

FINANCIAL INTEGRATION AND STRUCTURE IN EUROPE: A COMPARATIVE CASE STUDY OF BOSNIA AND HERZEGOVINA AND SLOVENIA

FINANCIJSKE INTEGRACIJE I STRUKTURE U EUROPI: USPOREDNA STUDIJA SLUČAJA BOSNE I HERCEGOVINE I SLOVENIJE

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Abstract

The study measures and compares the levels of financial integration in Bosnia and Herzegovina and Slovenia between 2000 and 2020. This study aims to determine the impact of industrial index, gross domestic product per capita, trade openness, and corporate tax rate on the level of international financial integration. The statistical methods employed are unit root tests, OLS regression, the Breusch-Pagan test, and the heteroskedasticity test. For the 20-year time span and annual data for each parameter, the results have shown a significant positive correlation between gross domestic product per capita and financial integration for both countries. The results for Slovenia indicate that financial integration is negatively affected by trade openness and corporate tax rates, whereas gross domestic product per capita and industrial production index affect positively. In the case of Bosnia and Herzegovina, corporate tax rate and industrial production index affect financial integration negatively, while trade openness affect positively but insignificant with financial integration.

Ključne riječi: financial integration, gross domestic product, corporate tax, industrial production index, trade openness

1. INTRODUCTION

The purpose of this research study is to empirically explore the level of financial integration of Bosnia and Herzegovina (B&H) as an European Union (EU) candidate country in comparison with Slovenia, which has been a member of the EU since 2004. Countries that have received candidate status for entering the EU are often at the center of attention for financial analysts all over the world. The reason could be the attractiveness of the EU as a unique union that creates high standards for its current and future members. The EU fosters economic policies, which in turn contribute to greater financial integration. Financial integration refers to the ability of domestic financial markets to be interconnected with global economies. This global linkage could be noticed in international capital movements, liberalization of markets, banking systems, the flow of foreign direct investments, and its assets and liabilities. This research will be mainly focused on the financial integration of B&H and its path toward EU membership in comparison with Slovenia which has gone further development after its acceptance as a EU member since 2004. The scope of this study targets the financial integration of both countries for the purpose of better understanding current economic challenges and obstacles that are difficult for B&H's EU membership process and to reconsider current integration strategies, trade policies, and the regulation of existing laws.

The main aim of this study is to examine the levels and determinants of financial integration between two observed countries, thus B&H and Slovenia. The research consists of empirical analysis of financial integration and set of other economic variables chosen to prove to which extent they impact on financial integration. Furthermore, the study aims to address the questions:

Do selected economic and financial variables have a statistically significant impact on the level of financial integration in Slovenia and B&H?

If they do affect financial integration, to what extent do they influence financial integration?

2. LITERATURE REVIEW

A literature review of empirical studies relevant to research topic of this study provides theoretical background of financial integration. The aim is to more closely understand the importance of financial integration in the economic sphere of studies and its application in the real world.

Lane and Milesi-Ferretti (2003) analyzed and compared changes in external assets and liabilities, capital gains, and cumulative capital flows for 16 industrial countries. They aimed to investigate the benefits and costs of international asset trade

and the impact of the controls on cross-border trade. Moreover, the authors used a fixed-effects panel regression model for 18 Organization for Economic Co-operation and Development (OECD) countries. The authors' objective was investigating the growth in international financial integration for countries during the period from 1982 to 2001. Among the other regressors, trade openness and corporate tax rate as determinants of financial integration, resulted in the significant positive correlation between trade openness and international financial integration, while tax rate proved to be statistically insignificant.

Another study by Rusek (2005) aimed to theoretically analyze the financial integration challenges of the new EU members. Several theoretical studies aimed to evaluate the progress of the financial sector of potential new candidates. Among the most comprehensive and precise were studies of Wagner and Iakova (2001), Thimann (2002), and Claessens, Schmuckler, and Klingebiel (2002). The authors agreed that new member countries (in different periods) had underdeveloped capital markets. Rusek (2005) concluded that the biggest challenge for observed countries is real convergence and long-term sustained economic growth. Financial integration is the base of economic growth and stable financial structure countries cannot obtain themselves. Fiscal and legal reforms in new member countries should be a first step toward currency integration in the new EU market.

The study conducted by Amadou (2006) used two analytical approaches to estimate financial integration. Moreover, sigma-convergence and beta-convergence were used to explain to what extent markets are already integrated in eight countries of the West African Economic and Monetary Union (WAEMU) (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, and Senegal). The author concluded that financial integration has improved in some respects such as the growth of the government security market and contributions of the central bank and banking commissions and common ownership.

Vo and Daly (2007) explored the determinants of financial integration in 31 developed countries and 47 developing countries between 1980 and 2003. The empirical unbiased results of the Least Square Estimator, Two Stage Least Squares, and Generalized Method of Moments (GMM) have shown a positive relationship between trade openness, financial development, domestic credit, financial deepening, and international financial integration. Moreover, the study suggests that countries with strict controls of capital experience lower levels of financial integration, and the opposite when countries have higher levels of economic wealth and education. Further research is necessary to establish causal relationships between variables employed in this study (Vo and Daly, 2007).

The study by Giannetti and Ongena (2009) examined the data set on the financial integration's impact on small and medium-sized corporations from 1993 to 2002

using ordinary least squares (OLS) regression as an analytical approach. The study examined 60,000 companies in Eastern European Countries (EEC) to assess the influence of foreign bank landings on economic growth and financing of corporations that overall contribute to the country's financial integration. The research concluded that international banks and their interference with domestic companies positively impact their path toward internationalization, especially young ones through an increase in firms' sales.

Kucerova (2009) examined the level of financial integration in eight EU member countries: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia. Financial integration was researched for a period of 12 years, between 1994 and 2006. The study employed foreign assets and liabilities as dependent variables, focusing on changes in a country's financial position overseas. Real GDP per capita and international commerce has statistical significance as explanatory variables in determining the degree of financial market integration in these EU member states (Kucerová, 2009).

Friedrich, Schnabel, and Zettelmeyer (2010) also analyzed levels of financial integration in the European transitioning region using industry-level data. The study uses evidence on threshold effects for financial development, institutional quality, and financial integration itself. Among other conclusions, financial integration has a statistically significant and economically important effect on growth, predicting a positive correlation between capital openness and growth for emerging Europe.

Another study conducted by Devereux, et al. (2011) thoroughly measured cross-section and time-series data fluctuations for 31 countries in terms of financial integration. The study measures the levels of financial integration for many regions of Asia and its welfare on East Asian economic standards. In another study by Lane and Milesi-Ferretti (2003), the authors used a panel data regression model between 2001 and 2007 for nine countries. The variables included in the model are portfolio equity assets, long-term portfolio debt assets, and short-term portfolio debt assets. The results indicated different levels of regional integration, with an important emphasis on the fact that regional trade policies also increase regional equity market integration. Results suggest that the establishment of stable intraregional exchange rates, regional bond market integration will experience significant growth.

Research conducted by Ewubare and Ogbuagu (2015) aimed to analyze the correlation between financial integration and other macroeconomic variables in Nigeria. The study utilized the effects of financial integration on inflation, economic growth, inflation volatility, and growth volatility between 1980 and 2012. The vector error correction model (VECM) revealed a statistically significant correlation between financial integration and inflation rate. Namely, an increase in financial integration significantly reduces the inflation rate.

Garalia and Othmani (2015) also had financial integration as a subject of their research. Their study encompassed an analysis of financial integration in the Middle East and North Africa (MENA) between 2006 and 2012. Moreover, the International Financial Integration (IFI) variable as dependent variable is proxied by external debt. The results have shown the significant positive impact of trade openness and the log GDP on financial integration, whereas the exchange rate has a significant but negative impact on financial integration. Inflation rate, trade openness, level of development, exchange rate fluctuations are sound drivers of international financial integration.

Ganić (2021a) investigated levels of international financial integration (IFI) and financial growth to explain differences in income distribution between older EU-15 members and NMS 11 European countries between 2000 and 2016. The research revealed that nations characterized by lower levels of IFI (NMS-11) tend to have reduced income inequality, whereas countries that are more deeply connected to international financial flows exhibit significant long-term inequality (such as the old EU-15 countries).

One of the study done by Radman-Peša and Učkur (2016) explored the impact of capital inflows and trade openings to new markets on stock exchange volumes for Bulgaria and Croatia. The study focused on capital inflows, GDP, interest rate, CPI (Consumer price index), export and import as explanatory variables. The authors found positive impact of GDP, inflation and capital inflows on stock exchanges and integration of observed countries. This study is interesting as the observed countries are part of Balkan peninsula and Croatia was as well part of former Yugoslavia. Moreover, Croatia is transitioning country. Integration has positive correlation with real GDP per capita (GDPPC), educational sector, banking sector, monetary growth which are pushing integration of whole Southeastern Europe (SEE region) on higher levels (Radman-Peša and Učkur, 2016).

Ganić (2020b) explored financial integration between European post-transition and transition countries between 2000 and 2016. The study has found that domestic credit growth has a positive impact on financial integration while capital markets have an opposite impact on financial integration. Namely, capital markets for transitioning countries are not sufficiently developed. Moreover, capital openness and tax rate have been proven to be limiting factors for financial integration enlargement while levels of stock market capitalization and private credit growth do not significantly affect that enlargement.

Ganić and Hrnjić (2021a) aimed to empirically analyze the effects of international financial integration on the GDP growth of 10 Central and Eastern European countries (CEE) which are Bulgaria, Romania, Estonia, Latvia, Lithuania, Slovakia, Czech Republic, Hungary, Poland, and Slovenia between 1995 and 2017. Besides

the GDP growth rate, which is used as the dependent variable, the study is enriched with 3 proxy variables (Gross Foreign Assets and Liabilities as a percentage of GDP, Foreign Direct Investment Inflows, and Capital Openness) and 2 control variables (Remittances and EU Integration). They found that the GDP growth rates in the long run are mostly driven by FDI inflows, remittances, and financial openness. The results have shown the significant but inconsistent effect of Gross Foreign Assets and Liabilities (GFAL). Moreover, this relationship between GFAL and GDP growth rate can be explained with the opinion that CEE 10 countries that cannot benefit from financial integration before they reach higher levels of development.

Another analysis of financial integration is provided by Alotaibi and Mishra (2014), who argued that several variables, including domestic credit, financial openness, and trade openness, have a statistically significant effect on the degree of global financial integration in seven Gulf Cooperation Council (GCC) countries. The sample includes data for a period of 30 years, from 1980 to 2010. The authors find that the GCC region includes Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman. These countries experienced a fast increase in international capital flows, which is a sign of rapid development into regional economic integration.

Ganić (2020b) explored the level of international financial integration (IFI) in the emerging Balkan economies (e.g., Albania, B&H, Bulgaria, Croatia, North Macedonia, Romania, Serbia and Montenegro) between 2000 and 2016 using the panel data models. His study found that countries in the emerging Balkans with a high enrolment rate of secondary education, high level of banking intermediation and well-developed stock markets can contribute to the higher level(s) of IFIs. The findings revealed that a country with a high enrolment rate of secondary education, high level of banking intermediation and sound stock market development can contribute to its higher level of the international financial integration, while taxation policy and trade openness are somewhat less important in explaining rise of the financial integration.

Based on the aforementioned expatiating of the previous literature, the study proposes the following hypotheses to address the research question:

H0: The pull explanatory variables have no statistically significant impact on the level of financial integration in Slovenia and B&H.

H1: There is either a positive or negative statistically significant impact of the pull explanatory variables on the levels of financial integration in Slovenia and B&H.

3. METHODOLOGY

3.1. Data

The study examines the level of International Financial Integration focuses on two countries: Slovenia, joined the EU in 2004, and B&H, an EU candidate's country. The dependent variable in the model is International Financial Integration, which represents the degree of integration with international financial markets. It is explained by using four independent variables as follows: industrial productivity index, trade openness, GDP per capita and corporate tax rate between 2000 to 2020. The data was collected from the available databases of the World Bank databases, IMF's databases, national central banks and national statistical agencies. Moreover, it was crucial to explain the context behind the usage of each variable and its effect within the study framework.

3.2. Specification

This study uses different approaches to measure accurate levels of financial integration in B&H and Slovenia. Firstly we will provide descriptive statistics of each variable and explain its mean, median, minimum and maximum value, standard deviation, interpret skewness, kurtosis, and Jarque-bere test. Then variables will go through the OLS regression (Ordinary least square) method that estimates coefficients and help us investigate and understand the relationship between financial integration and explanatory variables in observed countries. Previous studies have used the Ordinary Least Square (OLS) regression model to determine the impacts of numerous variables on financial integration such as Edison, et. Al. (2002), Schularick, and Steger (2006) and Juraev (2013). This study employs IFI as the dependent variable, and industrial productivity index, trade openness, GDP per capita, and corporate tax rate as independent or explanatory variables. Consistency or stationarity means data does not have unit root, or conversly if data has unit root it means data is not stationary over the observation time. Unit root test is developed by Dickey and Fuller, and became very popular as many authors employed this test into their research studies such as Worthington and Higgs (2007) and Guillaumein (2009). Nevertheless, variables for selected countries will be interpreted through Breusch-Godfrey Serial Correlation LM test and Heteroskedasticity test as part of Diagnostic test section. Breusch-Godfrey Serial Correlation LM test is introduced by Breusch and Pagan (1979) with an aim to estimate autocorrelation between residuals, which refers to the difference between predicted and observed value. Hence, this research used Heteroskedasticity test with an intention to prove that the regression has a linear modelling which is crucial for the soundness of analysis.

The level of Financial integration presented in Equation 1 is measured by employing four explanatory variables: Industrial index, trade openness, GDP per capita and corporate tax rate with IFI as a dependent variable as follows:

$$\text{LNIFI} = \beta_0 + \beta_1 * \text{LNINDUSTRIAL_INDEX} + \beta_2 * \text{LNTRO} + \beta_3 * \text{LNGDPPC} + \beta_4 * \text{LNCTAXRATE} + \varepsilon \quad (1)$$

β_0 – represents intercept.

$\beta_1, \beta_2, \beta_3,$ and β_4 represent coefficients for chosen independent variables

ε – error term that represents residual variable.

3.3. Defining variables

Many previous empirical studies measured IFI variables similarly as Amadou (2006), Ganić (2020a; 2020b), Devereux, Lane, Park, and Wei (2011), IFI – the variable that assigns international financial integration is a sum of portfolio equity assets, portfolio equity liabilities, FDI assets, and FDI liabilities.

Industrial production index

Volume changes in production in an economy signify the industrial production index. This measure provides further insight into a country's production capacity. The inclusion of this explanatory variable arises from its utilization in many studies similar to the one published by Friedrich, Schnabel, and Zettelmeyer (2010) used industry-level data and has proved its significance toward financial integration and economic growth. Research published by Nwaolisa and Ananwude (2016) measured the relationship between the industrial production index and stock market liquidity and found a significant positive relationship. In our research paper, we sought to test the empirical relevance of the industrial production index as a determinant of financial integration in the selected countries. The industrial production index serves as a measure of the productivity and performance of the industrial sector within each country. Healthy industrial environment and capacity increases economic growth through employment and total output produced.

Trade openness (TRO)

Trade openness indicates a country's willingness and ability to receive imports for the domestic market and prepare exports for international markets. This is a very important variable for financial integration since it reflects broader economic engagement in international trade and opportunities. Namely, there is no financial integration without a country's economic international engagement. Crucially the basis for internationalization is the readiness of the country to import and export

goods and services. The choice to use this variable in this research appears from its utilization in many studies such as Garalia and Othmani (2015), Vo and Daly (2007), Ganić (2020b), Lane and Milles – Feretti (2003). These studies proved significant positive correlation between trade openness and financial integration. Countries that tend to be engaged in international trade flows, experience higher financial improvement. Trade openness values are derived from author's calculations, based on the data found in World Bank databases.

Corporate tax rate (CTAXRATE)

Corporate tax rates are volumes of tax levied on a corporation's profits, allocated to the state revenues. Sometimes the high corporate taxes for foreign companies can be a reason to withdraw their investments in countries with such conditions. Tax incentives have causal effects on a corporation's profits and management of private earnings. Governments often go through reforms for their corporate tax rates as they want to attract more foreign investors. Furthermore, studies acknowledged in the literature review (Lane and Milles-Ferreti, 2003; Ganić, 2020a; and Ganić, 2020b) proved an insignificant relationship between this variable and economic integration. Namely, our research included this variable to indicate whether corporate tax rates have a significant or irrelevant impact on the financial integration of B&H and Slovenia. Data for corporate tax rates are sourced from statistical agencies of selected countries, tax administration agencies, and Foreign Investment Agency of Bosnia and Herzegovina.

GDP per capita (GDPPC)

GDP per capita indicates national output per capita, often used as a measure of market size. The reason for choosing this variable particularly stems from its usage in articles relevant to the framework of our research (Kucerová, 2009; Ganić, 2020a; Ganić, 2020b). Moreover, Kucerová (2009) has established that a greater nation's GDP per capita contributes to greater integration of its financial market. Radman - Peša and Učkur (2016) pointed out that the larger market size is pushing nations toward greater integration, along with monetary growth. Ganić (2020b) proxied the economic development with GDP per capita and expected to have a positive impact on the IFI levels. The table 1 is a summary of variables, definitions and labels used in the study.

Table 1: Variables, definitions and labels

| Variable | Definition | Label | Expected effect |
|-------------------------------------|--|------------------|---|
| International Financial Integration | Total sum of FDI assets and liabilities, portfolio equity assets and liabilities of a country. | IFI | To increase or decrease based on the effects of the explanatory variables. |
| Industrial Production Index | Industrial production index measures changes in industrial production and is widely used for the observation and analysis of the current economic activity. | INDUSTRIAL_INDEX | Higher industrial production is expected to have a positive correlation with financial integration. |
| Trade openness % | Trade openness indicates the sum of exports and imports of goods and services measured as a share of gross domestic product. | TRO | This variable is expected to have positive correlation with financial integration. |
| GDP per capita | GDP per capita is the sum of gross value added by all resident producers in the economy plus any product taxes (less subsidies) not included in the valuation of output, divided by mid-year population. | GDPPC | GDP per person is expected to positively impact financial integration. Higher national output indicates higher economic productivity. |
| Corporate tax rate | Tax paid on profits of a corporation. | CTAXRATE | Lower corporate tax rate is more desired for foreign investors and vice versa, as high tax rate is less attractive. |

Source: Authors

4. EMPIRICAL RESULTS

4.1. Results and discussion for Slovenia

The results of descriptive statistics for Slovenia are shown in table 2 and they offer key values for variables employed in the study. If we closely look at the mean variable that represents the average value of the variable, we see that the mean variables are as follows: IFI (9.82) LNGDPPC (9.91), LNINDUSTRIAL_INDEX (4.64), LNTRO (4.76), and LNCTAXRATE (3.03). The maximum value is 10.65 for LNIFI and the minimum value is 2.83 for LNCTAXRATE. Skewness indicates that values around 0 have relatively small asymmetric distribution. The mean variables are as follows: IFI (9.83), LNGDPPC (9.92), LNINDUSTRIAL_INDEX (4.64), LNTRO (4.74), and LNCTAXRATE (3.03). Skewness interprets how asymmetric data set distribution can be, indicating that values around 0 have relatively small asymmetric distribution.

Table 2: Descriptive statistics for Slovenia

| | LNIFI | LNINDUSTRIAL_ INDEX | LNTRO | LNGDPPC | LNCTAXRATE |
|--------------|-----------|---------------------|-----------|-----------|------------|
| MEAN | 9.829449 | 4.639835 | 4.736325 | 9.916595 | 3.032591 |
| MEDIAN | 10.25161 | 4.618086 | 4.762174 | 9.925926 | 2.995732 |
| Maximum | 10.65074 | 4.892602 | 4.941642 | 10.09102 | 3.218876 |
| Minimum | 8.307953 | 4.428433 | 4.521789 | 9.695273 | 2.833213 |
| Stv. Dev | 0.760423 | 0.133607 | 0.124720 | 0.108549 | 0.158442 |
| Skewness | -0.995498 | 0.357766 | -0.117234 | -0.469711 | 0.024254 |
| Kurtosis | 2.560474 | 2.217085 | 2.155718 | 2.490562 | 1.420241 |
| Jarque-Bera | 3.637596 | 0.984326 | 0.671815 | 0.999285 | 2.185741 |
| Probability | 0.162221 | 0.611303 | 0.714689 | 0.606748 | 0.335253 |
| Sum | 206.4184 | 97.43654 | 99.46282 | 208.2485 | 63.68441 |
| Sum Sq. Dev. | 11.56486 | 0.357015 | 0.311102 | 0.235657 | 0.502075 |

Source: Authors

Positive values are labeled as right-skewed (positively skewed) and negative are left-skewed (negatively skewed). According to this LNCTAXRATE and LNINDUSTRIAL_INDEX are positively skewed. LNIFI, LNTRO, and LNGDPPC are left-skewed. Kurtosis measures the distribution shape and whether variable is leptokurtic with heavier tails or platykurtic with lighter tails and flatter shape. Variables are assumed to have peaked shape distribution when their values are greater than 3 and conversely flatter distribution when variables have values less than 3. According to data presented in table 2, all variables have a flatter shape. The Jarque-Bera test with the p-value of 0.16221 indicates normal distribution. The results of unit root test for Slovenia are presented in table 3.

Table 3: Unit root test for Slovenia

| Slovenia | Level (0) | Differenced (1) |
|-----------------------|-----------|-----------------|
| Explanatory variables | | |
| LNINDUSTRIAL_INDEX | -2.007621 | 3.979124** |
| LNTRO | -0.808874 | -4.384586*** |
| LNGDPPC | -1.890008 | -2.782834* |
| LNCTAXRATE | -1.054472 | -3.096694** |

Source: Authors

The first column lists variables that went through the unit root test, the second column values are expressed as if they were at their original level. Furthermore, the third column represents the test statistic values when values are differenced. Interpreting the unit root test helps in understanding the statistical significance of test statistics, for which we used the Augmented Dickey-Fuller (ADF) test which is the common statistical test. Our Null hypothesis (H0) states that the time series for each explanatory variable has a unit root attributing non-stationarity, and the alternative hypothesis (H1) attributes stationarity. Nevertheless, key components of our table besides previously mentioned Level (0) and Differenced (I) are t-statistics at 1,5, and 10% significance level and p-value that grants probability for specific variables.

Furthermore, results presented in table 4 indicate that all variables have a statistically significant impact on the level of financial integration. However, LNINDUSTRIAL_INDEX and LNGDPPC have a positive impact on financial integration. It indicates a 1-unit increase in LNINDUSTRIAL_INDEX and LNGDPPC results leads to an increase in financial integration for 2.62 and 1.80 units, respectively.

Table 4: OLS Regression output for Slovenia

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| LNINDUSTRIAL_INDEX | 2.624409 | 1.167614 | 2.247668 | 0.0382 |
| LNTRO | -2.296125 | 1.086664 | -2.113004 | 0.0497 |
| LNGDPPC | 1.801743 | 0.631088 | 2.854979 | 0.0110 |
| LNCTAXRATE | -3.079387 | 0.497573 | -6.188817 | 0.0000 |
| R-squared | 0.86517 | Mean dependent var | | 9.829449 |
| Adjusted R-squared | 0.841377 | S.D. dependent var | | 0.760423 |
| S.E. of regression | 0.302858 | Akaike info criterion | | 0.618537 |
| Sum squared resid | 1.55929 | Schwarz criterion | | 0.817494 |
| Log likelihood | -2.494644 | Hannan-Quinn criter. | | 0.661716 |
| Durbin-Watson stat | 0.643911 | | | |

Source: Authors

The regression model reveals a negative, but statistically significant impact of LNTRO (at 5% level) and LNCTAXRATE (at 1% level) on the degree of financial integration. The expected effect of LNCTAXRATE on IFI has proven to be true, whereas LNTRO created the opposite effect in comparison with the expected one.

The negative correlation between trade openness and financial integration has been studied by many authors such as Berg and Kruager (2003) and Kose, Prasad, and Terrones (2004) have concluded that trade openness contributes to economic growth. However, higher growth exposes an economy to more volatility and economic shocks. Namely, a negative correlation between LNCTAXRATE and IFI has been proven in a study published by Djankov, et al. (2010) as well. In our regression model a 1 unit increase in LNCTAXRATE implies a -3.08 unit decrease in our dependent variable. It means that a lower-level corporate tax rate promotes an increase in financial integration level.

R-squared indicates that 86.51% of variable movements can be explained through regression. Moreover, adjusted R-squared has a slightly lower value that amounts to 0.841377, indicating that 84.13 percent of dependent variable movements can be explained by statistically significant variables. To examine the existence of autocorrelation between observed and predicted values of the model, the Breusch-Godfrey serial correlation test is utilized. F statistic indicates the significance of the test overall and if there is an existence of autocorrelation. The value of F statistic (0.122542) and the p-value (0.8860) attributing that the F statistic is not statistically significant and no evidence to reject the Null hypothesis.

Table 5: Serial Correlation LM test and Heteroskedasticity Test for Slovenia

| Breusch-Godfrey Serial Correlation LM test | | | |
|--|----------|---------------|--------|
| F statistic | 0.122542 | Prob. F(2,10) | 0.8860 |
| Heteroskedasticity Test: Breusch-Pagan-Godfrey | | | |
| F-statistic | 1.256865 | Prob. F(5,12) | 0.3433 |

Source: Authors

The heteroskedasticity test reveals a value of 1.25685 for F-statistic at 0.3433 p-value (table 5). It indicates that there is no strong variance between residuals at different levels of explanatory variables and we failed to reject our H0. The results of descriptive statistics for B&H are shown in table 6. Mean values as a measure of a central tendency of probability for LNIFI amounts to 8.208278 and for LNGDPPC amounts to 8.259832 respectively. Furthermore, mean values for LNINDUSTRIAL_INDEX, LNTRO, and LNCTAXRATE amount to 4.653479, 4.468628, and 2.721104 respectively. Skewness is an indicator of asymmetric distribution that can be either right or left-skewed. Variables of our interest are all left skewed except LNCTAXRATE which is right skewed. According to Kurtosis measure variables LNINDUSTRIAL_INDEX and LTRO have peaked distribution

shapes with values higher than 3 (3.140202 and 4.92749). The rest of the variables have a flatter distribution shape with values lower than 3 (2.726525, 1.969930, and 1.240385). The Jarque-Bera test with p-values reveals that distribution is normal for all variables except for the LNTRO variable where the p-value is lower than the significance level.

Table 6: Descriptive statistics for B&H

| | LNIFI | LNINDUSTRIAL INDEX | LNTRO | LNGDPPC | LNCTAXRATE |
|--------------|-----------|-----------------------|-----------|-----------|------------|
| MEAN | 8.208278 | 4.653479 | 4.468628 | 8.259832 | 2.721104 |
| MEDIAN | 8.879890 | 4.652054 | 4.477337 | 8.289144 | 2.302585 |
| Maximum | 9.156940 | 4.761319 | 4.543295 | 8.608195 | 3.401197 |
| Minimum | 5.605802 | 4.470495 | 4.290459 | 7.845632 | 2.302585 |
| Stv. Dev | 1.146030 | 0.073398 | 0.059570 | 0.239992 | 0.546684 |
| Skewness | -1.076136 | -0.748083 | -1.262999 | -0.288862 | 0.490290 |
| Kurtosis | 2.726525 | 3.140202 | 4.927749 | 1.969930 | 1.240385 |
| Jarque-Bera | 4.118684 | 1.975896 | 8.834772 | 1.220456 | 3.550562 |
| Probability | 0.127538 | 0.372340 | 0.012066 | 0.543227 | 0.169436 |
| Sum | 172.3738 | 97.72307 | 93.84119 | 173.4565 | 57.14319 |
| Sum Sq. Dev. | 26.26768 | 0.107745 | 0.070972 | 1.151925 | 5.977271 |

Source: Authors

Furthermore, the study examines the stationarity of variables included in the regression model for Bosnia and Herzegovina (table 7).

Table 7: ADF Unit Root Test for B&H

| B&H | Level (0) | Differenced (1) |
|-----------------------|--------------|-----------------|
| Explanatory variables | | |
| LNINDUSTRIAL_INDEX | -2.375299 | -5.012425*** |
| LNTRO | -4.043169*** | -5.660295*** |
| LNGDPPC | -1.614735 | -2.830106* |
| LNCTAXRATE | -1.242118 | -4.358899*** |

Source: Authors

According to results provided from the ADF test, LNINDUSTRIAL_INDEX, and LNTRO, values at level (0) have a negative values and non-stationary order, but after is differenced (I) it shows statistically significant at 1%, while the variable of LNGDPPC is statistically significant at 10% respectively. It leads to conclusion that our variables of interests after are differenced (I) has an absence of unit root, respectively.

The OLS regression output presented in table 8 reveals statistically significant impact of variables LNINDUSTRIAL_INDEX, LNGDPPC and LNCTAXRATE on the dependent variable. Unlike for Slovenia, LNINDUSTRIAL_INDEX has a negative correlation with LNIFI, indicating a decrease of LNIFI for 3.50 units when an increase of explanatory variable occurs. LNCTAXRATE is the next explanatory variable with negative correlation with LNIFI, while variable LNGDPPC indicates strong positive correlation.

Table 8: OLS Regression output for B&H

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| LNINDUSTRIAL_INDEX | -3.502665 | 1.082572 | -3.235503 | 0.0049 |
| LNTRO | 0.07942 | 1.282801 | 0.061911 | 0.9514 |
| LNGDPPC | 3.148259 | 0.451677 | 6.970155 | 0.0000 |
| LNCTAXRATE | -0.680173 | 0.213028 | -3.192878 | 0.0053 |
| R-squared | 0.93236 | Mean dependent var | | 8.208278 |
| Adjusted R-squared | 0.920424 | S.D. dependent var | | 1.14603 |
| S.E. of regression | 0.323286 | Akaike info criterion | | 0.749086 |
| Sum squared resid | 1.776737 | Schwarz criterion | | 0.948042 |
| Log likelihood | -3.8654 | Hannan-Quinn criter. | | 0.792264 |
| Durbin-Watson stat | 1.135724 | | | |

Source: Authors

Interestingly, variable LNTRO indicates positive but statistically insignificant correlation with proxy variable. However, our study is not the first one that discovered an insignificant relationship between trade openness and economic integration. Levine and Renelt (1992) in their study employed extreme bounds analysis which revealed no strong correlation between trade and financial integration. Moreover, a study conducted by Capolupo and Celi (2008) proposed an explanation that transition countries gain more in terms of productivity growth and integration through

technology transfers than Western countries. The explanation is simple, Western countries already have advanced technology, trade facilitates transfer of technology and spurs growth and integration. This explanation can be applied in our case as well if the variable LNTRO proved to be statistically significant.

R-squared indicates that 93.26% of variable movements can be explained through regression. Moreover, adjusted R-squared has a value of 0.920424, indicating that 92.04% dependent variable movements can be explained by statistically significant variable. Average distance variables made from regression line amounts to 1.14603, which indicates good standard deviation value and closer position on regression line. Last but not least test is a test for heteroskedasticity that will reveal is the variance of the error term extreme or not. In a regression, it is desirable to have homoskedastic data, and our results are as follows: The Breusch-Godfrey test aims to find the presence of serial correlation between residuals in a regression (table 9).

Table 9: Serial Correlation LM test and Heteroskedasticity Test for B&H

| Breusch-Godfrey Serial Correlation LM Test | | | |
|--|----------|---------------|--------|
| F-statistic | 0.122542 | Prob. F(2,10) | 0.886 |
| Heteroskedasticity Test: Breusch-Pagan-Godfrey | | | |
| F-statistic | 1.198109 | Prob. F(5,9) | 0.3824 |

Source: Authors

F statistic values in table 9 amounts to 0.122542 with a p-value of 0.8860. P-value suggests that there is no autocorrelation up to 2 lags. For the Homoskedasticity, F statistics has a value of 1.198109 and a p-value od 0.3824 indicating no significant evidence of heteroskedasticity in the model observed (table 9). Scalled explained sum of squares is 5.994324 and has a p-value of 0.3068 which suggests no evidence of heteroskedasticity again.

4.3. DISCUSSION

Based on the regression analysis evidence of statistically significant impact on proxy variable by explanatory variables is clearly shown. In the case of Slovenia all variables are statistically significant. LNINDUSTRIAL_INDEX and LNGD-PPC have positive impact on LNIFI and spuring its value. However, the rest of explanatory variables proved to be negative for LNIFI.

On the other hand, there is only one statistically insignificant (LNTRO) impact on LNIFI for B&H's case. Surprisingly, variable LNINDUSTRIAL_INDEX nega-

tively affect IFI while LNGDPPC is positive. Regression has revealed that increase in GDPPC increases the value of LNIFI by 3,81 in B&H and 10,78 in Slovenia units respectively. It means that financial integration is influenced by chosen variables, there is either a positive or negative linkage between financial integration and selected variables.

For the unit root test values in B&H's case, the variables LNINDUSTRIAL_INDEX, LNTRO, LNGDPPC (10%) and LNCTAXRATE show the evidence of stationarity after differencing, meaning their movement from the mean does not change over time. However in the Slovenia's case LNTRO showed evidence of stationarity at its level (I), All other variables proved non-stationary order at level (0), LNINDUSTRIAL_INDEX and LNTRO proved non stationary order at 1% and LNGDPPC (1 and 5 %) after differencing. The rest of variables and values proved stationary order after differencing. For the Breusch-Godfrey Serial Correlation LM Test for Slovenia there is no evidence of autocorrelation between residuals variables. It indicates that the model adequately fits data patterns. Same conclusion is drawn for B&H, ending up with no serial correlation between actual and predicted variables.

5. CONCLUSION

Overall, financial integration in both countries has been influenced by explanatory variables and to different extents. The results for Slovenia indicate that financial integration has been affected negatively by the trade openness and corporate tax rates, whereas GDP per capita and industrial production index affected financial integration positively. Certainly, higher corporate tax rates can discourage foreign corporations and institutions to invest in Slovenia and B&H. Furthermore Slovenian and Bosnian market can be less attractive to foreign multinational corporations if corporate tax rates are too high. Therefore the number of businesses participating in the domestic financial market can be significantly decreased. According to this, there is a place for improvement in corporate tax rates strategies for both countries. Strong negative correlation of trade and financial integration in Slovenia can be explained as a consequence of higher trade volatility and exposure to the economic shocks. On the other hand, a positive impact on GDP per capita was expected. Higher GDP per capita lead to higher level of financial integration. Countries with higher GDP per capita are more attractive to foreign investors since they indicate that the country experiences economic prosperity and development. This implies greater demand for financial instruments and financial market participation. Surprisingly, industrial production index and financial integration in B&H have inverse relationship. Negative impact on financial integration can be justified through the industry's more localized focus meaning industries are not well inter-

connected internationally through financial sectors.

In the end, our regression analysis revealed that four variables for Slovenia and three variables for B&H were statistically significant. The path toward B&H's higher financial integration will be long and exhausting. However, the case of Slovenia can be used as a good motivation for many improvements regarding financial integration for B&H. Both countries started from the same position, the question is to which extent countries were dedicated to achieve financial integration. The answer is simple, Slovenia took serious steps toward economic prosperity and many other aspects throughout the transition. B&H has to deal with its corruption obstacles, institutional inefficiency, and political instability, after that improvements in economic aspects will be possible and will make sense. This would certainly include as well the fulfillment of the Copenhagen criteria and the long-awaited entry of B&H into the EU.

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