

Article

Global Imbalances: The Role of Institutions, Financial Development and FDI in the Context of Financial Crises

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Abstract: This paper examines the role of the quality of institutions, financial development and FDI on current account imbalances, which narrowed during the Global Financial Crisis. In doing so, we utilize (i) a sample of 49 advanced and emerging economies during 1984–2014; (ii) a novel three-clustered indices of institutional quality and (iii) two measures of financial development, the share of FDI and a measure of financial crisis in addition to standard determinants of the current account. We find that the better the quality of institutions and the greater the financial development, the larger are current account deficits; meanwhile, FDI contributes to boost current account balances. Moreover, financial crisis episodes tend to improve current account balances, particularly for countries that are highly open to trade and to receive FDI, as in the case of advanced economies and East Asian countries.

Keywords: current accounts; financial crises; capital inflows; global imbalances



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1. Introduction

The way capital moves across countries has long been of significant interest to both academics and policymakers. Consequently, studying the drivers and the sustainability of the current account have been of primary interest, especially during the intriguing changes in the direction of capital flows across countries, particularly the changes in the so-called global imbalances—the coexistence of substantial deficits by the United States and sizable surpluses elsewhere, particularly in the East Asian countries. Considering and understanding capital flowing and FDI flows across countries may help to establish better financial stabilization policies since negative shocks in capital flows are commonly related to sudden stops and financial crisis.

The scale of the global imbalances in the early 2000s, for instance, is widely recognized to have played a key role in preparing the ground for the 2008–2009 global financial crisis (henceforth GFC) (see, e.g., [1] among many others). The substantial build-up of international reserves by the East Asian countries in the aftermath of the 1997 Asian crisis and the boost in the external balances of the oil exporters following the rise in oil prices from the late 1990s led to a huge increase in emerging economies' savings. This so-called saving glut greatly helped financing the massive current account deficits the US economy—with one of the most developed financial sectors—has been building up over the same period at the back of the contraction of domestic savings [2]. Other developed economies such as the United Kingdom, Australia, Italy, Spain and France also ran deficits since the mid-1990s. Importantly, the saving glut is argued to have created a substantial increase in credit, which is commonly linked to the subsequent boom in asset prices in advanced

economies. Examples include the 2008 subprime boom in the United States and the real estate boom in the United Kingdom, Ireland and Southern European countries [3].

Given the huge disruption in global economic activity in the wake of the 2008–2009 GFC, there has been much interest in understanding the sources of such global imbalances (see, e.g., [3–5]). A key focus of this research has been on understanding why capital flew from emerging to rich countries. For instance, current account balances of the East Asian countries rose from USD 17,500 million deficit in 1995 to USD 707,500 million surplus in 2007. Latin American and other developing economies also moved from deficit to surplus while the deficit of the US economy deteriorated from USD 113,560 million to USD 711,033 million over the same period.

One potential source of such movements has been seen as the relative weak growth of financial markets in developing countries, which failed to absorb its huge net savings provoking capital outflows, sometimes in the form of FDI [6]. In addition to the deepening of the financial sector in rich countries such as the United States and the United Kingdom, the quality and the strength of institutions and the favourable business environment—which attract great part of foreign direct investment (FDI) worldwide—have been seen as major factors of global imbalances [4,7]. It is also argued that the formation of the European Monetary Union has contributed to the intra-Eurozone imbalances [8,9]. Global imbalances significantly narrowed following the 2008–2009 GFC. The collective deficit in advanced economies dropped from USD 567 billion in 2007 to USD 107 billion in 2012 (a reduction of around 80%). Meanwhile, the current account surpluses in developing and emerging economies fell from USD 547 billion to only a third over the same period. This is calculated using data from the United States, EU, Canada, Australia, Japan, Norway and Switzerland as advanced economies. Developing economies group includes Latin America, Eastern Europe, Russia, Middle East and Africa.

Analysing the determinants, dynamics and sustainability of the current account balances is a key issue to understand the surpluses accomplished by the East Asian countries during the 1997 financial crisis and the narrowing of global imbalances during the 2008 GFC episode. For doing so, we depart from standard models to predict current account balances incorporating a relative measure of financial crises and proxies for the quality of institutions. In a nutshell, the goal of this paper is to explore the determinants of current accounts, focusing in particular on the role of crises, investment, and institutions. Specifically, we investigate whether FDI helps reversing current account deficits, and what is the role of financial development in such dynamics. Does the last financial crisis help reversing current account deficits as it did during the 1997 East Asian financial crisis? If so, through which channels? These are the key issues we explore in this paper. We attempt to answer these questions by estimating the determinants of current accounts balances for a panel of 49 countries over the period of 1985–2014. Among determinants of current accounts, we incorporate a novel three clustered index of institutional quality (Economic, Legal and Political Indices), FDI, measures of financial development, and a set of standard fundamentals of the current account.

Our results support the notion that better quality of institutions, particularly economic institutions, help attract net capital inflows, financing current account deficits. Meanwhile, the greater the financial development, the larger are current account deficits. On the other hand, FDI net inflows contribute to improve the position of current account balances. We also find, consistently with past studies, that financial crises improve current accounts, particularly for countries that are highly open to trade. In the aftermath of the 2008 episode, the profile of adjustment was notably different in comparison to the 1997 East Asian crisis; the contraction in aggregate demand following the 2008 financial crisis led to a sharp fall in imports, improving the current account balances. In contrast, depreciation of the region's currencies during the 1997 Asian crisis and the resulting boom in exports did the bulk of readjustment. Understanding current accounts evolution provide key insights for the puzzle of global imbalances evolution with implications for the implementation of financial stability policies worldwide.

The rest of this paper is structured as follows. Section 2 discusses the literature review. Section 3 presents the estimation strategy, the relevant variables and the data including some descriptive statistics. Section 4 discusses our main estimation results with focus on the role of the quality of institutions and FDI in the evolution of current accounts. Section 4 also explores the role of financial development on current account dynamics. We also explore the mechanism through the adjustment of global imbalances took place during the 2008 GFC in comparison to the East Asian 1997 crisis. Finally, Sections 5 and 6 present discussion and conclusions, respectively.

2. Literature Review

There are several studies trying to identify the main drivers and sustainability of current account balances. Roughly, authors employ three empirical techniques: time series, panel cointegration and short panel data or cross-sectional estimation. Authors who employ time series analysis in explaining country's specific determinants include Arghyrou and Chortareas [10] for the Euro Area, Batdelger and Kandil [11] and Duncan [12] for the United States, Hoffmann [13], for China, Sadiku and others [14] for FYROM, among others. The second approach employed is time series and panel cointegration techniques, as Afonso and Rault [15] and Belke and Dreger [16]. The third approach consists of analysing medium-term (isolating from cyclical factors) determinants of current account by employing short-panel and/or cross-sectional estimation. Since current account balances depend on how capital flows across countries, panel data are helpful to explore how differences between countries and structural factors determine global imbalances through time.

The seminal work of Chinn and Prasad [17] examines current account determinants using panel data estimation for a large sample of countries during 1971–1995. They incorporate a number of variables such as relative income, growth, demographics, Net Foreign Asset Positions (NFA), trade factors and capital controls. This has been the baseline model for several studies. Their study finds a strong relation between government budget balances and current account, known as the *twin deficit hypothesis*. Net Foreign Asset Positions (NFA) is positively correlated with current account surpluses.

Herrmann and Jochem [18] study the case of central and east members of the European Union. Their results suggest that relative income plays an important role in current account balances, as the *stage of development hypothesis* predicts. This hypothesis states that high-income countries tend to run external surpluses, since they should export capital to poor countries, which need to invest more to reach the developed countries. They also find that the effect of budget balances is positive but not as stronger as expected, since the elasticity is less than 0.5. The latter is strongly supported by other studies such as Chinn and Ito [5], Gruber and [19], Abbas and others [20], among others. Bluedorn and Leigh [21] try to identify the effect of fiscal budget tightening when is mainly motivated by the level of external position. On the other hand, Afonso and Rault [15] suggest that results may vary significantly across countries and that the relation is not that close and that the direction of this could even reverse in some countries.

Chinn and Ito [5] examine how differences in the level of development of financial markets across countries influence current account balances, as previously argued by Bernanke and other economists. They find that more developed financial markets may lead to smaller current account levels. For some East Asian countries, however, financial development may induce to higher saving level. Furthermore, it is argued that low investment rather than high saving could cause Asian surpluses. Results differ from those of Gruber and Kamin [22] who employ different proxies for financial development, e.g., private credit level. They find that the relation between current account and financial development depend on which proxy is used. They also show that domestic spending reacts more to the decrease of credit cost in the United States than in other mature economies. However, their findings do not explain the deepening and persistency of the US deficits, so that the global imbalances puzzle still remains mostly inconclusive.

Gruber and Kamin [19] extend the database of Chinn and Prasad [17] until 2003. Interestingly, they contribute adding to the baseline model some variables such as the quality of government institutions and, building on Keynesian economics related to current accounts during recessions, a relative measure of financial crisis variable and its interaction with the openness ratio. Their results show that incorporating the financial crisis variables can improve the model to explain current account balances, especially for the Asian countries. In this sense, the interaction of financial crises with international trading may boost current account balances. That is, the more open the economies are the more capable of adjusting their external sector via currency depreciation, which has been considered in other studies directly by including the exchange rate (Table 1). In this work, we extend the period of analysis to consider the 2008 GFC, and we incorporate FDI, as well as two different proxies of financial development and three novel indices of the quality of institutions.

Table 1. Current account determinants previous empirical evidence.

| Author | Country | Period | Determinants |
|---------------------------------------|-----------------------|-----------|---|
| Gossé and Serranito (2014) | OECD countries | 1974–2009 | Exchange rate (–), credit level (–), RGDP (–), oil balance (+), terms of trade (+), labour productivity (+) |
| Duncan (2015) | The United States | 1973–2012 | Fiscal surplus (+), productivity (–), TFP volatility (+), relative price of oil (–), real exchange rate (–), real interest rate (+) |
| Huntington (2015) | World (91 countries) | 1984–2009 | Government surplus (–), oil trade (+), trade openness (+), age dependency (–) |
| Duncan (2016) | US | 1973–2012 | Output below long-run trend: GDP cycle (–), output above long-run trend: GDP cycle (+) |
| Romelli, Terra and Vasconcelos (2018) | World (181 countries) | 1970–2011 | Openness (+), exchange rate (+) |

Notes: Table 1 reports previous empirical evidence at country level and worldwide research. We present evidence in the line of our empirical setting. It is a not exhaustive review of the literature. We expose some of the previous findings, those are represented with “+” for a positive relationship and “–” for a negative relationship.

3. Materials and Methods

The model is represented as follows:

$$y_{it} = \alpha + X_{it}\beta + \eta_i + u_{it} \quad (1)$$

$$\varepsilon_{it} = \eta_i + u_{it}, \quad (2)$$

where y_{it} represents the current account to GDP ratio for the country $i = 1, \dots, N$ in period $t = 1, \dots, T$; X_{it} is the set of explanatory variables; η_i is an unobserved country effect; u_{it} is the disturbance term and α is the intercept. Since η_i is unobserved, the model allows for a composite error term $\varepsilon_{it} = \eta_i + u_{it}$. The X_{it} matrix may also contain time dummies, which allows to the current account averages differing across time.

FE estimation may not be appropriate for the purpose of this study, since FE focuses on within-country variations through time. Meanwhile, cross-country differences are very important for determining how capital flows worldwide and hence current account balances. POLS and RE assess both within and between country variations. Assuming strict exogeneity, RE is more efficient than POLS, since estimates the model by a Generalised Least Squares (GLS) framework. For these reasons, we focus on Random Effects estimated through GLS with robust standard errors and the inclusion of time dummies. Moreover, most of variables are constructed or provide in such manner that they are relative measures of the correspondent factors to consider it.

3.1. Data and Variables

To examine the determinants of current accounts, we estimate (1) using data from a sample of 49 countries for the period of 1985–2014. The list of our sample countries is provided in Table A1. Annual observations are transformed into 5-year nonoverlapping averages, yielding six observations for each country over the sample period. Using such period averages allows us to isolate the model from short run dynamics, which are not of core interest for our analysis. Transforming variables to m -year moving averages also helps reduce the potential bias from not controlling individual dynamics, mitigates concerns arising from measurement errors, and it helps to filter out business cycles effects, which are not of primary interest in this study (see, e.g., [5,23]).

The dependent variable, Current account, is expressed as the ratio of the current account balance to GDP. Growth, Fiscal balance and Demographics (Youth and Elderly ratios) are measured as deviations from their GDP-weighted averages. Other variables, particularly institutional indices and financial development indices are already obtained as relative measures. A summary of variables and sources is shown in Table A1.

3.1.1. Quality of Institutions

It is widely agreed that countries with stronger institutions are better able to attract capital inflows; the United Kingdom, the United States and Netherlands are clear examples. During 1990–2007, FDI inflows received collectively by these three economies were USD 385 billion annually on average. In contrast, the low and middle-income countries received an annual combined average of USD 159 billion in FDI. A higher value for the index would, therefore, be expected to be associated with greater capital inflows and hence a lower level of current account balances.

We use the Institutional Quality Dataset developed by Kuncic [24] where several indicators are clustered into just three categories: Economic, Legal and Political Institutions. The dataset covers 197 countries from 1990 to 2010. These indices are constructed employing measures from the Heritage Foundation, Freedom House, Fraser Institute, World Bank, Transparency international and the International Country Risk Guide. As such, the clustered indices entail measures of (i) the quality of Economic Institutions covering measures of financial and business freedom, economic environment, regulations and capital controls, among others; (ii) Legal Institutions covering property rights, legal environment, civil liberties and judicial independence and (iii) Political Institutions covering political environment, political rights, corruption, bureaucratic quality, democracy and other related measures. Kuncic [24] provides absolute and relative scores of the three indices. For ease of comparability, we employ the relative scores ranging from -2 (worse) to 2 (best).

3.1.2. Financial Development

Importantly, Ref. [4] argues that if Asian financial markets become more sophisticated, this may lead to reducing their saving rates, hence the need for international capital would increase. This may be the case of some advanced economies, such as the United States and the United Kingdom, which have received great capital inflows to finance their persistent deficit. Similarly, Clarida [25] holds that financial development in rich countries as the United States would have absorbed the excess savings of developing economies. Therefore, financial development is expected to affect negatively the current account balance. Here, we use two measures of financial development, namely, the Financial Development Index (FDIX) and the Financial Institutions Index (FIIX) provided by Svirydzenka [26].

3.1.3. Foreign Direct Investment

FDI could have direct or indirect effects on current account balances, specifically, FDI can affect the current account through exports, imports and financial activities of multinational (foreign) companies. The direct effect is explained by the monetary/financial transfers; however, the indirect effects are less evident. FDI contribute to the global integration of countries and to develop commercial relationships, hence fostering international

trade (increasing imports/exports). In this way, its impact on trade balance, thus in the current account, will depend on the nature of foreign direct investment.

3.1.4. Openness

Openness index is measured as the ratio of goods exports plus goods imports to GDP. A positive coefficient is expected. Romelli and others [27], consistent with the Marshall-Lerner's condition, find evidence that more open economies achieve larger improvements on current account balances when their currency depreciates by the same amount. Romelli and others [27] and Cavallo and Frankel [28] also support that current account improvements may be associated with greater trade openness. They argue that countries that specialise in the services sector tend to run persistent deficits, a trend exemplified by the experiences of some advanced economies, such as the United Kingdom and the United States. In contrast, economies more concentrated in the industrial sector with strong performance in the goods trade such as China and Germany have run surpluses since the mid-1990s. This pattern may be also attributed to the gap between the liberalisation of tariffs on goods trade relative to those on services. It was shown that if services were liberalised (reducing service-related trade restrictions) as much as goods, global imbalances would decrease by around 40% [29].

3.1.5. Financial Crisis

The financial crisis variable is constructed based on the systemic banking crises data from Laeven and Valencia [30]. We focus on this dataset because systemic banking crises are highly disruptive episodes affecting the financial sector. These episodes may be accompanied (and they commonly do) by the depreciation of the national currency. Laeven and Valencia [30] define a banking crisis as systemic when one of the following is observed: (i) symptoms of financial distress in the form of banking system losses, bank runs or closure and (ii) government intervention in the banking system including takeover or merging of one or more important financial institutions. Similar to other determinants, Financial crisis is defined relative to the rest of the world and is constructed as follows: first, we assign a dummy taking the value of 1 if the country is suffering a financial crisis and 0 otherwise, and second, we multiply this dummy by the country's GDP. Then, this product is divided by the sum of the GDP of all countries facing a financial crisis during the same year. This suggests that when country i is facing a crisis, the smaller the number of other economies also in crisis, the greater will be the value of *our* Financial crisis *proxy* for country i .

Following Gruber and Kamin [19], we also interact Financial crisis variable with the *Openness* ratio. This interaction term captures the ability of more open economies to adjust their trade balance in response to (financial) crises, for instance, through the depreciation of their respective currencies hence improving the trade balance. Clearly, the greater the share of net exports as a share of GDP—the standard measure of trade openness—the greater would be the recovery following such currency depreciations. This interaction is operationalized as a multiplication between these two variables, a positive and significant result in this variable would suggest that openness could mitigate the negative effect of financial crisis on the current account.

3.1.6. Income per Capita and Growth

According to the stage of development hypothesis, developing countries tend to run deficits by highly investing to reduce the gap with rich economies. Further, relative income per capita is associated with higher private saving rate [18]. According to this rationale, higher income per capita is expected to be positively associated with current account surpluses. For the model, the variable is measured as the ratio of the country's income per capita to a GDP-weighted sample mean.

It is argued that increases in productivity may lead to higher returns on capital and thus attract investment from abroad. At the same time, expectation for future higher

income (as result of present growth) might depress current savings. Therefore, relative higher growth rates are theoretically associated with smaller current account balances.

3.1.7. Fiscal Balance

The potential relation between fiscal balance and current account is known as the twin deficit hypothesis. Overall, there is some support that government budget deficits are associated with current account deficits, since government tend to import high amounts of capital and inputs when they need to aggressively invest in infrastructure (see, e.g., [5,17,19,20]).

3.1.8. Initial Net Foreign Asset Position and Oil Balance

Countries receive net income from their Net Foreign Asset (NFA) positions. Moreover, Earauskin (2015) [31] and other authors argue that domestic savings influences the current account balances depending on the initial NFA. Since current account reflects changes in NFA share, NFA is equivalent to the accumulation of past current account balances. For this reason, the ratio of NFA to GDP is lagged.

Oil balance is a direct component of the trade balance and, therefore, of the current account. However, its passthrough to the current account may not be one-for-one. It is measured as the trade balance of oil to the GDP ratio.

3.1.9. Demographics

It is commonly argued that larger dependency ratios are associated with smaller current account balances. The elderly dependency is calculated as the ratio of the population 65 or more years old to the working-age population. Youth dependency represents the ratio of population 15 years or less years old to the working-age population.

3.2. Descriptive Statistics

Table 2 presents the simple sample means calculated as 5-year averages from 1985 to 2014, enabling the following observations. Clearly, our sample countries run current account deficits on average until 2000 and have been in surplus for the rest of the sample period. The openness ratio shows how international trade has increased worldwide, from 60.5% in the late 1980s to 87% in the mid-2010s. Demographic variables—the youth and elderly dependency ratio—indicate how population has been aging in our sample countries. Moreover, financial development—proxied by private credit to GDP ratio—has almost doubled since the 1980s. A closer inspection in the data shows that Ireland, Switzerland, Netherlands, the United Kingdom and Sweden are some of the countries that have received higher levels of net FDI inflows in our sample—from 3% more than 7% of GDP. Meanwhile Hong Kong, Denmark, the Netherlands and the United Kingdom are some of the countries rating highest according to the Economic Institutions Index.

We now turn to a closer inspection of the frequency of financial crises and their effects on current accounts in our sample. Figure 1 displays an aggregate measure of financial crises for the period 1985–2014. This index is calculated as the sum of GDP of all countries facing a financial crisis as a ratio of the world GDP for each year, representing the scope of financial crisis episodes across the globe during this period. The index is relatively stable in the late 1980s and early 1990s, rising sharply during the 1990s, with a series of crises in emerging economies including the 1997 Asian financial crisis. Figure 1 clearly indicates the global nature of the 2008–2009 episode, with a dramatic rise in the proportion of crisis-inflicted countries as a share of global GDP—around half of global economy.

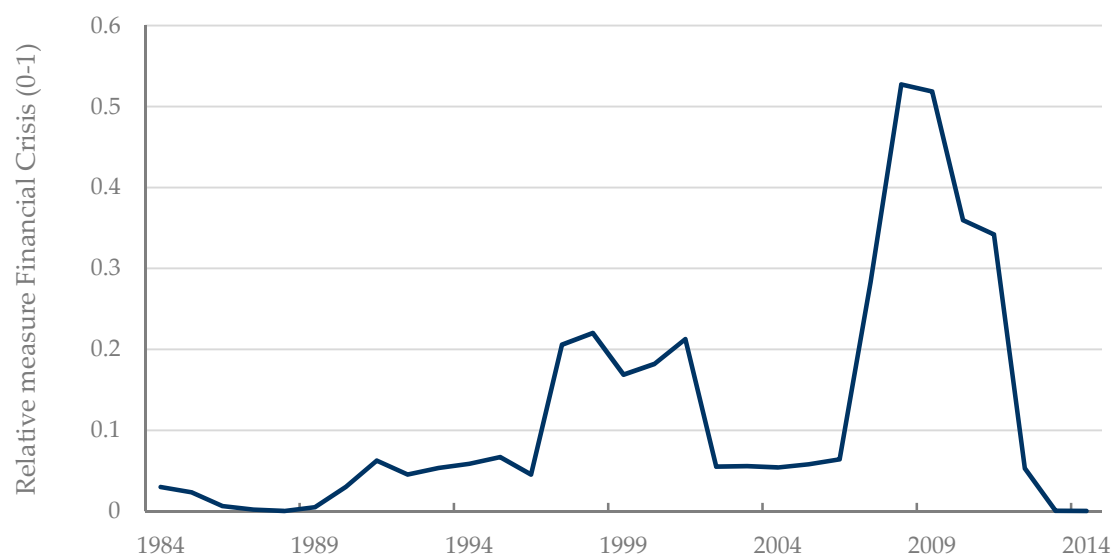


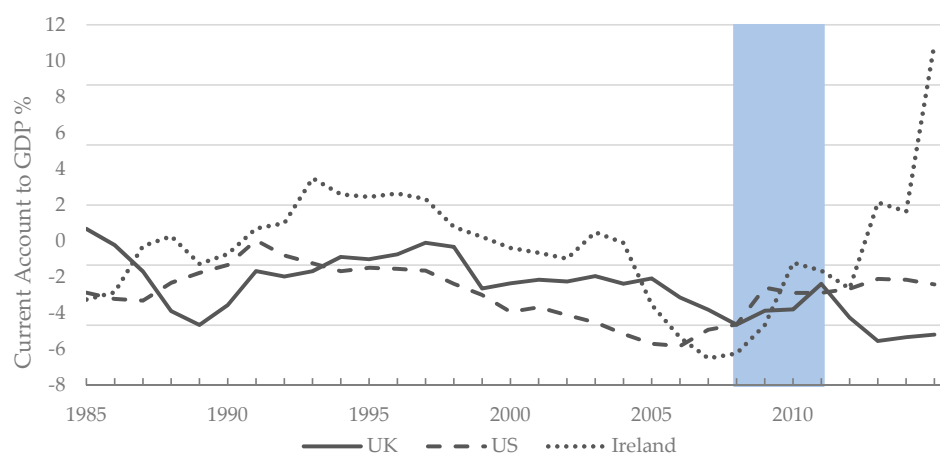
Figure 1. Gross Domestic Product (GDP)-Weighted Financial Crisis Dummy. The index is the sum of GDP of all countries facing a financial crisis as a ratio of the world GDP in each year.

Table 2. Evolution of the current account and its potential determinants.

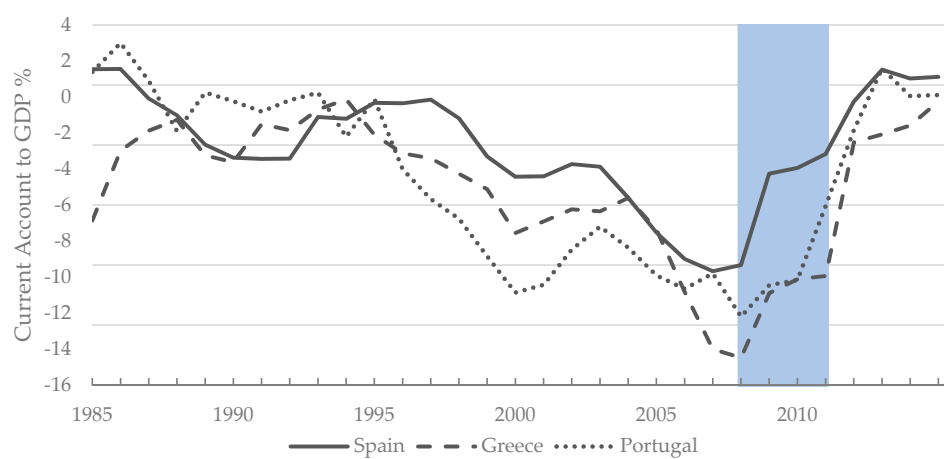
| | 1985–1989 | 1990–1994 | 1995–1999 | 2000–2004 | 2005–2009 | 2010–2014 |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Current account (% of GDP) | −0.71 | −0.81 | −0.26 | 1.12 | 0.75 | 0.16 |
| Per capita income (2010 USD) | 17,059 | 18,399 | 20,150 | 22,313 | 24,772 | 25,485 |
| Δ% Real per capita income | 2.27 | 1.89 | 2.29 | 1.86 | 1.94 | 2.13 |
| Lagged NFA (% of GDP) | −25.72 | −25.31 | −25.08 | −22.21 | −19.55 | −16.87 |
| Openness (% of GDP) | 60.51 | 63.31 | 70.68 | 78.79 | 85.30 | 87.08 |
| Youth dependency ratio (×100) | 49.91 | 46.51 | 43.41 | 40.01 | 36.89 | 34.31 |
| Elderly dependency ratio (×100) | 12.80 | 13.52 | 14.26 | 14.97 | 15.75 | 16.78 |
| Oil balance (% of GDP) | −0.80 | −0.24 | −0.11 | −0.18 | −0.52 | −0.99 |
| FDI (% of GDP) | −0.52 | −0.85 | −1.22 | −1.00 | −0.53 | −1.19 |
| Economic Institutions (Score ×100) | NA | 48.00 | 51.00 | 42.00 | 32.00 | 37.00 |
| Political Institutions (Score ×100) | NA | 62.00 | 59.00 | 59.00 | 59.00 | 65.00 |
| Legal Institutions (Score ×100) | NA | 47.00 | 57.00 | 48.00 | 46.00 | 53.00 |
| Financial Development Index (FDIX) | 34.52 | 38.05 | 45.78 | 51.76 | 56.82 | 56.62 |
| Financial Institutions Index (FIIX) | 45.47 | 48.36 | 52.47 | 55.87 | 59.65 | 62.57 |
| Financial Crises Dummy ^a | 15 | 34 | 33 | 26 | 35 | 32 |
| GDP-Weighted Crisis Dummy | 0.04 | 0.05 | 0.14 | 0.11 | 0.29 | 0.15 |

Note: In Table 1, *a* represents the sum of the financial crisis dummy, which takes the value of 1 for each country in each year of financial crisis during each of the 5-year period. The availability of data on institutional quality is slightly more restricted, covering only the period of 1990–2013.

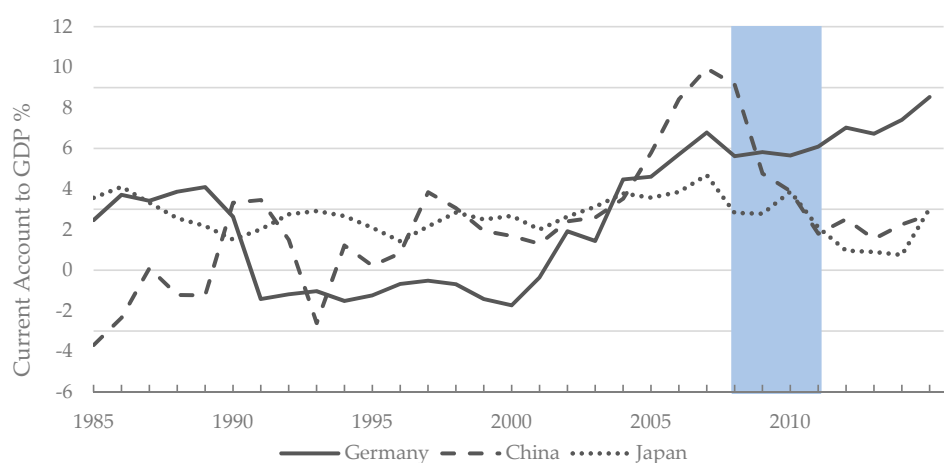
Figure 2 presents the evolution of the current account balances for a subset of our sample countries. Clearly, the United Kingdom and the United States run deficits persistently for decades, with the visible deterioration of the US balances since the mid-2000s reaching almost 6% of GDP (Figure 2a). Southern European economies such as Spain, Portugal and Greece faced the deterioration of current account balance since the introduction of the Euro in 1999 (Figure 2b). In contrast, economies with high concentration of manufacturing trade such as China, Germany and Japan, have run persistent surpluses (Figure 2c).



(a)



(b)



(c)

Figure 2. The United Kingdom, the United States and Ireland (a); Spain, Greece and Portugal (b) and Germany, China and Japan (c). Grey bar indicates the period of the 2008–2011 financial crisis in developed economies.

It is also visible from Figure 2 that the pattern of current account balances changed since 2008 in the wake of the GFC. Domestic demand contracted in countries seriously inflicted by the GFC such as the United States, the United Kingdom and the Southern Euro Area. Such contractions in output resulted in significant reductions in imports, which in some cases were greater than falls on exports, hence improving the external position. This, in turn, led to a reduction in the current account balances of surplus countries except Germany where the current account remained relatively stable in the post-GFC period. Overall, as a result of shrinking surpluses in the emerging economies and diminishing deficits in some of the advanced economies, the global imbalances narrowed following the GFC.

We now turn to a systematic analysis of the quality of institutions, FDI, financial development and other determinants, in the context of financial crises and the reversing of current account imbalances across all episodes in our sample.

4. Results

4.1. FDI, the Quality of Institutions and Financial Crisis

Table 3 presents results from the GLS Random Effects estimation for 49 countries over 1985–2014. Column 1 is the baseline model, which consider fundamentals as explanatory variables along with the financial crisis measure and its interaction term with the openness index (as suggested by [19]). Here, we add FDI as percentage of the GDP. Specifications displayed in Columns 2, 3 and 4 incorporate the three institutional indices (Economic, Legal and Political) separately in addition to the FDI variable. Column 5 include the three institutional indices together along with the rest of variables of Column 1. Following the conventional practices, we show some specification test. All estimates consider the potential heteroskedasticity issue; for this reason, we compute White robust standard errors for all regressions [32]. We also prove the validity of our proposed model with the Hausman test. We also discuss the importance of time dummies; here, we jointly test their validity in all models and these results are presented for each regression column. In line with the compliance of these specification test, our model is well suited.

FDI is significant in most of the specifications at least at 10% level, and it is associated with improvements of the current account balances. In our estimations, an increase of 1% in FDI as percentage of GDP is associated with an improvement of the current account by between 0.35% and 0.45% of GDP. It may be argued that the higher the FDI inflows, the greater the boost on exports—hence improving the current account balance—since FDI may allow improvement in productivity through technological transfer, and the import of know-how; moreover, FDI may look for economies with high levels of productivity in the first place, reinforcing the cycle. In our sample, Netherlands and Switzerland, two of the countries with highest FDI net inflows (between 3.50 and 5.15% of GDP) and high productivity, recorded current account surpluses between 6% and 11% of GDP during the period 2005–2014.

Contrary to the stage of development hypothesis, the current account would be negatively related to the growth rate—fast growing countries tend to run surpluses *ceteris paribus*. However, such coefficient is not statistically significant. Higher fiscal balances are positively associated with current account surpluses, as is suggested by the twin deficit hypothesis. Moreover 1% increase in the budget balance improves the current account by between 0.20% and 0.28%, in line with previous estimations [5,20]. Openness ratio is highly significant and countries that are 10% more open than the sample mean tend to run, on average, between 0.36% and 0.47% larger current account balances. In addition, consistent with previous findings, crude oil balance and demographics variables are not significant for our four specifications.

Table 3. Current account determinants—institutions and foreign direct investment (FDI).

| | 1 | 2 | 3 | 4 | 5 |
|-----------------------------|----------------------|-----------------------|----------------------|----------------------|-----------------------|
| Per capita income | 0.013 * (0.007) | 0.030 *** (0.009) | 0.023 *** (0.008) | 0.020 ** (0.008) | 0.028 *** (0.009) |
| Δ% Real per capita income | 0.148 (0.080) | 0.056 (0.114) | 0.131 (0.119) | 0.076 (0.124) | 0.039 (0.117) |
| Fiscal balance | 0.208 *** (0.079) | 0.282 ** (0.083) | 0.210 ** (0.091) | 0.226 ** (0.093) | 0.263 *** (0.081) |
| Lagged NFA | 0.028 *** (0.006) | 0.022 ** (0.007) | 0.026 *** (0.006) | 0.026 *** (0.007) | 0.0235 *** (0.007) |
| Youth dependency | 0.054 (0.035) | 0.054 (0.036) | 0.048 (0.037) | 0.036 (0.036) | 0.056 (0.037) |
| Elderly dependency | −0.058 (0.099) | −0.011 (0.103) | −0.034 (0.114) | −0.060 (0.112) | −0.001 (0.105) |
| Oil | 0.055 (0.113) | 0.024 (0.087) | 0.088 (0.097) | 0.016 (0.153) | 0.067 (0.098) |
| Openness | 0.037 *** (0.008) | 0.045 *** (0.007) | 0.040 *** (0.008) | 0.036 *** (0.008) | 0.047 *** (0.008) |
| Financial crisis | −0.115 * (0.059) | −0.071 * (0.042) | −0.104 * (0.055) | −0.096 * (0.053) | −0.069 * (0.041) |
| Financial crisis × openness | 0.001 * (0.000) | 0.001 (0.001) | 0.001 * (0.000) | 0.001 * (0.000) | 0.001 (0.001) |
| FDI | 0.454 ** (0.230) | 0.410 * (0.242) | 0.405 (0.255) | 0.418 * (0.249) | 0.345 (0.235) |
| Economic Institutions | | −0.026 *** (0.006) | | | −0.031 *** (0.008) |
| Legal Institutions | | | −0.013 ** (0.006) | | 0.005 (0.010) |
| Political Institutions | | | | −0.843 (0.570) | 0.002 (0.009) |
| Time dummies | 1990–1994 | 1990–1994 * | 1990–1994 | 1990–1994 | 1990–1994 * |
| | 1995–1999 | 1995–1999 *** | 1995–1999 ** | 1995–1999 * | 1995–1999 ** |
| | 2000–2004 ** | 2000–2004 *** | 2000–2004 ** | 2000–2004 *** | 2000–2004 *** |
| | 2005–2009 | 2005–2009 ** | 2005–2009 * | 2005–2009 ** | 2005–2009 ** |
| | 2010–2014 | 2010–2014 ** | 2010–2014 ** | 2010–2014 * | 2010–2014 ** |
| Root mean square error | 2.925 | 2.631 | 2.807 | 2.875 | 2.610 |
| Time dummies joint test | 13.590 * | 16.700 *** | 12.970 ** | 14.450 ** | 17.310 *** |
| Hausman test | — | 16.610 | 0.920 | 39.210 *** | 14.100 |
| VIF test | 2.690 | 3.310 | 3.390 | 3.370 | 4.470 |

Notes: *, **, *** represent significance at 10%, 5% and 1%, respectively. Models are estimated using the GLS Random Effects Estimator. Robust Standard errors are reported in parentheses. Sample: 49 countries and 6 5-years subperiods between 1985 and 2014. For the specification test, namely, the time dummies joint test and the Hausman test, reported values correspond to the calculated statistic, and the probability is represented with asterisks.

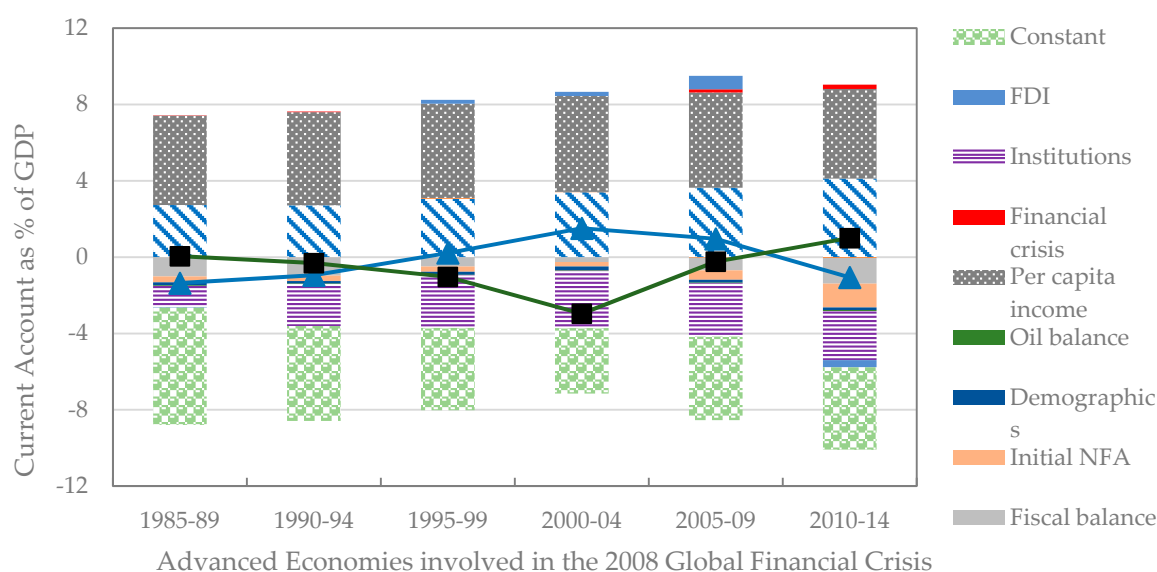
Columns 2, 3 and 4 display results from a specification that incorporates separately the institutional quality indices provided by Kuncic [24]. Column 2 exhibits that an improvement in the quality of Economic Institutions is significant to explain current account balances, since better Economic Institutions allow lower current account balances by attracting capital inflows. This may be the case of some of the advanced economies—with the ability of implementing sound macroeconomic and stabilisation policies—that attract capital due to finance their deficits. In Column 3, results show that the better Legal Institutions, the greater the incoming of capital inflows to the economy, since it is logical that a clear regulatory framework and legal certainty provide confidence to overseas investors to finance such economies. The Political Institutions index, however, was not significant in the specification reported in Column 4, which may suggest that macroeconomic management and clear legal frameworks—that may allow investors to obtain higher and/or safe returns—are more important for investors than political institutions. In Column 5, when including the three institutional indices at the same time, only the Economic Institutions index is

significant. The latter may be absorbing the effect of the Legal Institutions variable, which now become not significant. This may be related to a high correlation between Economic and Legal indices, since countries presenting better legal and regulatory frameworks may also tend to establish better—and sometimes independent—economic institutions. This result is congruent with other studies finding that current account balances are shown to deteriorate in the face of greater institutional quality [17,19].

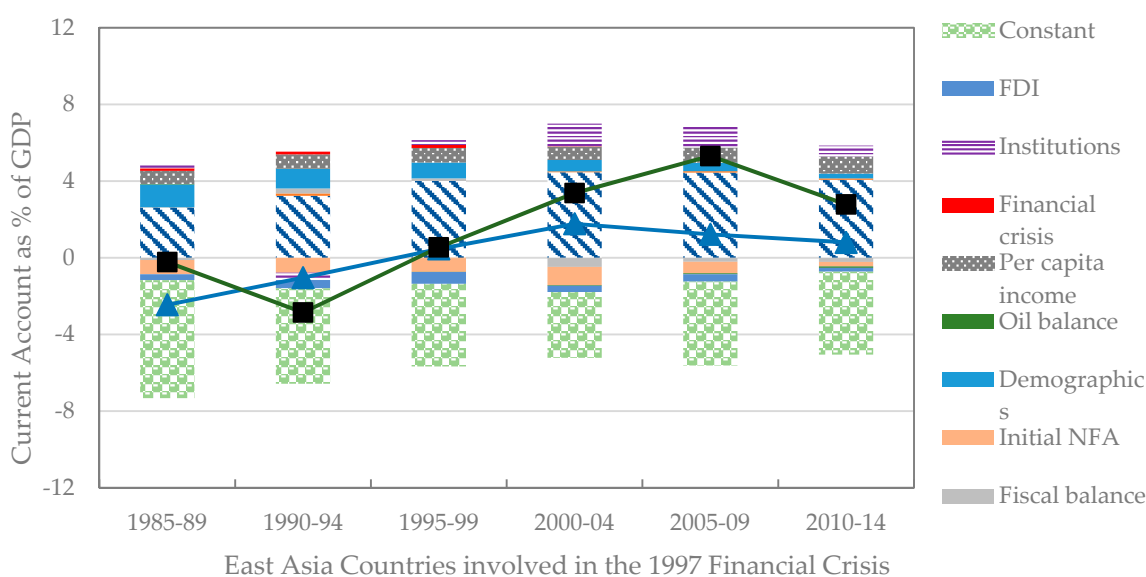
We also consider the effect of financial crises on the current account balances as previous studies do. Estimation results presented in Table 3 indicate that the financial crisis variable and its interaction with the openness ratio are mostly significant across models at 10% level. Overall, the more open an economy, the more likely that the current account will improve following financial crises. This result is similar to the seminar work of Gruber and Kamin [19], where they find that in economies with an openness ratio of 0.25–0.30%, the overall effect of financial crisis on current account balances is positive, as in the case of East Asian economies during the 1997 financial crisis, and, as we present below, this was also the case of some of the Advanced Economies during the 2008 GFC.

Figure 3 presents the contributions of individual determinants of current accounts in each our nonoverlapping 5-year periods for some of the advanced economies (exhibit a) and the East Asian emerging economies in our sample (exhibit b). It is calculated by computing the contribution of each variable to the current account predicted value. That is multiplying the actual value of each variable by the corresponding variable's coefficient estimated by RE panel effects, for each country, which is then GDP-weighted averaged to compute the country-group average. Besides the constant term, the highest contribution to current account deficits in our subset of exhibit are the quality of Institutions and fiscal balances. Meanwhile, the level of per capita income, the openness ratio and FDI are factors explaining most of the surpluses. In the subset of exhibit b, the contribution of the quality of Institutions to explain the current account balances is rather small in comparison to advanced economies. Actual levels of the current account are closer to those predicted by fundamentals and by our additional variables—FDI and Institutions specially in the first three subperiods and in the last subperiod for both subsets of countries. The positive net effect of financial crises on current account balances is also visible from both figures. It is clear, however, that the contribution of financial crisis to the current account balances is low in comparison to other determinants in our sample.

Indeed, it was commonly acknowledged that, the widespread currency depreciations in East Asian countries during the 1997 crisis episode allowed the crisis-inflicted countries to boost their exports and hence the trade balance. This was made possible at the back of growing global demand due to the regional nature of the crisis, the consequences of which had been largely contained. In contrast, we find that the reversal in the current accounts in the aftermath of the GFC of developed countries during 2010–2014 (0.22%) was slightly greater than in the aftermath of the 1997 Asian crisis during the subperiod of 2000–2004 (0.16%). There was also a different pattern in the improvement of current accounts in this period; trade balance improved in some of developed countries that were directly involved in the crisis not through the boost of their exports, as in the Asian crisis, but through a sharp reduction in imports.



(a)



(b)

Figure 3. GDP-weighted average-Variable Contributions to Current Account/GDP predicted values: Financial Global Crisis vs. East Asian Crisis. Advanced Economies: Austria, Belgium, Denmark, France, Germany, Iceland, Ireland, Italy, Netherlands, Portugal, the United Kingdom and the United States (a); East Asia economies: China, Korea, Indonesia, Malaysia, Thailand and Philippines (b). Variable contribution to predicted values of current account as percentage of GDP based on estimations using the GLS Random Effects from the model of Table 3, Column 2.

For instance, in 2009, the US exports decreased by 13.8%, while its imports dropped by 22.7%; in the United Kingdom, exports and imports were reduced by 19.6% and 21.3%, respectively, and in Spain, the fall in exports and imports were 17.9% and 28.0%, respectively. Such sharp drops in imports followed from the collapse of output in these countries, particularly given that all the three countries and particularly the former two were at the epicentre of the GFC. The collapse in output, in turn, followed from the deep loss in confidence in the banking system and the credit crunch, resulting in the collapse of the world trade. Consequently, economic activity in the crisis-hit countries remained subdued

for an extended period of time, in contrast to the v-shaped recovery enjoyed by the Asian economies in the late 1990s. On average, and as shown previously in Figure 2a,b, trade balance to GDP ratio in these countries enhanced during the period of 2008–2011, allowing the current account in most affected economies to improve over the same period.

The above assessment of the contribution of financial crises on current accounts points to two separate channels through which a financial crisis episode impacts of current accounts: trade channel and financial channel. Our results in Table 3 supports the view that the greater the openness to trade, the larger the improvements in current account balances in the wake of a financial crisis. Cross-country evidence from the GFC period reveals that countries that were more open to trade experienced greater contractions in output, as compared with precrisis forecasts [33], and greater cumulative drop in output, consumption, investment and aggregate demand over the period of 2008–2009 [34]. Given the substantial increase in the financial integration across the globe, financial linkages across countries have also come to play a crucial role in the transmission of shocks across countries (see, e.g., [35]). The next subsection will examine the role of the financial channel on the dynamics between FDI, Institutions, financial crisis and the current account balances.

4.2. The Role of Financial Development

To examine the role of the financial channel on current accounts, we incorporate as proxy two indices of the IMF's Financial Development Indices (1980–2013), developed by Svirydzienka [26]. The first is the *Financial Development Index* (FDIX), which measures the depth and the quality of both financial markets and financial institutions. The second is the *Financial Institutions Index* (FIIX), which only quantify the depth and the efficiency of financial institutions. To capture the role the state of financial markets plays in the consequences of FDI and the Quality of Institutions on current accounts, we provide different specifications in Table 4.

Overall, FDIX and FIIX as proxies of financial development are significant and they do not alter our main results from the earlier specifications. In Column 1, we appreciate that financial development—measured by FDIX—is significant at 5% level to explain current account balances. In Column 2, once we incorporate institutional indices, FDIX becomes significant only at 10%. In such case, FDI becomes not significant. In Column 3 and Column 4, FIIX is strongly significant, even when including the Economic Institutions index, which may be strongly correlated to FIIX (Financial Institutions Index). This result is mostly in line with other studies reporting that more developed financial markets are associated with economies running current account deficits [5,22]. In our final specification, Column 5, we also include the exchange rate of each country as explanatory variable. Results are mainly the same as in previous estimation, except for the fact that most of the year dummies are not significant. The latter may suggest that some of the differences of the current account balances across time may be due to the long-run movements of the exchange rate. This variable was not included in previous specification since the financial crisis variable may be already capturing the large depreciations of the exchange rate commonly experienced during financial crisis.

Across these four specifications, our results reveal that countries with highly developed financial sectors tend to run smaller surpluses or higher deficits in comparison to countries with less development financial sectors. The diversity of credit instruments and the amount of credit that financial development is able to generate in the economy might allow those countries to attract capital flows when running current account deficits. Our earlier findings with respect to the link between fiscal balance, the quality of Institutions, FDI and financial crisis—and its interaction with the openness ratio—mostly prevail in these specifications. In Figure 4, we display the variable contributions when predicting current account balances, using the model from Table 4, Column 2, that is including the FDIX as financial development proxy. As in the case of previous figures, we show two subsets of countries: advanced economies involved in the 2008 GFC, and East Asian countries involved in the 1997 financial crisis. In contrast to Figure 3, we may appreciate a high

contribution of the proxy for financial development, which contribute more to current account deficits in Advanced Economies in comparison to East Asian Countries.

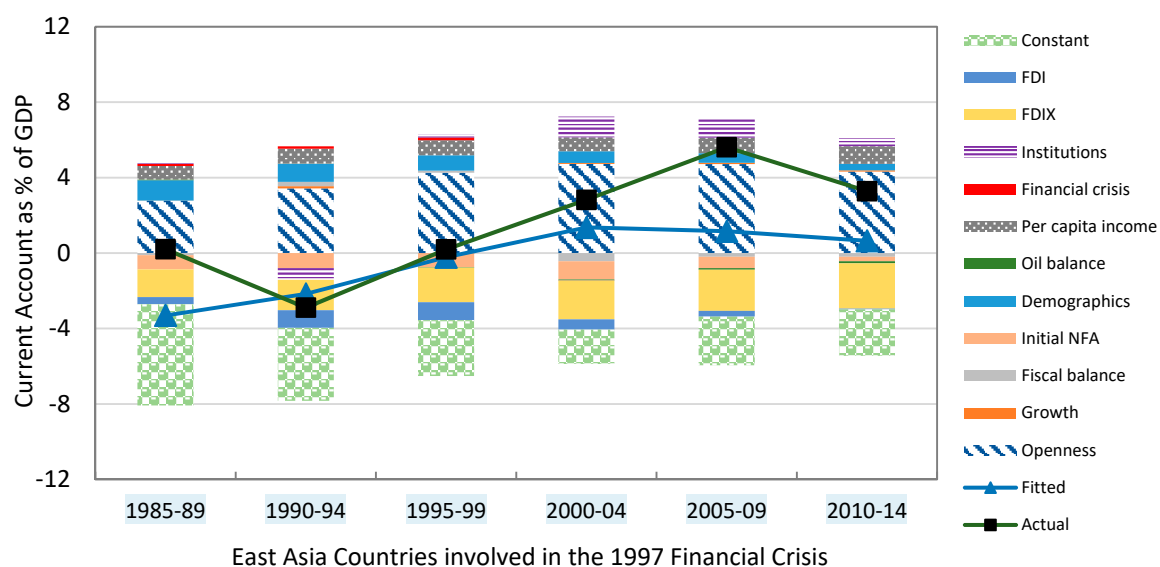
Table 4. Current account determinants—Financial Indices.

| | 1 | 2 | 3 | 4 | 5 |
|------------------------------------|--|---|--|--|--|
| Per capita income | 0.021 *** (0.007) | 0.031 *** (0.009) | 0.019 *** (0.007) | 0.031 *** (0.009) | 0.014 * (0.007) |
| $\Delta\%$ Per capita income | 0.145 (0.125) | 0.051 (0.118) | 0.132 (0.124) | 0.033 (0.116) | 0.165 (0.125) |
| Fiscal balance | 0.193 ** (0.079) | 0.255 *** (0.081) | 0.396 ** (0.075) | 0.231 *** (0.078) | 0.197 ** (0.081) |
| Lagged NFA | 0.028 *** (0.006) | −0.023 *** (0.007) | 0.027 *** (0.006) | 0.022 *** (0.007) | 0.029 *** (0.006) |
| Youth dependency | 0.038 (0.040) | 0.042 ** (0.039) | 0.020 (0.039) | 0.019 (0.039) | 0.063 * (0.037) |
| Elderly dependency | −0.054 (0.101) | −0.006 (0.107) | −0.051 (0.952) | −0.015 (0.102) | −0.033 (0.103) |
| Oil balance | 0.007 (0.114) | 0.036 (0.103) | 0.026 (0.115) | 0.049 (0.104) | 0.055 (0.117) |
| Openness | 0.039 *** (0.009) | 0.047 *** (0.008) | 0.039 *** (0.313) | 0.048 *** (0.008) | 0.037 *** (0.008) |
| Financial crisis | −0.117 ** (0.054) | −0.073 * (0.040) | −0.120 ** (0.054) | −0.078 * (0.040) | −0.116 ** (0.059) |
| Financial crisis \times openness | 0.002 ** (0.000) | 0.001 (0.000) | 0.002 ** (0.000) | 0.001 * (0.000) | 0.001 * (0.000) |
| FDI | 0.541 ** (0.245) | 0.405 * (0.251) | 0.500 ** (0.231) | 0.390 (0.236) | 0.435 * (0.234) |
| Financial Development (FDIX) | −0.058 ** (0.023) | −0.042 * (0.022) | | | |
| Financial Institutions (FIIX) | | | −0.059 *** (0.018) | −0.060 *** (0.018) | |
| Economic Institutions | | −0.028 *** (0.008) | | −0.028 *** (0.008) | |
| Legal Institutions | | 0.006 (0.010) | | 0.004 (0.010) | |
| Political Institutions | | 0.002 (0.009) | | 0.006 (0.009) | |
| Exchange rate | | | | | 0.363 * (0.145) |
| Time dummies | 1990–1994 1995–1999 ** 2000–2004 *** 2005–2009 ** 2010–2014 ** | 1990–1994 ** 1995–1999 *** 2000–2004 *** 2005–2009 *** 2010–2014 ** | 1990–1994 1995–1999 * 2000–2004 *** 2005–2009 ** 2010–2014 *** | 1990–1994 * 1995–1999 ** 2000–2004 *** 2005–2009 *** 2010–2014 *** | 1990–1994 1995–1999 2000–2004 ** 2005–2009 2010–2014 |
| Root mean square error | 2.842 | 2.568 | 2.855 | 2.545 | 2.906 |
| Time dummies joint test | 21.640 *** | 20.950 *** | 19.840 *** | 22.950 *** | 12.73 ** |
| Hausman test | 13.490 | 36.120 ** | – | 91.610 *** | 39.500 *** |
| VIF test | 3.000 | 4.710 | 2.890 | 4.620 | 2.630 |

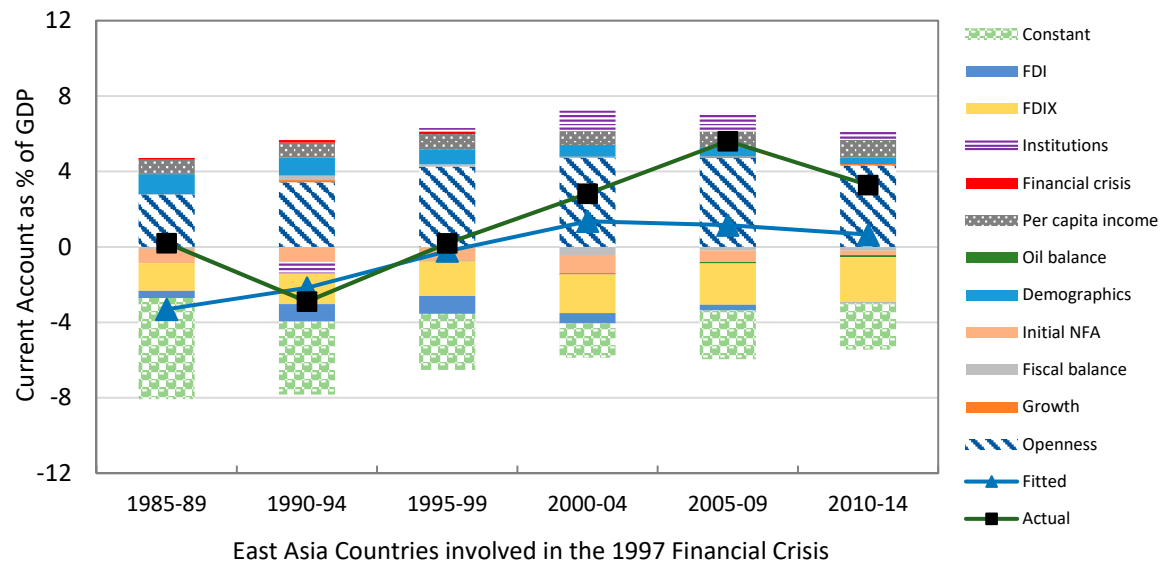
Notes: *, **, *** represent significance at 10%, 5% and 1%, respectively. Models are estimated using the GLS Random Effects Estimator. Robust Standard errors are reported in parentheses. Sample: 49 countries and 6 5-years subperiods between 1985 and 2014. For the specification test, namely, the time dummies joint test and the Hausman test, reported values correspond to the calculated statistic and the probability is represented with asterisks.

It is important to note that when performing the Hausman test, some models (Table 3: column 4 and Table 4: columns 2, 4 and 5) are not consistent, and a fixed effects model is preferred over the random effects (which is established as our main technique). However, as it is mentioned above, our approach needs to focus on cross-country differences since those are very important for determining current account balances. Some can question about the inclusion of variables, which could be highly related (the correlation matrix

is exhibited in Table 2). However, the VIF test was applied to Pooled regressions using the same specification (same factors, including time dummies) corresponding to each specification of the Random Effects models presented in Tables 3 and 4. In all cases, the VIF is lower than 5 (commonly considered as a strict lower bound), suggesting the absence of multicollinearity.



(a)



(b)

Figure 4. GDP-weighted average = Variable Contributions to Current Account/GDP predicted values: Global Crisis vs. East Asian Crisis—Financial Indices. Advanced economies: Austria, Belgium, Denmark, France, Germany, Iceland, Ireland, Italy, Netherlands, Portugal, the United Kingdom and the United States (a) and East Asia economies: China, Korea, Indonesia, Malaysia, Thailand and Philippines (b). Variable contribution to predicted values of current account as percentage of GDP based on estimations using the GLS Random Effects from the model of Table 4, Column 2.

5. Discussion

As it is common with most macroeconomic models, a central issue in estimating current account determinants is data availability. Some factors such as financial development and financial crisis indices can be only proxy by some measure available in the literature or provided by economic institutions. There may be other interesting variables to test as current account determinants, this may be the case of including a proxy for e-commerce, which has been turning more relevant to affect the way that people consume. Moreover, this variable may be also interacted with the financial crisis variable, because preferences on e-commerce spending may get disturbed during these episodes (see [36] for an interesting discussion on this topic). This may be also the case of considering the accumulation and losses of human capital; empirical studies have evidenced the increases on the incidence of suicides during periods of high economic and financial stress (see, e.g., [37,38]). Shocks on the losses of human capital may affect future growth and they may also impact on the decisions of consumption and saving, thus potentially impacting on current account balances. Although these issues go beyond the scope of the paper, it would be very interesting to explore these factors on future studies on current account balances.

Another issue is the potential endogeneity arising from bidirectional relationship between current account balances and its determinants. For example, external imbalances or current account sustainability issues may force policy makers to follow a more restricted fiscal policy, while current account improvements can boost government budgetary position, both impacting fiscal balances—one of the regressors (see, e.g., [17,39]). Similarly, the financial crisis variable may also suffer from endogeneity. As argued above, it is widely acknowledged that global imbalances had played a key role in preparing the conditions for the 2008 financial crisis (see, e.g., [1]). Yet, finding instruments for fiscal balance and financial crisis is particularly difficult when estimating the current account. Potential instruments such as governance indicators and private credit can be directly related to the current account and are already included as explanatory variables. Other studies may provide some potential exogenous variables for instrumenting those variables mentioned above. Using the dynamic system GMM estimation may also help to tackle endogeneity through the use of instruments in the form of lag values for both the dynamic term as well as potential endogenous determinants.

6. Conclusions

This paper empirically examined the role of the quality of institutions, financial development and FDI on current account balances, taking into account the context of financial crisis, since the so-called global imbalances narrowed during the 2008 GFC. In doing so, we estimated the determinants of current accounts for 49 developed and emerging economies during 1985–2014. Among the potential determinants of current accounts, we incorporate—in addition to fundamentals—three clustered indices of institutional quality, proxies for financial development and FDI level. Following previous studies, we also consider a relative measure of financial crisis episodes and its interaction with the openness index.

Our results clearly establish the importance of the quality of institutions to explain current account dynamics, particularly those representing economic and legal institutions. Credible economic institutions and legal certainty may help attract net capital inflows, which may help financing current account deficits. We find that once we consider the quality of economic Institutions, legal institutions are no longer significant in our specifications. However, this does not imply that economic institutions are more important than legal institutions, rather this result may be attributed to the correlation between those factors, since countries with solid and clear legal frameworks may be also capable to establish better economic and monetary institutions. Similarly, financial development may be also a channel to attract overseas capital inflows. Clearly, there may be also a close relationship between more developed financial systems and the quality of economic institutions. Our results also show that FDI is related to improvements of the current account balance,

which may be associated with increases in productivity for the exporting sector due to technological and knowledge spillovers.

Congruent with other studies, we support that financial crisis episodes for highly open economies may have contributed to narrowed global imbalances, by the reduction of current account deficits in some of the countries greatly hit by the 2008 GFC. In contrast to the aftermath, 1997 Asian crisis where depreciation of the region's currencies and the resulting boom in exports did the bulk of readjustment, the 2008 experience entailed the contraction in aggregate demand following the credit crunch, substantially reducing the imports more than the exports and hence improving current account balances. The latter shows that imports tend to be more volatile than exports during recessions. This is in line with the postulates of the Keynesian theory, where imports depend on output (subject to the marginal propensity to import), meanwhile exports are autonomous of output.

Future studies may focus on analysing case-by-case the determinants of current account dynamics, as well as the precise channels through financial development, the quality of institutions, and FDI affect current account balances, using single time series rather than panel data models. This, however, may be a quietly difficult task, especially for those countries where some data are not regularly available for longer time periods.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Variables and Data Sources.

| Variable Name | Source |
|-------------------------------|---------------------------------------|
| Current account | International Monetary Fund |
| GDP | World Bank |
| Per capita income | World Bank |
| Exports and imports | International Monetary Fund |
| Fiscal balance (net lending) | International Monetary Fund |
| Exchange rate | International Monetary Fund |
| Financial Development Indices | Svirydzenka (2016) |
| Population data | United Nations |
| Net Foreign Asset Position | Lane and Milesi-Ferretti (2007) |
| Institutional Quality Index | Kuncic (2013) |
| Financial crises | Laeven and Valencia (2018) |
| Oil balance | Energy Information Agency (EIA); OPEC |
| FDI | World Bank |

Sample: Period 1985–2014. Countries: Argentina, Australia, Austria, Bangladesh, Belgium, Bolivia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Cyprus, Denmark, Dominican Republic, Finland, France, Germany, Greece, India, Indonesia, Ireland, Israel, Italy, Japan, South Korea, Malaysia, Mexico, Morocco, Netherlands, Norway, Paraguay, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Thailand, Tunisia, Turkey, the United Kingdom, the United States, Uruguay and Venezuela. Extended version: 1970–2011.

Table 2. Correlation Matrix.

| | Current Account | Per Capita Income | $\Delta\%$ Per Capita Income | Fiscal Balance | Lagged NFA | Youth Dep. | Elderly Dep. | Oil Balance |
|------------------------------|-----------------|-------------------|------------------------------|----------------|------------|------------|--------------|-------------|
| Current account | 1000 | | | | | | | |
| Per capita income | 0413 | 1000 | | | | | | |
| $\Delta\%$ Per capita income | 0089 | −0167 | 1000 | | | | | |
| Fiscal balance | 0524 | 0167 | 0183 | 1000 | | | | |
| Lagged NFA | 0574 | 0475 | −0026 | 0283 | 1000 | | | |
| Youth dep. | −0207 | −0715 | 0104 | 0036 | −0397 | 1000 | | |
| Elderly dep. | 0090 | 0779 | −0237 | −0152 | 0262 | −0795 | 1000 | |
| Oil balance | 0028 | 0105 | −0123 | 0154 | −0162 | 0212 | −0056 | 1000 |

| | Current Account | Per Capita Income | $\Delta\%$ Per Capita Income | Fiscal Balance | Lagged NFA | Youth Dep. | Elderly Dep. | Oil Balance |
|---------------------------|-----------------|-------------------|------------------------------|----------------|------------|------------|--------------|-------------|
| Openness | 0535 | 0168 | 0155 | 0362 | 0456 | −0197 | −0045 | −0365 |
| Financial crisis | −0007 | 0049 | −0231 | −0153 | 0054 | −0137 | 0049 | −0007 |
| Financial crisis*openness | 0024 | 0032 | −0236 | −0121 | 0040 | −0154 | 0057 | −0007 |
| FDI | 0164 | 0543 | −0155 | −0111 | 0156 | −0371 | 0495 | 0106 |
| Economic Institutions | 0197 | 0773 | −0220 | 0132 | 0361 | −0644 | 0674 | −0128 |
| Legal Institutions | 0209 | 0836 | −0181 | 0015 | 0367 | −0735 | 0762 | −0127 |
| Political Institutions | 0175 | 0826 | −0171 | −0015 | 0334 | −0704 | 0788 | −0077 |
| Financial development | 0304 | 0731 | −0072 | 0032 | 0447 | −0772 | 0638 | −0197 |
| Financial Institutions | 0198 | 0732 | −0136 | −0070 | 0393 | −0800 | 0692 | −0186 |

| | Openness | Financial Crisis | Financial Crisis* Openness | FDI | Economic Institutions | Legal Institutions | Political Institutions | Financial Development |
|-----------------------------|----------|------------------|----------------------------|------|-----------------------|--------------------|------------------------|-----------------------|
| Openness | 1000 | | | | | | | |
| Financial crisis | −0139 | 1000 | | | | | | |
| Financial crisis × openness | −0024 | 0833 | 1000 | | | | | |
| FDI | −0201 | 0023 | 0021 | 1000 | | | | |
| Economic Institutions | 0298 | −0032 | 0013 | 0318 | 1000 | | | |
| Legal Institutions | 0170 | 0025 | 0040 | 0439 | 0863 | 1000 | | |
| Political Institutions | 0109 | −0018 | 0433 | 0008 | 0828 | 0941 | 1000 | |
| Financial development | 0251 | 0094 | 0484 | 0086 | 0686 | 0726 | 0687 | 1000 |
| Financial Institutions | 0226 | 0088 | 0084 | 0435 | 0717 | 0768 | 0755 | 0936 |

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