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Macroeconomic, institutional and financial determinants of current account deficit in North Macedonia: Evidence from time series*

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Abstract

The role of current account balances in macroeconomic policy is progressively high, especially in transition countries. Using yearly level data for a 1994-2022 period, based on co-integration analysis, this research empirically investigates the macroeconomic, institutional, and financial determinants of the current account deficit in North Macedonia. The results of the study reveal that a country's current account deficit is significantly affected by domestic demand factors like real effective exchange rate, output gap, and trade openness, the fiscal-related factor of gross debt position, the institutional-related factor of economic freedom, legal and property rights, regulatory index, control of corruption, government effectiveness, as well as financial development captured by money supply. The study also finds out that the country has recorded more deficit in the current account than potentially expected during two time periods, the pre-financial crisis period 2001-2008 and during the COVID-19 crisis period 2019-2022.

Keywords: *current account deficit, error correction mechanism, North Macedonia*

JEL classification: *F32, F37*

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1. Introduction

The Current Account Deficit is one of the most important issues, often studied by economists. Its importance is moreover outlined in developing countries, once considering its influence on macroeconomic stabilization policies. The Current Account Deficit can be caused by excessive domestic demand, lack of domestic savings, overvalued exchange rates, or high imports and low exports (Dauti, 2021). A country suffering from a Current Account Deficit spends more than it earns. Excessive domestic demand means that domestic producers are unable to fulfill domestic production and therefore the dependency rate of the domestic output from imports increases, eventually leading to an increase in the current account deficit (Crescenzi et al. 2016). This deficit, in a second economic cycle, implies the need for depreciating the national currency which increases the potential for financing the deficit through exports, since local products are becoming cheaper in foreign currency at international markets and foreign products are becoming more expensive in the local currency at the domestic market. However, the weakness of the local currency decreases the domestic production capacity, moreover, when the necessary inputs for this production are in foreign currency. As a result, the country will not have enough production capacity to satisfy the increased foreign demand for local products and therefore the further increase in the current account deficit may take place (Obstfeld, 2012).

Generally, the recorded high level of deficits in transition countries have raised concerns regarding the extent to which it poses serious risks for the respective economies. However, the widening of the deficit, to some extent, has been attributed to the preparation of the transition countries for EU membership. These factors refer to the gradual liberalization of prices. This development reflects the fact that consumer price inflation has remained persistently at about the level of the euro area average, while, at the same time, there has been a steady rise in relative unit labor cost relative to other euro area countries. Furthermore, transition countries' efforts for income convergence toward EU patterns have also contributed to the increase in consumer spending, i.e., in the current account deficit. In general, the country exposed to the high deficit on the current account must find a recovery method, by potentially reducing the deficit through the inflow in the capital account, which may arise from the increase in the domestic assets, foreign currency, or increase in the level of Foreign Direct Investment. However, a current account deficit is not automatically a bad thing in case a certain country is importing the necessary inputs to produce an output, to export the outputs in the future, thus, potentially creating a current account surplus, which would be an attractive investment opportunity for foreigners.

In this paper, using cointegration analysis to capture the long-run relationship among the variables, we try to quantify macroeconomic, institutional, and financial factors

that affect the current account balances in North Macedonia, in the long run, using time series data on a yearly 1994-2022 period. Among the macroeconomic factors, the research outlines the enhancement effect of gross debt and domestic output gap and the deteriorating effect of trade openness on the current account deficit. Among institutional factors, the research reveals the enhancement effect of economic freedom, control of corruption and regulatory quality, and the deteriorating effect of legal and property rights, regulatory index, and government effectiveness on the current account deficit in North Macedonia. The financial development is found to trigger the deficit in the current account. Results from this study will provide important input into the formulation of a policy framework that would assist in maintaining a sustainable level of current account deficit, in accordance with country macroeconomic stabilization policies. The paper is organized as follows. The coming section reviews the latest empirical evidence on current account deficits in transition countries, trying to identify the gap in the literature, which will be subject to an empirical assessment. Section three describes the methodology and method of analysis, the hypothesis, and the econometric assessment. Section four describes North Macedonia's cyclical movement of current account deficit, as well as comparative statistics of Western Balkan countries' experience with the respect to cyclical movement of current account deficit. This section also presents the empirical results and calculation of the potential level of the current account deficit in North Macedonia. Section five discusses the results and the final section concludes the study and outlines some policy recommendations.

2. Literature review

The literature on the determinants of current account balances has identified three groups of studies. The first group of studies deals with the response of current account imbalances to potential shocks in one specific determinant. The second group of study deals with the panel data studies of the determinants of current account balances and the third group of studies, in addition to macroeconomic determinants treat the institutional as well as financial determinants of current account balances. (Legg et al., 2011; Cheung et al., 2013). On the grounds of the first group of studies, Kent and Cashin (2003), using the intertemporal model and terms of trade data for 128 countries, over the period 1960-1999, examined the relationship between current account balance and terms of trade affected by the persistence of terms of trade shocks and found that the greater (lesser) the persistence effect of the terms of trade, the more (less) the investment effect dominates the consumption – smoothing effect on saving, so that the current account balance moves in the opposite (same) direction as that of the shock. Lee and Chinn (2006) using VAR analysis for G7 countries (US, Canada, the UK, Japan, Germany, France, and Italy), examined the relationship between exchange rate and current account dynamics for the period from 1979/1980 to 2000. The authors found that

with the expectation of the US, in the rest of the remaining countries, temporary (permanent) shocks play a larger role in explaining the variation in the current account (real exchange rate). With the exception of the UK, temporary shocks depreciate the real exchange rate and improve the current account balance. On the grounds of panel data studies, examining the relationship between current account deficit and a set of macroeconomic variables.

Cavdar and Aydin (2015) using a panel–logit model for the selected panel of 16 OECD countries over the years 2005-2009, found a positive relationship between current account deficit and public expenditure and a negative relationship between consumer price index (CPI), unemployment rate and the current account deficit. These three variables were also found to have an indirect effect on the economies of 16 OECD member countries by increasing the probability of a volatile regime. In another study for a panel of heterogenous 33 OECD countries, New EU Member States are included. Bussière et al. (2006), using various panel data, instrumental variable (IV), and Generalized Method of Moments (GMM) techniques for estimating a dynamic panel data intertemporal model for the current account, found a strong agglomeration effect of the current account, suggesting that actual position of current account is determined from their past values and a significant effect of the fiscal balance. Moreover, the authors found a substantial effect of relative per capita income, suggesting that poorer countries are more likely to run larger current account deficits. Moreover, expansionary fiscal policies also were found to raise the current account deficit, confirming that the Ricardian offset is incomplete.

Turning to the transition countries Aristovnik (2006), in a study related to the determinants of the current account balance in selected transition economies, Eastern Europe and the former Soviet Union, for a yearly period 1992-2003, found a negative effect of economic growth on the current account balance, implying that the attributed increase of growth is moreover associated to higher investment rather than savings rate. The author confirmed the hypothesis of stage development, as the poorer countries in the region register higher deficits in the current account. Also, the empirical findings of Aristovnik (2006), suggest that fiscal balance has a positive and significant impact on the current account, confirming the validity of the hypothesis of a twin deficit and the appreciation of the real exchange rate and the deterioration of terms of trade aggravate the current account position.

As to the case of North Macedonia, based on individual country studies, Sadiku et al. (2015), by applying the ARDL approach, examined the short and long-run determinants of current account position in North Macedonia in a period 1998q1-2013q4, found a positive cointegration relationship between current account and fiscal balance, financial development, terms of trade and negative cointegration relationship between current account and trade openness. Bucevska (2020) tested the twin deficit hypothesis for the case of North Macedonia, using quarterly data for the budget deficit and current account on a yearly period 2005-2017 and different

estimation techniques of time series data sets, like VAR, VECM, and Granger – Causality found that efforts absorbed on improving the current account imbalances through fiscal policy will be ineffective in the short run and the existence of a long run relationship between the budget deficit and the current account deficit point out to the requirement of applying policy initiatives focused not only on reducing the budget deficit but also on improving the external position of the country through export promotion. However, the above-presented empirical literature for the case of North Macedonia on treating macroeconomic determinants of the current account deficit is not scant, but on addressing institutional determinants is missing to a large extent. By addressing the research question related to the impact of institutional and financial factors affecting current account balances in North Macedonia, this research extends the previous empirical work on the topic of country-level data. Investigating a set of institutional factors, related to political, economic and legal system in addition to financial and economic factors of North Macedonia, as identified by Altayligil and Çetrez (2020), adds value to the performed research on the grounds of the country's capacity to meet the EU integration agenda, which throughout institutional efficiency aims to achieve low and sustainable current account position in line with the Treaty of European Commission (Dauti and Elezi, 2022).

3. Methodology and method of analysis

The paper will try to shed light on the impact of macroeconomic, institutional, and financial factors on the current account deficit in North Macedonia, relying on a yearly time series data set for the period 1994-2022. The empirical equation of the current account deficit for the case of North Macedonia, which accounts for macroeconomic, institutional, and financial determinants, following (Bitzis et al. 2008) is as follows:

$$\begin{aligned} CAD_{jt} &= a_0 + a_1\, GD_{jt} + a_2\, REER_{jt} + a_3\, Y^{gap}_{jt} + a_4\, TO_{jt} + a_5\, X^{gap}_{it} + \\ &+ a_6\, EF_{jt} + a_7\, LPR_{jt} + a_8\, RI_{jt} + a_9\, M2_{jt} + a_{10}\, FUEL_{jt} + a_{11}\, CC_{jt} + \\ &+ a_{12}\, GOV_{jt} + a_{13}\, PR_{jt} + a_{14}\, RQ_{jt} + \varepsilon_t \end{aligned} \tag{1}$$

Where CAD_{jt} is the dependent variable, denoting the current account deficit as a share of GDP, GD_{jt} is the gross debt position as a share of GDP, $REER_{jt}$ is the real effective exchange rate, Y^{gap}_{jt} is the output gap of North Macedonia, calculated using Hodrick Prescot filter, TO_{jt} refers to the trade openness as a share of GDP, X^{gap}_{it} is the output gap in the European Union, calculated using Hardrick Prescot filter, EF_{jt} refer to economic freedom, LPR_{jt} refers to legal and property rights, RI_{jt} denote the regulation index, $M2_{jt}$ is the money supply in annual growth rate, $FUEL_{jt}$ is the fuel exports as a percentage of merchandise exports, CC_{jt} denote the control of corruption in percentile rank, GOV_{jt} is the government effectiveness in percentile

rank, PR_{jt} is the political risk in percentile rank and RQ_{jt} is the regulatory quality in percentile rank. In the last equation, the first term captures the effect of the budget deficits on the current account deficits and the second term captures the impact of price competitiveness. The domestic output gap, the real effective exchange rate and the terms of trade captures the impact of domestic demand. Also, the domestic output gap refers to the effect of cyclical factors (Dauti and Elezi, 2022). Descriptive statistics of the data used is given in the appendix 1A. Data description and source of the data is given in the appendix table 1B.

3.1. Hypothesis

GD_{jt} denoting gross debt position as a share of GDP captures the impact of fiscal policy-related factors on the current account deficit. By studying the relationship between fiscal and current account balance, we argue that while different crises have heightened the debt and fiscal situation in North Macedonia, aggravating many fiscal consolidation programs, like expenditure cuts and revenue increase, have led to a high current account deficit due to fiscal deficit (Bitzis et al. 2008). Hence, following this discussion we expect the budget deficit to have a positive impact on the current account deficit. In this view, we endorse the Keynesian Absorption Theory, instead of the Ricardian Equivalence Hypothesis, which states that when the economy is operating at full employment capacity an increase in the budget deficit drives the balance of payments into deficit by expanding the aggregate demand. In the Keynesian view, deficits can be used to counterbalance gaps between saving and investment, thus steadying output around its potential (full-employment) level (Bitzis et al. 2008).

$REER_{jt}$ denoting the Real Effective Exchange Rate, captures the impact of price competitiveness on the current account deficit. Appreciation (increase) in the exchange rate means a fall in the competitiveness level of the domestic production in international markets, thus lowering exports and therefore widening the deficit in the current account and depreciation (decrease) of the exchange rate, due to its positive association with exports, lowers current account deficit, impacting negatively the current account balance. Referring to the Keynesian absorption theory, devaluation, through its impact on domestic production, leads to a switch in spending from foreign to domestic goods, and hence, an improvement in the trade balance, thus lowering the deficit in the current account.

Y^{gap}_{jt} and X^{gap}_{jt} denote the cyclical components of output gap in North Macedonia and the European Union, respectively. Also, along with the European output gap, the domestic output gap refers to the effect of cyclical factors on the current account deficit. In cases when the domestic output gap is positive (negative), it is a signal of a high (low) level of domestic demand. Hence, the positive (negative) association between the country's output gap and current account deficit is expected, due to

lowered (enhanced) domestic aggregate demand, below (above) their most efficient capacity. In cases when the output gap of the EU is negative (positive), this is a signal of insufficient (sufficient) help of the EU toward the recovery process of North Macedonia's external economic conditions.

TO_{jt} denote the trade openness expressed as the sum of imports and exports of goods and services to GDP ratio, which also indicates trade liberalization. Trade openness is expected to be negatively related to the current account deficit because, as the domestic economy liberalizes its trade, it is more exposed to international trade with fewer trade restrictions. Hence, the deficit in the current account is lowered as the exports increase due to fewer trade restrictions (Chinn and Prasad, 2003).

The impact of country's institutional performance on the current account deficit in North Macedonia, is the novelty part of the research. To capture the effect of institutional performance on current account deficit, several variables are tested individually in relation to current account deficit, like economic freedom (EF_{jt}), legal and property rights (LPR_{jt}) and regulatory index (RI_{jt}). Other individual variables treated within the framework of institutional performance are governance related factors, like: control of corruption (CC_{jt}), government effectiveness (GOV_{jt}), political risk (PR_{jt}) and regulatory quality (RQ_{jt}). In all the case, we expect the institutional performance to be negatively related to current account deficit, since good institutions promote economic development and hence, export increase in the second stage, thus exposing the country to less deficit and higher surplus in the current account, subject to performing better efficiency of the domestic institutions.

$M2_{jt}$ capturing the monetary aggregate of money supply in annual growth rate, denotes financial sector development in North Macedonia. The improvement of financial sector is expected to be positively related to the improvement of current account balance, hence, impacting negatively (positively) the deficit (surplus) in the current account balance. $FUEL_{jt}$ captures the participation of the country in the international energy market. Here, we test the hypothesis of a negative association between fuel exports and current account deficit, since, the increase of fuel exports should lower trade deficit, thus leading to surplus conditions in the current account.

3.2. Econometric assessment – Unit root test

Testing for stationarity is applied for the purpose of avoiding the growth or declining trend of the data, thus making sure that the observed time series data is stationary. One of the most commonly used methods for the stationarity test, is the Dickey-Fuller test, at the augmented version (ADF), which is used to determine whether the various time series are integrated at the order of zero I (0). The starting point in unit root test is:

$$Y_{jt} = aY_{it-1} + \varepsilon_t; -1 \leq a \leq 1 \quad (2)$$

The null hypothesis in the Augmented Dickey-Fuller test is that the underlying process which generated the time series is non-stationary. This will be tested against the alternative hypothesis that the time-series information of interest is stationary. If the null hypothesis is rejected, it means that the series is stationary i.e., it is integrated to order zero. If, on the other hand, the series is non-stationary, it is integrated to a higher order and must be differenced until it becomes stationary. When testing for unit root we want to find out whether *a* in the equation (2) is equal to one. If *a* is smaller than one, the series is stationary. If, on the other hand, *a* is greater than one, than it would be an explosive series. Subtracting Y_{jt-1} from both sides in equation (2), we get equation (3), which is estimated by the Augmented Dickey – Fuller test.

$$Y_{jt} = \beta Y_{jt-1} + \varepsilon_t \quad (3)$$

Since the null hypothesis in equation (2) is that a is equal to one, in equation (3) it must be that β is equal to zero. Hence, when β is zero, there is unit root, and we have insufficient evidence to reject the null hypothesis of non-stationary. The Augmented DF Test is performed on each variable separately, on the following regression.

$$\Delta X_{jt} = \delta_0 + \delta_1 + \delta_3 X_{t-1} + \sum_{i=1}^{k} a_i \Delta X_{jt-1} + u_t \quad (4)$$

The variable ΔX_{jt-1} in equation (4) expresses the first differences with k lags and final u_t is the variable that adjusts the errors of autocorrelation. The coefficients δ_0, δ_1, δ_3 and a_i are estimated. When comparing the t statistics with their critical values as shown in Table 1 and 2, we notice that all variables are becoming stationary on their first difference. This means that the null hypothesis that a given series, contain a unit root and is non-stationary was rejected at the first difference for all variables and the variables are integrated to order I (1). We start with the plot of the values of explanatory variables.

The plot of the explanatory variables determining the current account deficit in North Macedonia, provided in Figures 1 and 2, shows that all the explanatory variables are becoming stationary, on their first difference. This means that the null hypothesis that a given series contains a unit root and is nonstationary, was rejected for the first differences of respective explanatory variables of the current account determinants.

Table 1: Augmented Dickey Fuller test of the selected variables in levels

Variables	T-statistic	Critical value at 5%	Probability	Remarks
CAD_{jt}	-0.81 (-3.63)	-2.99 (-3.58)	0.013 (0.027)	Non-Stationary
GD_{jt}	-0.81 (-1.28)	-2.99 (-3.58)	0.815 (0.892)	Non-Stationary
$REER_{jt}$	-2.45 (-1.96)	-2.99 (-3.58)	0.127 (0.622)	Non-Stationary
Y^{gap}_{jt}	-2.67 (-2.62)	-2.99 (-3.58)	0.079 (0.271)	Non-Stationary
TO_{jt}	0.67 (-2.86)	-2.99 (-3.58)	0.989 (0.174)	Non-Stationary
X^{gap}_{jt}	-2.54 (-2.49)	-2.99 (-3.58)	0.105 (0.331)	Non-Stationary
EF_{jt}	-1.50 (-2.46)	-2.99 (-3.58)	0.532 (0.347)	Non-Stationary
LPR_{jt}	-0.90 (-1.76)	-2.99 (-3.58)	0.788 (0.719)	Non-Stationary
RI_{jt}	-1.40 (-1.06)	-2.99 (-3.58)	0.578 (0.932)	Non-Stationary
$M2_{jt}$	-5.72 (-1.43)	-2.99 (-3.58)	0.628 (0.975)	Non-Stationary
$FUEL_{jt}$	-1.98 (-1.92)	-2.99 (-3.58)	0.292 (0.641)	Non-Stationary
CC_{jt}	-1.27 (-1.12)	-2.99 (-3.58)	0.643 (0.924)	Non-Stationary
GOV_{jt}	-1.38 (-1.50)	-2.99 (-3.58)	0.591 (0.823)	Non-Stationary
PR_{jt}	-1.34 (-3.08)	-2.99 (-3.58)	0.608 (0.108)	Non-Stationary
RQ_{jt}	-0.81 (-2.01)	-2.99 (-3.58)	0.812 (0.595)	Non-Stationary

Note: Value outside (inside) the brackets denote the absence (presence) of trend. In all the cases we have insufficient evidence to reject the null hypothesis of non-stationarity. The variables contain a unit root and are non-stationary.

Source: Authors' calculations

Table 2: Augmented Dickey Fuller test of the selected variables in levels

Variables	T-statistic	Critical value at 5%	Probability	Remarks
CAD_{jt}	-5.38 (-5.30)	-2.99 (-3.59)	0.000 (0.000)	Stationary
GD_{jt}	-4.08 (-4.04)	-2.99 (-3.59)	0.000 (0.000)	Stationary
$REER_{jt}$	-4.75(-5.83)	-2.99 (-3.59)	0.000 (0.000)	Stationary
Y^{gap}_{jt}	-2.67 (-2.62)	-2.99 (-3.59)	0.000 (0.000)	Stationary
TO_{jt}	-4.92 (-5.22)	-2.99 (-3.59)	0.000 (0.000)	Stationary
X^{gap}_{jt}	-5.19 (-5.13)	-2.99 (-3.59)	0.000 (0.000)	Stationary
EF_{jt}	-4.94 (-4.82)	-2.99 (-3.59)	0.000 (0.000)	Stationary
LPR_{jt}	-4.10(-4.32)	-2.99 (-3.59)	0.000 (0.000)	Stationary
RI_{jt}	-5.67 (-5.77)	-2.99 (-3.59)	0.000 (0.000)	Stationary
$M2_{jt}$	-6.34 (-6.13)	-2.99 (-3.59)	0.000 (0.000)	Stationary
$FUEL_{jt}$	-5.63 (-5.58)	-2.99 (-3.59)	0.000 (0.000)	Stationary
CC_{jt}	-3.90 (-3.85)	-2.99 (-3.59)	0.000 (0.000)	Stationary
GOV_{jt}	-5.89 (-5.96)	-2.99 (-3.59)	0.000 (0.000)	Stationary
PR_{jt}	-6.30 (-6.30)	-2.99 (-3.59)	0.000 (0.000)	Stationary
RQ_{jt}	-5.18 (-5.12)	-2.99 (-3.59)	0.000 (0.000)	Stationary

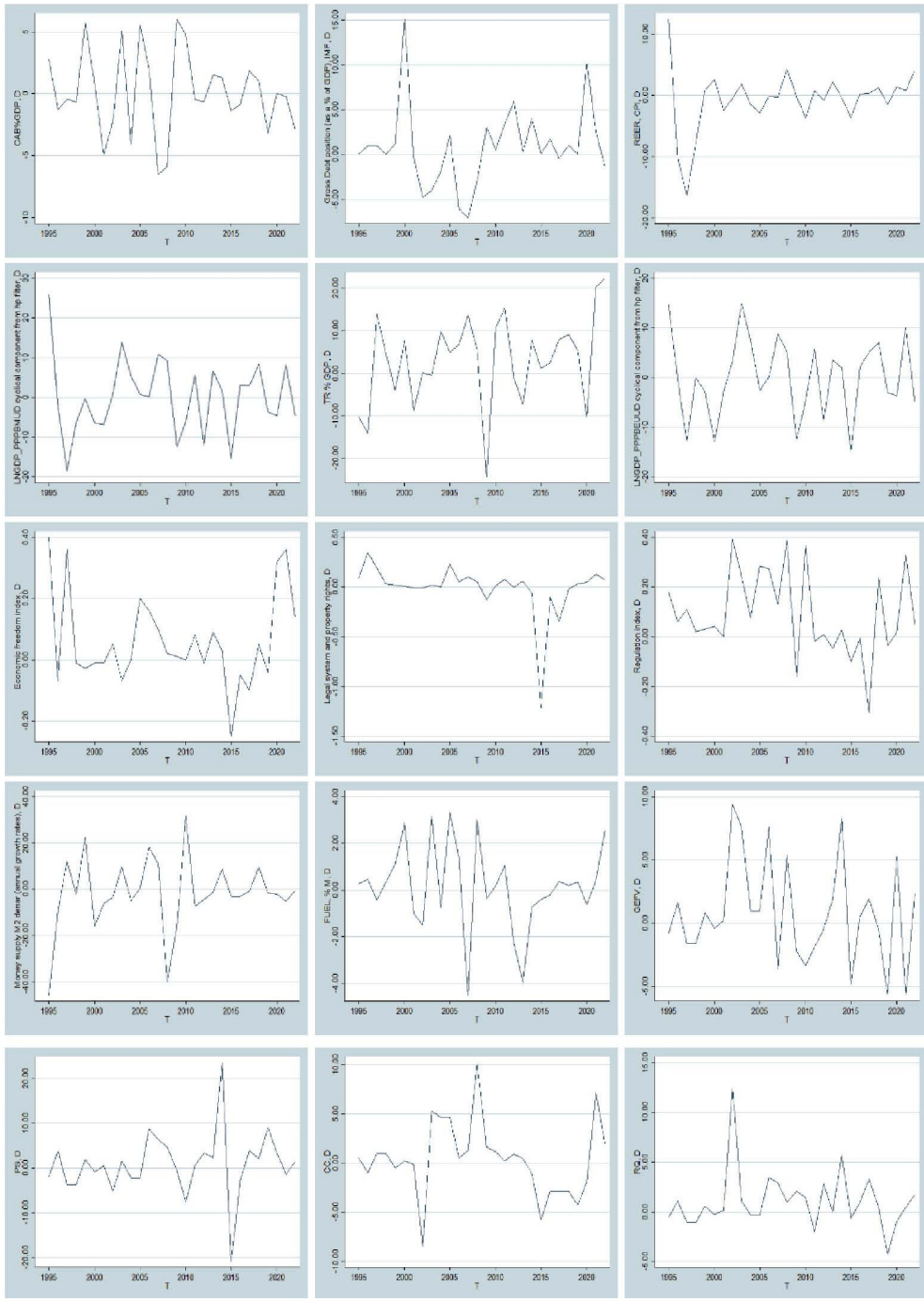
Note: Value outside (inside) the brackets denote the absence (presence) of trend. The variables do not have unit roots and are becoming stationary in the first difference.

Source: Authors' calculations

Figure 1: Augmented Dickey Fuller test for the variables in levels

Source: Authors' calculations

Figure 2: Augmented Dickey Fuller test for the variables in differenced terms



Source: Authors' calculations

3.3. Cointegration analysis

The stationary test we have conducted, suggest that the model (5) should be estimated, using the differenced variables. Hence, here we can only look at a short-run relationship among these variables. The final short-run model has the following form:

$$\begin{aligned}\Delta_1 CAD_{jt} = {} & a_0 + a_1 \Delta_1 GD_{jt} + a_2 \Delta_1 REER_{jt} + a_3 \Delta_1 Y_{gap_{jt}} + a_4 \Delta_1 TO_{jt} + \\ & + a_5 \Delta_1 X_{gap_{it}} + a_6 \Delta_1 EF_{jt} + a_7 \Delta_1 LPR_{jt} + a_8 \Delta_1 RI_{jt} + a_9 \Delta_1 M2_{jt} + \\ & + a_{10} \Delta_1 FUEL_{jt} + a_{11} \Delta_1 CC_{jt} + a_{12} \Delta_1 GOV_{jt} + a_{13} \Delta_1 PR_{jt} + \\ & + a_{14} \Delta_1 RQ_{jt} + \mu_t\end{aligned} \tag{5}$$

Where μ_t refer to error term derived out from the short run model. Cointegration refer to cases when two or more series share a stochastic trend. Engle and Granger (1987), suggested a two-step process to test for cointegration (an OLS regression and a unit root test), based on the Engle and Granger - ADF test. So, in a first step the so-called *cointegrating regression*, in which all the variables would be in levels and no dynamics included, would be estimated by ordinary least squares (OLS), and the residuals from this regression will be tested for the presence of a unit root (Bajo-Rubio and Sosvilla-Rivero, 1994; Dauti, 2009). If the residuals were found to be stationary, the cointegrating regression might be taken as a long-run relationship and we could then proceed to the second step, where an Error Correction Model (ECM), including those lagged residuals as an error-correction term would be postulated in order to consider the short-run dynamics.

Table 3: ADF test of the obtained residuals after estimating OLS regression

Variables	T-statistic	Critical value at 5%	Probability	Remarks
ε_{t-1}	-4.87 (-4.78)	-2.99 (-3.59)	0.000 (0.000)	Stationary
ε_{t-1}*	-4.964	-1.950		Stationary

Note**:** Value outside (inside) the brackets denote the absence (presence) of a trend. The error term provided from the OLS estimation of equation (1) does not have unit root and is stationary. * Denote the e-granger test.

Source: Authors' calculations

When we test for the presence of unit root on the residuals obtained, after OLS estimation of Equation (1), we find that the residuals are stationary, thus confirming the presence of the long-run relationship between the variables, and the series is cointegrated. Therefore, we proceed with the second step by analyzing the Error Correction Mechanism, thus enhancing the approach of non-stationary time series.

3.4. Error correction mechanism

In order to make a formal analysis of cointegration approach, we employ the second step of estimation procedure for dynamic modeling suggested by Engle and Granger (1987). Hence, in order to model the long run dynamics, when estimating the final short run model (Equation 5), suggested by Augmented Dickey – Fuller test, we consider the postulation of the lagged residuals as an error correction term, obtained from the OLS estimation of Equation (1). Following this approach, we estimate the cointegration regression shown on Equation (6), which confirm the long run relationship between variables. The error correction model is as follow:

$$\begin{aligned}\Delta_1 CAD_{jt} = {} & a_0 + a_1 \Delta_1 GD_{jt} + a_2 \Delta_1 REER_{jt} + a_3 \Delta_1 Y_{gap_{jt}} + a_4 \Delta_1 TO_{jt} + \\ & + a_5 \Delta_1 X_{gap_{it}} + a_6 \Delta_1 EF_{jt} + a_7 \Delta_1 LPR_{jt} + a_8 \Delta_1 RI_{jt} + a_9 \Delta_1 M2_{jt} + \\ & + a_{10} \Delta_1 FUEL_{jt} + a_{11} \Delta_1 CC_{jt} + a_{12} \Delta_1 GOV_{jt} + a_{13} \Delta_1 PR_{jt} + \\ & + a_{14} \Delta_1 RQ_{jt} + \varepsilon_{t-1}\end{aligned} \tag{6}$$

Where, the ε_{t-1} denote the error correction mechanism. Following this procedure, the results of applying the ECM procedure to Equation (6) for current account deficit are shown in column 3, Table 4.

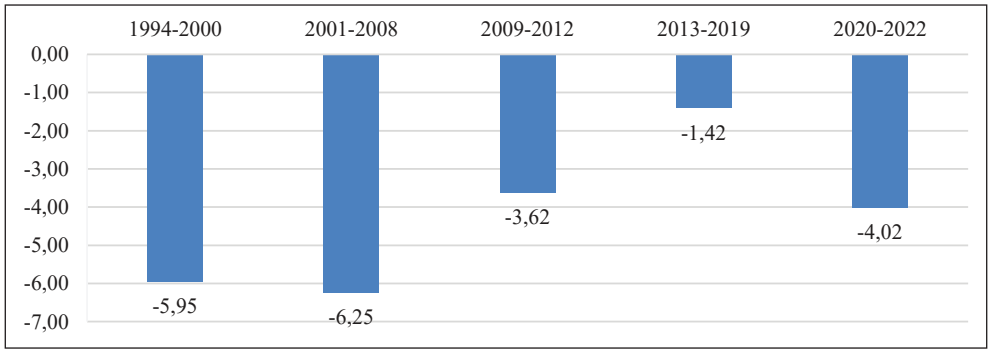
4. Data description and empirical analysis

Following the approach of Dauti and Elezi (2022), for the purpose of outlining the cyclical behaviour of the current account deficit in North Macedonia, due to different crisis periods, the descriptive analysis is navigated on the grounds of four different periods, 2000-2008 capturing the pre-international financial crisis period, 2009-2012 outlining the Eurozone debt crisis period, 2013-2019 considering the pre-COVID crisis period and 2020-2022 capturing the COVID-19 crisis period.

4.1. Current account trends in North Macedonia

The current account balance has been in persistent deficits over different periods, thus provoking the increase of the country's imports, which has lately been covered by private and official transfers. The widened deficit in 2022 was due to high prices of imported energy, which is expected to be recovered to its near balance, due to robust remittance inflows (Havolli, 2009). The highest deficit was recorded during the period 2001-2008, where in 2008 the deficit reached its peak, at about 13.1 percent as a share of GDP, as shown in Figure 3. This deficit was mainly caused by the international financial turmoil, which hurt private transfers and remittances.

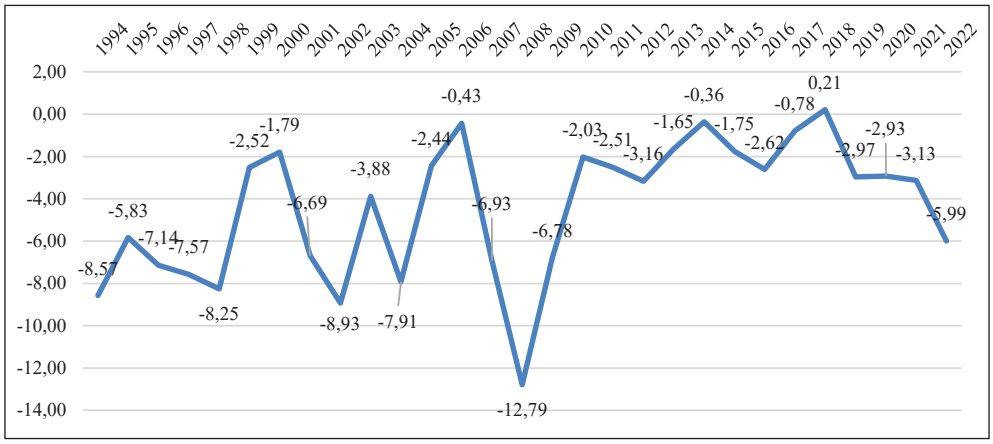
Figure 3: Current account deficit as a share of GDP in North Macedonia



Source: Authors' calculations based on data from World Bank (2024-a)

Summarizing the main factors that have contributed to the increase in the current account deficit, we can account for the following: an increase in domestic demand for imported goods like food, technology, oil, and energy and an increase in spending as the economy converges toward EU path (Dauti and Emini, 2019). However, the surplus level of the current account, in GDP terms, could be reached only once for North Macedonia in 2018 (Figure 4).

Figure 4: Current account deficit as a share of GDP in North Macedonia over a yearly time span 1994-2022

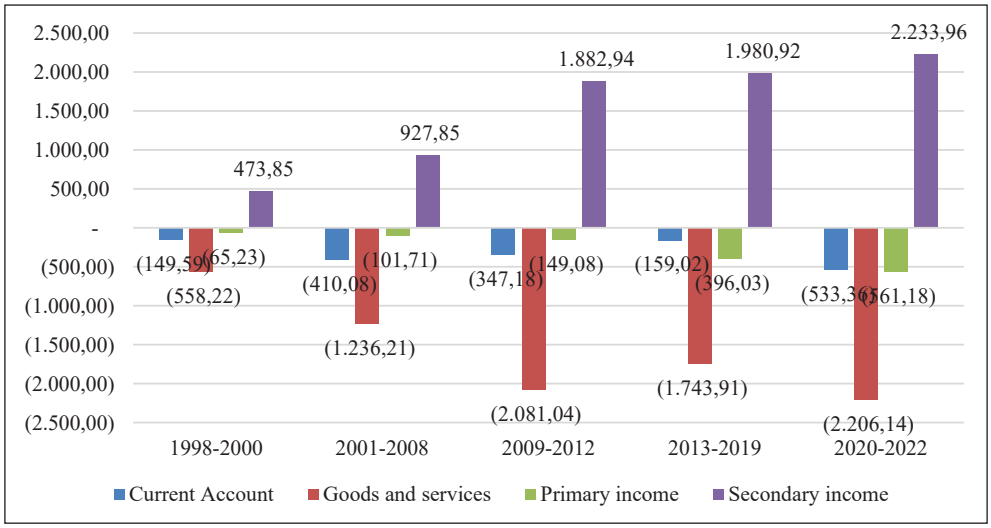


Source: Authors' calculations based on data from World Bank (2024-a)

Figure 4 shows that the current account deficit in North Macedonia was negative during the entire investigated period 1994-2022, reaching its peak in 2008, with a record of 12.8 percent, the result of the global financial crisis. In 2010 and the subsequent years up to 2016, the situation changed in favor of recording

significantly less deficit in the current account up to the pandemic COVID-19 yearly period of 2020. Whereas in the post-pandemic years of 2021 and 2022, especially in 2022, the deficit level in the current account reached its record of almost 6 percent in GDP terms, a result which can be attributed to inconsistent macroeconomic stabilization policies and economic consequences of the pandemic at a global scale, where North Macedonia external sector could not be immune.

Figure 5: Composition of current account, in millions of USD dollar 1998-2022



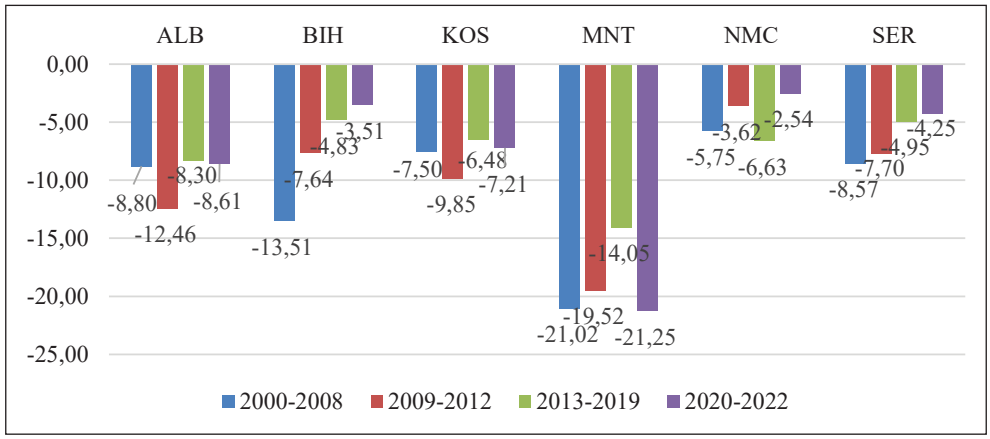
Source: Authors' calculations based on data from National Bank of the Republic of North Macedonia (2024-a)

As viewed from Figure 5, the surplus in the current account transaction during the five time periods mainly originates from the net inflow in secondary income consisting of transactions with non-residents and remittances and trade in services, which is recording a constant upward trend, while traditional deficit item in the current account position is mainly contributed from the deficit in trade of goods and services, making the country highly import dependent.

4.2. Comparative statistics

As viewed from figure 6, the highest deficit in the current account in terms of GDP percentage, during the COVID-19 crisis was recorded in Montenegro (21.25 per cent), followed by Albania (8.61 percent) and Kosovo (7.21), which is an indication of distressing effect of the pandemic, forcing these countries to be moreover reliable on imports rather than exports, thus hampering their macroeconomic performance on the grounds of external conditions.

Figure 6: Current account deficit as a share of GDP in Western Balkan (WB) countries



Source: Authors' calculations based on data from World Bank (2024-a)

The same countries suffered due to the Eurozone debt crisis period, which also harmed private transfers and remittances that constitute a traditional surplus item in the current account position of these countries. On the other hand, more stable positions based on current account deficit were observed in Serbia and North Macedonia during the four observed periods, thus making these countries more sustainable based on their economic performance when exposed to external economic conditions. However, Serbia's and North Macedonia's position of the current account deficit during the international financial turmoil period (2000-2008) was higher on a comparison basis than the rest of the WB countries, a case that can be attributed to different internal political crisis these countries had during this observed period. A healthy current account surplus is associated with stronger economic performance and better regional employment during the early stages of the post-2008 recession (Crescenzi et al., 2016). Although the surplus level in the current account at individual WB countries could not be reached during the time frame considered in the analysis, it was reduced significantly during the late years 2020-2022, except for Montenegro and Albania.

4.3. Empirical analysis

Focusing on the estimated results from Table 1, the coefficient of error correction term in the short-run model denotes the speed of adjustment toward the long-run equilibrium level of the estimated model, implying that the deviations from the long-run equilibrium are corrected gradually by the Error Correction Term, through a series of partial short-run adjustments. The coefficient of the error term is -1.1, which means that almost the whole discrepancy between the long-run and short-run model is corrected within a year. This coefficient shows us how fast the current account deficit

in North Macedonia changes to disequilibrium changes in the explanatory variables. A highly significant error correction term implies the existence of a stable long-run relationship among variables (Banerjee et al., 2014). The coefficient of R^2 is 0.89, meaning that 89% of changes in the dependent variable of the current account deficit are explained by the selected explanatory variables. The results from the co-integration analysis suggest that the fiscal policy-related variable of general government debt as a percentage of GDP is positively related to the current account deficit, implying that a 1 percent increase in the debt component of North Macedonia, will increase the deficit in the current account by 0.37 percent, on average, ceteris paribus. This result implies that the increase of public deficit can reduce the national savings, without a Ricardian offset or crowding out effect from private savings and hence can increase the current account deficit. Also, the effect of budget deficits on current account balances may be related to the allocation of fiscal expenditures. This means an increase in the public deficit lowers national savings. It also shows that an increase in fiscal deficits has the effect of expanding total consumption and current account deficits. The statistically significant and negative coefficient of REER indicates that potential depreciation of the domestic currency (as outlined by the Mundel-Fleming model), increases exports (as outlined by the Harberger-Laursen-Metzler, HLM effect), leading to improvement in the current account position in the second run (which is compatible with the Mundell-Fleming model). Depreciation of the exchange rate means an increase in the competitiveness level of North Macedonia's product at the international level, thus leading to an improvement of deficit in the current account, and hence a switch of foreigners spending to North Macedonia's goods, thus boosting exports. From the results, a 1 percent increase in the REER leads to an average decrease of the current account deficit by 0.2 percent, implying that the country's potential for exchange rate devaluation may eventually reduce the deficit level in the current account, via exports increase. As claimed in the results, the output gap in North Macedonia is proved to have a positive impact on the current account deficit, hence, increasing the country's output gap by 1 percent, leads to a 0.5 percent increase in the current account deficit, a case which reflects the presence of increased level of domestic aggregate demand. Trade openness is confirmed to be negatively related to the current account deficit, meaning that as the country liberalizes its trade policies it gets more involved in international trade and hence, may be exposed to less deficit in the current account. Henceforth, a 1 percent increase in the trade openness, decreases the deficit in the current account by 0.24 percent, ceteris paribus. Institutional-related factors, like economic freedom, legal and property rights, regulatory index, control of corruption, government effectiveness, and regulatory quality are significantly related to the current account deficit outlining the impact of institutional efficiency on the county's cyclical behavior of external conditions. Improvement of the civil services (captured by the government effectiveness coefficient), the protection of legal and property rights, and improvement in the regulation index, decreased the current account deficit in North Macedonia, on average by 4.9 percent, 0.2 percent, and 6.8 percent respectively, other things being equal.

Table 4: Results of the determinants of current account deficit in North Macedonia

Variables	(1)	(2)	(3)
CAD_{jt} dependent variable	OLS	Short run model	ECM model
GD_{jt}	0.426***	0.220	0.375***
	(0.118)	(0.127)	(0.106)
$REER_{jt}$	-0.249**	-0.0952	-0.244*
	(0.112)	(0.164)	(0.131)
$Y_{gap_{jt}}$	0.437*	0.356	0.512***
	(0.210)	(0.203)	(0.159)
TO_{jt}	-0.250***	-0.237***	-0.249***
	(0.0762)	(0.0529)	(0.0398)
$X_{gap_{jt}}$	-0.173	-0.186	-0.276
	(0.212)	(0.206)	(0.156)
EF_{jt}	6.315	9.275**	8.529**
	(4.523)	(3.825)	(2.875)
LPR_{jt}	-4.766*	-2.767	-4.995**
	(2.233)	(2.751)	(2.167)
RI_{jt}	-6.357	-7.312*	-6.869**
	(4.544)	(4.073)	(3.054)
$M2_{jt}$	0.220***	0.198***	0.240***
	(0.0490)	(0.0352)	(0.0292)
$FUEL_{jt}$	0.659*	1.271***	0.787**
	(0.358)	(0.324)	(0.283)
CC_{jt}	0.472***	0.224	0.260**
	(0.143)	(0.150)	(0.113)
GOV_{jt}	-0.411*	-0.295	-0.249*
	(0.204)	(0.177)	(0.134)
PR_{jt}	-0.0244	-0.0539	0.0262
	(0.0940)	(0.0899)	(0.0715)
RQ_{jt}	0.776**	0.631**	0.448**
	(0.319)	(0.244)	(0.191)
ε_{t-1}			-1.101***
			(0.329)
Constant	12.95	0.303	0.292
	(27.54)	(0.635)	(0.476)
Observations	29	28	28
R-squared	0.776	0.805	0.899

Note**:** Dependent variable is Current Account Balance as a share of GDP. t-statistics in brackets, ***, ** and * indicate significance of coefficients at 1, 5 and 10 per cent, respectively. Column (1) denote the results, based on the OLS estimates of equation 1. Column (2) denote the short run results obtained from the OLS estimates of equation 5 and column 3, denote the OLS estimates from equation 6 (ECM model).

Source: Authors' calculations

This result implies that the country's performance, concerning external economic conditions, will improve through potential influx in the current account originating from exports or remittances, once there is an evident boost of institutional performance of the country with respect to protecting legal and property rights and applying sound government regulation policies. On the other hand, other institutional-related factors like control of corruption, economic freedom, and regulatory quality worsen the deficit level in the current account. Interpreting the coefficient of the control of corruption, a 1 percent increase in the extent to which public power is exercised for private gains through corruption channels leads to an increase in the current account deficit in North Macedonia, on average, by 0.2 percent. Interpreting the coefficient of the regulatory quality index, a 1 percent increase in the extent to which regulation policies applied for promoting private sector development in North Macedonia will contribute to the deficit in the current account by 0.4 percent, other things remaining equal.

Also, economic freedom contributes to worsening the external position of the country on the grounds of current account by increasing its deficit, meaning that jurisdictions by trade freedom, tax burden, and judicial effectiveness are inconsistent and subject to political pressures, and hence, confirming the regional predispositions of potential importers toward North Macedonia's products at international markets. The results suggest that financial development is positively related to the current account deficit, a result that can be attributed to the underdeveloped financial sector in the country. Hence, a 1 percent increase in the financial sector development would, on average, increase the deficit in the current account by 0.24 percent. Also, fuel exports as a share of total merchandise exports are found to increase the current account deficit, per average of 0.7 percent, for a 1 percent increase in fuel exports.

4.4. Calculating the potentials of current account deficit in North Macedonia

To calculate potential values of current account deficit in North Macedonia, we have used the Hodrick Prescott filter. The calculation of the potential deficit in the current account in North Macedonia are considered for the period 1994-2022 based on the actual data of the current account deficit.

Figure 7: Actual and potential values of current account deficit in North Macedonia

Note: The calculations are based on STATA using Hodrick – Prescott filter.

Source: Authors' calculations

Table 5: Actual and potential values of current account deficit in North Macedonia

Years (average)	Actual deficit in the current account	Potential deficit in the current account	Cyclical component	Actual over potential level of current account deficit
1994-2000	-5.95	-6.52	-0.57	0.91
2001-2008	-6.24	-5.27	-0.97	1.18
2009-2013	-3.22	-3.51	-0.28	0.91
2014-2018	-1.05	-2.16	-1.10	0.48
2019-2022	-3.75	-2.96	-0.79	1.26

Note: Potential values of current account deficit are calculated using the Hodrick-Prescot filter. The data are presented on a yearly average term within shown time periods.

Source: Authors' calculations

The ratio of actual to potential current account deficit below one shows that the country has recorded less current account deficit than is predicted by the model. Also, there exists more scope for recording more deficit in the current account, which is evident during three time periods 1994-2000; 2009-2013, and 2014-2018, which is a signal of the overheating cycle on the grounds of the country's

external economic conditions. This means that during the observed period, 2009-2012, which outlined the Eurozone debt crisis period, North Macedonia's external economic conditions were unaffected. Also, during the normal times of 1994-2000 and 2014-2018, the country's external sector was in a favorable economic situation. The ratio of actual to the potential current account, above shows that the country has recorded more deficit in the current account than potentially expected, which is a signal of evident crisis imported to the country, a circumstance which is manifested during two time periods, the pre-financial crisis period 2001-2008 and COVID-19 crisis period 2019-2022. These two scenarios show that North Macedonia's external economic conditions were significantly worsened due to regional or international predisposition of foreigners toward the country's financial and economic resources, throughout declined demand for the country's products and services at international markets, worsened influx of country's secondary income or breaking up the regional or international supply chain, where North Macedonia intermediate products were involved, a scenario which was manifested during COVID-19 pandemic crisis.

5. Results and discussion

Based on the co-integration analysis the research finds out that the current account deficit in North Macedonia during the observed yearly period, 1994-2022, on macroeconomic grounds was triggered by fiscal factors (general government debt), price competitiveness-related factors (real effective exchange rate) and business cycle related factors (output gap). The domestic output gap and the trade openness capture the impact of domestic demand on the current account deficit. Also, the domestic output gap together with the European output gap refers to the effect of cyclical factors in North Macedonia and the EU level, respectively. The enhancement effect of government debt, through the implicit impact of the fiscal deficit component of this debt, on current account deficit is in line with the twin deficit hypothesis confirmed in previous empirical studies on the existence of the twin deficit hypothesis in North Macedonia (Bucevska, 2020; Sadiku et al, 2015; Stojcevska and Miteski, 2016). Also, the positive association between the budget and the current account deficit is a signal for an increase in debt potential in the country's economy and hence vicious circle can take place throughout the interaction between the budget and current account deficit. Therefore, to improve government debt sustainability, a prior reduction of the budget deficit via improvements in the current account balance shall proceed. The negative relationship between the price competitiveness indicator captured by the real effective exchange rate and current account deficit implies that with the increase of competitiveness level of country products at regional or international markets, which is mainly manifested throughout the depreciation of the exchange rate, the deficit in the current account decreases, as the foreign demand elasticity concerning North Macedonia's product prices increases. This finding is compatible with the

Mundel-Fleming model and Harberger-Laursen-Metzler, HLM effect, on the relationship between exchange rate, exports, and current account deficit (Mordecki and Miranda, 2019). Also, it is generally accepted standard, particularly for a small and open economy, such is the case with North Macedonia, that changes in the real effective exchange rate can encourage economic activity by fluctuating the relative returns in the tradeable and non-tradeable sectors. On the grounds of domestic demand factors like North Macedonia's output gap and trade openness, the results confirm the enhancement effect of the output gap and the deteriorating effect of trade openness on the current account deficit. The enhancement effect of the output gap (actual GDP is higher than potential GDP) on the current account deficit, comes through demand pressure factors, suggesting that actual domestic aggregate demand above its potential level, may also affect the elasticity of the current account deficit concerning cyclical movement, moreover, outlining the positive level of the output gap in North Macedonia, during most of the period, which reflects high level of domestic demand. The insignificant coefficient of the EU output gap, concerning North Macedonia's current account deficit, implies that the EU output gap does not impact the elasticity of the current account deficit on the grounds of EU cyclical movement, which is a signal of unimportant transactions between North Macedoni's and EU economic agents. Therefore, the net EU savings did not help the recovery process of North Macedonia's external sector, which to some extent may be an outcome of the weakened EU approximation path of the country on economic and political grounds, during the observed yearly period. The deteriorating effect of trade openness on the current account deficit implies that trade liberalization policies could improve the country's trade balance, via exports increase and hence reduce the deficit level in the current account. The research outlines the importance of institutional performance on the level of the current account balance of the country. The positive relationship between the economic freedom index, control of corruption, and current account deficit indicates that the country's external balance concerning the current account deficit is sensitive to misuse of the ability of economic agents in the business decision-making process without government limitations and the misuse of political power by host country elites and governments, respectively. The positive and statistically significant coefficient of the regulatory index indicates that sound regulation policies that promote private sector development in North Macedonia are contributing to the increase of the current account deficit, the result that can be attributed to the inconsistency of private sector development policies for North Macedonia, thus confirming the economic agent's regional predispositions toward this inconsistency. The research confirms the enhancement effect of financial development indicators on the deficit level of the current account. Given that higher financial developments mean more investment; it is expected that a high investment ratio will contribute to a surplus condition on the current account. Therefore, we endorse investment promotion policies which could be vital for improving the country's current account balance condition.

6. Conclusion

The current account balance as an outcome of investments and saving decisions of optimizing agents, is an important indicator for macroeconomic stabilization policies. The purpose of this research was to test empirically the macroeconomic, institutional, and financial determinants of the current account deficit in North Macedonia, over a yearly period 1994-2022, using cointegration analysis. We also investigated the stationarity of the time series data. Since all of them became stationary in their first difference, we performed cointegration analysis throughout the error correction term modeling process, to capture the long-run relationship between the variables. The descriptive part of the research confirms that chronic current account deficits in North Macedonia, over a yearly period under investigation, imply an excess of domestic absorption over aggregate supply/income. The empirical part of the research reveals that the current account performance of the country is determined by macroeconomic-related factors (domestic demand captured by domestic output gap, trade openness, and real effective exchange rate), fiscal factor (general government debt), institutional performance captured throughout good governance indicators as well as legal factors and financial development factor, which is broadly considered through monetary aggregate of money supply, M2. Government debt is confirmed as a deficit enhancement factor in the current account. Price competitiveness level, captured through the real effective exchange rate is confirmed as a deteriorating factor of the deficit in the current account balance, giving rise to possible depreciation policies of exchange rate, which through its impact on exports increase, could improve the deficit level in the current account. The enhancement effect of the domestic output gap on the current account deficit implies the importance of cyclical movement for the country's economic external conditions and high level of domestic demand, whereas, the deteriorating effect of trade openness on the current account deficit implies that trade liberalization policies could expose the country to less deficit situation in current account. The study finds out that North Macedonia can improve its external economic conditions through enhanced institutional performance by strengthening the legal and property rights, and regulatory index and increasing the quality of public and civil services as well as policy formulation and implementation through good government effectiveness. On the other hand, other institutional-related factors like economic freedom, control of corruption, and regulatory quality are found to enhance the deficit level in the current account. Investigating these institutional factors on an individual basis about the current account deficit for North Macedonia is a novelty approach undertaken in this study. It adds value to the empirical evidence on the grounds of the tested hypothesis related to the impact of institutional performance on the current account balance in the country. The limitation of the research is about the effect of the interaction between institutional-related factors and macroeconomic factors on the current account balance, which on the other hand could be considered

a profound force behind the performance of the current account balance in North Macedonia. Therefore, a fruitful direction for future research would be to treat such interactions, considering that North Macedonia went through many institutional challenges associated with integration tasks into the EU.

References

Altayligil, Y. B, Çetrez, M. (2020) "Macroeconomic, Institutional and Financial Determinants of Current Account Balances: A Panel Data Assessment", *Journal of Economic Structures*, Vol. 9, No.1, pp. 1–23, https://doi.org/10.1186/s40008-020-00225-1.

Aristovnik, A. (2006) *Current account adjustments in selected transition countries*, Working Paper No. 813, William Davidson Institute, http://dx.doi.org/10.2139/ssrn.906593.

Bajo-Rubio, O., Sosvilla-Rivero, S. (1994) "An Econometric Analysis of Foreign Direct Investment in Spain, 1964-89", *Southern Economic Journal*, Vol. 61, No.1, pp. 104–120, https://doi.org/10.2307/1060133.

Banerjee, A., Marcellino, M., Masten, I. (2014) "Forecasting with Factor-augmented Error Correction Models", *International Journal of Forecasting*, Vol. 30, No. 3, pp. 589–612, https://doi.org/10.1016/j.ijforecast.2013.01.009.

Bitzis, G., Paleologos, J. M., Papazoglou, C. (2008) "The determinants of the Greek current account deficit: The EMU experience", *Journal of International and Global Economic Studies* [Internet], Vol. 1, No. 1, pp. 105–122. Available at: <https://www.researchgate.net/publication/242555523_The_Determinants_of_the_Greek_Current_Account_Deficit_The_EMU_Experience> [Accessed: December 2, 2023].

Bucevska, V. (2020) "Testing the Twin Deficit Hypothesis: Evidence from the Republic of North Macedonia", *Business Systems Research Journal: International journal of the Society for Advancing Innovation and Research in Economy*, Vol. 11, No. 3, pp. 45–62, https://doi.org/10.2478/bsrj-2020-0026.

Bussière, M., Fratzscher, M.,Müller, G. J. (2006) "Current Account Dynamics in OECD Countries and in the New EU Member States: An Intertemporal Approach", *Journal of Economic Integration*, Vol. 21, No. 3, pp. 593–618. Available at: <http://www.jstor.org/stable/23000848> [Accessed: December 3, 2023]

Cavdar, S. C., Aydin, A. D. (2015) "Understanding the Factors Behind Current Account Deficit Problem: A Panel Logit Approach on 16 OECD Member Countries", *Procedia Economics and Finance,* Vol. 30, pp. 187–194, https://doi.org/10.1016/S2212-5671(15)01282-4.

Cheung, C., Furceri, D., Rusticelli, E. (2013) "Structural and Cyclical Factors behind Current Account Balances", *Review of International Economics*, Vol. 21, No. 5, pp. 923–944, https://doi.org/10.1111/roie.12080.

Chinn, M. D., Prasad, E. S. (2003) "Medium-term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration", *Journal of international economics*, Vol. 59, No. 1, pp. 47–76, https://doi.org/10.1016/S0022-1996(02)00089-2.

Crescenzi, R., Luca, D., Milio, S. (2016) "The Geography of the Economic Crisis in Europe: National Macroeconomic Conditions, Regional Structural Factors and Short-term Economic Performance", *Cambridge Journal of Regions, Economy and Society,* Vol. 9, No. 1, pp. 13–32, https://doi.org/10.1093/cjres/rsv031.

Dauti, B. (2009) "Determinants of Foreign Direct Investment in Macedonia. Evidence from Time Series 1994–2008". In Proceedings of *FIKUSZ '09*, 28-30 November, Budapest, Hungary: Óbuda University, Budapest Tech Keleti Károly Faculty of Economics, pp. 41–55. Available at: <https://core.ac.uk/download/pdf/6504634.pdf> [Accessed: January 5, 2024]

Dauti, B. (2021) "Fiscal Policy in the European Union". In Qorraj, G. and Hashi, I., ed., *European Union and the Western Balkans* [Internet], pp. 159–178, Bangkok, Celje, Lublin: ToKnowPress. Available at: <https://www.toknowpress.net/ISBN/978-83-65020-338.pdf> [Accessed: January 5, 2024]

Dauti, B., Elezi, S. (2022) "Economic growth in the Central East European Union and the Western Balkan countries in the course of Stability and Growth Pact and COVID-19", *Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu/ Proceedings of Rijeka Faculty of Economics journal of Economics and Business,* Vol. 40, No. 1, pp. 29–61, https://doi.org/10.18045/zbefri.2022.1.29.

Dauti, B., Emini, E. (2019) "Economic Challenges of North Macedonia's Bridging Toward European Union, with Focus on Real and Nominal Convergence", *Economic vision - International Scientific Journal in Economics, Finance, Business, Marketing, Management and Tourism* [Internet], Vol. 6, No. 11–12, pp. 31–41. Available at: <https://www.ceeol.com/search/article-detail?id=955090> [Accessed: January 5, 2024].

Engle, R. F., Granger, C. W. (1987) "Co-integration and Error Correction: Representation, Estimation, and Testing", *Econometrica*, Vol. 55, No. 2, pp. 251–276, https://doi.org/10.2307/1913236.

Fraser Institute (2024) *Dataset on Economic Freedom, regulation and legal and property rights.* Avaliable at: <https://www.fraserinstitute.org/economic-freedom/dataset?geozone=world&minyear=2&maxyear=0&filter=1&page=dataset&countries=MKD&year=1995> [Accessed: April 18, 2023]

Havolli, S. (2009) *Determinants of remittances: The case of Kosovo*, CBK Working Paper No. 3, Central Bank of the Republic of Kosovo, pp. 2–14, http://dx.doi.org/10.2139/ssrn.1478989.

IMF - International Monetary Fund (2024-a) *World Economic and International Surveys, World Economic Outlook Database. Current Account Deficit as a*

share of GDP. Avaliable at: <https://www.imf.org/en/Publications/WEO/weo-database/2024/April/select-date-range?c=962,&s=BCA_NGDPD> [Accessed: April 18, 2024]

IMF - International Monetary Fund (2024-b) *World Economic and International Surveys, World Economic Outlook Database. Gross Debt Position as a share of GDP*. Avaliableat:<https://www.imf.org/external/datamapper/GGXWDG_NGDP@WEO/OEMDC/ADVEC/WEOWORLD> [Accessed: April 18, 2023]

IMF - International Monetary Fund (2024-c) *International Financial Statistics. Real Effective Exhange Rate.* Avaliable at: <https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b&sid=1390030341854> [Accessed: April 18, 2023].

IMF - International Monetary Fund (2024-d) *World economic outlook database (WEO), data on GDP in current prices, US dollar, volume of exports and imports of goods and services for North Macedonia*. Available at: <https://www.imf.org/en/Publications/WEO/weo-database/2024/April/select-subjects?c=962> [Accessed: April 18, 2023]

IMF - International Monetary Fund (2024-e) *World economic outlook database (WEO), data on GDP in current prices for European Union, in US dollar*. Available at: <https://www.imf.org/en/Publications/WEO/weo-database/2024/April/select-subjects?a=1&c=001,998> [Accessed: April 18, 2023]

Kent, C. J., Cashin, M. P. (2003) *The Response of the Current Account to Terms of Trade Shocks: Persistence Matters*, IMF Working Paper No. 03/143, IMF [Internet]. Available at SSRN: <https://ssrn.com/abstract=879219> [Accessed: January 7, 2024]

Lee, J., Chinn, M. D. (2006) "Current Account and Real Exchange Rate Dynamics in the G7 Countries", *Journal of International Money and Finance*, Vol. 25, No. 2, pp. 257–274, https://doi.org/10.1016/j.jimonfin.2005.11.002.

Legg, A., Prasad, N., Robinson, T. (2007) *Empirical Methodology and Data| RDP 2007-11: Global Imbalances and the Global Saving Glut–A Panel Data Assessment*, Research Discussion Paper 2007-11, Reserve Bank of Australia Research Discussion Papers. Available at: <https://www.rba.gov.au/publications/rdp/2007/2007-11/empirical-methodology-data.html> [Accessed: January 9, 2024]

Mordecki, G., Miranda, R. (2019) "Real Exchange Rate Volatility and Exports: A Study for four Selected Commodity Exporting Countries", *Panoeconomicus*, Vol. 66, No. 4, pp. 411–437, https://doi.org/10.2298/PAN160927010M [Accessed: January 3, 2024].

National Bank of the Republic of North Macedonia (2024-a) *Balance of Payments, aggregated data, by years. Current Account Balance*. Available at <https://nbstat.nbrm.mk/pxweb/en/Eksterni%20statistiki/Eksterni%20statistiki__Platen%20Bilans__Platen%20bilans%20trimesecni/1_AgregiraniPodatociTrimesecniEN.px/> [Accessed: January 12, 2024]

National Bank of the Republic of North Macedonia (2024-b) *Monetary and Interest Rate Statistics. M2, Money Supply, annual growth*. Available at: <https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS__MS__Monetarni%20i%20kreditni%20agregati/5_ParicnaMasaINejziniteKomponentiMesecniEN.px/> [Accessed: January 12, 2024]

Obstfeld, M. (2012) "Does the Current Account Still Matter?", *American Economic Review*, Vol. 102, No. 3, pp. 1–23, https://doi.org/ 10.1257/aer.102.3.1.

Sadiku, L. et al. (2015) "The Persistence and Determinants of Current Account Deficit of FYROM: An Empirical Analysis", *Procedia Economics and Finance*, Vol. 33, pp. 90–102, https://doi.org/10.1016/S2212-5671(15)01696-2.

Stojcevska, V., Miteski, M. (2016) "Assessment of the impact of fiscal policy on the current account. The Twin Deficit hypothesis in the case of Macedonian Economy", Working Paper No. [2016-01], National Bank of the Republic of North Macedonia, Skopje. Available at: <https://hdl.handle.net/10419/173716> [Accessed: January 10, 2024]

World Bank (2024-a) *International Monetary Fund, Balance of Payments Statistics Yearbook and data files, and World Bank and OECD GDP estimates.-Current Account Balance as a share of GDP*. Available at:<https://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS?end=2022&locations=MK&start=1996> [Accessed: January 12, 2024]

World Bank (2024-b) *World Bank staff estimates through the WITS platform from the Comtrade database maintained by the United Nations Statistics Division*. Fuel Exports as a percentage of merchandise exports. Avaliable at <https://data.worldbank.org/indicator/TX.VAL.FUEL.ZS.UN> [Accessed: January 12, 2024]

World Bank (2024-c) *Property Rights dataset.* Avaliable at: <https://prosperitydata360.worldbank.org/en/indicator/VDEM+CORE+v2xcl_prpty> [Accessed: April 15, 2023]

World Bank (2024-d) *World Governance Indicators. Control of corruption, government effectiveness, political risk, regulatory quality.* Avaliable at: <https://databank.worldbank.org/source/worldwide-governance-indicators> [Accessed: January 18, 2024]

Appendix

Table 1A: Descriptive statistics

Variables	Observations	Mean	Standard deviations	Min	Max
CAD_{jt}	(4.42)	3.22	(12.79)	0.21	(4.42)
GD_{jt}	35.21	8.79	20.64	53.41	35.21
$REER_{jt}$	104.48	8.98	98.14	136.45	104.48
Y^{gap}_{jt}	0.00	10.14	(20.08)	21.17	0.00
TO_{jt}	100.20	27.43	57.92	170.82	100.20
X^{gap}_{it}	0.00	8.78	(19.44)	17.76	0.00
EF_{jt}	7.13	0.37	6.23	7.95	7.13
LPR_{jt}	5.58	0.61	4.54	6.28	5.58
RI_{jt}	7.47	0.90	5.91	8.50	7.47
$M2_{jt}$	13.17	13.33	(14.30)	56.00	13.17
$FUEL_{jt}$	3.64	2.87	0.13	9.38	3.64
CC_{jt}	41.45	9.16	25.40	56.40	41.45
GOV_{jt}	42.65	10.95	25.14	56.25	42.65
PR_{jt}	31.65	10.81	15.53	56.67	31.65
RQ_{jt}	53.16	12.28	35.33	70.00	53.16

Source: Authors' calculations

Table 1B: Variable description and data source

Variables	Definition	Source
CAD_{jt}	Current Account Deficit as a share of GDP	IMF, world economic outlook (WEO), database of January 2024-a
GD_{jt}	Gross debt position as a share of GDP,	IMF, world economic outlook (WEO), database of January 2024-b
$REER_{jt}$	Real Effective Exchange Rate	IMF, world economic outlook (WEO), database of January 2024-c
TO_{jt}	Trade openness (sum of exports and imports over GDP)	IMF, world economic outlook (WEO), database of January 2024-d
Y^{gap}_{jt}	Cyclical components of output gap in North Macedonia. Measured as a percentage difference of actual GDP (aggregated demand) from trend – potential GDP, (aggregate supply), as calculated with the Hodrick-Prescott filter	Own calculation using data of GDP from IMF, world economic outlook (WEO), database of January 2024-e
X^{gap}_{jt}	Cyclical components of output gap in EU-27 countries. Measured as a percentage difference of actual GDP (aggregated demand) from trend – potential GDP, (aggregate supply), as calculated with the Hodrick-Prescott filter	Own calculation using data of GDP from IMF, world economic outlook (WEO), database of January 2024-e
EF_{jt}	Economic Freedom	Fraser institute (2024)
LPR_{jt}	Legal and Property Rights	Fraser institute (2024) and World Bank (2024-c)
RI_{jt}	Regulation index	Fraser institute (2024)
$M2_{jt}$	M2, monetary aggregate proxying money supply	National Bank of North Macedonia (2024-b)
$FUEL_{jt}$	Fuel Exports as a percentage of merchandise exports	World Bank (2024-b) WITS platform from the Comtrade database maintained by the United Nations Statistics Division
CC_{jt}	Control of corruption, in percentile rank	World governance indicator, World Bank (2024-d)
GOV_{jt}	Government effectiveness, in percentile rank	World governance indicator, World Bank (2024-d)
PR_{jt}	Political risk, in percentile rank	World governance indicator, World Bank (2024-d)
RQ_{jt}	Regulatory Quality	World governance indicator, World Bank (2024-d)

Source: Authors' construction

Makroekonomske, institucionalne i financijske odrednice deficita tekućeg računa u Sjevernoj Makedoniji: Dokazi iz vremenskih serija

Bardhyl Dauti[1]

Sažetak

Uloga salda tekućeg računa u makroekonomskoj politici progresivno je velika, posebice u tranzicijskim zemljama. Koristeći podatke na godišnjoj razini za vremenski raspon od 1994. do 2022. godine, na temelju analize kointegracije, ovo istraživanje empirijski istražuje makroekonomske, institucionalne i financijske odrednice deficita tekućeg računa u Sjevernoj Makedoniji. Rezultati istraživanja ukazuju da na deficit tekućeg računa zemlje značajno utječu čimbenici domaće potražnje kao što su realni efektivni tečaj, proizvodni jaz i trgovinska otvorenost, fiskalni čimbenik stanja bruto duga, institucionalni čimbenik ekonomske slobode, pravna i imovinska prava, regulatorni indeks, kontrola korupcije, učinkovitost vlade, kao i financijski razvoj obuhvaćen novčanom opskrbom. Rezultati studije također ukazuju da je zemlja zabilježila veći manjak na tekućem računu od potencijalno očekivanog tijekom dva vremenska razdoblja: razdoblje prije financijske krize 2001. – 2008. god. i tijekom kriznog razdoblja COVIDa-19 od 2019. do 2022. god.

Ključne riječi: *deficit tekućeg računa, mehanizam ispravljanja pogrešaka, Sjeverna Makedonija*

JEL klasifikacija: *F32, F37*

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