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Determinants of the Current Account Balances among Central and Eastern European Countries in the European Union

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This study examines whether the financial market development and integration have affected the current account balances in the European Union (EU) countries in Central and Eastern Europe (CEE) during 1996–2015. First, the results suggest that the higher bank credit flows have resulted in the current account deficits especially after EU accession. The larger pool of bank lending flows due to the foreign mergers and acquisitions has helped finance domestic investment. This has led to the larger current account deficits. Second, the results indicate that the larger stock market size due to EU accession has caused current account surpluses rather than deficits. This contradicts the findings of previous studies, which find that higher financial market development leads to current account deficit. Finally, the result confirms that financial integration has facilitated higher current account deficits. The European Monetary Union has eliminated the regulatory restrictions on cross-border capital flows. The increase in foreign capital inflows has helped finance the growing local consumption and investment needs, which has made the CEE countries run the larger current account deficits.

1. Introduction

For the past few decades, European Union (EU) financial integration has had a significant impact on the current account balances of member countries. The countries in Central and Eastern Europe (CEE) joined the EU to accelerate their financial market development. The creation of the European Monetary Union (EMU) has deepened their stock market and bank integration with the developed EU countries. The greater access to larger and highly liquid financial markets has allowed the CEE countries to boost their foreign borrowing over time. Therefore, these countries have run larger current account deficits after EU accession.[1] Moreover, these growing

deficits would incur a heavy financial burden on interest repayments, which may eventually lead to major debt default.[2] More importantly, the persistent current account deficits would make these economies more volatile to external economic shocks. It is crucial for the CEE countries to maintain stable current account balances in the long run. Most existing studies have focused on the analyses of current account patterns in the periphery EU countries. This study attempts to fill the literature gap by identifying the main determinants of current account balances in the CEE countries.

This article examines whether EU financial integration has led to current account deficits in CEE countries during the period 1996–2015. These countries started to have larger deficits after opening up their markets to foreign imports during the 1990s. The merchandise trade deficits were mainly attributed to the growing imports of both consumption and investment goods.[3] Their current account deficits further increased due to the deeper EU financial integration. Seven of the 13 CEE countries adopted the euro currency between 2008 and 2015. Their participation in the EMU has facilitated their stock market and banking sector integration with western EU countries. The increased access to foreign capital inflows has helped finance their growing consumption and investment.[4] In other words, the larger current account deficits have played a major role in sustaining their high economic growth for the past decade. This study analyzes whether EU and EMU integration have led to the persistent current account deficits in the CEE countries. Second, this paper examines whether the eurozone debt crisis of 2010 has worsened the current account deficit problems in the CEE countries. The large accumulation of foreign debts has increased the vulnerability of the financial systems in these countries in the long run. The 2008 financial crisis, which triggered the eurozone debt crisis, resulted in a drastic decrease in capital flows from western EU countries to the developing EU countries during 2008–2012.[5] The serious shortage in bank credit supply worsened the debt problem in the CEE countries. This had undermined their financial market operations during the crisis period. The EMU has failed to tackle the very severe financial crisis because of the lack of a full-scale banking union.[6] This study examines the relationship between the eurozone debt crisis and current account deficits in the CEE countries. The results will provide valuable policy implications for future EMU development to avert a similar crisis.

This article contributes to the literature in two respects. First, this is the first empirical study to analyze the current account balance patterns in the CEE countries. Most of the previous studies have compared the current account patterns between the core and periphery eurozone countries. The in-depth analysis of the CEE current account imbalance can provide valuable insights into the financial market development of these countries in the long run. The deepened EU financial integration has led to the creation of highly liquid financial markets in member countries. These countries have increased overall financing for domestic investments to boost economic growth. This has also resulted in the steady decline of capital outflows to developed eurozone countries for higher returns.[4] Moreover, EU financial integration has facilitated more capital flows from the eurozone countries to the CEE countries. But this in turn has caused them to run larger current account deficits. The results of this

study would suggest whether the financial market development and integration have contributed to the current account imbalances for the past decade. Second, this is the first study to analyze the role of external economic shocks in causing current account deficits in CEE countries. Most of the recent studies have focused on the impact of the 2008 financial crisis on the current account deficits in the crisis eurozone countries. Very few studies have been conducted on the CEE countries during the same period. After EU accession, the CEE countries have growing current account deficits while western EU countries have maintained their current account surpluses. This is surprising as countries with lower income per capita and higher productivity growth would attract foreign direct investment inflow because of higher expected rates of return on capital. The productivity of the invested capitals would restore a current account balance through competitiveness gains in tradable sectors and reimbursement of the external debts.[7] However, the CEE countries have run larger current account deficits despite their EU accession. The results of this study would indicate whether the EU common fiscal and monetary policies have contributed to the divergence in current account imbalances between the CEE and western EU countries.

The rest of the article is organized as follows. The next section reviews the previous studies on current account balances in developing countries. Section 3 describes the empirical specifications. Section 4 presents the results and discusses their significance. Section 5 outlines the implications for the CEE current account balances in the long run. Section 6 concludes.

2. Literature Review

Recent studies have analyzed the impact of the EMU on the current account imbalances in the periphery eurozone countries. The more developed financial markets would facilitate the transformation of domestic savings into domestic investments. The higher degree of financial integration would also allow these countries to borrow more from the core eurozone countries. Therefore, the periphery eurozone countries tend to have higher current account deficits.[4] Second, deeper EU financial integration has increased the divergence in current account balances between the core and periphery eurozone countries. Due to the euro adoption, the periphery eurozone countries (Spain, Greece, Portugal and Ireland) have run the larger current account deficits financed by the core eurozone countries (Germany, Belgium, the Netherlands, Finland and Austria). They have borrowed more from the core eurozone countries in which the financial institutions have been willing to expand their bank lending to these periphery countries.[8] This has helped sustain the excessive level of private and public consumption and investment in these countries. Moreover, the euro adoption has worsened their current account deficit problem as the overvalued euro currency has diminished the competitiveness of their export products.[9] The eurozone debt crisis has highlighted the fact that the EU common fiscal and monetary policies have failed to reduce the persistent divergences in current account balances between these countries.[7] Finally, the fiscal policy position measured by the government budget is the key determinant of current account balance in the periphery eurozone countries.

The improvement in government budget balance has a positive effect on their current account balance. In contrast, the expansionary (tight) fiscal policy followed by interest rate cuts would lead to their current account deficits (improvement).[10]

A number of studies have identified the determinants of current account balances in developing countries. Higher financial development would have a crucial impact on current account balances in these countries. Better developed financial markets would lead to current account deficits because these markets tend to receive an increasing amount of capital inflow from other countries.[11] Moreover, a common currency union would likely lead to current account deficits in its member countries. The current account balances of these countries would be highly correlated with fundamental factors such as incomes, growth rates, and fiscal policy. These countries are more likely to have current account deficits because of the lack of exchange rate flexibility to tackle trade deficits or similar issues.[1] Second, the financial market deregulations would lead to current account deficits. The removal of foreign bank entry barriers would cause current account deficits because countries often receive a growing amount of foreign bank credits. This is consistent with the view that financial deregulation can ease liquidity constraints. In contrast, bank privatization and securities market deregulations would result in current account surpluses because of the saving-enhancing view of financial deregulation.[12] Third, financial deepening and trade openness have the opposite effect on current account balances in developing countries. The former is positively associated with current account balance while the latter is negatively associated with current account balance. Financial deepening measures financial market depth. Higher financial deepening indicates higher financial market efficiency to quickly convert domestic saving into investment. This would reduce the need for foreign borrowing and therefore help increase current account surplus. Trade openness reflects country openness to foreign technology transfer and ability to service external debt through export earnings. Developing countries with high exposure to international trade would be able to attract more foreign capital inflows. Therefore, they are more likely to run current account deficits.[13]

Fourth, higher economic development would contribute to current account surpluses in developing countries. These countries tend to have current account surpluses because their investments would be mainly financed by their savings. As these countries require less external financing, they can allocate most resources to pay back external debts, thereby contributing to current account surplus. Moreover, their current account balance is significantly affected by economic performance in the developed countries. Better economic performance would increase their demand for exports from developing countries or would increase their investments in other developed countries, which would offset external financing to developing countries. Hence, higher economic growth in developed countries would help reduce current account deficits in developing countries.[14] Although a number of empirical studies have investigated the EU and EMU effects on current account balance, very few studies have been conducted to explain the current account balances in the CEE countries. This article attempts to fill the literature gap by identifying the main determinants of current account balances in the CEE countries. Their financial

market development accelerated by the EU and EMU accession has played a crucial role in causing the persistent current account deficits for the past decade.

3. Econometric Specification

3.1. Analytical Framework

This study will identify the main determinants of current account balances in the CEE countries for the period 1996–2015. The basic estimation model is derived from the conventional variables that can explain current account balances in developed countries. Such variables include trade openness, foreign direct investment, industrial output, public debt, government budget balance, and young age dependency. This study extends the model by including the financial market development and integration variables to measure the EU accession effect on the CEE current account balances. Since joining the EU in 2004, the CEE financial markets have become more integrated with those in western EU countries. Their financial market size and liquidity have substantially increased as some of these countries joined the EMU by adopting the euro between 2008 and 2015. Previous studies have concluded that higher financial market development and integration are associated with higher current account deficits in developing countries.[15] The EU integration process has facilitated more bank credit flows to the CEE countries. The foreign bank mergers and acquisitions of the CEE banks have also increased the bank credit supply since the late 1990s. This has helped sustain the excessive level of consumption and investment in these countries. However, the investment growth in unproductive activities has undermined these countries' long-term competitiveness. This study argues that both the CEE financial market development and the EU financial integration would result in current account deficits in the CEE countries. To measure stock market development, the estimation model includes the ratio of stock market capitalization to gross domestic product (GDP), which indicates the stock market size to the domestic economy. The larger stock market size reflects the higher level of stock market development. As the CEE stock markets have become more integrated with those of western EU countries, they have greater access to foreign capital flows to finance their investments. This would likely contribute to current account deficits in the CEE countries.

Another financial market development indicator is banking sector development. The estimation model includes bank credits to the private sector as a share of GDP. It measures the quantity of financial intermediation. The bank credits refer to loans, trade credits, and purchases of non-equity securities. The CEE banks have improved their efficiency because the entry of foreign banks has improved the quality of their bank operations. A higher degree of financial intermediation would indicate a much deeper and more efficient banking system, which may stimulate savings and therefore raise current account surplus. But it may also boost investment that, in turn, can cause a current account deficit.[16] Hence, the higher level of CEE banking sector development would lead to a current account surplus or deficit.

To measure the degree of financial integration, the estimation model includes the sum of outstanding foreign assets and liabilities as a share of GDP. The CEE countries have achieved much deeper financial market integration with western EU countries after EU accession. They have further enhanced their financial market operation by adopting the EU legal, regulatory, and supervisory framework. In particular, foreign bank entry has occurred in the form of large-scale mergers and acquisitions of the CEE banks since the late 1990s. This has increased bank size and efficiency. More importantly, the CEE banks have received a growing amount of bank credits from Germany and Austria.[8,15] The greater degree of financial integration would contribute to the higher current account deficits in the CEE countries.

3.2. Estimation Model

The estimation model identifies the main determinants of current account balances in the CEE countries during 1996–2015. The model to examine the impact of the CEE financial market and EU integration on current account balances is:

$$\begin{aligned}\log(CurAcct_{it}) = {} & \alpha + \beta_1 \log(Trade_{it}) + \beta_2 \log(BkCred_{it}) + \beta_3 \log(FuelExp_{it}) + \beta_4 \log(FDI_{it}) \\ & + \beta_5 \log(Military_{it}) + \beta_6 \log(GovBal_{it}) + \beta_7 \log(Debt_{it}) + \beta_8 \log(M2_{it}) \\ & + \beta_9 \log(Industr_{it}) + \beta_{10} \log(StkCap_{it}) + \beta_{11} \log(FassLiab_{it}) \\ & + \beta_{12} \log(ForExch_{it}) + \beta_{13} \log(YounDep_{it}) + \varepsilon_{it} \qquad (1)\end{aligned}$$

All variables are measured in US dollars adjusted for inflation to the base year 2005. The CEE countries include Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia. These countries have joined the EU since 2004. To participate in the EMU, Cyprus, Estonia, Latvia, Lithuania, Malta, Slovakia and Slovenia also adopted the euro between 2008 and 2015.

The dependent variable ($CurAcct_{it}$) is the current account balances of CEE country i at year t (1996–2015). The main determinants of their current account balances are the financial market development and financial integration variables. The stock market and banking sector developments are considered good indicators of financial market development. The stock market capitalization variable (*StkCap*) measures the stock market development. It is the total value of stocks listed on the domestic market divided by the GDP of the CEE countries. It measures the stock market size relative to the economy. Due to EU accession, the CEE countries have expanded their stock market size through integration with western EU countries. The larger stock markets offering more investment opportunities have attracted more foreign capital inflows.[17] Moreover, the more developed stock markets have quickly converted domestic saving into domestic investments.[4] The larger stock market size would result in current account deficits in the CEE countries. Second, the bank credit variable (*BkCred*) can assess the banking sector development. *BkCred* is the total amount of bank credits provided by deposit money banks to the private sector divided by the GDP. A larger amount of bank credits indicates a higher level of financial services and banking sector development. The EMU has accelerated banking sector integration among

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member countries. The fact that the developed eurozone countries have provided more bank credits to the developing eurozone countries has significantly reduced the borrowing costs in the developing countries.[8] Meanwhile, the foreign bank entry facilitated by the EMU has further boosted the bank credit supply for these countries.[12] The CEE countries that participated in the EMU have received more foreign bank credits from western eurozone countries. The larger bank credit supply would lead to current account deficits in these CEE countries.

The foreign assets and liabilities variable (*FassLiab*) captures the level of the EU financial integration. *FassLiab* is equal to the sum of outstanding foreign assets and liabilities as a share of GDP. The deeper financial integration would result in lower regulatory restrictions on cross-border capital flows among member countries. It further increases foreign borrowing to finance growing local consumption and investment needs.[15] Deeper EU financial integration has led to the euro currency being overvalued, which has contributed to resource misallocation from tradable to non-tradable sectors. This has undermined the long-term export competitiveness of developing eurozone countries.[9] EU and EMU accession would make the CEE countries run larger current account deficits.

The monetary aggregate variable (*M2*) captures the financial deepening effect on the current account balance. It refers to the ratio of money and quasi money as a share of GDP. The financial deepening affects both domestic savings and investments. More developed financial markets would reduce private borrowing constraints and private savings. But they can also help attract foreign savings through foreign capital inflows.[17] The financial markets in the CEE countries have substantially improved their efficiency through deepening integration with those in western EU countries. The increase in foreign capital inflows may increase domestic investments but decrease the need for domestic savings. This would result in the current account deficits in the CEE countries.

The trade openness variable (*Trade*) measures the trade impact on current account balance. It refers to the sum of exports and imports of goods and services as a share of GDP. It indicates attributes such as liberalized trade, receptiveness to technology transfers, and ability to service external debt through export earnings. More importantly, the CEE countries with higher trade exposure tend to attract more foreign capital inflows.[3] Larger capital inflows would make the CEE countries more likely to have current account deficits. Hence, the CEE countries with high trade openness are more likely to run current account deficits. Second, the foreign direct investment variable (*FDI*) measures the foreign capital inflow effect on current account balance. It is equal to net inflows of foreign direct investment as a share of GDP. It refers to the sum of equity capital, reinvestment of earnings, other long-term capital and short-term capital as shown in the balance of payments. Foreign direct investment can substantially boost domestic investment more than other types of capital inflows.[4] Since joining the EU, the CEE countries have facilitated capital flow liberalization, especially with the developed EU countries. EU accession has accelerated the foreign direct investment in these countries. The surge in foreign direct investment would be

considered a major source of funding domestic investments. The high foreign direct investment would lead to current account deficits in the CEE countries.

The government budget balance variable (*GovBal*) measures the public finance impact on current account balance. It is equal to government revenue minus expenditure as a share of GDP. The increase in government budget deficit would lead to a smaller proportional increase in current account deficit. Changes in public savings might cause changes in private saving behavior. If the government decides to save less, the private sector would save more in response and therefore the decrease in national savings might result in a less than proportional decrease in current account deficit.[1] The more developed financial markets in the CEE countries have boosted the domestic investment of these countries but decreased their saving because the larger access to these markets has helped ease their liquidity constraints. The government has often relied on financial markets to finance its budget deficits.[18] The government budget deficit (surplus) would lead to the current account deficit (surplus) in the CEE countries.

Turning to another public finance variable, the external debt variable (*Debt*) indicates the total amount of gross government debt as a share of GDP. The heavy debt accumulation would leave countries facing a high risk of default and therefore lead to current account deficit.[14] It is noteworthy that most of the CEE countries started their transition process from planned economies to market economies with nearly no external debt. However, after they opened up their economies to western EU countries for trade and investment, since the 1990s, they have started to accumulate a sizable amount of liabilities.[3] The increase in external debts would make the CEE countries run larger current account deficits.

The industry production variable (*Industr*) measures the impact of the size of the industrial sector on current account balance. Industrial production refers to the output of industrial establishments and includes sectors such as mining, manufacturing and public utilities (electricity, gas, and water). *Industr* measures the total industrial production as a share of GDP. The relative competitiveness of industrial production can influence current account balance through exports. If a country becomes uncompetitive, as reflected in its declining industrial production, exports would decrease relative to imports.[19] The CEE countries have bolstered their industrial competitiveness after receiving huge foreign direct investment from western EU countries. The local firms have substantially improved their production efficiency by learning the technology transfer, production processes, and management style of their EU counterparts. This has ensured that western EU countries continue locating their major production facilities in these countries. The higher industrial production would lead to current account surpluses in CEE countries.

The foreign exchange reserves (*ForExch*) variable measures the stock of foreign exchange reserves as a share of GDP. It is equal to net change in a country's holdings of international reserves due to transactions on the current, capital and financial accounts. Reserve assets are those external assets that are available to and controlled by monetary authorities for meeting balance-of-payments financing needs and include holdings of monetary gold, special drawing rights, reserve position and other

reserve assets. The foreign exchange reserve accumulation is used as a substitute for developed financial markets in absorbing terms of trade shocks. The less developed financial markets accumulate foreign exchange reserves to offset the financial crisis effect.[4] The stock of foreign exchange reserves measures a build-up of precautionary saving or collateral, indicating financial sector weaknesses. Due to EU accession, the CEE financial markets have become more integrated with those of western EU countries. However, as these markets have greater access to foreign capital inflows, they have saved a lower amount of foreign exchange reserves to withstand foreign external shocks. The accumulation of foreign exchange reserves would have an uncertain effect on the current account balances in the CEE countries.

The three control variables are the common determinants of the current account balance. The military spending variable (*Military*) measures the total amount of military expenditure as a share of GDP. These expenditures include spending on armed forces, national defense projects, military research and development, military infrastructure spending, and military aid. All of the CEE countries except Cyprus and Malta allocated a small amount of GDP to military spending as they joined the large-scale military alliance (North Atlantic Treaty Organization, NATO) between 1999 and 2004. This has allowed them to substantially reduce their total military spending for the past two decades. The higher military spending would result in current account deficits in the CEE countries.

The fuel export variable (*FuelExp*) measures fuel exports as a percentage of total merchandise exports. The exports of energy resources can help improve the current account balance, especially in developing countries. The high emphasis on trade openness would facilitate their fuel exports to other countries.[17] The CEE countries have joined the EU and subsequently EMU to further expand their export markets. In addition, they have substantially improved their fuel export productions by forming joint ventures with companies in western EU countries. The larger export markets and more efficient productions have allowed the CEE countries to increase fuel exports to western EU countries. The increase in fuel exports would lead to current account surpluses in the CEE countries.

Finally, the age dependency ratio variable captures the impact of age composition of population on current account balance. The young age dependency ratio (*YounDep*) refers to the ratio of younger dependents (younger than 15 years old) to the working age population (between 15 and 64 years old). The life-cycle hypothesis suggests that savings are mainly accumulated during working age while younger and older age cohorts generally dissave. Hence, a country with a high old and/or young age dependency ratio would be expected to save relatively less.[12] A country with a higher young age dependency ratio would likely have a lower national saving rate because young people tend to have lower savings than working age people. This would result in a current account deficit.[14] The working age population still accounts for more than 60% of the total population in CEE countries. Compared with the young and old age groups, this group engages in higher savings through employment throughout the years. It is likely that a young age dependency ratio would not significantly affect the current account balance in the CEE countries.

To test for the robustness of the results, the total investment variable (*TotInvst*) is included to determine whether its inclusion would change the overall results. *TotInvst* measures the impact of economic development on current account balance. It refers to the ratio of total investment or gross capital formation as a percentage of GDP. Total investment or gross capital formation is measured by the total value of gross capital formation and changes in inventories and acquisitions minus disposals of valuables for a sector. Developing countries with high growth rates tend to further increase investments to boost their economic growth.[12] The higher total investment would lead to a current account deficit. The CEE countries experienced higher economic growth after joining the EU. The main reason for this is that western EU countries have made huge foreign direct investments in these countries to exploit their low-cost production advantages. To maintain their appeal for foreign investors, the CEE countries have substantially boosted their domestic investments to strengthen their production capability. Hence, the higher total investments would result in current account deficits in these countries.

Another major concern of this study is to examine whether the government budget balance interaction with financial integration, trade openness, financial depth and inflation would affect current account balances in the CEE countries. The estimation model includes the four interaction variables (*GovBal*Trade*, *GovBal*FassLiab*, *GovBal*M3* and *GovBal*Inflat*) to measure their interaction effects on current account balances. The new regression equation including the four interaction variables is given as:

$$\begin{aligned}\log(CurAcct_{it}) = {} & \alpha + \beta_1 \log(GovBal_{it} * Trade_{it}) + \beta_2 \log(GovBal_{it} * FassLiab_{it}) \\ & + \beta_3 \log(GovBal_{it} * M3_{it}) + \beta_4 \log(GovBal_{it} * Inflat_{it}) + \beta_5 \log(BkCred_{it}) \\ & + \beta_6 \log(FuelExp_{it}) + \beta_7 \log(FDI_{it}) + \beta_8 \log(Military_{it}) + \beta_9 \log(Debt_{it}) \\ & + \beta_{10} \log(M2_{it}) + \beta_{11} \log(Industr_{it}) + \beta_{12} \log(StkCap_{it}) + \beta_{13} \log(ForExch_{it}) \\ & + \beta_{14} \log(YounDep_{it}) + \varepsilon_{it} \qquad (2)\end{aligned}$$

The dependent and independent variables, except for the interaction variables, have already been described in equation (1). *GovBal*Trade* is the government budget balance–trade openness interaction variable. The government budget balance interacting with trade openness would have an uncertain impact on the current account balance. The government budget balance by itself would have a positive effect on the current account balance. A country with a government budget surplus would have a current account surplus. But a government budget deficit would cause a current account deficit as it would redistribute income from future to present generations.[18] In contrast, trade openness would have a negative effect on current account balance. High trade openness would facilitate more foreign capital inflows. After EU accession, the CEE countries with high trade openness have received a greater amount of foreign direct investments and foreign capitals.[3] The western EU countries have further consolidated their market shares in these countries through foreign direct investments. A high government budget surplus would result in a current account surplus that may diminish in countries with high trade openness. The interaction

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between government budget balance and trade openness would have an uncertain effect on the current account balances in the CEE countries.

Second, *GovBal*FassLiab* is the government budget balance–foreign assets and liabilities interaction variable. As explained earlier, foreign assets and liabilities would measure the degree of financial integration. An interaction between government budget balance and financial integration would have uncertain effect on current account balance. The high degree of financial integration would have a negative effect on current account balance. EU accession has deepened the financial market integration between the CEE and western EU countries. Countries with more developed financial markets would have current account deficits as they generally receive more foreign capital inflows.[11] The higher degree of EU financial integration would result in current account deficits in the CEE countries. A high government budget surplus would lead to a current account surplus, which may decrease in countries with high financial integration. The interaction between government budget balance and financial integration would have an uncertain effect on the current account balances in the CEE countries.

Third, *GovBal*M3* is the government budget balance–financial depth interaction variable. *M3* is the ratio of a country's stock of M3 to its GDP. It measures the level of financial depth. Countries with high financial depth would establish more liquid financial markets, which can quickly transform domestic savings to investments.[1] Given more efficient financial market operations, they can further increase foreign borrowing from financial markets in developed countries. Greater financial depth would lead to current account deficits in the CEE countries because of their liquid financial markets receiving more capital inflows from western EU countries. High government budget surplus would result in current account surplus, which may decrease in countries with high financial depth. The interaction between government budget balance and financial depth would have an uncertain effect on the current account balances in the CEE countries.

Finally, *GovBal*Inflat* is the government budget balance–inflation interaction variable. This interaction would have a positive effect on current account balance. The inflation rate is the annual growth rate of the GDP implicit deflator which shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in the current local currency to GDP in the constant local currency. A high inflation rate indicates high macroeconomic uncertainty, which reduces investment but increases saving due to precautionary saving motive. A high inflation rate would lead to current account surplus.[14] Hence, a high government budget balance combined with a high inflation rate would lead to the current account surpluses in the CEE countries.

3.3. Two-stage Least Squares Method

There may be an endogeneity problem in the stock market capitalization and FDI variables. Stock market capitalization and current account balance may be determined simultaneously. Stock market capitalization may be an endogenous rather

than exogenous variable. The high degree of EU financial integration has boosted stock market capitalization in CEE countries. The deepened financial market integration with western EU countries has helped expand their stock market size. Therefore, the higher stock market capitalization may not be considered as an exogenous determinant of current account balance. Similarly, the FDI inflows may be endogenous variable. The FDI inflows into the CEE countries have substantially increased after they joined the EU. The elimination of regulatory barriers to foreign capital inflows has facilitated the FDI flows from western EU countries to the CEE countries. In this case, FDI inflows may not be an exogenous determinant of current account balance.

To address the endogeneity problem, this study uses the two-stage least squares (2SLS) method to re-estimate the endogenous variables: stock market capitalization (*StkCap*) and foreign direct investment (*FDI*). The instrumental variables for *StkCap* and *FDI* are the stock market capitalization and foreign direct investment variable lagged by one year ($StkCap_{t-1}$ and FDI_{t-1}). The use of the 2SLS method would substantially improve the explanatory power of the estimation models.

3.4. Data Sources

The World Bank database provides the data for the dependent variable (current account balance) and some of the independent variables (trade openness, FDI, bank credit, fuel exports, industry production, foreign exchange reserves, and young age dependency). A number of different data sources are used for the rest of the independent variables. The government budget balances are computed using government revenue and expenditure. The data are obtained from the Eurostat database. For other public finance data, the public debt data are obtained from the International Monetary Fund's Historical Public Debt database. The total investment data are taken from the World Economic Outlook database. The data on foreign assets and liabilities, which measure the level of financial integration are computed from data available at International Financial Statistics. Turning to the financial market data, the financial depth (M3) and stock market capitalization data are taken from the Global Financial Development database. The money and quasi-money data are mainly obtained from the Economic Statistics database. The missing data on Malta and Slovenia are taken from the Data Market database. Finally, the military spending data are derived from the database at the Stockholm International Peace Research Institute.

4. Estimation Results

4.1. Financial Market Development and Integration Effects on Current Account Balance

This study identifies the major determinants of current account balances in the CEE countries. It examines whether the deeper financial market development and integration have affected the current account balances during the period 1996–2015. The analyses divide the entire study period into pre- and post-EU accession periods

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(1996–2003 and 2004–2015). The subperiod estimations would allow us to better compare the financial market and integration effects on the current account balances before and after EU accession. The 2010 eurozone debt crisis triggered by the 2008 financial crisis resulted in the dramatic decrease of foreign capital flows to the developing EU countries. This had substantially slowed the CEE banking sector and stock market development between 2010 and 2012. Therefore, the estimation for the crisis period 2008–2014 would capture the impact of both of the crises on the current account balances. Finally, to test for the robustness of the results, the independent variables (*M2*, *Trade* and *FassLiab*) are excluded in some estimations to determine if the overall results remain the same.

The main issue of this study is whether the CEE banking sector development has a negative effect on the current account balances. As seen in Table 1, the coefficient on *BkCred* is negative and highly significant for the entire period, 1996–2015. This suggests that more bank credit flows facilitated by high banking sector development have resulted in current account deficits. As noted in the statistical significance of the coefficient, this effect has actually persisted during 2004–2015. This confirms that the accelerated banking sector development during the EU accession has continued to cause the current account deficit problem. The more developed banking sectors would boost domestic investment, which would lead to a current account deficit.[4] Moreover, bank lending has substantially increased in the CEE countries because of the strong foreign bank presence. To deepen the EU financial integration, the CEE countries have further eliminated the foreign bank entry barriers to attract more western EU bank entry.[12] The foreign bank mergers and acquisitions of the local banks have accelerated the banking sector development.[15] The CEE countries have run current account deficits as they have received more foreign bank credit inflows.

The negative impact of bank credit flows has become stronger after the onset of the 2008 financial crisis. As seen in Table 1, the coefficient has increased in value (–1.156) during the crisis period 2008–2015. This is somewhat surprising given the sharp drop in cross-border bank flows during the crisis. The severe 2008 financial crisis led to declining bank credit flows from western EU countries to the developing EU countries.[5] As the CEE countries have depended on bank credits for financing, the decrease in bank credit flows in 2008–2015 should have diminished their current account deficits during the crisis period. On the contrary, the results indicate that the negative bank credit effect has strengthened during this period.

In contrast to the negative bank development effect, the CEE stock market development has a positive effect on the current account balances. As shown in Table 5, the coefficient on *StkCap* remains positive and statistically significant over 2004–2015 and 2008–2015. This result contradicts the findings of previous studies, which find a negative relationship between financial development and current account balance.[11,20] The larger stock markets can quickly convert domestic savings into investments, which would lead to current account deficit.[4] Moreover, the larger stock markets offer more investment opportunities that would attract more foreign capital inflows.[17] This would cause a current account deficit. However, the result of this study shows that high stock market development has contributed to current

Table 1. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
Trade	–0.455*	0.223	–0.947**	–0.932
	(–1.869)	(0.577)	(–2.040)	(–1.453)
BkCred	–0.144***	–0.859***	–0.345**	–1.156**
	(–3.715)	(–3.720)	(–2.239)	(–2.105)
FuelExp	–0.014	–0.077	0.020	–0.059
	(–0.456)	(–1.303)	(0.370)	(–0.853)
FDI	0.363***	0.574***	0.375***	0.442
	(3.734)	(2.569)	(2.386)	(1.322)
Military	–0.016	0.447**	–0.268	–0.843
	(–0.099)	(2.196)	(–0.642)	(–1.357)
GovBal	0.048	–0.051	0.087	0.061
	(0.643)	(–0.493)	(0.781)	(0.372)
Debt	–0.051	–0.001	–0.057	–0.269
	(–0.445)	(–0.009)	(–0.294)	(–0.924)
Industr	–0.890***	–0.532	–1.071***	–2.025***
	(–3.881)	(–1.045)	(–3.296)	(–4.242)
StkCap	0.035	0.121	0.027	0.203
	(0.471)	(0.965)	(0.187)	(0.883)
ForExch	–0.026	–0.133*	0.009	–0.104
	(–0.572)	(–1.783)	(0.132)	(–1.094)
YounDep	0.664	2.560***	–1.023	–6.206**
	(1.453)	(3.447)	(–0.680)	(–2.162)
TotInvst	2.027***	2.193***	2.056***	1.537
	(5.137)	(3.381)	(3.517)	(1.612)
Adjusted R^2	0.315	0.412	0.321	0.194
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

account surpluses rather than deficits in the CEE countries. The positive coefficient of stock market capitalization suggests that the larger stock market size facilitated by EU accession has caused current account surpluses over 2004–2015. This effect has become even stronger after the onset of the 2008 financial crisis as the coefficient has increased from 0.259 in 2004–2015 to 0.427 in 2008–2015. The crisis has not hindered the stock market expansion, which has contributed to the current account surpluses.

Similar to the financial market development, the financial integration has facilitated the current account deficits in the CEE countries. As presented in Table 2, the coefficient on *Fassliab* only becomes negative and highly significant in 2004–2015. This indicates that the CEE countries have experienced the current account deficits after the EU accession in 2004. EU integration has boosted the cross-border capital

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Table 2. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
BkCred	–0.203*	–0.063	–0.291*	–1.164*
	(–1.633)	(–0.127)	(–1.741)	(–1.835)
FuelExp	–0.056*	–0.070	–0.040	–0.106
	(–1.693)	(–1.019)	(–0.706)	(–1.404)
FDI	0.492***	0.758*	0.545***	0.573
	(3.366)	(1.667)	(2.405)	(1.274)
Military	0.149	0.455**	–0.248	–0.749
	(0.900)	(1.956)	(–0.611)	(–1.170)
GovBal	0.106	0.052	0.146	0.149
	(1.335)	(0.423)	(1.265)	(0.893)
Debt	–0.247**	–0.239	–0.290	–0.450
	(–2.216)	(–1.354)	(–1.521)	(–1.463)
M2	–0.389**	–0.612	–0.497**	–0.544
	(–2.059)	(–1.327)	(–2.087)	(–1.312)
Industr	–0.888***	0.464	–1.658***	–2.364***
	(–3.189)	(0.642)	(–3.149)	(–3.257)
StkCap	0.140*	0.126	0.237	0.417
	(1.714)	(0.565)	(1.528)	(1.595)
FassLiab	–0.370**	–0.095	–0.596**	–0.434
	(–1.926)	(–0.126)	(–2.113)	(–1.127)
ForExch	–0.027	–0.210**	0.011	–0.093
	(–0.531)	(–2.332)	(0.141)	(–0.877)
YounDep	–0.017	2.542**	–2.523	–6.374**
	(–0.029)	(2.146)	(–1.356)	(–2.059)
Adjusted R^2	0.218	0.287	0.221	0.084
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

flows through the elimination of regulatory restrictions. This has drastically reduced the borrowing costs for the CEE countries. The larger pool of foreign borrowing has been used to finance the higher consumption and investment.[15] As a result, the CEE countries have accumulated growing current account deficits over time.[6] It is noteworthy that financial integration has not caused any current account deficit after the outbreak of the financial crisis. The coefficient no longer remains statistically significant for the crisis period 2008–2015. The dramatic decrease in cross-border capital flows attributed to the crisis has halted the overall financial integration progress.

Finally, the financial deepening has a negative effect on the current account balances in the CEE countries. As seen in Table 6, the coefficient on *M2* remains negative and highly significant at the 1% level in 2004–2015 and 2008–2015. The EU financial integration has substantially improved the CEE financial market efficiency

in terms of size and liquidity. The CEE countries have faced lower private borrowing constraints because of receiving more foreign savings through foreign capital inflows.[17,18] This has led to their growing current account deficits. As indicated by the statistical significance of the coefficient over 2008–2015, the financial deepening effect has continued during the crisis period. Due to EU accession, the more efficient financial markets have boosted domestic investments but decreased domestic savings. This explains why the negative financial deepening effect has lingered during the crisis period.

4.2. Interaction Effects on Current Account Balance

The other important issue of this study is whether an interaction between government budget balance and trade openness would have any impact on the current account balances in the CEE countries. To test for the robustness of the results, the interaction variables (*GovBal*M3* and *GovBal*FassLiab*) are excluded in some estimations to determine if the overall results remain the same. First, the result in Table 7 indicates a very weak government budget balance–trade openness interaction effect on the current account balances. The positive coefficient on *GovBal*Trade* is only marginally significant at the 10% level in 1996–2003. The government budget balance–trade openness interaction only shows a very small effect on the current account balances in the CEE countries before EU accession. The government budget balance has a positive relationship with the current account balances. However, the trade openness has a negative relationship with the current account balances because the CEE countries with high trade openness have received a growing amount of foreign capital inflows.[3] The overall results reveal that their interaction effect on the current account balances remains inconclusive. The possible reason is that the CEE countries have already developed very close trade ties with western EU countries before EU accession. The high trade openness has in turn boosted the foreign capital inflows into the CEE countries. The negative effect of trade openness on the current account balances has been weakened during EU accession. With the absence of a trade openness effect, the government budget balance has dominated the interaction effect on the current account balances. This explains why the government budget balance has only a very small positive effect on the current account balances before EU accession.

Second, the government budget balance interaction with financial integration has resulted in current account deficits in the CEE countries. As noted in Table 5, the negative coefficient on *GovBal*FassLiab* is marginally significant at the 10% level over 2004–2015. This confirms that the interaction effect only has a small negative effect on the current account balances after EU accession. The CEE financial markets have become more developed after integrating with those of western EU countries. The foreign capital inflows into these markets have resulted in small current account deficits.[11] While the government budget balance by itself has no impact on the current account balance, EU financial integration has led to small current account deficits during the EU accession period.

As expected, the government budget balance interaction with inflation rates definitely has a positive effect on the current account balances in the CEE countries. As shown in Table 6, the coefficient on *GovBal*Inflat* is indeed positive and highly

significant in 2004–2015 and 2008–2015. However, the interaction effect seems to be stronger during the EU accession period as the coefficient becomes highly significant at the 1% level in 2004–2015. Both the government budget balance and inflation rates would have a positive effect on current account balance. The higher inflation rates would reduce investments but boost savings because of their high macroeconomic uncertainty.[14] The result confirms that the government budget balance interaction with higher inflation rates has resulted in current account surpluses in the CEE countries during the EU accession period.

Finally, the government budget balance interaction with financial depth has no impact on current account balances in the CEE countries. As noted in Table 6, the coefficient on *GovBal*M3* is not statistically significant for the entire period. Owing to the deeper EU integration, the western EU financial markets would increase foreign capital flows to the highly liquid CEE financial markets.[1] The high financial depth should lead to the current account deficits in the CEE countries. On the contrary, the government budget balance interaction with financial depth has no impact on the current account balance at all. This may be explained by the fact that the CEE financial markets are still lagging behind their western EU counterparts in terms of size and liquidity. It is noteworthy that only seven of the CEE countries have participated in the EMU by adopting the euro. This has slowed the progress to create larger and more liquid financial markets.[21] The low level of financial depth may explain the lack of an interaction effect with government budget balance on the current account balances.

4.3. Other Major Explanatory Variables Explaining Current Account Balance

Trade openness has the expected negative effect on current account balances in the CEE countries. As presented in Table 1, the coefficient on *Trade* is negative and highly significant at the 5% level over 2004–2015. This indicates that the higher trade openness has resulted in current account deficits during the EU accession period. The trade openness reflects broad attributes such as receptiveness to foreign technology transfers and the ability to service external debt through export earnings. CEE countries with high trade openness are more conducive to foreign capital inflows.[13,3] EU accession has facilitated higher CEE trade flows with western EU countries after 2004. More open CEE countries have boosted foreign capital inflows from their close trading partners including western EU countries. A large number of foreign companies have chosen these countries as the main manufacturing sites to take advantage of their lower production costs. Therefore, the higher trade openness has caused the current account deficits in the CEE countries.

Contrary to the expectations, foreign direct investment has a positive effect on the current account balances in the CEE countries. As seen in Table 1, the positive coefficient on *FDI* is highly significant at the 1% level in 1996–2003 and 2004–2015. This suggests that the higher foreign direct investment inflows have contributed to the current account surpluses before and after EU accession. Since opening up their economies around the late 1990s, the CEE countries have attracted growing investments from

western EU countries. The unique characteristics of the CEE countries, such as lower per capita income and higher productivity growth, have allowed foreign investors to earn higher expected rates of return on capitals.[7] This result contradicts previous studies which found a negative relationship between foreign direct investment and current account balance. Foreign direct investment inflows would serve as a major source of funding domestic investments, which should lead to a current account deficit.[4] However, the results show that the foreign direct investment has contributed to the current account surpluses in the CEE countries throughout the study period.

The external debt flows have the expected negative effect on the current account balances in the CEE countries. As shown in Table 3, the negative coefficient on *Debt* is statistically significant in 2004–2015 and 2008–2015, but the negative effect appears to be

Table 3. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
Trade	–0.286	0.184	–0.864*	–0.980
	(–1.074)	(0.434)	(–1.809)	(–1.575)
BkCred	–0.237**	–0.143	–0.285*	–1.023*
	(–1.931)	(–0.372)	(–1.763)	(–1.790)
FuelExp	–0.058*	–0.058	–0.038	–0.097
	(–1.792)	(–0.884)	(–0.678)	(–1.328)
FDI	0.363***	0.711***	0.366**	0.451
	(3.555)	(2.670)	(2.249)	(1.349)
Military	0.218	0.499**	–0.244	–0.961
	(1.262)	(2.262)	(–0.564)	(–1.518)
GovBal	0.094	0.057	0.091	0.061
	(1.188)	(0.446)	(0.788)	(0.366)
Debt	–0.325***	–0.240	–0.407**	–0.497*
	(–3.184)	(–1.375)	(–2.346)	(–1.716)
M2	–0.458***	–0.638	–0.489**	–0.630
	(–2.496)	(–1.387)	(–2.092)	(–1.584)
Industr	–0.478**	0.527	–0.847***	–1.840***
	(2.142)	(1.113)	(–2.551)	(–3.758)
StkCap	0.186***	0.141	0.247*	0.368
	(2.502)	(1.022)	(1.656)	(1.460)
ForExch	–0.009	–0.211***	0.032	–0.102
	(–0.190)	(–2.554)	(0.473)	(–1.053)
YounDep	0.566	2.613***	–1.306	–6.850**
	(1.180)	(3.213)	(–0.854)	(–2.320)
Adjusted R^2	0.244	0.301	0.274	0.161
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

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stronger in 2004–2015 because of the higher statistical significance of the coefficient. This confirms that the higher external debt has resulted in higher current account deficits after EU accession. The lack of external debt impact is expected before EU accession because the CEE countries had accumulated almost no external debt during the transition period in the 1990s.[3] The result is consistent with the previous studies that assert the negative effect of external debt on current account balance. As the CEE countries have strengthened their trade and foreign direct investment relationship with western EU countries, they have accumulated a larger amount of liabilities.[3] This, in turn, has resulted in the current account deficits in the CEE countries after EU accession.

Contrary to expectation, military spending has a positive impact on the current account balances in CEE countries prior to EU accession. As noted in Table 4, the coefficient on *Military* is positive and highly significant during 1996–2003.

Table 4. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
Trade	0.013	0.772	–0.641	–0.786
	(0.038)	(0.808)	(–1.274)	(–1.074)
BkCred	–0.294***	–0.263	–0.329**	–1.250**
	(–2.423)	(–0.440)	(–1.972)	(–2.014)
FuelExp	–0.042	–0.066	–0.023	–0.092
	(–1.280)	(–0.911)	(–0.407)	(–1.192)
FDI	0.517***	0.848	0.560***	0.627
	(3.385)	(1.135)	(2.437)	(1.398)
Military	0.076	0.487**	–0.597	–1.218*
	(0.440)	(2.178)	(–1.249)	(–1.748)
GovBal	0.099	0.002	0.117	0.082
	(1.210)	(0.018)	(0.961)	(0.453)
Debt	–0.311***	–0.257	–0.395**	–0.522*
	(–2.768)	(–1.227)	(–2.089)	(–1.659)
Industr	–1.017***	–0.241	–1.494***	–2.175***
	(–2.979)	(–0.196)	(–2.750)	(–2.789)
StkCap	0.095	0.048	0.187	0.346
	(1.160)	(0.143)	(1.227)	(1.287)
FassLiab	–0.467**	–0.782	–0.520*	–0.347
	(–1.966)	(–0.560)	(–1.767)	(–0.824)
ForExch	–0.033	–0.225**	–0.002	–0.123
	(–0.653)	(–2.052)	(–0.022)	(–1.136)
YounDep	–0.231	1.571	–2.738	–6.384**
	(–0.366)	(0.841)	(–1.449)	(–1.992)
Adjusted R^2	0.197	0.277	0.199	0.048
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

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Surprisingly, it has no impact after EU accession as the coefficient no longer remains significant in 2004–2015. While higher military spending has caused current account surpluses prior to EU accession, it has no impact right after EU accession. The result contradicts previous studies that confirm a negative relationship between military spending and current account balance. The reason for this surprising finding is that the CEE countries allocated a very small amount of military spending between 1999 and 2004 because of their NATO membership. Their subsequent EU membership since 2004 has allowed them to continue with lower military spending over time. This may explain the lack of a negative military spending effect on the current account balances during 1996–2007 (Table 5).

Table 5. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
*GovBal*Trade*	0.092	0.337	0.079	0.069
	(1.404)	(1.079)	(0.985)	(0.490)
*GovBal*FassLiab*	–0.174**	–0.499	–0.194*	–0.139
	(–1.928)	(–0.951)	(–1.765)	(–0.815)
*GovBal*Inflat*	0.047**	–0.076	0.106***	0.062
	(1.917)	(–1.487)	(3.197)	(0.948)
BkCred	–0.190	0.246	–0.181	–0.857
	(–1.564)	(0.446)	(–1.101)	(–1.021)
FuelExp	–0.071**	–0.107	–0.078	–0.126*
	(–2.220)	(–1.441)	(–1.469)	(–1.754)
FDI	0.461***	1.113*	0.370*	0.383
	(2.944)	(1.890)	(1.749)	(0.766)
Military	0.174	0.488**	–0.024	–0.444
	(1.188)	(2.229)	(–0.074)	(–0.806)
Debt	–0.179	–0.158	–0.142	–0.295
	(–1.597)	(–0.816)	(–0.807)	(–1.034)
M2	–0.464***	–0.434	–0.587***	–0.734*
	(–2.570)	(–0.843)	(–2.669)	(–1.713)
Industr	–1.056***	–0.501	–1.399***	–2.096***
	(–3.345)	(–0.406)	(2.808)	(–2.548)
StkCap	0.183**	–0.170	0.259*	0.427*
	(2.017)	(–0.475)	(1.784)	(1.737)
ForExch	–0.039	–0.248***	0.001	–0.078
	(–0.781)	(–2.405)	(0.086)	(–0.816)
YounDep	–0.309	1.333	–2.033	–5.581*
	(–0.517)	(0.784)	(–1.239)	(–1.840)
Adjusted R^2	0.242	0.258	0.335	0.188
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

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5. Implications for the Long-term Policies for Current Account Balance

The results provide very important implications for maintaining stable current account balances in the CEE countries. In particular, long-term policies should be implemented to address the EU-wide supervision problems in financial market operations. First, the results confirm that the higher bank credit flows have a negative effect on the current account balances. The western EU banks have engaged in mergers and acquisitions of the CEE banks for the past two decades.[15] The greater foreign bank credits have facilitated the larger current account deficits in these countries. More importantly, the growing debt accumulations would lead to high

Table 6. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
*GovBal*Trade*	–0.016	0.114	–0.084	–0.179
	(–0.286)	(0.647)	(–1.079)	(–1.387)
*GovBal*M3*	–0.001	–0.064	0.034	0.143
	(–0.021)	(–0.288)	(0.534)	(1.347)
*GovBal*Inflat*	0.056***	–0.050	0.122***	0.098*
	(2.407)	(–1.249)	(3.747)	(1.758)
BkCred	–0.233**	–0.071	–0.176	–0.598
	(–1.969)	(–0.179)	(–1.094)	(–0.856)
FuelExp	–0.068**	–0.053	–0.063	–0.087
	(–2.137)	(–0.828)	(–1.189)	(–1.318)
FDI	0.291***	0.733***	0.167	0.162
	(2.891)	(2.773)	(1.184)	(0.487)
Military	0.271*	0.543***	0.212	–0.334
	(1.763)	(2.542)	(0.681)	(–0.664)
Debt	–0.261***	–0.245	–0.149	–0.077
	(–2.398)	(–1.437)	(–0.774)	(–0.266)
M2	–0.534***	–0.598	–0.630***	–0.990***
	(–2.859)	(–0.693)	(–2.825)	(–2.562)
Industr	–0.589***	0.667	–0.714**	–1.420***
	(–2.660)	(1.334)	(–2.162)	(–2.657)
StkCap	0.244***	0.065	0.234	0.272
	(3.117)	(0.399)	(1.602)	(1.272)
ForExch	–0.017	–0.218***	0.035	–0.067
	(–0.377)	(–2.666)	(0.539)	(–0.814)
YounDep	0.340	2.753***	–0.742	–5.279**
	(0.701)	(3.422)	(–0.545)	(–1.911)
Adjusted R^2	0.271	0.331	0.361	0.276
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

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Table 7. 2SLS estimation of the determinants of current account balance in Central and Eastern Europe.

	(1) 1996–2015	(2) 1996–2003	(3) 2004–2015	(4) 2008–2015
*GovBal*Trade*	0.146*	0.476*	0.114	0.057
	(1.815)	(1.647)	(0.995)	(0.291)
*GovBal*FassLiab*	–0.199**	–0.545	–0.211*	–0.184
	(–2.213)	(–1.082)	(–1.861)	(–1.098)
*GovBal*M3*	–0.043	–0.139	–0.019	0.054
	(–0.923)	(–1.050)	(–0.293)	(0.489)
*GovBal*Inflat*	0.043*	–0.072	0.102***	0.045
	(1.730)	(–1.381)	(2.844)	(0.692)
BkCred	–0.308***	0.191	–0.263	–1.169
	(–2.717)	(0.347)	(–1.577)	(–1.481)
FuelExp	–0.062**	–0.102	–0.063	–0.113
	(–1.897)	(–1.362)	(–1.147)	(–1.505)
FDI	0.482***	1.120*	0.367*	0.462
	(3.025)	(1.901)	(1.685)	(0.922)
Military	0.183	0.523**	0.003	–0.573
	(1.135)	(2.322)	(0.009)	(–0.980)
Debt	–0.285***	–0.147	–0.257	–0.336
	(–2.573)	(–0.770)	(–1.316)	(–1.098)
Industr	–1.204***	–0.666	–1.423***	–2.083**
	(–3.780)	(–0.572)	(–2.681)	(–2.359)
StkCap	0.144*	–0.180	0.189	0.323
	(1.630)	(–0.506)	(1.252)	(1.322)
ForExch	–0.044	–0.252***	0.013	–0.084
	(–0.866)	(–2.461)	(0.188)	(–0.861)
YounDep	–0.528	1.245	–2.089	–4.773
	(–0.871)	(0.754)	(–1.238)	(–1.471)
Adjusted R^2	0.219	0.261	0.302	0.127
Observations	260	104	156	104

Notes: 2SLS refers to the two-stage least squares estimation.
All variables are in logarithms. T-statistics are reported in parentheses.
***, **, * indicate significance at 1%, 5%, and 10%.

interest repayments, which would impose a heavy debt burden on future generations.[2] The persistent current account deficits would raise the possibility of major debt default. The eurozone debt crisis of 2010 has highlighted the impact of excessive bank credit flows on current account deficits in the developing eurozone countries. The high-risk investments in real estate booms and private borrowings led to these countries persistent current account deficits. This triggered the severe eurozone debt crisis among the four crisis countries.[22] To avoid a similar crisis, the CEE countries should implement long-term policies to ensure bank credit stability over time. More stringent bank regulations should be made to maintain a stable bank credit supply from both local and foreign-owned banks. The financial institutions should closely

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monitor the allocation of bank credit flows to productive investments to boost higher economic growth.

Second, the results indicate the positive relationship between higher stock market capitalization and current account surpluses. But this result must be interpreted with caution. The CEE stock markets are still lagging behind their western EU counterparts in terms of size and liquidity. Similar to the core EU countries, the CEE countries have long relied on bank lending rather than stock market financing to fund their domestic investments. Foreign bank mergers and acquisitions of the CEE banks have accelerated their banking sector development. However, their stock markets have not made major progress to catch up with western EU stock markets. To diversify the source of financing beyond bank lending, the CEE countries should develop more efficient stock markets through deepening stock market integration. To achieve this, all of the CEE countries should consider participating in the EMU. Only seven of the 13 CEE countries have adopted the euro. EMU accession would allow these countries to enhance their economic policy coordination with the eurozone countries. The existing legislations would ensure better surveillance of macroeconomic and financial imbalances to improve economic governance in the eurozone.[7] Given closer eurozone economic coordination, the CEE countries can better monitor stable capital flows from other eurozone countries to boost their stock market liquidity. The steady stock market expansion would lower the average risk of experiencing an excessive capital boom.

Third, the results suggest that the financial integration and deepening have led to the current account deficits. The eurozone debt crisis has highlighted the export competitiveness gap between the core and periphery eurozone countries. Since the formation of the EMU, the core eurozone countries, such as Germany, have continued to increase their exports to the periphery countries, such as Greece. The failure to boost export competitiveness has made the periphery eurozone countries run persistent current account deficits against the core eurozone countries. Even worse, the overvalued euro has further weakened their export performance in non-eurozone countries.[9] The CEE countries can improve their current account balances by strengthening their export competitiveness. While the CEE countries have primarily exported their products to the eurozone countries, they should further increase their exports to non-eurozone countries. To consolidate their market shares, CEE countries have to achieve global export competitiveness with the assistance of other member countries. Due to the EU foreign direct investments, they can further exploit the technology transfer and production processes and incorporate them in their local productions. Meanwhile, they have to maintain lower production costs, especially labor costs, to retain their export competitiveness. The exploitation of new export markets would allow these countries to achieve current account surpluses in the long run.

Finally, the 2010 eurozone debt crisis has highlighted the need to form a full-scale EU banking union. The huge current account imbalance between the core and periphery eurozone countries could be considered the main cause of the debt crisis. To avoid a similar crisis in future, the CEE countries should coordinate with the eurozone countries to form a full-scale banking union within this decade. More stringent

banking legislations are needed to better supervise the banking operations.[23] The Single Supervisory Mechanism has facilitated the European Central Bank (ECB) supervision of large eurozone banks. But the central banks in member countries still have the authority to supervise all other domestic banks.[24] To maintain long-term bank stability, a full-scale banking union is needed to supervise all eurozone banks regardless of their size. A banking union can also facilitate the formation of common deposit insurance for bank resolution and recapitalization. It can complement the shortcoming of the European Stability Mechanism as its decision-making mechanism procedure is too constrained by the individual country vetoes.[25] All CEE countries should join the EMU so that they can directly contribute to the formation of the banking union. This would help them to maintain a current account balance in the long run.

6. Conclusion

This study examines whether financial market development and integration have affected the current account balances in CEE countries during 1996–2015. First, the results suggest that the higher banking sector development has resulted in current account deficits especially after EU accession. The foreign bank mergers and acquisitions of the local banks have accelerated the banking sector development. The larger pool of bank lending flows has helped finance domestic investment. This has led to the larger current account deficits. Second, the results indicate that the stock market development has resulted in current account surpluses rather than deficits. This contradicts the findings of previous studies which found a positive relationship between financial market development and current account deficit. The larger stock markets can quickly convert domestic savings into investments, which would lead to a current account deficit. On the contrary, the result of this study suggests that the larger stock market size due to EU accession has caused current account surpluses in the CEE countries. This effect has strengthened even after the onset of the 2008 financial crisis. Third, the result confirms that the financial integration has facilitated higher current account deficits. The EMU has lowered or eliminated the regulatory restrictions on cross-border capital flows among the eurozone countries. The increase in foreign capital inflows has helped finance the growing local consumption and investment needs. This has made the CEE countries run larger current account deficits. Finally, the result indicates the negative effect of financial deepening on current account balances. Due to EU accession, the CEE countries have reduced private borrowing constraints by tapping financing in their more developed financial markets. They have also received more foreign savings through foreign capital inflows. Therefore, their current account deficits have substantially increased after EU accession.

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