilience: Bank profitability</i>
Countries with deep banking & strong regulation	-0.449	0.07
Countries with shallow banking & strong regulation	0.382	-0.445
Countries with deep banking & weak regulation	-0.374	0.036
Countries with shallow banking & weak regulation	0.067	0.431

Source: Own work based on Maxfield & Magaldi de Sousa (2015)

These findings suggest that strong regulation, characterized as one-size-fits-all international best practice, is not always the blueprint for bank resilience, and therefore Hypothesis 2 cannot be completely proven. In reality, it could have an adverse impact on profitability when introduced in countries with comparatively underdeveloped banking systems. It is an interesting finding that requires more attention. The issue is whether robust regulatory frameworks designed to mitigate the effect of a recession end up exacerbating its negative consequences when implemented in countries with weak banking structures. There is guess that, by exposing deficiencies in a deeply dysfunctional financial structure, the recession rapidly causes corrective intervention and investor reactions that reduce bank profitability. This is probably a good idea from a policy standpoint, as it ensures that rules are in effect and working to enact the transparency required as a check on corporate governance. Furthermore, these findings demonstrated that the financial recession is associated with significant decreases in post-crisis credit provision in nations with mature banking systems. The recession has had a significant effect on countries with financial institutions that have a huge deposit base and are effective in issuing large amounts of credit. Finally, the results call into question the suggestion of one-size-fits-all regulation, such as the Basel Accords, for global banking industries (Maxfield & Magaldi de Sousa, 2015). Further than attempting to draw general lessons from the collapse in order to provide a fail-safe regulatory structure that will fit for any nation, the idea that various regulatory focus is needed for different national banking structures should be accepted (Acharya, 2003). An even more complex, multi-layered response to bank regulation is required, one that refers to the rationale of national financial system strengths and vulnerabilities. So even world market integration necessitates greater regulatory harmonization (Maxfield & Magaldi de Sousa, 2015). Other ideas involve reclassifying principles-based regulation as judgment-based and highly responsive risk-based regulation (Black & Baldwin, 2010).

Whether or not, these interventions' contribute to increased bank resilience should be the subject of interest of future academic research (Maxfield & Magaldi de Sousa, 2015).

However, it may be expected that during the financial crisis of the second century, policymakers and decision-makers in particular were compelled to reexamine their current ideas about the financial sector and its control. Thus, the global economic crisis disrupted conventional regulatory mindsets and fuelled the search for a new administrative model of financial supervision in member nations, the EU, and globally. Nevertheless, the regulatory adjustments made in the jurisdictions under consideration thus far are hardly paradigm changes. Furthermore, given the substantial quantity of policy study conducted following the crisis, apart from macroprudential oversight, policymakers and analysts created little significant new information. In bank regulation, there was no comparable of a modern 'Keynesian' business framework.

What transpired in the summer of 2007 served as a wake-up call for policymakers. Some changes have been made to bank regulation since then. For instance, deposit insurance, or the preservation of deposits, now has more consistent requirements. So far, the Europeans have largely concentrated on the core capital quota. However, a second indication should be considered: the leverage ratio. This is the equity-to-total-assets ratio. As a consequence, the question arises of whether the banks have put aside adequate money in proportion to their size emerges. However, experts frequently provide unfavourable answers to this critical topic, and politicians are partially to blame. Among other things, the numerous additional laws that banks must now follow have increased their size. The argument is that more stringent regulation is costly. Furthermore, mergers and acquisitions increase banking industry concentration and therefore the "too large, to fail" concept. According to Mitchell and Mulherin (1996), industry shocks induce takeover proceedings. Regardless of the fact that more market consolidation can boost bank profitability, obtaining rents from market dominance is more difficult in shocks due to less lending, higher borrowing costs, and an increase in non-payments (Demirgüç-Kunt et al., 2006, De Jonghe and Vander Vennet, 2008, Bolt et al., 2012). Additionally, during a crisis, the profitability gap among more and less successful banks becomes more visible as the former are able to decrease expenses, avoid needless delinquency, and secure better financing conditions (Dietrich & Wanzenried, 2011, Bolt et al., 2012). In general, there should be considered greater danger in more concentrated markets due to structural risk.

All relationship must be also investigated from the theoretical point of view including the issue which theory best fits the condition of the crisis. It can be argued that crises change the framework of the banking sector, what have an effect on the link between market concentration, efficiency, and profitability, as well as the connection between market concentration and risk. Azofra et al. (2013) conducted an observational study of a survey of credit institutions from major OECD countries from 2002 to 2009 to examine the changes.

A selection of credit institutions from key OECD nations was employed for the empirical investigation. Table 4 illustrates the number of organizations and data from each nation that were enclosed in the study. There was a quantity of credit institutions for each nation, with statistics provided for at least four sequent years from 2002 to 2009. The chosen time frame offers an ideal chance to examine the shifts brought about by the 2008 recession

in the relationships between profitability, market power, and efficiency, and the link amongst risk and market power. The *Sample representativeness* column comprises assets of banks in the sample by category, expressed as a percentage of total assets of banks in each category. Savings banks, cooperative banks, and other forms of banking businesses are examples of *Other banks* (Azofra et al., 2013).

Table 4: Number and data of credit institutions per nation in the time period 2002 to 2009

Panel A: Country Distribution of the Sample

	Number of banks per country				Sample representativeness		
	Observations	Number of commercial banks	Number of other banks	Number of total banks	Commercial banks (%)	Others banks (%)	Total banks (%)
Australia	196	30	17	47	93.06	25.81	81.14
Austria	1,497	38	186	224	55.01	42.57	46.64
Belgium	307	31	21	52	60.57	21.63	37.03
Canada	241	15	20	35	93.33	22.22	80.60
Chile	190	29	2	31	93.55	34.38	83.42
Czech Rep.	138	18	4	22	86.31	15.56	64.80
Denmark	598	51	34	85	54.66	10.56	38.96
Finland	76	8	6	14	59.55	34.57	50.96
France	1,724	97	177	274	45.04	38.50	41.37
Germany	11,678	100	1,557	1,657	94.35	63.24	72.48
Greece	66	9	3	12	21.36	20.00	21.13
Hungary	70	9	2	11	46.51	1.86	33.88
Ireland	50	7	4	11	69.51	5.10	31.43
Italy	4,703	89	966	1,055	34.46	37.10	35.54
Japan	3,654	116	400	516	58.42	20.40	36.03
Korea	79	12	4	16	61.14	24.81	40.69
Luxembourg	493	61	11	72	50.56	44.49	48.92
Netherlands	172	19	14	33	30.23	22.74	26.76
Norway	639	9	109	118	80.12	31.55	47.71
Poland	143	24	3	27	44.86	56.72	48.33
Portugal	103	10	12	22	61.73	76.86	70.09
Slovakia	84	12	2	14	79.81	8.74	51.26
Spain	421	18	68	86	74.84	50.85	62.05
Sweden	625	15	79	94	66.97	38.60	50.19
Switzerland	3,042	119	308	427	72.86	28.82	48.71
Turkey	236	31	13	44	68.76	11.11	52.04
United Kingdom	640	63	52	115	60.25	47.48	53.35
United States	72,711	7,730	2,555	10,285	85.89	34.72	46.49
Total	104,576	8,770	6,629	15,399			

Panel B: Sample allocation in certain period with number of banks

2002	2003	2004	2005	2006	2007	2008	2009	Total (observations)
12,913	13,353	13,795	15,001	13,448	12,851	12,053	11,162	104,576

Source: Own work based on Azofra et al. (2013)

The empirical research revealed a very substantial shift in the determinants of profitability after the beginning of the financial meltdown. Prior to the recession, most developed-country banks saw a significant rise in business as a result of increased mortgage demand, low-interest rates, and favourable economic conditions. In the sense of ample liquidity, strong demand for loans and credit from families and companies prompted financial institutions to pursue financing through bond markets, securitization, and asset packaging. According to the findings of this study, banks in more concentrated markets might have gained the most from this procedure, as suggested by the structure-conduct-performance (SCP) hypothesis. When the recession hit, many banks faced heavy losses due to increasing delinquencies. Moreover, the abrupt disappearance of liquidity in capital markets narrowed the options for funding troubled banks, many of which had to be stabilized or sought government interference. As a result, bank financing declined dramatically, leading in a shift in business strategies. Azofra et al. (2013) found that efficiency has been a determining factor in bank profitability, as suggested by the efficiency theory, which is addressed in Hypothesis 3.

Therefore, in a downturn, more profitable banks will achieve higher profits by improved cost containment and the introduction of better accounting and risk control strategies. In terms of risk analysis, these results revealed that the relationship between concentration and risk was quadratic over a time of development and expansion, as seen before the financial crisis. When market concentration is poor, greater market concentration leads to increased risk. As a result, the concentration-fragility theory was given more weight, which also supports Hypothesis 3. One potential answer is that increased concentration leads to higher interest rates for debtors, who subsequently prefer to engage in riskier ventures to pay back their loans (Boyd & De Nicoló, 2005). Furthermore, a rise in concentration may result in a decrease in the efficacy of internal control (Berger & Hannan, 1998).

Nevertheless, as market concentration grew, so did its connection to risk, with the concentration-stability theory becoming more significant. But further increased market concentration would minimize risk after a certain period. That shift in the connection involving market concentration and risk might be attributed to the fact that banks in highly concentrated markets have greater capital reserves as a result of windfall profits, making them more robust to disturbances (Boyd et al., 2004). Furthermore, supervision is more effective in concentrated systems with fewer banks, lowering systemic risk (Allen & Gale, 2000). Even so, during a recession, there is little evidence to confirm a connection between concentration and risk, which may be attributed to financing and liquidity issues, as well as an increase in mergers and acquisitions.

The interconnectivity and hence susceptibility of major banks with, among other things, hazardous transactions, as well as the link to states and private investors, can be observed in the section on the international banking industry and the connection to domestic lending. In

this framework, a market-oriented state must safeguard these “too large to fail” corporations and, in most circumstances, rescue them after the fact, because bankruptcy would harm many private investors as well as entire sectors of the economy. However, when it comes to the future and hence potential future crises, it is once again true that the banking market is rather concentrated and many banks are “too big to fail”. During the financial crisis, for example, it was realized how problematic huge banks might be. Specifically, so large that its failure would result in so many private people and enterprises losing money that it would spark a new economic crisis. Experts refer to these banks as “too big to fail”, implying that they are too large for the government to simply let them collapse and must instead bail them out with public money. Nevertheless, it appears that little has been learned from the past. It is reasonable to believe that banks have grown even larger in recent years. As a result, in the event of a further crisis, the government will almost certainly have to intervene once more to preserve these banks and, as a consequence, the deposits of private persons and citizens.

6 Conclusion

The late-2000s global recession was a defining moment in contemporary economic history and thinking. Problems occurring in a specific class of assets in the United States expanded globally and caused a great recession. Due to the overwhelming policy consensus in most countries that the recession was caused by a bank-led slowdown, with decreasing credit supply contributing to a decline in the real economy rather than vice versa, this gap in the literature is important. However, it is complicated to establish a linkage between the external funding shock and domestic credit availability.

According to its balance sheet, a bank could react to a disturbance in external liabilities in one of the following three ways, or a combination of them (Aiyar, 2012). Firstly, it has the ability to expand its domestic liabilities. That includes borrowing more from local units. Secondly, by lending less to non-residents, it will flatten its foreign assets. Or thirdly, by lending less to residents, it will reduce its domestic claims. Based on the strong support provided by post-estimation checks and the intuitive appeal of the methods used in analysis conducted by Shekhar Aiyar (2012), it is possible to infer that the impact of the external funding shock on banks' domestic lending is well recognized and significant, thus proving Hypothesis 1: *A reduction in banks' foreign liabilities causes a contraction in domestic lending.*

Aiyar (2011) investigated the transmission process in greater depth, and multiple robustness tests were carried out. Given the differences in funding patterns and the magnitude of the recorded shock, disparities in delivery by form of bank should be investigated in particular. The implication is that foreign subsidiaries and branches reduced lending more than domestically owned banks, while the latter modified domestic lending decreases more similarly to the magnitude of the funding shock. This again shows the international interconnectedness of markets as well as their vulnerability. Thus, regional as well as country-specific financial crises can spread to continental and eventually global downturns due to practices that need to be critically questioned in retrospect as well as cross-national economic practices.

Additionally, financial globalization has a profound and widespread influence on the local and worldwide distribution of US monetary policy. While large banks are commonly thought to have lending activity that is immune to US monetary policy, domestically-oriented institutions show substantial lending sensitivity to monetary policy (Cetorelli & Goldberg, 2012). The liquidity effect can be applied to other firms as well. Small companies' failure to insure implies that the constant costs of developing new banking relationships may be a significant restriction in capital markets (Khwaja & Atif, 2008). These data highlight the need of comprehending the mechanics of foreign finance once more.

Furthermore, there is a widespread opinion that countries that experienced financial crises prior to the financial crisis in the late 2000s were less affected. One possible reason is that reform efforts introduced in response to the recent meltdown prevented these previously hit countries from engaging in risky activities to the extent that caused such high exposure anywhere during the late-2000s financial crisis. Moreover, according to some sources, financial deepening, or the increased availability of financial markets with a wider variety of products targeted at all levels of society, is a characteristic of the financial system that has accelerated crisis contagion.

Another significant observation of this paper was the focus on resilience. In the context of the 2007–2008 financial crisis, Maxfield and Magaldi de Sousa (2015) aimed to explore the effect of regulation and banking sector development on bank resilience. A large-n quantitative experiment found that neither strong regulation nor a combination of close watch and shallow banking would explain bank stability in terms of credit provision. The only logical interpretation for bank credit to survive after the crisis would be shallow banking. These results imply that strong regulation, identified as a one-size-fits-all international recommended solution, is not always the template for bank resilience, and therefore Hypothesis 2: *Strong regulation allowed for bank resilience to the 2007–2008 financial crisis.* cannot be proved completely. When implemented in countries with relatively underdeveloped financial structures, it can even have a negative effect on profitability.

Following the financial crisis, policymakers and decision-makers in generally were compelled to reassess their previous assumptions about the financial industry and its control. The global financial crisis disrupted established regulatory paradigms and fueled the search for a new regulatory framework for financial supervision in member countries, the EU, and globally. However, the regulatory adjustments enacted thus far in the jurisdictions under consideration are not paradigm shifts, and policymakers and economists have not created significant new information. As a result, there is no comparable of a new 'Keynesian' economic model in finance regulation even now.

With regard to the findings, it can be said that, regardless of the severity of government regulation, deep banking countries were hit the most by the crisis's loan provisioning effects. Those countries with thin banking systems but rigorous regulation, on the other hand, saw the least impact of the crisis on bank profitability. In deep banking countries, strict regulation appears to have had little influence on profitability, but the gap in resources suggests that it would in shallow banking economies (Maxfield & Magaldi de Sousa, 2015). This once again demonstrates the important focus on banks as one of the main contributors to the global economic crisis at the time and especially the worthwhile

overview as well as creating links between international lending, the intervention of government regulation, the subsequent profitability and also therefore in inference the resilience of financial institutions.

Furthermore, assessing the structural determinants of profitability is a recurring topic in research studies. Because of the implications for competition, rules, and bank management, numerous studies have concentrated on the connection between profitability, market concentration, and performance. The so-called efficiency theory, for example, proposes a favorable association between efficiency and bank earnings. Furthermore, there is a possibility that disasters reinforce the concentration-fragility theory since, in the wake of a meltdown, there is a propensity to perceive greater threat in more concentrated economies due to systemic risk. Azofra et al. (2013) investigated previously observed changes in the relationship between bank market share, efficiency, and profitability as a result of financial crashes. Besides that, the 2008 financial crisis provided motivation to investigate the implications of instability and evaluate the situation before and after a recession. In order to examine Hypothesis 3: *A financial crisis strengthens the efficiency theory as well as reinforce the concentration-fragility theory* and thus the possible strengthening of the efficiency theory as well as a reinforcing of the concentration-fragility theory by a financial crisis, further literature was reviewed. Azofra et al. (2013), for example, examined the changes in an empirical analysis of a survey of credit institutions from major OECD countries from 2002 until 2009. The empirical analysis showed a significant change in the determinants of profitability following the start of the financial meltdown. When the crisis struck, many banks suffered significant losses as a result of rising delinquencies. Furthermore, the sudden absence of liquidity in financial markets limited the opportunities for financing distressed banks, many of which needed to be stabilized or pursued government intervention. As a result, bank lending fell precipitously, causing a transition in corporate strategy. According to the efficiency theory, which is discussed in Hypothesis 3, Azofra et al. (2013) discovered that efficiency has been a deciding factor in bank profitability. Throughout terms of risk assessment, research showed that the association between concentration and risk was quadratic over a period of development and expansion. As a consequence, the concentration-fragility theory received more weight, supporting Hypothesis 3. One potential answer is that increased concentration leads to higher interest rates for debtors or may result in a decrease in the efficacy of internal control (Boyd & De Nicoló, 2005).

The fact that market concentration still plays an important role is shown by the circumstance that many banks are still “too big to fail”. If they fail, many private individuals and companies lose their money, which in turn would trigger new economic crises. However, little has changed since the financial crisis in the first decade of the new millennium with a view to the future. In recent years, for example, the banks have become even bigger, partly as a result of mergers and acquisitions, and the state is likely to step in again with a considerable amount of taxpayers' money in the event of financial difficulties. However, the politicians themselves are partially to blame for this, because the institutions have become larger as a result of many new regulations.

Although a decade has passed since the financial crisis of the late 2000s, not all of its effects and implications have been fully understood. In this paper, the aspects of

bank liabilities and contraction in domestic lending, strong regulation as well as bank resilience could be examined. In addition, insights were provided into the international interconnectedness of markets, missed opportunities in an economic reorganization, and the realization that market power still plays a meaningful role. Thus, the basis for further financial crises seems to be given. The natural limitation of this study is, of course, the investigated sample, especially in the case of the first and third hypothesis. Therefore, it will be useful to extend research for banks operating in some other countries, and it is recommended to investigate some further effects and thoughts on the financial crisis in the late 2000s more profound in the future.

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