Research on the Policy Environment on the Risk of Multinational Banks - Based on the Analysis of Regional Regulatory Policies and Multinational Banks

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Abstract. The existing financial regulatory framework makes it difficult to effectively regulate international banking as international financial services continue to innovate. Banks also tend to establish more branches and lend more to countries with less stringent regulations, which makes cross-border banks more risky. Previous research has been inadequate because regulatory policies are difficult to measure and aggregate. This paper examines the drawbacks of regional regulation and the risks of international banks. The research methodology is using regression analysis to examine the relationship between the number of US Bank Holding Company (BHC) in countries with different regulatory metrics, and the correlation between loans, deposits and real estate loans. The results of the study are as follows, due to decentralised regulation with different regulatory indicators across countries, the impact of regulations on the number of BHCs is minimal, and US BHC are more diverse and riskier in countries with weaker regulatory frameworks. During the financial crisis, loans and deposits to US BHC trended negatively and were strongly correlated. The business of BHC has been affected by the degree of regulation in the countries where they are regulated, and the long-term effects of financial crisis. Therefore, reforms in financial regulation can effectively reduce the risks posed by overseas BHCs. There should be greater cooperation between domestic and international regulation, and greater transparency in the operations of regulators and multinational institutions, as well as attention to the risks of emerging areas of fintech. The risks of financial globalization can be minimized through fair and comprehensive regulation.

Keywords: Multinational Banks · Regional Regulatory Policies · Regression Analysis · Financial Crisis

1 Introduction

With the advancement of technology and the globalization of the economy, more and more investment banks have developed transnational businesses. This has led to a wide-range increase in the business of investment banks. However, the regulatory policies of all countries are different, and the development of the regulatory system is also different.

Many investment banks in heavily regulated countries tend to invest in deregulated countries. Investment banks holding international subsidiaries tends to choose countries with looser regulations. This is a form of regulatory arbitrage that not only creates greater risk in foreign countries, but also increases systemic risk at home countries. Current international banking supervision standards are developed through the Financial Stability Board and the Basel Committee on Banking Supervision. However, the Basel Accords are not legally binding. Subsidiaries are mainly regulated by the country where they are located, and risks are transferred to the regulatory system of the countries where the head office is located. This is the downside of regional regulation, and it creates a lot of risk.

Basel II regulatory system: the Basel I issued in July 1988 takes the capital adequacy ratio as the core of the international banking regulatory framework; The Basel II agreement issued in 2004 proposed a comprehensive risk management system; The Basel III agreement issued in December 2010 focuses on improving the first pillar minimum capital requirements; In December 2017, Basel III (final version) was committed to standardizing the measurement method of risk weighted assets [1].

From the perspective of international financial supervision, the supervision of financial activities is still the business of a single national government, and the financial supervision behavior is still limited within the geographical area of national sovereignty. In other words, the countries where the parent companies are located cannot effectively regulate the international financial activities of foreign subsidiaries, and faces the risk of regulatory vacuum.

The knowledge gap between regulators and regulated institutions has grown as a result of financial globalization. Originally, there is information asymmetry between the regulator and the regulated, but the internationalization efforts of the regulated have strengthened this asymmetry. In the process of financial internationalization, the organizational structure and business structure of financial institutions are becoming increasingly complex. International operations and transactions are carried out in the form of off balance sheet businesses, and regulators simply cannot obtain information in a timely and complete manner. This makes it more and more difficult for regulators to implement effective supervision. The innovation of international financial business continues to break through the existing financial regulatory framework, making regulators face new regulatory targets.

Barth (2013) summarized a dataset providing information on bank regulation tests for 180 countries between 1999 and 2011 [2]. In the same time, Ongena (2013) demonstrates that bank regulation affects the lending practices of multinational banks [3]. This is as a result of banks making riskier loans overseas while their local regulatory environments are more stringent. Cross-border bank flows were linked to reduced systemic risk and improved financial stability in nations with lesser regulatory quality, according to Karoly's (2015) research [4]. Temesvary (2018) found that US banks made fewer loans in countries with stricter banking regulation. This allows banks to profit more from their activities abroad [5]. Scott (2020) provides the countries and specific numbers of US bank holding company (BHC) subsidiaries [6].

Through the historical literature, it is demonstrated that multinational banks tend to offer more risky business and make more loans to countries with lax regulations in

order to make more profits. This regulatory arbitrage generates more risk. Also, the relationship between regulatory data and the number of subsidiaries in the countries where BHC subsidiaries are located is examined.

Because it is difficult to measure and collect the regulatory indicators of each country, there is less quantitative analysis on the research of cross-border banking regulation. It is difficult to summarize the data of overseas business of large multinational banks. The previous research on the regulatory policies and risks of multinational banks that this paper wants to study is not deep enough.

Thus, this paper mainly studies the disadvantages of decentralized regional regulation and its adverse effects on international investment banks. The research primarily analyzes and assesses the risks of subsidiaries in nations with tight oversight against those with lax oversight, and it offers practical recommendations for future transnational risk supervision that will be more successful. Through this research, banks will make more powerful decisions according to local regulatory policy indicators when opening branches abroad. International and local regulators can formulate more effective measures to better supervise multinational banks.

The next parts are arranged as following, Sect. 2 proposed the research hypothesis. The data and approach are in Sect. 3. The regression findings are summarized in Sect. 4. Discussion is in Sect. 5, and the conclusion is in Sect. 6.

2 Regional Regulatory Policies and Regulatory Arbitrage

2.1 The Hypothesis

BHC is more inclined to operate subsidiaries in nations with laxer regulations and to take bigger risks.

In countries with laxer regulation, BHC is more likely to issue riskier business.

BHC subsidiaries in nations with laxer regulations are subject to higher standalone risk and are more likely to have an impact on domestic systemic risk.

2.2 Data and Method

2.2.1 Variables

Changes in the number of BHCs in countries with different regulatory indicators. Although it is commonly accepted that there is a direct correlation between the number of BHCs and a country's level of economic growth, it is impossible to fully account for all economic and regulatory aspects in the regression model. Therefore, it is necessary to appropriate variables must be selected. The five factors that can affect the number of BHC, including GDP and banking regulatory policy, capital regulation, regulatory intensity and financial activity regulation, have relatively good social significance. Therefore, it's determined to require these 5 factors as freelance variables to determine a multiple correlation analysis model.

2.2.2 Data

The international organizational structure of US BHC from 1999 to 2011, in terms of the specific overseas country distribution of multinational branches or subsidiaries, is analyzed in conjunction with data on the stringency of regulation and supervision in each country. The economic data for this year was affected by the subprime mortgage crisis in 2008, allowing a better analysis of the relationship between the number of countries abroad, the stringency of regulation, and the significant risks of BHC.

2.2.3 Method

If for any specific value of variable x, there is a probability distribution of variable y and its corresponding; at the same time, for any specific value of variable y, there is a probability distribution of X and its corresponding, then there is a correlation between variables X and y. When y is considered to be a non-random variable in a correlation connection and x is simple to determine or control, this relationship is referred to as a regression relationship [7]. The principal aim of regression analysis is to find the statistical dependence of a random variable y on a group of random variables. The regression equation's judgment coefficient serves as a crucial foundation for determining how well the regression line fits. The degree of linear approximation increases as it gets closer to 1. It is generally believed that greater than 0.7 indicates a strong correlation.

2.3 Aggregated Statistics

There are correlations between our geographical and regulatory stringency indicators in the following reports, along with aggregate data for all the variables previously mentioned. The US has more stringent banking regulation than the average country in the sample. According to the regression analysis, the presence of BHC subsidiaries is positively correlated with the number of subsidiaries per country, with the country's GDP, with regulatory activity restricting capital regulation and with regulatory power. However, the correlation is not significant, with less than 0.4 of maximum multiple R (Table 1).

These information reveal the impact of risk within the location folks BHC's foreign subsidiaries. Since BHC owns subsidiaries in nations with poorer regulatory frameworks, these subsidiaries are more diverse, riskier, and appear to be contributing significantly to overall US risk, with regulatory hurdles likely having unfavorable effects. Systems for risk management at BHC help to reduce the high risk associated with operating subsidiaries in less regulated markets. However, the role of regulation has very little impact on the amount of BHC, that is influenced by a mixture of things like the amount of regional economic development, geographic location, and taxation.

Table 1. American Foreign Bank Subsidiary of 30 Countries in 2013

	GDP	No. of Subsidiaries	Regulation & supervision	Activity restrictions	Capital regulation	Supervisory power
GDP	1					
No. of Subsidiaries	0.3795	1				
Regulation & supervision	0.3593	0.2563	1			
Activity restrictions	0.2957	0.3968	0.8356	1		
Capital regulation	(0.0617)	(0.0342)	0.4112	0.1963	1	
Supervisory power	0.3992	0.1160	0.8072	0.4555	0.0596	1

Figure credit: original

3   Multinational Branches of Large Banks

According to the official website of the US BHC for all data on foreign BHC, yield on loans, cost of interest-bearing deposits, percentage of net losses on real estate loans, growth rate of net loans and leases, and growth rate of deposits. As real estate loans are mostly offered by large banks. As can also be seen from the previous data, specific net losses on real estate loans are only available for banks greater than US$10 billion. Other smaller banks have net losses of almost zero and are not statistically significant.

Based on these data, a line graph was made. The line graph shows that from 2007 to 2015, the growth rate of net loans and leases and the growth rate of deposits change in exactly the same trend as the trend in net losses on real estate loans. From 2015 to 2021, the change in net losses on real estate loans and the change in deposit growth rates are identical. 2008 saw the global subprime mortgage crisis in the US and property lending was a major cause of the 2008 financial crisis (Fig. 1).

Therefore, use correlation coefficients to make a two-by-two comparison of loan and lease amount growth rates, deposit growth rates, and net losses on real estate loans from 2007 to 2015 and 2015–2021.

The 2008 sub-prime mortgage crisis within the US caused the share costs of the mortgage giants to plummet and a number of other giant investment banks to make up bankruptcy. The analysis of the above data shows a strong positive correlation between the growth rates of loans and leases and the growth rates of deposits during the financial crisis and the recovery period. As a direct result of the financial crisis, the percentage of net losses on real estate loans was negatively correlated with the other two. However, between 2015 and 2021, when the economy is stable, the percentage of net losses on real estate loans has a positive correlation with the growth rates of loans and leases
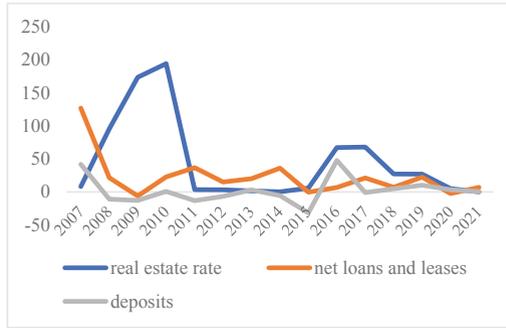
Fig. 1. Line chart of foreign business of large multinational banks from 2007 to 2021. Figure credit: original

Table 2. Foreign business of large multinational banks from 2007 to 2021

2007–2015	Real estate rate	Net loans and leases	Deposits
Real estate rate	1		
Net loans and leases	(0.3234)	1	
Deposits	(0.0874)	0.8908	1
2015–2021	Real estate rate	Net loans and leases	Deposits
Real estate rate	1		
Net loans and leases	0.4745	1	
Deposits	0.5303	(0.1299)	1

Figure credit: original

and deposits, respectively. Loan and lease growth rates have a negative correlation with deposit growth rates.

This means that during periods of financial crisis and recovery from financial crisis, losses from the financial crisis will directly lead to negative loan and deposit growth in both BHC subsidiaries, while loans and deposits have a strong correlation. During periods of stable economic growth, net losses on real estate loans will contribute to loan and deposit growth, when loans and deposits are negatively correlated. As shown in Table 2, except that the R of deposit loans is negative, there is a negative correlation between them. The other R is greater than 0.45, and deposit loans are positively correlated with real estate losses.

4   Policy Discussion

Following the global financial crisis, policy discussions on worldwide regulatory harmonization have taken place. The New Capital Accord's architecture and fundamental principles, in the opinion of the Basel Committee, contribute to enhancing the stability

of the banking system [8]. Although the three pillar method is sensible, it still needs to be strengthened. In particular, banks are required to establish a thorough risk management system, improve the risk weight of re securitization products, establish a risk management system at the bank level, and further increase information transparency in light of the problems of excessive leverage, capital arbitrage, and information opacity of asset securitization products found in the financial crisis [9]. Firstly, there has been little cooperation between countries on banking supervision. Internationally accepted rules for bank supervision have not been well realized in individual countries. These can give rise to regulatory arbitrage. These findings point to the need to harmonize internationally recognized principles and practices in banking supervision. For instance, host countries and home countries should clarify their regulatory responsibilities to avoid regulatory overlap or regulatory vacuum. National supervision should also adapt to diverse national conditions and meet various requirements for the development of the banking industry. Because the system of cross-border banking supervision is applied globally, it needs to be changed more carefully. The update of the regime requires the following 3 points.

Firstly, seek a balance between domestic regulation and international regulatory cooperation in each country. Regulators in emerging market countries and developing countries face the dilemma of how to reconcile the adoption of regulatory policies appropriate to the development of their economies with compliance with the new standards of international financial regulation, and the regulatory focus is not uniform between booming countries. There is a need to take into account the actual economic situation of each country, but also to develop a more equitable and uniform plan. This is a great test for the new standards of international financial regulation on which consensus has just been reached, and adjustments and improvements have to be made in various aspects in the course of practice.

Secondly, improve the transparency of the operation of capital management institutions, to further strengthen the level of information disclosure of capital management products, especially for the rates, transaction costs, investment strategies to be disclosed to the public in a more simplified and prominent form, to facilitate customers to make product comparisons, to facilitate the regulatory authorities to statistical information, to get early warning, to achieve more scientific and reasonable management decisions.

Thirdly, be concerned about the risks in emerging areas. Financial technology is being rapidly applied in the asset management industry, improving the operational efficiency of asset management institutions and achieving breakthroughs in business models, but it also brings new operational risks [10]. Regulators need to encourage innovation, but also pay attention to the risks that may develop in the emerging areas and the impact on financial stability. From international experience, it is important to control operational risks, such as hacker impact and information system failure that may arise during the application of fintech and other technologies, governments or institutions can make plans in advance to solve them and strengthen the sustainable operation of capital management institutions. Governments should establish the sandbox regulatory mechanism to give innovative fintech-based capital management businesses the mechanism to test in advance to reduce the scope of product risk.

5 Conclusion

Different countries' supervision and different supervision efforts will inevitably lead to the distortion of competition among multinational banks and encourage regulatory arbitrage. In response to such problems, regulators should reform the supervision system of transnational banks to adapt it to the development of various countries.

This article examines these issues and examines the effects of specific and systemic risks on overseas branches of U.S. banks during various economic periods, as well as whether transnational differences in banking supervision have an impact on the location decisions made by U.S. bank holding companies for their subsidiaries. In line with regulatory arbitrage, this paper discover that bank holding companies are more likely to have subsidiaries in nations with laxer regulatory environments, though we are unable to clearly identify the specific links because of the regional limitations of the evaluation of national regulatory systems. We also found that before and after the financial crisis, the direct cause of the financial crisis had a greater impact on the business of banks.

The research results of this paper are of great significance in the regulatory policy-making of international financial regulators and the location decision-making of international banks. A fair and just regulatory and supervisory environment can minimize cross-border arbitrage and further reduce systemic risks in the global financial world. The globalization of financial institutions and the substantial growth of cross-border financial institutions are in urgent need of policy reform of financial regulators.

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