
**VECM APPROACH OF THE RELATIONSHIP BETWEEN BANKING SECTOR
ACTIVITY AND FDI: EVIDENCE FROM REPUBLIC OF NORTH MACEDONIA****Liza Alili Sulejmani**International Balkan University, Skopje, North Macedonia, liza.alili@ibu.edu.mk**Alit Ibraimi**University of Tetovo, North Macedonia, alitibraimi@gmail.com

Abstract: Free foreign direct investment is of great importance for economic growth and the development of emerging economies. Namely, foreign direct investments do not allow entry into unemployment, transfer of modern technology and knowledge, unless you want to increase competition in the domestic market, you can ask for encouragement of innovation, how to show productive and stable growth in developing countries. The rapid development of information and communication technology, as well as the impact on traffic infrastructure is functional if it needs to be adjusted to active foreign investment.

The banking sector, on the other hand, occupies an important place within the financial system in the economic development. Thus, in the Republic of North Macedonia, the banking institutions participate with about 84% in the total assets of the financial system. Hence, the liquidity and reliability of banking institutions are crucial in terms of maintaining the stability of the financial sector.

The changes that have affected the financial sector in the last few decades, as a result of the impact on deregulation, competition, consolidation process, globalization, technological changes has made possible the drastic transformation of banking institutions. Banks are responding to such changes by expanding their service offer, not only in the country but also abroad. Thus, the activists of modern banks are not limited to traditional banking activities, such as adjusting deposits and issuing loans, unless many other non-banking services are required. If modern banks have more compared to universal financial institutions, clean transformation should be aimed at: efficient implementation, optimization of the capital structure, strengthening measures due to weakness and so on.

Given the preferred prospects for knowledge of foreign security investments for use in the economy, but also the role of the banking system in the economy, the main purpose of this doctoral dissertation will be to examine the factors in the banking sector in Republic of North Macedonia and foreign direct investments, for the period 2000 until 2018. Namely, the causal relationship is related to investments in foreign investments (FDI) and banking sector in Republic of North Macedonia, and on the other hand there are many choices and theoretical studies on mutual international investments and the economy. Therefore, in this doctoral dissertation I will try to determine whether total deposit, total loans and other activities of the banking sector and its performance have impact on the Foreign Direct investments. In order to achieve the required objectives, this study will use the Vector Error Correction Model (VECM).

At the end of this dissertation, several measures and recommendations regarding the health efficiency of the banking sector will be given, through the implementation of operational innovations, which is essential for an attractive foreign investment.

Keywords: FDI, banking sector activity, co-integration, VECM

1. INTRODUCTION

Foreign direct investment (FDI) are one of the key elements that contribute to sustainable economic growth in developing countries, and on the other hand financial development includes development of the banking sector and capital market sector, where the absence of a developed domestic financial system can limit the ability of the economy to enjoy the benefits of FDI.

Empirical studies examining the relationship between foreign direct investment and the banking sector are few in number and particularly rare for countries in transition. Such is the case with the Republic of North Macedonia, where the causal relationship between deposits, loans and profitability of the banking sector with foreign direct investment has not yet been examined. Therefore, this paper will study the impact of loans, deposits and profitability of the banking sector on attracting foreign direct investment, by using the VECM methodology for the Republic of North Macedonia, for the time period 2000-2018.

Thus having into consideration that the relationship between foreign direct investment and the banking sector is a very rarely researched issue, which has shown controversial results, due to the differences between the analyzed countries, as well as the time periods covered, the main purpose of this paper is to try to build a framework of econometric model for examining the relationship between FDI and the determinants of the banking sector activities in the Republic of North Macedonia, by utilizing quarterly time series for the period 2000 q1 – 2018q4.

2. LITERATURE REVIEW

Foreign direct investments (FDI) are one of the most important elements in the economic development of a country at any stage of development. They also contribute to sustainable economic growth and social and economic development. FDI contributes to substantial investments in economic growth and technology development when local savings cannot provide them. On the other hand, financial development, also referred to as financial sector development, includes developments in the banking sector and the capital market sector (Rogmans & Ebers, 2013). The absence of a developed domestic financial system may limit the ability of the economy to enjoy the benefits of FDI.

Given the importance of the banking sector for the stability of the financial sector, but also the economy as a whole, special attention is paid to the study of the relationship between FDI and the banking sector. In this context, Li and Chang (2009) prove that the relationship between FDI and growth is endogenous under the influence of the development of the domestic financial sector. The research of Al Nasser and Gomez (2009), using data from 15 Latin American countries from 1978 to 2003, found that FDI is significantly and positively related to the variables of the banking sector and that FDI is aimed at financially developed and institutionally strong countries. Ang (2008) studying the case of Malaysia uses time series data from 1960-2005 to prove that increasing levels of financial development, infrastructure development, and trade openness promote FDI attraction.

According to Cleansens et al. (2001), due to the possibility of FDI to replace the development of the financial market in countries where companies face difficulties in investing in the capital market, the positive relationship between FDI and financial development is not always present.

O'Connor, Santos-Arteaga, and Tavana (2014) proposed a theoretical model for foreign direct investment strategy of commercial banks, government policy, and domestic banking industry interactions in emerging economies, and demonstrate the application of this strategy in the banking system. The paper develops a theoretical game model for analyzing the optimality of the inflow restriction strategy followed by a given domestic institutional sector when considering applications for entry of foreign banks into the domestic financial system. The paper showed that progressive liberalization of entry restrictions would define the perfect balance of successive sequel games and the corresponding payouts resulting from this liberalization as the domestic economy integrates and competes within the global financial system.

Asante (2015) examined the impact of foreign direct investment on the performance of the Ghanaian banking sector. To achieve this goal, the study used panel data from sixteen (16) financial institutions (universal banks) from 2000 to 2012. Random effect models are estimated and the results suggest that the inflow of foreign direct investment positively and significantly affects the equity shares of banks. The results also suggest that FDI has a positive and significant impact on the liquidity position of financial institutions in Ghana. However, the study found a negative and insignificant relationship between FDI and banks' profitability.

Korna, Ajekwe and Idiu (2013) studied the level of impact of foreign direct investment in the Nigerian banking sector in the wake of the unprecedented flight of capital from the Nigerian economy during the recent global economic recession (credit crunch). Data that are secondary in nature are obtained from the statistical bulletins of the Central Bank of Nigeria. The *ex-post* research design was adopted to determine the level of impact for 25 deposit money banks for the period 2006-2010. In this study, the ordinary least squares (OLS) technique was used and the results revealed that there is a significant negative impact of foreign direct investment on the share capital of the Nigerian banking sector.

3. RESEARCH METHODOLOGY

To analyze the relationship between FDI and the banking sector, ie the relationship between total deposits, total loans, profitability of the banking sector and FDI, several steps were used by developing a basic econometric model. This research uses secondary data sources provided mainly by the National Bank of the Republic of North Macedonia. The data frequency is quarterly covering the period 2000q1-2018q4. The data from the time series are tested for their stationarity with the help of the Augmented Dickey Fuller test for unit root. Finally, in order to determine the long-term relationship between FDI and the banking sector activities, Vector Error Correction model has been used.

The nexus between the banking system and FDI is rarely explored, although no consensus has yet been reached on developing countries, and this dilemma is still present in the literature.

In order to be able to analyze the relationship between FDI and the banking sector in the case of the Republic of North Macedonia, for the time period 2000q1-2018q4, the following basic regression model is taken into account:

$$FDI_t = \beta_0 + \beta_1 FDI_{t-1} + \beta_2 DEP_{t-1} + \beta_3 CRED_{t-1} + \beta_4 PROF_{t-1} + \varepsilon_t \quad (1)$$

where:

FDI - foreign direct investment

Dep - total deposits

Cred - total loans

Prof - Profitability of the banking sector

Initially, the following table shows the variables included in the models, their abbreviations used, and the expected effect of the independent variables on the dependent variable.

Table1. Variables, abbreviation and their expected effects.

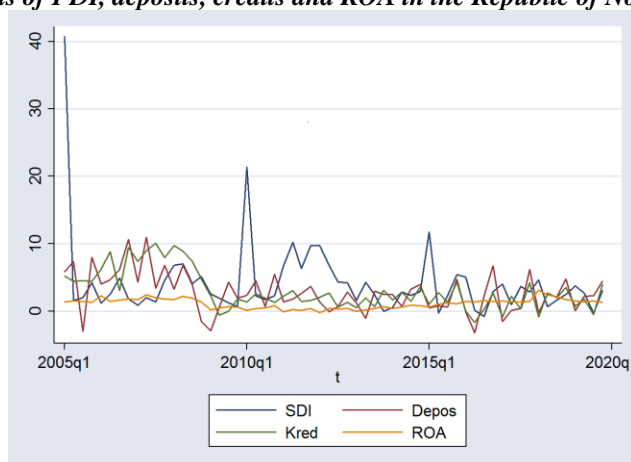
VARIABLES	ABBREVIATION	+/-
FOREIGN DIRECT INVESTMENTS (dependent variable) - FDI		
Deposits (growth)	Depos	+
Credits (growth)	Kred	-
Performance	ROA	+
GDP % growth	gdp	+
inflation	inf	-
Unemployment (%)	unemp	-
Trade openness (%)	Trade_op	+
Exchange rate (евр/мкд)	exch_rate	-
Real export	r_exp	+

Source: author's source.

4. EMPIRICAL ANALYSIS

The following graph shows the trends of FDI, deposits, loans and ROA for the case of the Republic of North Macedonia, for the period 2005q1 – 2019q4. As can be seen, since 2015, a continuous parallel movement can be observed between FDI, deposits and loans in the Republic of North Macedonia. While for the performance of the banking system, it can be said that there is a stable and continuous growing trend throughout the period.

Graph1. Trends of FDI, deposits, credits and ROA in the Republic of North Macedonia



Source: National Bank of the Republic of North Macedonia.

The following table shows the descriptive statistics for the variables included in the analysis of this paper. Namely, the values of the number of observations, the value of the standard deviation, their mean value, as well as their minimum and maximum value are shown.

Table2. Descriptive statistics

variables	Nr. of obs	mean	Stnd.dev	min	max
SDI	60	4.266325	5.946775	.818086	40.7013
Depos	60	2.737333	3.013256	-3.27	11.01
Kred	60	3.049	-2.911519	1.66	10.11
ROA	60	1.129	.7301444	-.28	3.1
gdp	60	2.686667	2.155912	-1.8	7.9
inf	60	1.859167	2.461834	-1.68	10.17
unemp	60	29.165	5.764968	16.6	38.7
trade_op	60	95.54692	16.69223	68.93259	120.4335
exch_rate	60	61.42217	.171317	61.16608	61.68925
r_exp	60	36021.29	12921.59	17427	69874.2

Source: authors calculations.

In order to model the variable in a way that captures the inherent characteristics of its time series, we determine the level of lag structure in the series using the FPE, AIC, SBIC and HQIC criteria. As can be seen from the results shown in the table above, according to the Akaike criterion, we can conclude that in this model, the number of lags is set to be four.

Table3. Lag structure order

Lag	FPE	AIC	HQIC	SBIC
0	248.661	16.8676	16.9237	17.0123
1	63.2351	15.4965	15.7769*	16.2198*
2	55.6351*	15.3591	15.8639	16.6611
3	76.6843	15.6567	16.3859	17.5374
4	57.2795	15.3204*	16.2739	17.7798

Source: authors calculations.

To conduct a rigorous examination for the presence of the unit root in this model, the Augmented Dicky Fuller (ADF) test was used. The results of the ADF test are given in Table 4 for their level, as well as for the first difference of each of the variables. The result shows that the null hypothesis that the series contains a root unit cannot be rejected at their level. But the unit root hypothesis is strongly rejected for all the series differentiated at their first order.

Table 4. ADF test results

SI. No.	variable	ADF	comment
Level	SDI	-2.763 [4] (-2.926) MacKinnon approximate p-value for Z(t) = 0.8956	H ₀ : accepted
	Depos	-2.047 [4] (-2.926) MacKinnon approximate p-value for Z(t) = 0.7509	H ₀ : accepted
	Kred	-1.926 [4] (-2.926) MacKinnon approximate p-value for Z(t) = 0.3198	H ₀ : accepted
	ROA	-2.047 [4] (-2.926) MacKinnon approximate p-value for Z(t) = 0.4608	H ₀ : accepted
	gdp	-2.047 [4] (-2.926) MacKinnon approximate p-	H ₀ : accepted

		value for $Z(t) = 0.7509$	
	inf	-2.047 [4] (-2.926) MacKinnon approximate p-value for $Z(t) = 0.7509$	H_0 : accepted
	unemp	-2.047 [4] (-2.926) MacKinnon approximate p-value for $Z(t) = 0.7509$	H_0 : accepted
	trade_op	-2.047 [4] (-2.926) MacKinnon approximate p-value for $Z(t) = 0.7509$	H_0 : accepted
	exch_rate	-2.047 [4] (-2.926) MacKinnon approximate p-value for $Z(t) = 0.7509$	H_0 : accepted
	r_export	-5.878 [4] (-2.926) MacKinnon approximate p-value for $Z(t) = 0.0000$	H_0 : accepted
First differentiation	ΔSDI	-6.237 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.0000$	H_1 : accepted
	Δdepos	-4.175 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.0007$	H_1 : accepted
	Δcred	-3.450 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.0070$	H_1 : accepted
	ΔROA	-3.193 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.0016$	H_1 : accepted
	Δgdp	-4.486 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.0002$	H_1 : accepted
	Δinf	-2.832 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.0538$	H_1 : accepted
	Δunemp	-2.047 [4] (-2.926) MacKinnon approximate p-value for $Z(t) = 0.7509$	H_1 : accepted
	Δtrade_op	-3.408 [4] (-2.927) MacKinnon approximate p-value for $Z(t) = 0.107$	H_1 : accepted

	Δexch_rate	-4.185 [4] (-2.927) MacKinnon approximate p- value for Z(t) = 0.007	H ₁ : accepted
	Δr_export	-2.032 [4] (-2.927) MacKinnon approximate p- value for Z(t) = 0.2725	H ₁ : accepted

Source: authors calculations.

Establishing a long-term relationship, the Johansen-Juselius test is used to further test for co-integration between FDI and banking sector factors: deposits, loans and the profitability of the banking system. Table 5 shows the results of the statistical test for trace and test for maximum evangels for the existence of long-term balance between FDI and the factors of the banking sector: deposits, loans and profitability of the banking system.

The results show that below the null hypothesis $r = 0$ is rejected, because the trace statistics is greater than the critical value at 90, 95 and 99% significance levels. On the other hand, the alternative hypothesis of the presence of one or more co-integrated vectors is accepted, ie, the existence of a long-term relationship between FDI and deposits, loans and ROA.

Table5. Johnasen test of co-integration.

Johansen tests for cointegration			
Trend: constant	Number of obs =	56	
Sample: 2006q1 - 2019q4	Lags =	4	

maximum			5%		
rank	parms	LL	trace	critical	eigenvalue statistic value
0	52	-391.68316	.	61.4222	47.21
1	59	-372.37649	0.49819	22.8088*	29.68
2	64	-364.18989	0.25351	6.4356	15.41
3	67	-361.8393	0.08052	1.7345	3.76
4	68	-360.97207	0.03050		

Source: authors calculations

Furthermore, the following table shows the results of the Vector Error Correction Model. From the above results it can be seen that 3 models of VECM have been realized, where in the first model as can be seen, only the factors of the banking system are included as a dependent variable FDI in the first differentiation and as independent variables: deposits, loans and profitability - ROA. The results of this model suggest a positive and statistically long-term relationship between FDI and deposits, while a negative and statistically significant relationship between FDI and credits. Regarding the effect of the profitability of the banking sector, i.e. ROA on foreign direct investment, the results of this model show the existence of a positive and statistically significant relationship between them in the case of the Republic of North Macedonia for the last two decades.

As for the second model, at the same time the referred model for this analysis, where the results and conclusions of this paper are based, as can be seen, as dependent variable is FDI in the first differentiation and as independent variables beside of the banking system factors: deposits, loans and profitability - ROA, also are included some macroeconomic indicators that affect FDI such as: GDP growth, unemployment rate, trade openness and real exports. The results of this model suggest a positive and statistically long-term relationship between FDI and deposits, negative relationship between FDI and credits and positive but insignificant relationship between profitability and FDI. Regarding the effect of macroeconomic indicators: gross domestic product, unemployment rate, trade openness and real exports on foreign direct investment in the Republic of Northern Macedonia, the results point to a positive and significant relationship between unemployment rate, trade openness, real exports and FDI, while on the other hand a statistically insignificant relationship is expressed between GDP growth and FDI in our country.

Table 6. VECM results

Variables (co-integration vector 1)	Model 1	Model 2	Model 3
Δ SDI	1	1	1
Δ depos	9.571634 (0.000)***	0.8757502 (0.013)**	5.017404 (0.000)***
Δ kred	-7.364854 (0.000)***	-0.8111379 (0.030)**	-9.1804 (0.000)***
Δ ROA	-9.98793 (0.124)	6.232108 (0.000)***	19.90209 (0.000)***
Δ gdp		0.0672219 (0.801)	6.665593 (0.000)***
Δ unemp		3.560417 (0.000)***	5.10145 (0.000)***
Δ inf			4.342977 (0.000)***
Δ exch_rate			-13.47577 (0.628)
Δ r_exp		0.0010298 (0.000)***	0.0058022 (0.000)***
Δ trade_op		0.4356038 (0.000)***	0.7086311 (0.001)***

Note: absolute statistics of p in parentheses. ***, **, * indicate the levels of statistical significance of 1, 5 and 10%.

Source: authors calculations.

5. CONCLUSIONS

Foreign direct investments are of great economic importance which contributes to reducing the unemployment rate, increasing productivity and economic growth in developing countries. The banking sector, on the other hand, occupies a significant place within the financial system in developing countries. Thus, in the Republic of North Macedonia, the banking institutions participate with about 84% in the total assets of the financial system. Hence, the liquidity and reliability of banking institutions is crucial in terms of maintaining the stability of the financial sector.

Although three models were included in the analysis, the second model is the model where the results and conclusions of this paper are based, where the dependent variable is FDI in its first differentiation and as independent variables other than the banking system factors: deposits, loans and profitability - ROA, also includes some macroeconomic indicators that affect FDI such as: gross domestic product, unemployment rate, trade openness and real exports.

Based on the above results, it can be concluded that the banking sector has a significant effect on Foreign Direct Investment in the case of the Republic of North Macedonia in the last two decades. Therefore, given such results, the following recommendations can be made:

- to concentrate on addressing the variables that can help stimulate the development of the banking sector in order to increase FDI inflows or more precisely to design and implement policies that can enable it in our country.
- In order to increase the deposit base, the banking sector should adopt fully smart banking, as it is with low risk, security and stability of the banking sector, which is essential for the inflow of foreign direct investment funds.
- The inflow of foreign direct investment increases the deposits in banks as foreign direct investment itself comes with funds in the host economy.
- The Central Bank of North Macedonia should cautiously focus on dealing with monetary policy variables, such as monetary policy rates, cash reserves ratio, loan portfolio, etc. which is able to attract foreign investors.
- The reduction of the monetary policy rate could result in a low cost of capital, which will attract foreign investment, which in turn increases the international banking operations of the banking sector.
- Frequent changes in the required reserves of the banking sector and the loan portfolio can be avoided by foreign investors.
- The central bank should complement the federal government's fiscal policies with monetary policy to reduce inflation and exchange rate fluctuations, among others. A lower inflation rate increases the purchasing power of money and a stable exchange rate improves the foreign exchange transactions of the banking sector.

- The government should create an ideal tax climate for foreign investors. This gives space to foreign investors in the banking sector to have enough profit to expand, which increases the domestic operations of the banking sector.
- Restriction of foreign capital for foreign participation in the banking sector for the benefit of domestic investors
- In a period of boom, high share of capital in the banking sector will result in higher capital inflows
- economic and political stability
- to support the development of financial markets by establishing regulations and institutions
- to attract the country to foreign investors who can bring additional financing and help accelerate the investment process and economic growth of the country as a final effect,
- to protect the stability of the financial system, etc.

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