

THE EFFECT OF FOREIGN DIRECT INVESTMENT INFLOWS ON NON-PERFORMING LOANS

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Abstract

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Foreign direct investments (FDIs) are an important part of a country's economic development and banks play a crucial role in terms of facilitating the FDI inflows. However, given that these inflows enable banks to increase the portion of loans, this increases the exposure to credit risk leading to potential increased non-performing loans (NPLs) (Ozili et al., 2021). This study aims to investigate this relationship in the Albanian economy during the period 2008–2022. Considering the rapid growth of FDIs in Albania in recent years and the importance that the banking sector plays, the purpose of this paper is to assess the impact of FDI inflows on NPLs in Albania while controlling for other relevant NPL determinants. Using an ordinary least squares (OLS) regression model, we find a significant and positive relationship between FDIs and NPLs in Albania. The findings reveal that higher FDI inflows, which are channeled through the banking sector in the economy, provide increased credit growth and therefore a potential deterioration in credit standards leading to higher NPLs in the economy. In addition, we find a significant relationship between financial intermediation indicators and NPLs implying that financial intermediation also plays an important role in controlling the level of NPLs in the Albanian economy.

Keywords: Non-Performing Loans, Foreign Direct Investments, Financial Intermediation, Ordinary Least Squares

Authors' individual contribution: Conceptualization — M.E. and M.J.; Methodology — M.E. and M.J.; Writing — M.E., M.J., and S.D.

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1. INTRODUCTION

Foreign direct investments (FDIs) play a significant role in the economic development of a country and these inflows are a vital component of capital inflows, especially for developing countries. As Bénétrix et al. (2023) state, there is a positive and statistically significant relationship between FDIs and a country's growth. Banks play a crucial role in facilitating these inflows and therefore this enables banks to increase the portion of loans which might lead to an increased risk of non-performing loans (NPLs) in an economy (Ozili et al., 2021). As there are many studies investigating the determinants of NPLs (Louzis et al., 2012; Beck et al., 2015; Anastasious et al., 2016, 2019; Dao et al., 2020; Ari et al., 2021;

Goyal et al., 2023), the assessment of FDIs as a potential determinant of NPLs is not fully explored in the literature. Kuzucu and Kuzucu (2019) find that FDIs become a statistically significant determinant of NPLs for emerging countries after the crisis period.

In the conditions of the global economy, the Albanian economy is becoming more and more integrated, where without a doubt the FDI inflows constitute an important indicator. The economic transition in Albania was undoubtedly accompanied by structural reforms related to property, financial markets, price liberalization, and privatization. In this way, Albania as a country with great economic resources including geographical position, demographics, and human and natural resources

constitutes an attractive destination for foreign investors. This has led to an increasing trend of FDIs in Albania during recent years. However, the impact of FDIs on the Albanian economy is multidimensional. In addition to the impact on macroeconomic indicators (i.e., gross domestic product [GDP], inflation, employment, etc.), the rapid increase of FDI inflows during recent years also plays a significant role on financial indicators, especially in financial intermediation in the Albanian economy.

In the current literature on relevant determinants of NPLs, the FDI inflows are considered to be a new determining factor on NPLs and its impact remains still unexplored in the literature. Following the rapid growth of FDIs in Albania and their impact on the Albanian banking sector, the main contribution of this study is to investigate and assess the effect of FDI inflows on NPLs in Albania. We aim to shed some light on the FDI-NPL relationship and bridge the existing gap in the literature. In addition, we also examine the impact of different financial intermediation variables on NPLs in Albania. Following this, our first research question is the following:

RQ1: What is the relationship between FDI inflows and the level of NPLs in Albania?

In other words, we aim to investigate whether FDI inflows have a significant effect on the level of NPLs in Albania. Apart from FDI and other macroeconomic variables included in the model, we also investigate the role of financial intermediation on NPLs in Albania. We include three important indicators in the study: total loans over total deposits ratio (LDR); private sector loans over GDP (PLGDP) and bank term deposits over GDP (TDGDP). Following the importance of financial intermediation in the Albanian economy, we also aim to answer the second question:

RQ2: Is financial intermediation a significant determinant of NPLs in Albania?

Using the ordinary least square (OLS) model to assess the relationship between FDIs and NPLs in Albania during the period 2008–2022, we find a significant and positive relationship between FDIs and NPLs in the Albanian economy. The findings suggest that higher FDI inflows, provide increased credit growth and therefore a deterioration in credit standards leading to higher NPLs in the economy.

The rest of this paper is structured as follows. Section 2 reviews the relevant literature. Section 3 describes in detail the data used in our empirical analysis and presents the methodology that has been used to conduct empirical research. Section 4 shows the empirical results of the estimated model. Section 5 summarizes discussions. Section 6 provides conclusions of our findings.

2. LITERATURE REVIEW

The level of NPLs is influenced by both systematic risk, referring to macroeconomic factors, and an unsystematic risk related to bank-specific factors (Crouhy et al., 2000). The expected relationship between NPLs and FDIs is ambiguous as many authors find empirical evidence of a positive relationship (Festić et al. 2011; Şan, 2016; Koju et al., 2018; Ozili et al., 2021) or negative (Baum et al., 2017; Avetisyan, 2018; Alam et al., 2023).

Baum et al. (2017) show that NPLs are negatively affected by investment inflows due to volatility from financial assets from the banking sector. The authors state that the FDI inflows have a significant effect on several financial indicators, however, this effect on NPLs is diversified across the world. Using data from 28 countries during the post-crisis period, Avetisyan (2018) also finds a negative relationship between NPLs and FDIs. According to Ozili et al. (2021), the FDI inflows reduced the size of NPLs during the economic crisis. In a recent study, Alam et al. (2023) also found a negative and statistical relationship between the credit risk of the banking sectors and FDI inflows.

On the other side, several other authors find a positive relationship between FDIs and NPLs. Papi and Revoltella (1999) show that FDIs are associated with high banking sector profitability. Alizadeh Janvisloo and Muhammad (2013) use a dynamic panel data model on the Malaysian commercial banking system for the period 1997 to 2012 and find the FDI-net outflow to have a significant positive effect on the NPL ratio with a one-year delay. The authors conclude that the commercial banking system is extremely sensitive to FDIs. Şan (2016) confirms a weak positive correlation between FDI and NPL for Albania therefore indicating an undefined relationship between FDI inflows and NPLs.

Koju et al. (2018) explain that the FDI inflows bring an increase in liquidity and therefore create additional loan supply on banks. The increase in credit growth may lead to lower credit standards and therefore higher NPLs. In their study, Ozili et al. (2021) also found a positive relationship between FDIs and NPLs stating that the combined effect of FDI inflows with bigger size institutions having a strong regulatory quality, did not reduce the size of NPLs but rather increased the size of NPLs.

As stated in the introduction above, apart from FDIs we also include in our study other macro variables as NPL determinants such as inflation and unemployment. Louiz et al. (2012) use the generalized method of moments (GMM) technique and quarterly data for the period 2003–2009 by investigating 9 big Greek banks to study the determinants of NPLs. The authors use in their regression a variety of macroeconomic factors such as GDP growth rate, interest rate, unemployment, and public debt as well as several bank-specific variables including leverage ratio, inefficiency, non-interest income, return on equity, capital adequacy ratio, and bank size. The authors find a significant and negative relationship between the real GDP growth rate and the return on equity on NPLs and at the same time a positive and significant effect of the interest rate, the unemployment rate, and the public debt on the level of NPLs. In their study, Messai and Jouini (2013) use a database of 85 banks from Italy, Greece, and Spain for the period 2004–2008 and apply a fixed effect model to assess the relationship between NPLs and several macroeconomic and bank-specific variables in these countries. Their results show that there exists a negative impact of GDP growth and return on assets (ROA) on NPLs while the unemployment rate and the interest rate had a positive effect on impaired loans. Makri et al. (2014) investigate the factors affecting NPL in the Euro area by using the GMM technique and aggregate panel

data of 14 countries for the period 2000–2008. They found a significant and positive effect between public debt and the unemployment rate on NPL and at the same time a negative effect of the capital ratio, the return on equity, and the GDP growth on credit risk.

As an indication of inflation, we use the change in consumer price index (CPI) and we expect a negative impact on NPLs. The negative relation between inflation and NPLs in Albania is also found by Shingjergji and Shingjergji (2013) and Gremi (2013). Boyd et al. (2001) explain that during inflation, the increase in prices worsens market frictions forcing the banks to limit their credit. Nkusu (2011) finds that inflation can affect negatively the ability of the borrower to service debt. The author explains that when the loan rates vary, it negatively affects borrowers' loan servicing capacity while lenders meanwhile will adjust rates to maintain their real returns. Klein (2013) provides evidence for a negative and significant relationship between NPLs and inflation in the case of Central, Eastern and South Eastern Europe (CESEE) countries. Erdinç and Abazi (2014) further explain that

an increase in inflation can have an additional negative impact on credit default and worsen the NPL level while capturing macroeconomic deterioration and increasing general economic uncertainty. Kjosevski et al. (2019) also found a negative relationship between inflation and NPLs in the case of North Macedonia.

3. RESEARCH METHODOLOGY AND DATA

We use quarterly data collected from the Bank of Albania covering the period 2008–2022 including a full economic cycle and therefore containing a full crisis information. NPL is our main variable of interest and represents the dependent variable in the model which is explained in detail in the next paragraph. Figure 1 shows the walk of the average NPLs in Albania for the period 2008–2022. As shown in the figure, starting from 2008, the average NPL has been constantly increasing and achieved its peak (23%–25%) during the years 2013–2014. After 2015, the NPLs in Albania show a declining trend over the next years.

Figure 1. Non-performing loans trend in Albania over the period 2008–2022

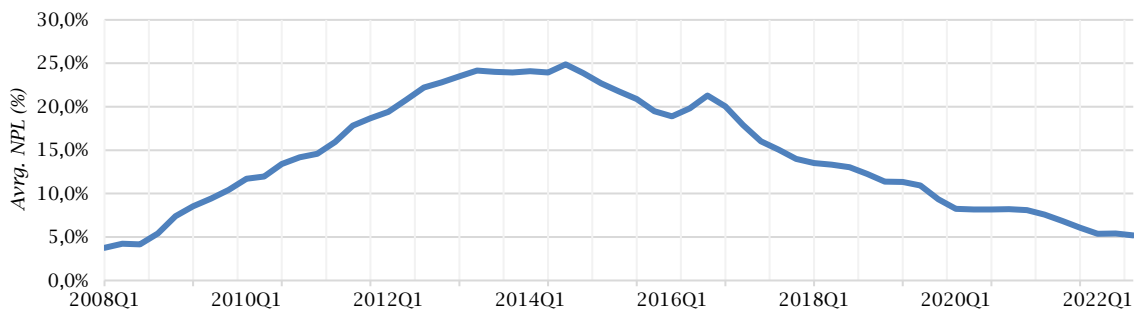


Table 1 presents the trend of the FDI inflows and alongside them the NPL indicator during 2014–2022.

Table 1. Foreign direct investments and non-performing loans indicators (in million EUR)

	Year								
	2014	2015	2016	2017	2018	2019	2020	2021	2022
FDI	869	890	943	899	1020	1073	933	1035	1372
NPL (%)	23.9	19.5	20	14	12.3	9.4	8.2	6.1	5.2

Several variables are used in this study to investigate their effect and their relationship with NPL. Table 2 outlines the variable description that are used in our study.

Table 2. Variables definitions

Variable	Definition
NPL	Average non-performing loans (%)
FDI	Foreign direct investment inflow (millions of EUR)
UNM	Unemployment rate (%)
CPI	Consumer price index
LDR	Bank loans to bank deposits ratio (%)
DEGDP	Bank deposits to GDP (%)
PLGDP	Bank private sector loans (individuals and businesses) to GDP (%)

Table 3 presents summary statistics of the sample data.

Table 3. Descriptive statistics

Variable	N	Mean	St. Dev.	Min	Max
NPL	59	0.14	0.07	0.04	0.25
FDI	59	232.26	55.27	124.75	344.27
CPI	59	92.23	8.18	77.60	110.80
UNM	59	14.09	1.98	10.80	18.60
LDR	59	0.91	0.06	0.82	1.09
DEGDP	59	2.54	0.24	1.98	3.06
PLGDP	59	1.39	0.14	1.15	1.74

In addition, some pre-estimation tests are included in our analysis to evaluate and test the stationarity and the normal distribution of our time series. In particular, we apply the Jarque-Bera test to assess whether our dataset follows a normal distribution and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test which is a type of unit root test that checks for stationarity of the series around a deterministic trend. The results are provided at the end of the paper as part of the Appendix.

We use the OLS estimation method to express NPL as a function of macroeconomic and financial intermediation factors. In the OLS regression, the response variable y_i is a linear function of the regressors:

$$y_i = \alpha + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_p x_{ip} + \varepsilon_i \quad (1)$$

where, α is the intercept of the equation; x_i is a column vector of the i -th observation of all the explanatory variables; β is a $p \times 1$ vector of unknown parameters and ε_i represents the unobserved random variables (errors) of the i -th observation.

Following several studies investigating the determinants of NPLs (Beck et al., 2015; Anastasiou et al., 2019; Ozili, 2019) our model is expressed as follows:

$$NPL = \alpha + \beta Macro + \gamma Bank + \varepsilon \quad (2)$$

where, α is the intercept while β and γ are the coefficient vectors and ε is the error.

Our dependent variable, *NPL*, is the average NPL ratio in quarter t measured by the total impaired loans over total gross loans located in Albania in that quarter. We account for the impact of important macroeconomic variables in *Macro* matrix and several financial intermediation variables in the *Bank* matrix. *FDI*, *CPI*, and *UNP* are the macroeconomic variables used in the first matrix

$$NPL = \alpha + \beta_1 FDI + \beta_2 CPI + \beta_3 UNM + \gamma_1 LDR + \gamma_2 DEGDP + \gamma_3 PLGDP + \varepsilon \quad (3)$$

The main objective of this study is to determine if the inflows of FDI have a significant effect on the NPL level in Albania while controlling also for other determinants and the OLS technique is used to assess and identify the relationship between

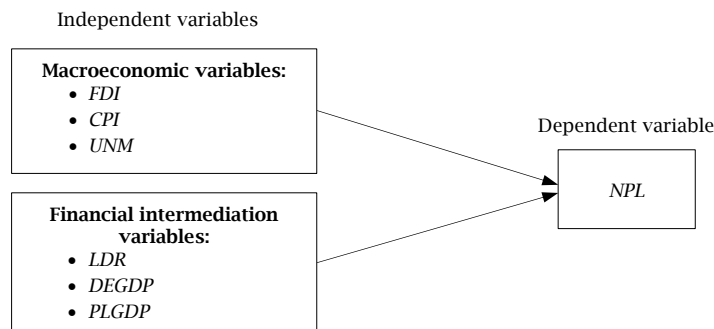
while *LDR*, *PLGDP*, and *DEGDP* are the financial intermediation variables as part of the *Bank* matrix.

Apart from these macroeconomic variables, several financial intermediation factors are also included in the regression. *LDR*, as an important financial intermediation indicator, which assesses the bank liquidity, compares total loans to total deposits for the same period. As Erdinç and Abazi (2014) explain in their study, this ratio presents the degree of financial deepening in the banking system and is likely to reduce NPL if it signals the quality of bank management as well. On the other hand, a higher *LDR* ratio indicates that if more bank assets are allocated to loans, so greater the credit risk exposure is, it leads to a higher level of NPLs. Therefore, depending on which of the two effects dominates, we expect either a positive or negative sign for this variable. *DEGDP* and *PLGDP* are also included as explanatory variables in the model as two other important financial intermediation indicators. Suljoti (2002) states that these two ratios are more appropriate to be used as financial intermediation indicators for the case of Albania because these ratios directly express the impact that financial intermediation has on economic growth.

Eq. (3) can be written as follows:

NPL and *FDI* in Albania. In our model, as stated above, *NPL* represents the dependent variable while *FDI* is part of the model as an independent variable. Figure 2 shows the conceptual framework of our study.

Figure 2. Conceptual framework of the study



As shown in Figure 2, the variables affecting the *NPL* are clustered into 2 main groups: 1) the macroeconomic variables, where foreign direct investments flow, consumer price index, and unemployment rate are included; and 2) financial intermediation variables, where important ratios such as bank loans over bank deposits (%), bank term deposits over GDP, and bank private sector loans over GDP are included. Following the KPSS stationarity test results that are provided in the Appendix, the variables are transformed by taking their natural logarithmic when used in the model.

4. RESULTS

Table 4 below shows the results of the estimated model. As shown in Table 3, all the variables' results are statistically significant at a 5% confidence

interval. The p-value for FDI inflows (< 0.05) indicates that there is a significant relationship between FDI and NPLs in Albania. In terms of the FDI coefficient, it amounted to 0.03 which indicates there exists a very small but positive relationship between FDI inflows and the level of NPLs in Albania. This means that, for every 1% additional increase of FDI inflow that is invested in Albania, this would lead to a 0.4% increase on average in the level of NPLs. Following the empirical study of Festic et al. (2011), a few countries in the European Union show a positive relationship between FDI and NPLs. The authors explain that in Romania and Bulgaria, the same relationship appears due to several reasons. As the authors explain, FDI inflows which are channeled through the banking sector in the economy, provide increased credit growth and therefore a potential deterioration in credit standards leading to higher NPLs in the economy.

Koju et al. (2018) also explain that a higher level of FDI inflows leads to a deterioration in credit standards, which in turn leads to an increase in the NPLs in the banking sector.

As stated in the literature review section, a positive relationship between FDI and NPLs is also proved by many studies (Festić et al., 2011; Şan, 2016; Koju et al., 2018; Ozili et al., 2021).

Table 4. Regression results

<i>Independent variable</i>	<i>Dependent variable</i>
	<i>NPL</i>
<i>FDI</i>	0.045*** (0.010)
<i>CPI</i>	-0.558*** (0.166)
<i>UNM</i>	0.250*** (0.023)
<i>LDR</i>	-1.038*** (0.062)
<i>DEGDP</i>	-0.276*** (0.027)
<i>PLGDP</i>	0.635*** (0.051)
Constant	0.045*** (0.010)
Observations	59
R ²	0.988
Adjusted R ²	0.987
Residual Std. Error	0.018 (df = 53)
F-Statistic	733.264*** (df = 6; 53)

Note: *p **p ***p < 0.01.

Regarding the *CPI*, which is an indication of inflation, the p-value is reported as 0.001 which shows a significant relationship between inflation and NPLs in Albania. The coefficient of the variable is -0.55 which indicates a negative relationship between NPLs and this variable. Therefore, for every 1% additional increase in *CPI* in Albania, the NPLs will decrease by 0.55% on average. This negative relationship suggests that inflation reduces the real debt obligations and therefore decreases the level of credit defaults. The result is in line with my other studies (Shingjergji & Shingjergji, 2013; Gremi, 2013; Klein, 2013; Kjosevski et al., 2019).

UNM also appears to be statistically significant and shows a positive relationship with NPLs in Albania indicating that a higher level of unemployment is associated with a higher level of NPLs. This result was expected and is in parallel with theory as an increase in terms of unemployment makes it more difficult for people to fulfill their financial obligations thus resulting in a rise in NPLs.

All three financial intermediation indicators appear also statistically significant in our model. *LDR* confirms a negative relationship with NPLs in Albania. The result is in line with the findings of Makri et al. (2014), Anastasiou et al. (2019), and Ozili et al. (2021) who also found a negative association between *LDR* and NPLs. *DEGDP* also shows a negative relationship with NPLs. These findings suggest that higher levels of financial development are associated with fewer NPLs in the Albanian economy. Finally, *PLGDP* also appears statistically significant but with a positive relationship (coefficient 0.63) with NPLs indicating that if there is an increase in the loans allocated to the private sector as part of GDP, this leads to an increase in NPLs. This result suggests that the loans allocated to the private sector should require a careful risk

assessment from the banks' side as it might lead to a deterioration in terms of higher defaults.

We test the presence of heteroscedasticity of the residuals of the model by using the Breusch-Pagan test. The Breusch-Pagan test is used to determine whether or not heteroscedasticity is present in the regression model. The null hypothesis of the test is that homoscedasticity is present in our model (the residuals are distributed with equal variance). If the p-value of the test is less than some significance level ($\alpha = 0.05$) then we reject the null hypothesis and conclude that heteroscedasticity is present in the regression model. The results are presented as part of the Appendix. The test results suggest that we fail to reject the null hypothesis, therefore we assume that homoscedasticity is present.

5. DISCUSSION

Our findings are in line with the results of several studies that find a positive relationship between FDI and NPLs. In our results, we find a significant and positive relationship between FDI and NPLs in the Albanian economy. The findings suggest that higher FDI inflows provide increased credit growth and therefore a deterioration in credit standards leading to higher NPLs in the economy. The findings are in line with Ozili et al. (2021). As the authors explain, banks have a crucial role in terms of facilitating the FDI inflows. However, these inflows going through banks and therefore becoming part of their deposit liability, enable banks to increase the portion of loans as part of these deposits to borrowers. As a result, the exposure to credit risk will be increased giving rise to NPLs. In addition, the signs of macroeconomic variables such as unemployment and inflation are in line with the findings of other studies mentioned in the literature review.

6. CONCLUSION

This study investigated the impact of FDI inflows on bank NPLs in Albania during the period 2008-2022 while controlling for other relevant NPL determinants. We find a positive and significant relationship between FDI inflows and NPLs in Albania. In terms of the FDI coefficient, it amounts to 0.04 which indicates that there exists a weak but positive relationship between FDI inflows and the level of NPLs in Albania.

CPI appears to be statistically significant and shows a negative relationship with NPLs. The negative relationship suggests that inflation reduces the real debt obligations and therefore decreases the level of credit defaults. As expected, unemployment shows a positive relationship with NPL in Albania meaning that an increase in terms of unemployment makes it more difficult for people to fulfill their financial obligations thus resulting in a rise in NPLs. Both *LDR* and *DEGDP* show a negative relationship with NPL suggesting that higher levels of financial development are associated with fewer NPLs in the Albanian economy. On the other hand, *PLGDP* shows a positive relationship with NPLs suggesting an increased attention of risk management towards loans to private sector as it might be associated to higher NPLs.

Our findings suggest that since higher FDI inflows are associated with potentially higher NPLs in Albania, policymakers and regulators should better assess strict regulations or lending constraints on particular banks that are the largest beneficiaries of large FDI inflow deposits.

For future research on this topic, we suggest an extension of the database by focusing on a comparison study between Albania and other neighboring countries in the Balkan region to assess whether the same result is also consistent for other

countries in the region. Due to limited data availability, only a few explanatory variables are considered in our study. Therefore, the list of the variables used as NPL determinants should be extended considering further macroeconomic indicators and additional bank-specific related variables. Last, further estimation techniques apart from OLS such as the generalized method of moments (GMM) or fixed effects models should also be applied for future research as quite popular methods in NPLs topic.

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APPENDIX

Table A.1. Jarque-Bera normality test

Variable	χ^2 statistic	df	p-value
NPL	4.3991	2	0.119
FDI	1.1813	2	0.554
UNM	5.2122	2	0.078
CPI	0.8824	2	0.643
LDR	1.4952	2	0.566
DEGDP	0.3403	2	0.843
PLGDP	1.5643	2	0.457

Table A.2. Kwiatkowski-Phillips-Schmidt-Shin stationarity test

Variable	KPSS level	Truncation lag parameter	p-value
NPL	0.4382	3	0.060
FDI	0.8198	3	0.010
UNM	0.4981	3	0.042
CPI	0.2646	3	0.010
LDR	0.8404	3	0.010
DEGDP	0.2922	3	0.010
PLGDP	0.8489	3	0.010

Table A.3. Breusch-Pagan heteroscedasticity test

Test	BP statistic	df	p-value
Studentized Breusch-Pagan test	6.9545	5	0.224