

Emerging Markets Queries in Finance and Business

The impact of financial liberalization on banking system

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Abstract

Delicate and difficult at the same time, financial and monetary fields have always attracted attention of researchers worldwide. One of the challenges of contemporary capitalism, financial liberalization, is a process that can bring enormous benefit, but it can pose serious obstacles to development and economic prosperity. In this paper, we propose to analyze the impact of liberalization on banking system from emerging countries. The necessity to study and knowledge both the process itself and its effects on financial markets came as a result of a small number of studies and the inconclusive results regarding the impact of financial liberalization on developing countries in Central and Eastern Europe. Than rejected, financial liberalization must be accompanied by an increase in prudential policy. Too rapid liberalization in a country does not mean speed problems in an absolute sense, but in a relative sense: in many cases instability occurred because of the difference between impressive speeds of financial liberalization and very slow adjustment of the prudential provisions, banking and financial regulations, respectively monetary policy actions.

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1. Introduction

In the late 1970s and early 1980s, most developing countries were in a crisis of economic policy. Due to unfavourable circumstances and the deteriorating of economic and financial conditions, the financial system proved to have many deficiencies and it was unable to generate economic growth. Based on financial aid from

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the World Bank and International Monetary Fund, many developing countries in Asia, Europe, Latin America and Africa have undertaken economic reforms to create a sustainable investment environment and develop the private sector through an economic system based on market mechanisms. Apparently the result of these reforms was to transform many developing economies in emerging economies, where strong economic growth is supported by private sector development and rapidly mature of stock markets. Financial liberalization was an important component of the reforms mentioned above. This is to give central banks more authority in the conduct of monetary policy, to privatize and restructure the banking sector, liberalization of interest rates, abolition of the direct extension of credit and, more generally, to develop and promote the role of financial markets in financing the economy. The main objective is to enable emerging economies to emerge from recession, and later to develop rapidly.

In the majority of the countries, banks are the most important financial institutions, since they can stimulate the economic growth. In order to ensure safe and sound banking system many authorities have regulated and restricted banking operations during a long period of time. Banking restrictions have taken diverse forms among which we mention the control of the capital flows, interest rate and credit allocation. Over the last three decades, particularly during the '80s and '90, several countries have adopted financial reforms by moving towards less financial restrictions. The measures of financial deregulation consisted in liberalization of the interest rates, abolishment of the credit control, removal of the barriers on the capital flows, elimination of the obstacles on competition among the financial institutions, privatization of the state-owned financial institutions and start up of the capital market securities.

The most important argument that supports financial liberalization is to improve financial development and get higher economic growth. Beginning with the financial liberalization and deregulation, banking systems have entered in a process of reform, consisting in elimination of the control on interest rates and credit allocation, privatization of state-controlled banks, stimulation the competition among banks and liberalization of capital flows. Financial liberalization in banking sector aimed to increase the efficiency of the banks, improve the allocation of credits, stimulate savings and, thus, attain a higher economic growth. Some studies indicate that the bank performance in emerging countries is increasing with financial and banking reforms Andrieş et al, 2011. Still, financial liberalization increases the likelihood of banking crises, especially in the conditions of very weak regulation and supervision Angkinand et. al., 2010.

In this paper we analyze the impact of financial liberalization on banking system in 4 emerging countries from Central and Eastern Europe Romania, Czech Republic, Hungary, Poland for the period of 2001-2010. The banking system in analyzed countries was liberalized in the period of 2000-2001. But this system is not fully liberalized. The paper is structured as follows. In section 2 we reviewed the prior literature on the impact of financial liberalization on banking system. Section 3 presents the empirical methodology we have applied to measure the impact of financial liberalization on banking system. In section 4 we showed the results of our empirical investigation and discussed it. Section 5 comprises the most important conclusions of our analysis.

2. Literature review

Many papers analyzed the impact of financial liberalization on bank efficiency. Their empirical obtained results are controversial. Some researchers show that financial liberalization has a positive impact on bank efficiency and productivity, while other authors consider that liberalization has a negative effect on bank efficiency, determining a decrease of this measure. Others consider that financial liberalization leads to financial crises. Munteanu and Brezeanu, 2012 say that a bank performance may be expressed from the scope of the performance measurement analysis.

Denizer et al. 2000 study the bank efficiency in pre and post-financial liberalization period. The sample includes the Turkish banks for the period 1970 – 1994. Their findings show that financial liberalization reforms were followed by a decline in bank efficiency. Koeva 2003 analyzes the impact of financial liberalization on

Indian commercial banks performance during 1991 - 2001. The empirical results of the study present that industry concentration, profitability and bank spreads in banking system have declined during the period of liberalization process.

Williams and Nguyen 2005 investigate the relationship between financial liberalization and bank performance. The study examines 231 commercial banks from South East Asia between 1990- 2003. Their results suggest that bank privatization reform a reform of the financial liberalization process more increases bank efficiency performance than other types of liberalization reforms. Njie 2006 study the impact of financial liberalization on bank spreads in Malaysia. The author uses the two-stage regression framework of Ho and Saunders 1981 and finds that despite the level of government intervention, financial liberalization has efficiency-enhancing effects on Malaysian banks. Also, descriptive statistics show that bank spreads decrease significantly after financial liberalization process.

Hermes and Nhung 2008 analyzed the impact of financial liberalization on bank efficiency. They use the bank data from ten emerging countries during 1991 – 2000, the Data Envelop Analysis to calculate bank efficiency and the financial liberalization index developed by Laeven 2003. The obtained results show that financial liberalization has a positive impact on bank efficiency. Angkinand et al. 2010 try to offer an explanation regarding the idea that financial liberalization leads to banking crisis. They achieve a cross-country analysis of 48 countries for the period of 1973 – 2005. They find that the relationship between financial liberalization and banking crisis can be explained by the type of liberalization, level of deposit insurance coverage, type of country and strictness of reforms.

Andrieş and Căpraru 2011 study the impact of financial liberalization on bank performance on a panel of 236 banks from 17 Central and Eastern European countries during 2004 - 2008. Their results show that countries with a higher level of openness and liberalization can increase the cost efficiency and offer cheaper services to their clients. Also, the level of bank reform, the score regarding soundness, the safety of banks and the interest rate liberalization indicator have a positive impact on productivity growth of banks. Gupta et al. 2011 analyzed the effects of financial liberalization on banking system from India during 1991 – 2007. Their findings show that government ownership and high fiscal deficits can limit the gains obtained from financial liberalization. Analyzing the impact of the banking reform on the performance of the banks in 5 countries from Central and Eastern Europe for the period of 2001 – 2008, Andrieş et al., 2012 concluded that the indexes of the financial and banking reform have a positive effect on the bank performance index measured in terms of the cost of intermediation, operational performance and return on assets.

3. Methodology

In order to investigate the impact of financial liberalization on the degree of informational efficiency, we estimate the following panel regression based on the empirical model of Todea 2011:

$$IE_{it} = c_1 + c_2MI_{it} + c_3KO_{it} + c_4MF_{it} + c_5IF_{it} + c_6FF_{it} + c_7CA_{it} + c_8Lo_{it} + c_9Dc_{it} + \partial_i + \theta_i + \varepsilon_{it} \quad (1)$$

Where IE_{it} is a measure of informational efficiency for country i at time t , MI_{it} represents the monetary independence, KO_{it} is the Kaopen index, MF_{it} represents the monetary freedom index, IF_{it} is the investment freedom index, FF_{it} is the financial freedom index, CA_{it} represents the bank capital to assets ratio, Lo_{it} represents the bank nonperforming loans to total gross loans, Dc_{it} is the domestic credit provided by banking sector. Also, ∂_i represents the country fixed effects, the θ_{it} are the fixed effects used to control the common stocks, and the ε_{it} is the error term.

Because the analyzed sample represents a group of developing countries, we used to analyze the weak form efficiency hypothesis the variance ratio test proposed by Lo and MacKinlay 1988, 1989. This test is based on

the fact that, for a series that follows a random walk, variance differences of order k is k times the variance of its first differences Belaire-Franchi and Contreras 2004. The hypothesis to be tested is: H_0 - series follows a random walk; H_1 - the series does not follow a random walk. Let $\{X_t\}$ be a time series, $t = 1, 2, 3 \dots T$. The variance ratio statistic of k order difference is defined as:

$$VR(k) = \frac{\hat{\sigma}^2(k)}{\hat{\sigma}^2(1)} \quad (2)$$

where:

$$\hat{\sigma}^2(k) = \frac{1}{m} \sum_{t=k}^T (X_t - X_{t-k} - k\hat{\mu})^2 \quad (3)$$

$$m = \frac{k(T-k+1)(T-k)}{T} \quad (4)$$

$$\hat{\mu} = \frac{1}{T} \sum_{t=1}^T (X_t - X_{t-1}) \quad (5)$$

and:

$$\hat{\sigma}^2(1) = \frac{1}{T-1} \sum_{t=1}^T (X_t - X_{t-1} - \hat{\mu})^2 \quad (6)$$

The statistical test of $M_1(k)$ is:

$$M_1(k) = \frac{VR(k) - 1}{\phi(k)^{1/2}} \quad (7)$$

Under the assumption that the residues are independent and identically distributed following a normal law, statistics converge in probability to zero and has the asymptotic distribution:

$$\phi(k) = \frac{2(2k-1)(k-1)}{3kT} \quad (8)$$

In order to take account of the conditional heteroscedasticity displayed by X_t series ARCH-type variance, Lo-MacKinlay calculate a new statistic:

$$M_2(k) = \frac{VR(k) - 1}{\phi^*(k)^{1/2}} \quad (9)$$

where:

$$\phi^*(k) = \sum_{j=1}^{k-1} \left[\frac{2(k-j)}{k} \right]^2 \delta(j) \quad (10)$$

$$\delta(j) = \frac{\sum_{t=j+1}^T (X_t - X_{t-1} - \hat{\mu})^2 (X_{t-j} - X_{t-j-1} - \hat{\mu})^2}{\left[\sum_{t=1}^T (X_t - X_{t-1} - \hat{\mu})^2 \right]^2} \quad (11)$$

The indicator of informational efficiency is calculated as $IE_{it} = |p - 0.5|$, where p is the p -value of variance ratio test. The frequency of both dependent and independent variables is annually. MI_{it} and KO_{it} are the indexes of the trilemma measures proposed by Aizenman et al. 2010. The first index is measured as the reciprocal of the annual correlation between the monthly interest rates of the domestic country and the base country. The second index represents the capital account openness, and was developed by Chinn and Ito 2006, 2008 KAOPEN is based on the information that regards the restrictions in the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions. The index of Chinn-Ito has the values between zero and one. Higher values of the index will indicate that a country is more open to capital transactions abroad. The freedom indexes are obtained from heritage database. Monetary freedom index is a measure of price stability combined with an assessment of price controls. The investment freedom index shows the restrictions imposed on investment. The financial freedom index is a measure of banking efficiency. Also, it represents a measure of independence from government control and interference in the financial sector. The annual data for the CA_{it} , Lo_{it} , and Dc_{it} independent variables are taken from the World Bank's World Development Indicators database and are expressed in percentage. The country fixed effects that are intended to control for time-invariant country-specific factors.

4. Data and empirical results

4.1. Data

We have chosen to analyze the banking system efficiency the daily closing values of six banks: Romanian Bank for Development – BRD, Komerčni banka – KOM Czech Republic, OTP Bank Hungary, Bank Pekao - PEK Poland, and Transilvania Bank – TLV. The analyzed period is 2001 – 2010. The closing values are expressed in national currency. In table 1 are presented the descriptive statistics of the analyzed banks.

Table1. Descriptive statistics

Banks	BRD	KOM	OTP	PEK	TLV
No. of observations	2359	2325	2700	2040	2316
Mean	0.130386	0.094769	0.066869	0.071494	0.189368
Median	0	0.091269	0	0	0
Maximum	165.1163	15.28312	24.82759	155.0614	319.8473
Minimum	-39.3443	-17.2913	-20.6644	-9.214489	-42.96296
Std. Dev.	4.45532	2.275828	3.357135	3.439274	7.281931
Skewness	20.95482	-0.09034	0.336749	44.88548	36.25934
Kurtosis	803.0978	9.221407	9.997696	2023.71	1606.22
Jarque-Bera	6309.469	3752.797	5559.901	3480.262	2491.347
Probability	0	0	0	0	0

Source: Own processing in Eviews

We can see that for the analyzed period, the mean of return series of the banks have positive values, the Romanian banks register the biggest values. A first argument that returns do not follow a normal distribution law is given by the Kurtosis coefficient has higher values of 3, which means that the distribution is leptokurtic, which is much less sharp than the normal distribution, and by the asymmetry coefficient Skewness which is different from zero indicating a right asymmetry except the bank from Czech Republic, i.e. – the right tail is larger. The second argument that the distribution of daily stock market returns does not follow a normal distribution law is given by the value of Jarque-Bera test.

4.2. Empirical results

The values of variance ratio test were estimated in R program, by using 300 numbers of bootstrap iterations. We can see that the analyzed banks become more efficient in the weak form, but the appearance of the global financial crisis has diminished the level of informational efficiency. The estimated results are presented in table 2. For the Romanian banks, we calculate for each year an average of the p-values. We estimate the regression in a panel data in Eviews. Furthermore, we use the panel generalized method of movements with effects cross-section fixed effects and period fixed effects. The motive because we use the fixed effects is that we have a small sample of observations.

Table 2. Financial liberalization and banking system liberalization

IE									
C	-0.18202*	0.167866	-0.30425**	-3.51603*	-3.421861*	-3.022463	-1.66196	-1.835484	-1.953097
	(-1.72984)	(1.258537)	(-2.6795)	(-1.72716)	(-1.76068)	(-1.60593)	(-0.85502)	(-0.90693)	(-1.00224)
MI	0.038918**	0.053777	0.028253	0.024098	0.025688	0.044494	0.0425	0.050715	
	(0.601907)	(0.998706)	(0.551007)	(0.485989)	(0.477119)	(0.766289)	(0.760738)	(1.053436)	
KO	0.3197***	0.328176**	0.602112**	0.57926***	0.525461**	0.501405**	0.510555*	0.429182*	
	(4.088144)	(4.967304)	(3.635967)	(3.47198)	(2.779964)	(2.90139)	(2.7552)	(2.14017)	
MF				-0.87929**	-0.80718**	-0.862705*	-0.51154**	0.585375*	-0.940275*
				(-1.55561)	(-1.38212)	(-1.55374)	(-1.06109)	(-1.14207)	(-1.77977)

IF					-0.058666 (-0.2279)	-0.060894 (-0.23226)	-0.08948 (-0.42386)	-0.074299 (-0.30323)	-0.324442 (-1.18136)
FF						0.164472 (0.799962)	0.122603 (0.54376)	0.152943 (0.89366)	0.09423 (0.3368)
CA							0.397956 (1.330907)	0.348263 (1.011225)	0.757062 (1.600172)
LO								-0.017247 (-0.21881)	0.019866 (0.221103)
DC									0.523507 (1.208363)
R-squared	0.512448	0.319077	0.532174	0.616057	0.617504	0.62334	0.648204	0.649302	0.680326
Time f. effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Own processing in Eviews

Notes: White *t*-statistics are in parentheses. *, **, *** indicate statistical significance at 10%, 5% and 1% levels.

The empirical results show that only KAOPEN index and monetary freedom index have a significant impact on informational efficiency. KAOPEN has a positive impact on banking system efficiency. This index is the first principal component of the variables that indicate the existence of multiple exchange rates, restrictions on capital account and current account transactions, respectively the requirements of the surrender of export proceeds. The monetary freedom index has a negative impact on informational efficiency. Inflation and price controls distort the bank activity. Price stability without intervention at the microeconomic level is the ideal frame for a free market. The value of the monetary freedom factor depends on two factors: price controls, respectively the weighted average inflation rate for the most recent three years.

The other independent variables do not have a significant impact on informational efficiency. It is surprising that financial freedom index does not have a significant impact. This index describes an economy's financial freedom following these areas: the extent of government laws of financial services; the degree of state intervention in banking system and other financial firms; the extent of capital market and financial development; government influence regarding the allocation of credit, and openness to foreign investor's competition.

5. Conclusions

Financial liberalization of the banking sector in the analyzed countries presents the following features: a cautious approach to new market access for new banks; commercial bank model adopted was a competitive type, it was not based on regional or sector segmentation; debt loans were handled transparently by regulatory policies with government financial intervention; capital account liberalization was slow and cautious, there have been developed explicit systems of deposit protection, the important role of privatization to foreign strategic investors, banks governance, regulation and supervision. Despite this trend, interbank interest rates have been volatile.

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