A Tale of Two Surplus Countries: China and Germany*

Yin-Wong Cheung[a], Sven Steinkamp[b], Frank Westermann[c]

April 25, 2018

ABSTRACT

We analyze current account imbalances through the lens of the two largest surplus countries; China and Germany. We observe two striking new patterns visible since the 2007/8 Global Financial Crisis. First, while China has been gradually reducing its current account surplus, Germany's surplus has continued to increase throughout and after the crisis. Second, for these two countries, there is a remarkable reversal in the patterns of exchange rate misalignment: China's currency has turned from being undervalued to overvalued, Germany's currency has erased its level of overvaluation and become undervalued recently. The evolution of the two countries' current account balances seems reflective of their misalignment patterns. Our empirical analyses show that the current account balances of these two countries are quite well explained by currency misalignment, some common economic factors, and a few country-specific factors.

[a] Yin-Wong Cheung: Hung Hing Ying Chair Professor of International Economics, City University of Hong Kong, Kowloon Tong, Hong Kong, E-mail: yicheung@cityu.edu.hk.

[b] Sven Steinkamp: Institute of Empirical Economic Research, Osnabrück University, D-49069 Osnabrück, Germany, E-mail: sven.steinkamp@uni-osnabrueck.de.

[c] Frank Westermann: Institute of Empirical Economic Research, Osnabrück University, D-49069 Osnabrück, Germany; E-mail: frank.westermann@uni-osnabrueck.de.

1.   Introduction

In recent years, large and sustained current account imbalances have been a focus of research in international economics. While there is a large literature on *deficits* and their economic implications (Cavallo *et al*., 2017), there is only limited research on large and sustained *surpluses*.[1] Christine Lagarde, the IMF's managing director, aptly points out the link between deficits and surpluses when she said: "*It takes two to tango*." The deficits of some countries are matched by surpluses in others, and it is important to understand both phenomena.

China and Germany are two prime examples of net exporters that have experienced large and sustained surpluses over the past 20 years; in 2015, they accounted for 42% of the world's total surplus.[2] As Figure 1 shows, Germany and China are unparalleled in their current account surpluses, even compared to other stereotype surplus economies, such as Japan, Korea and Switzerland.

Aizenman and Sengupta (2011) is one of the few studies that investigated whether China and Germany have different causes of current account imbalances and their responses.[3] At the time of their writing, these authors observed China's strong growth in surpluses, raised the question of whether "China is becoming the new Germany," and concluded that the answer is likely to be a "no."

In the current study, we update and extend the comparison of China and Germany. We illustrate that, during the post-global financial crisis (GFC) period, the two countries have displayed dis-similar current account behaviors (Figure 2). While both countries have been running current account surpluses for most years over the past two decades, China's surplus has started to shrink after the GFC. Germany's current account surplus has in contrast stayed at a high level and even experienced a steady increase. Apparently, the current account balances of these two surplus countries exhibit a similar pattern before the GFC, but have moved in different directions thereafter.

We investigate whether this new development is due to a "crisis effect" or the usual economic forces. Specifically, what is the role of exchange rate misalignment in determining the current account balances of these two surplus countries? Do these two countries display a similar pattern

---

[1] Edwards (2004, 2008) are among the few studies on the issue.

[2] In 2015, China's surplus was USD 304.2 bn., while that of Germany was USD 288.2 bn. The US deficit in the same year was USD 434.6 bn., accounting for 35% of the world's current account deficits.

[3] Ma and McCauley (2014) compares the evolution processes of the Chinese and German imbalances.

of exchange rate misalignment? We indeed observe that, even not often discussed by academics and policy makers, their exchange rate misalignment patterns have strikingly changed since 2007.

It is commonly believed that China has maintained an undervalued exchange rate,[4] whereas Germany has an overvalued one.[5] Figure 3, however, shows that in recent years, the valuations of these two currencies move in opposite directions according to estimates provided by the *Centre d'Études Prospectives et d'Informations Internationales* (CEPII). Specifically, these currency misalignment estimates show that the Chinese level of misalignment has been diminishing noticeably since 2007. Since 2012, the Chinese currency is better characterized as being overvalued than undervalued.[6] Germany holds the reverse pattern. Since the implementation of labor market reforms ("Agenda 2010" – see Sinn, 2007 and 2014) in the early 2000s, Germany has considerably improved its competitive position vis-à-vis its trading partners.[7] The currency's degree of overvaluation has been declining accordingly and, finally, turned to an undervaluation in 2015, when the quantitative-easing policy of the European Central Bank contributed further to this development. Visually, these currency misalignment and current account balance movements are in line with the conventional wisdom that these two variables are inversely related.

Against this backdrop, we estimate the current account equations for both countries and assess the similarities and differences of the Chinese and German behaviors. For this purpose, we not only analyze the role of currency misalignment, but also the effects of a wide range of explanatory variables.[8] These variables are grouped into three categories: the *canonical economic factors, the monetary factors, and the global factors*. In addition, we include country-specific

---

[4] Currency undervaluation and the resulting misalignment lead to contentious policy debate and academic discussions (Matoo and Subramanian, 2009; Staiger and Sykes, 2010; Marchetti *et al*., 2012; Engel, 2011; Corsetti *et al*., 2018). Engel (2011), for example, argues that maintaining the exchange rate at its fundamental equilibrium level should be an additional independent policy objectives of central banks.

[5] For instance, Hans-Jürgen Schmahl, the former member of the German Council of Economic Experts criticized the German overvaluation ("Die teure D-Mark behindert deutsche Exporteure – vor allem in Europa", *Die Zeit*, 1993).

[6] See also Almås *et al.* (2017) and Cheung *et al*., (2017). Note that there is a considerable degree of sampling uncertainty associated with currency misalignment estimates. For the renminbi it has been discussed, for example, by Cheung *et al*. (2007, 2009), Qin and He (2011), and Garroway *et al*. (2012).

[7] "Why Germany's current-account surplus is bad for the world economy", The Economist, July 8th 2017.

[8] Some studies examine the real effective exchange rate effect on current account balances; see, for example, Khan and Knight (1983), Edwards (1989a), Lee and Chinn (2006), and Arghyrou and Chortareas (2008). Some studies consider currency misalignment instead of real effective exchange rate; see, for example, Freund and Pierola (2012) Di Nino *et al*. (2011), and Haddad and Pancaro (2010). Gnimassoun and Mignon (2015) and Gnimassoun (2017) suggest that the use of currency misalignment measures alleviates endogeneity concerns.

factors to capture effects of, for example, China's liberalization policies and Euro area specific institutional factors for Germany.

We find that, for both countries, currency misalignment plays a significant role in determining the current account balance, and increasingly does so in the post-2008 GFC period even though the exact effect varies with the empirical specification. The result is robust to choices of alternative measures of currency misalignment. That is, our empirical findings buttress the negative correlation pattern observed from Figures 1 and 2.

The currency misalignment variable together with selected canonical economic factors, monetary factors, global factors, and country-specific factors can explain over 90% of variations in the current account balances of these two countries.

Is China the new Germany? One could say that China is evolving towards the "old" Germany that was an overvalued exporter experiencing a moderate surplus. Germany, on the other hand, is becoming a country with increasing surplus, both within the Euro area and with respect to the rest of the world, with an undervalued exchange rate. In both cases, however, the surplus can be attributed to currency misalignment, and other economic factors.

Looking ahead, an interesting question is: what is the implication of China's continuous economic reform for her external position? For Germany, a key question is: Can She sustain her high level of current account surplus under the current institutional arrangements? And, what are the repercussions on other Euro area countries, as well as on the welfare of its own citizens?

2.   Empirical analysis

2.1   Basic Specification

The behaviors of the Chinese and German current account balances are investigated using the empirical specification:

(1) $$Y_t = c + \lambda_1 CM_{t-1} + \lambda_2 CM_{t-1} \times Crisis07 + \beta\theta_{t-1} + \varepsilon_t.$$

The dependent variable Y_t is the current account balance normalized by the gross domestic product. CM denotes the currency misalignment and $Crisis07$ the post-GFC dummy variable. The other explanatory variables that are common to the China and Germany specifications are collected under θ_{t-1}, and are grouped under i) canonical economic variables, ii) monetary variables, iii) global factors, and iv) a linear time trend. All explanatory variables, except for the time trend and dummy variables, enter the model with lagged values to minimize potential endogeneity. The regression exercise is based on annual data from 1982 to 2016.

The data on currency misalignment are drawn from the "EQCHANGE" database provided by CEPII. CEPII constructs the currency misalignment estimates using data on (i) relative sectoral productivity (Balassa-Samuelson effect), (ii) the country's net foreign asset position (intertemporal budget constraint), and (iii) the economy's terms of trade (income and substitution effect).[9] The CEPII currency misalignment data are highly correlated with those provided by the IMF or Brussels European and Global Economic Laboratory (Bruegel).

In addition to currency misalignment, we consider the effects of canonical economic variables, monetary variables, and global factors. The set of canonical economic variables consists of the age dependency ratio (total, young, old), the government balance, GDP growth, changes in *de facto* trade openness, changes in the real effective exchange rate, and the terms of trade. Monetary variables include narrow and broad monetary aggregates (M1 and M3), changes in reserve holdings, inflation, change in domestic credit and the real interest rate. The vector of *global factors* consists of changes in different narrow and broad monetary aggregates of the US and the world, respectively, world GDP growth and the oil price. In the next Section, we also consider *country-specific* factors.

For these variables and others used in the subsequent analyses, additional information including their sources are provided in Appendix A.

We have included a large collection of determinants that are motivated by a multitude of theoretical and empirical considerations.[10] To operationalize our empirical strategy, we first assess the effects of each individual group of explanatory variables before combining the significant variables from individual groups to form the selected specification.

Initially, we estimate the current account balance equation (1) separately for the Chinese and German data using ordinary least squares. Then, we adopt the feasible generalized least squares (FGLS) approach to generate estimates of a *Seemingly Unrelated Regression* (SUR) model

---

[9] See Couharde, *et al.* (2017) for a detailed discussion of the database. Note that the CEPII CM data are not technically linked to a "balanced" current account, and thus do not induce endogeneity in the regression. This is in contrast to the early currency misalignment literature, originating from Williamson (1983), which first proposed the concept of an equilibrium exchange rate that is compatible with a balanced (or any another normatively preferred) current account. A comparison of alternative methods of estimating equilibrium exchange rates and the corresponding misalignment estimates is given by, for example, Isard (2007) and Cheung and Fujii (2014).

[10] The literature covers a diverse set of determinants of current account balances. Our choices are based on existing studies including Ca'Zorzi, *et al.* (2012), Karunaratne (1988), Calderon (2002), Chinn and Prasad (2003), Gruber and Kamin (2007), Liesenfeld, *et al.* (2010), Aizenman and Sengupta (2011), Duarte and Schnabel (2015), Unger (2017).

comprising the Chinese and German current account balance equations (Aizenman and Sengupta, 2011).

2.2   *Exchange rate misalignment*

Table 1 presents the currency misalignment effect. For China, Column (1A) shows that by itself, exchange rate misalignment does not display a statistically significant role in explaining the Chinese current account balance. In the presence of the *Crisis07* related variables, the picture changes. While the misalignment series was not significant at conventional levels in the pre-2007 period, it displays a significantly negative effect at the 1% level since then; an increase (decrease) in the level of overvaluation has a negative (positive) impact on its current account position. This post-crisis effect is independent of the specific crisis year chosen (2007/8/9).[11]

Germany displays a different currency misalignment effect. The misalignment series has a significantly negative impact on the current account, in the presence or absence of *Crisis07*. The GFC, apparently, does not statistically alter the role of exchange rate misalignment in the German case. The result suggests that the overvaluation prior to 2007 may have constrained the current account balance from becoming even larger, and the post-crisis undervaluation has induced further increases in the surplus.

It is remarkable that 75% of the variation of Germany's current account balance is explained by the simple specification of Table 1. Note that, however, 40 % of the variation can be explained by a model that comprises only a constant and a time trend. On the other hand, only 34% of the Chinese current account balance variability is explained in Table 1; a constant-and-time-trend specification explains 23% of the data variation. The difference in explanatory power is in accordance with the usual perception that the German economy is relatively more responsive to market forces.

In the following subsections, we investigate the roles of canonical economic, monetary and global factors.

---

[11] Results obtained from alternative choices of crisis dummy variables are given in the Table B1 of Appendix B. Among these alternatives, the *Crisis07* dummy variable yields the highest R-squares and, thus, is used in all subsequent regressions.

2.3   Canonical economic factors

In Tables 2A (China) and 2B (Germany), we assess the marginal effect of the canonical economic variables. Columns (1) to (8) present effects of each individual variable, Column (9) the combined effect, and Column (10) the parsimonious specification containing significant canonical economic variables.

For China (Table 2A), we find that, even insignificant individually, most of the lagged canonical economic variables are significant in the multivariate set-up (Columns 9 and 10). For instance, the lagged old-age dependency ratio, the lagged government balance relative to GDP, the lagged GDP growth rates, and lagged terms of trade are statistically significant at the one percent level and have signs that are expected or typically found in the literature. The lagged openness and lagged changes in the real effective exchange rate and terms of trade are significant at the 5 or 10 percent level.

Column 9 presents the results when the canonical economic variables are included.[12] The selected parsimonious specification presented under Column 10 is obtained by sequentially deleting the most insignificant variable from the specification reported under Column 9. Besides statistical significant, the canonical economic variables improve the explanatory power of the model. The parsimonious specification garners an adjusted R^2 estimate of 76%, which compares favorably with the 34% estimate in Table 1 (Column 2a).

Interestingly, in the presence of these significant canonical economic variables, the currency misalignment variable is significant both before and after the crisis. The coefficient estimates of the currency misalignment variable and its crisis-interaction term indicate the effect of currency misalignment in the post crisis period is about 10 times of that in the pre-crisis period. Possibly, on-going reform efforts especially in the post-crisis period have enhanced the role of currency valuation in determining the current account balance.

In the case of Germany (Table 2B), there are five significant canonical economic variables under the parsimonious specification (column 10). The young age and old-age dependency ratios have opposite signs, a pattern that remains throughout the paper. Similar to the case of China, the lagged GDP growth and the change in the real effective exchange have a significant negative and positive effect, respectively. The openness variable, on the other hand, is positively significant. All

---

[12] The age dependency variable, which is the sum of the young and old age dependency variables is not included to avoid multicollinearity.

other variables are statistically insignificant and were dropped to get the parsimonious specification under Column 10. Apparently, the presence of these additional variables affects the currency misalignment coefficient estimate. The currency misalignment effect becomes statistically insignificant under the parsimonious specification, though it is significant in the combined specification (column 9).

The inclusion of these canonical variables improves the model performance; they collectively increase the adjusted R^2 estimate to 93% (Table 2, Column 10) from 76% (Table 1, Column 2B).

2.4   Monetary and global factors

Tables 3 and 4 present the roles of monetary and global factors, respectively.

Table 3A shows that, individually, the change in reserve is the only monetary factor that affects the Chinese current account balance. When the most insignificant variable is sequentially deleted from the specification under Column 7, we identify three significant monetary factors; namely the change in M1, changes in international reserves and real interest rates. The joint significance of these three variables suggest that they have complementary power in explaining China's current account balance. While these significant monetary factors do not crowd out the impact of exchange rate misalignment in the post-crisis period, they improve the model explanatory power over the specification in Table 1.

For Germany, while both the change in domestic credit and the real interest rate variable are individually significant, the former becomes insignificant in the presence of the latter. That is, the real interest rate variable is the only significant monetary factor that offers explanatory power beyond that provided by the currency misalignment measure. It comes with a positive coefficient estimate, and does not materially affect the estimated currency misalignment effect.

Among the five selected global factors, the only significant global factor in the China current account balance equation is the US monetary policy measured by changes in M1/GDP (Table 4a). The US M1 variable has a negative impact on China's current account position. For Germany, both the lagged world growth rate and M1 in the US are statistically significant (Table 4b). While the lagged world growth rate has the expected positive sign, the US M1/GDP variable has a positive coefficient, which is different from the Chinese case.

Comparing results in Tables 2, 3 and 4, we note that the marginal explanatory power of the significant canonical economic variables is larger than that of the significant monetary factors,

which in turn is larger than the global factors. In the next subsection, we consider the combined effects of these significant variables.

2.5 *Combined Effects*

Table 5 presents the results of incorporating the significant canonical economic, monetary, and global variables in Tables 2 to 4 into the Chinese and German current account balance regressions. The equation-by-equation estimation results are presented under Column 1 of Table 5. The corresponding parsimonious specifications are presented under Column 2. The results of estimating the specifications under Column 1 and Column 2 with a SUR framework using the FGLS technique are reported respectively under Column 3 and Column 4.

The augmented specification illustrates that the three types of factors can have overlapping information about the current account balance. For instance, the equation-by-equation results show that, for both countries, the change in openness and the real interest rate become insignificant, and, in the case of Germany, the currency misalignment variables become insignificant in the presence of monetary and global factors (Column 1, Table 5 and Column 10, Table 2).

The instability of coefficient estimates may be attributed to the redundancy of regressors. Indeed, the significant coefficient estimates of the parsimonious specifications (that are obtained by dropping the most insignificant variable sequentially from specifications under Column 1) presented under Column 2, nevertheless, have signs that are comparable to those reported in the previous tables. For both the Chinese and German parsimonious specifications, they have an adjusted R^2 estimate larger than the corresponding ones in the previous tables. That is, these three types of variables are complementary in explaining the current account behavior.

The Chinese and German current account behaviors are likely to be driven by some common forces that induce correlation between the Chinese and German regression equations. To exploit this information, we adopt a SUR framework for the two current account balance equations, and estimate the FGLS estimates. While the coefficient estimates reported under Columns 3 and 4 are largely comparable to the corresponding ones under Columns 1 and 2, they are as expected more precisely estimated. One noticeable difference is that the German currency misalignment effect regains its statistical significance under the SUR setting. Further, these SUR estimates give better explanatory power; especially for the Chinese case, in terms of the goodness of fit measure. Thus,

the parsimonious specifications reported under Column 4 will serve as a benchmark for the subsequent discussions.[13]

A few observations from the results reported under Column 4 of Table 5 are noteworthy: First, currency misalignment is a significant determinant – undervaluation (overvaluation) tends to improve (deteriorate) current account balance. The finding, which is also presented in previous tables, is in accordance with theoretical considerations. However, China and Germany have different experiences. The Chinese currency misalignment effect is much stronger in the post-GFC sample – a period in which China has stepped up its financial market reform.

Germany, in contrast, does not experience a significant change in its currency misalignment effect. Apparently, the crisis experience does not affect the German current account balance; both the *Crisis07* and its interaction term are not significant in the German equation.

Second, for both the Chinese and German cases, the number of significant canonical economic variables is relatively larger than those of the monetary and global factors. That is, the usual economic reasoning is still a relevant framework for understanding current account dynamics.

Third, the Chinese and German current account balance equations have some common explanatory factors, though these factors can exhibit different effects. While the change in openness has a negative impact on China's current account balance it has a positive effect on Germany's one.[14] The negative effect probably reflects China's continuing, albeit slowly, efforts in opening up its market to the world; thus, an increase in the openness, which is measured by the sum of exports and imports normalized by GDP, helps to narrow its surplus. For Germany, the change in openness is likely to reflect German's global market penetration and, thus, is positively related to its surplus.

The other common factors, nevertheless, display similar qualitative effects. It is noted that both countries' current account balances react negatively to the US money growth; that is, an increase in the US money supply reduces these two countries' current account balances. In the post GFC period, the US money supply increase followed the quantitative easing policy reflects a weak

---

[13] In passing, we note that the residual estimates of these specifications a) pass the stationarity test; that is, we cannot reject the hypothesis that they are stationary, and b) pass the serial correlation test; that is, we cannot reject the hypothesis that these residuals are not serially correlated. The results are available upon request.

[14] Chinn and Prasad (2003), for example, find that openness has a negative impact on the current account balance of developing countries but a positive one on industrial countries.

US (and global) economy, which in term can shrink the Chinese and German current account surpluses. Alternatively, the same US money supply effect can be observed if the increase implies capital flows to these countries which heat up their domestic economies and, hence, reins in their current account surpluses.[15] Another common factor is GDP growth: We find it to have a negative partial correlation with the current account balance for both countries. While most studies indeed expect such a negative influence, the empirical evidence in earlier studies largely provided mixed results (see Chinn and Prasad, 2003; Gruber and Kamin, 2007; Ca' Zorzi *et al.*, 2012). Furthermore, our results confirm the positive coefficient of the real effective exchange rate commonly found in the literature (Ca' Zorzi *et al.*, 2012; Freund and Pierola, 2012) for China and Germany.[16]

Forth, there are some factors that affect the Chinese (German) current account but not the German (Chinese) one. Specifically, China but not Germany is affected by government budget balance, terms of trade, changes in M1, and changes in reserves. On the other hand, Germany is affected by young age dependency ratio but not China.[17] Further studies are warranted to investigate the causes of these differences.

Fifth, the bulk of current account balance variability is accounted for by the selected parsimonious specifications; 90% and 95% of the variations in China's and Germany's current account surpluses are explained. That is, the surpluses experienced by these two countries have roots in economics, and, if desired, these imbalances can be corrected with appropriately designed policies.

---

[15] Some observes, most famously the then Brazilian finance minister Guido Mantega, accused the US of fighting a "currency war". Large monetary expansions, like the Quantitative Easing program, devalue the Dollar and, thus, boost exports and dampens imports of the US (see Eichengreen (2013). As China and Germany are large trading partners of the US they may experience the other side of the coin (i.e. lower exports and higher imports).

[16] Note, however, that our REER variable captures the *partial* effect of the real exchange rate while controlling for the deviation from its equilibrium value (CM).

[17] The signs of the estimated coefficients are largely consistent with earlier theoretical or empirical works (Chinn and Prasad, 2003; Gruber and Kamin, 2007; Bussière *et al.*, 2006; Svennson and Razin, 1983; Masson *et al.*, 1998; Ca' Zorzi *et al.*, 2012, Kim, 2001; Aizenman and Sengupta, 2011).

3.   Additional Analyses

A few additional regressions are performed to assess the robustness of the empirical results presented in the previous Section.[18]

3.1   *Alternative measures of misalignment*

The currency misalignment variable used in the previous Section is one of the misalignment variables compiled by CEPII. In constructing misalignment measures, CEPII considers different combinations of choices of fundamental variables, trading partners, and country weights. The misalignment variable used in previous section is derived from all three sets of fundamental determinants stated in Subsection 2.1 (MODEL 3), and a broad group of 186 trade partners (BROAD) with fixed trade weights (FIXED FULL). In Table 6, we replace it with those derived from a) fundamental values defined by only relative sectoral productivity (MODEL 1) or by relative sectoral productivity and net foreign asset position (MODEL 2), b) the top-30 trading partners (NARROW), and c) fixed trade weights based on most recent 5-years data (FIXED RECENT), or time-varying trade weights based on a rolling 5-year window (5-YEAR WINDOWS).[19]

Table 6A presents, for the case of China, the results from using alternative CEPII measures of currency misalignment. Column (1), for comparison purposes, repeats results of the Chinese regression under Column 4 of Table 5. Columns 2 to 6 present results from alternative CEPII currency misalignment measures.

With the exception of those under Column 3, the use of alternative currency misalignment variables does not qualitatively change the estimation results; especially, the pre- and post-GFC coefficient estimates of alternative currency misalignment measures are quite similar. The currency misalignment variable, which is estimated based on only two fundamental variables is insignificant under the Column 3 specification. Nevertheless, it is noted that this specification yields an adjusted R^2 estimate noticeably smaller than others in the Table.

Similar to the case of China, the use of alternative measures of currency misalignment in general does not qualitatively change the estimates for Germany (Table 6B). There is one case reported under column 4 in which the currency misalignment effect is statistically insignificant. When the currency misalignment is computed with reference to the group of top 30 (instead of 186)

---

[18] In addition to the two robustness exercises reported below, we assessed whether trade barriers play a marginal effect. However, as reported in Table B2 of Appendix B, neither the average tariff rates nor the accession to the WTO help to explain these two countries' current account balances.

[19] See Couharde, *et al.* (2017) for details.

trading partners, it even exhibits a stronger impact on current account surpluses compared to our benchmark specification (Columns 2,3 and 6, Table 6B)

In sum, the estimated effects of these significant determinants; especially the currency misalignment factor are quite robust with respect to different choices of misalignment measures.

3.2   Country-specific factors

In this subsection, we consider the roles of China- and Germany-specific factors using the following specification:

(2) $Y_t = c + \lambda_1 CM_{t-1} + \lambda_2 CM_{t-1} \times Crisis07 + \beta\theta_{t-1} + \gamma X_{t-1} + \varepsilon_t,$

where country-specific factors are collected in the vector X.

For China, the vector X_{t-1} includes a) a dummy variable to capture the period in which the Chinese currency is tightly linked to the US dollar, b) a dummy variable for the Asia Financial Crisis (AFC), c) a financial liberalization variable (Chinn and Ito, 2006), and d) a dummy variable for the post-1988 export-rebate (full refund) period.[20] For Germany, it includes a) the TARGET2 balances, both in levels and first differences, b) Germany's relative misalignment within the Euro area, and c) Germany's current account position against other Euro area countries. These factors are meant to disentangle some Euro area specific forces on Germany's external balances.

The individual effects of these China-specific factors are presented in Table 7A. Conditional on the significant currency misalignment and other economic variables, the dummy variables that capture heavily managed exchange rate and export rebate policies, and financial liberalization do not affect China's current account balance (Columns 1, 3, and 4).[21] The 1997 AFC puts a dent on China's surplus – a finding that collaborates the view that the crisis clamped down on global demand and, thus, negatively impacted China's exports and surplus. Its effect shows up when it is included by itself or in presence of other China-specific variables. The inclusion of the AFC dummy variable does not affect the estimates of other variables – including the currency misalignment variable, but improves the adjusted R^2 estimate. While the financial liberalization variable is significant in the presence of the other China-specific variables, its significance vanishes

---

[20] China established the export tax rebate policy in 1985 and implemented the "full refund" in 1988. See Liu (2013) and references therein for the evolution of China's export VAT rebate policies.

[21] The insignificant financial liberalization effect is likely attributed to the fact that the Chinn-Ito index is an aggregate measure of financial openness. Different aspects of financial regulations can have opposing effects on the current account (Moral-Benito and Roehn, 2016).

when the insignificant ones are dropped, and the AFC variable is the only significant China-specific variable in the parsimonious specification reported under Column 6.

Table 7B presents the individual Germany-specific factors. The TARGET2-balance of Germany normalized by GDP measures the cumulative net capital inflows from other Euro area countries into Germany since the beginning of the 2010 European sovereign debt crisis, and is widely regarded as one of the key indicators of financial tension among Euro area member countries. The TARGET2-balance variable yields the expected negative sign – the current account balance and capital account usually move in opposite directions. It is of interest to note that the German currency misalignment effect is significantly stronger in the post-GFC period – a result similar to the one found in the Chinese data – in presence of the TARGET2-balance variable. That is, if the Euro area capital flow effect is properly accounted for, the pattern of German currency misalignment effect before and after the GFC is comparable to the Chinese one.

The annual change in the TARGET2-balance variable is the net financial flow that affects Germany's borrowing constraints, and can potentially facilitate a level of consumption beyond income (Sinn and Wollmershäuser, 2012). The coefficient estimate of the change in the TARGET2-balance, however, is very small and statistically insignificant (Column 2). The finding is in line with those of Auer (2014), who reports that TARGET2 funds have been used primarily to finance capital flight, not current account deficits.

It is known that Germany's level of currency misalignment against the rest of the world can be different from that against other Euro area member countries. For instance, Germany was in the overvaluation position against the rest of the world including other Euro area member countries in the 1990s. In the early 2000s, Germany became undervalued within the Euro area though it was still on the average overvalued to countries outside Euro area. Since the GFC, Germany has gradually moved to an undervalued position against countries both within and outside the euro area as depicted in Figure 3.[22] Do the different patterns of currency misalignment within and outside the Euro Area affect Germany's current account behavior? We address this issue by including a relative misalignment variable given by the ratio misalignment against the Euro area countries and against the rest of the world in the regression. Our results show that the relative misalignment effect is quite small and statistically insignificant (Column 3).

---

[22] On the development of misalignment within the Euro area see, for example, Coudert *et al*. (2013).

Column 4 of Table 7B presents the implication of incorporating the German current account balance against other Euro area countries in the regression. The Euro area specific balance has a significant coefficient estimate that is quite close to 1; that is, the balance against other member countries contributes almost one-to-one to Germany's overall balance. If it is the case, then the remaining explanatory variables are there to explain Germany's current account balance excluding Euro area countries. One noticeable result is that, under Column 4, the currency misalignment effect is statistically larger in the post- and the pre-crisis period. The pattern of different currency misalignment before and after the crisis becomes similar to the one exhibited by China. For the other significant factors, the presence of the balance against other member countries does not change the signs of their impacts though, apparently, weakens their magnitudes.

While the TARGET2-balance variable and the German current account balance against other Euro area countries are individually significant, results under Columns 5 indicates that the TARGET2-balance effect is likely to be spurious in the sense that it become quite small and loses its statistical significant in the presence of the German current account balance against other Euro area countries. The parsimonious specification includes the German current account balance against other Euro area countries as the only significant Germany-specific factor.

4.   Concluding Remarks

China and Germany are the two countries that account for the lion's share of global current account imbalances. They have experienced large and sustained surpluses in the last two decades. Before the GFC, Germany is deemed to be a country that has an overvalued currency and a sizeable current account surplus. China, on the other hand, is accused of building up current account balances with an undervalued currency. In the post-GFC period, the German currency has been gradually moved from overvaluation to undervaluation, while the Chinese one has gradually become an overvalued currency. The current accounts of these two countries has evolved accordingly – the German current account surplus has been steadily increased and the Chinese surplus steadily declined in the post-GFC period.

In view of these developments, one can say China is reminiscent of the "old" Germany, and Germany is remarkably becoming more and more similar to the conventional view of the "old" China. Global imbalances are not passé. While Feldstein (2011) was right that natural forces would ultimately bring China's currency and current account back closer to equilibrium, it now seems Germany may be about to assume China's old role in the global economy.

Currency misalignment and current account imbalances are contentious issues. While persistently large current account deficits are considered symptoms of economic ills, their counterparts – substantial and sustained current account surpluses also have critical economic and welfare implications for both surplus countries and their trading partners. Our empirical findings show that the usual culprit currency misalignment significantly affects China's and Germany's current account dynamics – though its marginal explanatory power in the former country is relatively weaker than in the latter one. Also, the currency misalignment effect, in the presence of other explanatory variables, is relatively weaker in the pre-GFC period than in the post-GFC period. Indeed, slightly over 90% of variations in these two countries' surpluses can be explained by currency misalignment and other relevant economic factors. Our analyses, thus, indicate that appropriate economic policies, including foreign exchange policy, can be formulated to rectify or alleviate global imbalances.

Appendix A: Variable Definitions and Data Sources

Current Account	Current Account Balance in percentage of nominal GDP. Data source and code: World Bank WDI (BN.CAB.XOKA.GD.ZS).
Currency Misalignment	Deviation from estimated equilibrium exchange rate (in %). Positive values indicate overvaluation, negative undervaluation. Data source: CEPII EQCHANGE (broad index with 186 trade partners, fixed weights).
Crisis07	A dummy variable capturing the early Global Financial Crisis, given by the indicator function $I(t \geq 2007)$.
Age Dependency Ratio	Age dependency ratio is the proportion of dependents per 100 working-age population. Dependents are either defined as those above 64 years („old"), below 15 years („young"), or both („total"). Data source: World Bank WDI (SP.POP.DPND.OL, SP.POP.DPND.YG, SP.POP.DPND).
Asian Crisis (AFC)	A dummy variable capturing the spill-overs of the Asian financial crisis, given by the indicator function $I(t = 1998)$.
Broad Money (M3)	Monetary Aggregate M3, following the IMF's definition, in percentage of nominal GDP. Data source: World Bank WDI (FM.LBL.BMNY.GD.ZS).
Current Account within the Euro Area	Germany's current account balance vis-à-vis other Euro Area countries in percentage of nominal GDP. Data source and code: Deutsche Bundesbank (BBFB1.Q.N.DE.I8.S1.S1.T.B. CA._Z._Z._Z._T._X.N), World Bank WDI (NY.GDP.MKTP.CD).
De facto Openness	Total trade volume (sum of exports and imports of goods and services) in percentage of GDP. World Bank WDI (NE.TRD.GNFS.ZS).
Domestic Credit	Credit provided to the private sector by financial corporations (incl. monetary authorities) in percentage of nominal GDP. Data source and code: World Bank WDI (FS.AST.PRVT.GD.ZS).
Export Rebate	A dummy variable given by the indicator function $I(t \geq 1988)$. China switched its export tax rebate policy in 1988 to "full refund" principle.
Financial Liberalization	Index of de-jure capital account openness. Larger values indicate more openness. Data source: Chinn & Ito (2006).
Government Balance	Net lending (+) / net borrowing (-) of the General Government in percentage of nominal GDP. Data source and code: IMF WEO (GGXCNL_NGDP), Thomson Reuters Datastream (CHGOVBAL, CHY99BP.A).
GDP Growth	Gross domestic product at market prices (annual percentage change). Data source and code: World Bank WDI (NY.GDP.MKTP.KD.ZG).
Inflation	Annual percentage growth of consumer prices Data source and code: World Bank WDI (FP.CPI.TOTL.ZG), IMF WEO (PCPIPCH).
Narrow Money (M1)	Monetary Aggregate M1 (for Germany after 1998: Contribution to aggregate M1 of the Euro Area) in percentage of nominal GDP. Datastream (BDM1....A, CHXMON1, CHY99BP.A), DESTATIS (long series), FRED (MANMM101USA189S, GDPA).
Oil Price	Crude Oil-Brent Spot Price FOB U$/BBL. Data source: Datastream.
Peg-Dummy	A dummy variable capturing the de-facto exchange rate peg of the Renminbi, given by the indicator function $I(t=\{1991-2005,2009\})$.

Real Interest Rate	Real interest rate is the lending rate adjusted for inflation (measured by the GDP deflator). For China, the lending rate is defined as the rate on working capital loans of one-year maturity. Prior to 1989, however, the rate on working capital loans to state industrial enterprises are reported. For Germany, it is the interest rate on current-account credits of less than five hundred thousand euro (overnight). Data source and code: World Bank WDI (FR.INR.RINR).
REER	Real effective exchange rate index (2010=100). Defined as the nominal effective exchange rate (the value of the currency against a weighted average of several foreign currencies) divided by a price deflator. Data source and code: World Bank WDI (PX.REX.REER).
Relative misalignment	Germany currency misalignment (see above) relative to the average currency misalignment of the euro crisis countries, Greece, Ireland, Italy, Portugal, Spain [in %]. Source: Own calculations using data from CEPII EQCHANGE (broad index with 186 trade partners, fixed weights).
Reserves	Total official reserves (including gold) in current US$ as percentage of nominal GDP. Data source and code: World Bank WDI (FI.RES.TOTL.CD, NY.GDP.MKTP.CD).
TARGET2	Intra-Eurosystem claims (of national central banks against the Eurosystem) in percentage of nominal GDP. Excluding claims/liabilities from under-/over-issuance of banknotes. Data source: Steinkamp & Westermann (2014) available on http://www.eurocrisismonitor.com, World Bank WDI (NY.GDP.MKTP.CN).
Tariffs	Effectively applied tariff rates for all traded goods. Either as a simple mean tariff or weighted by product import shares. Data source and code: World Bank WDI (TM.TAX.MRCH.SM.AR.ZS, TM.TAX.MRCH.WM.AR.ZS).
Terms of Trade	Terms of trade index (2010=100). Data source and code: Thomson Reuters Datastream (CHXTOT, BDXTOT).
WTO accession	A dummy variable capturing the accession to the World Trade Organization, given by the indicator function $I(t \geq 2001)$ for China and $I(t \geq 1995)$ for Germany.

Notes: In the case of non-stationarity of the series, first differences are used in the regression analysis.

Appendix B: Additional Regression Results

Table B1: Currency Misalignment Effect –Alternative Crisis Periods

Dependent Variable**:** Current Account Balance (%GDP)

	CHINA		GERMANY	
Variables	(1A)	(2A)	(1B)	(2B)
Lagged CM (λ_1)	0.037	0.042	-0.161***	-0.166***
	(1.28)	(1.45)	(6.44)	(7.08)
Crisis08 X Lagged CM (λ_2)	-0.383***		0.133*	
	(3.45)		(1.90)	
Crisis09 X Lagged CM (λ_2)		-0.268***		0.138**
		(3.30)		(2.35)
Crisis08-Dummy (I(t>=2008)	-6.081***		-0.618	
	(3.09)		(0.31)	
Crisis09-Dummy (I(t>=2009)		-6.934***		-1.040
		(3.90)		(0.64)
Time Trend	0.377***	0.410***	0.320***	0.339***
	(3.97)	(4.70)	(3.99)	(5.07)
Constant	1.781***	2.014***	-2.275**	-2.470***
	(2.98)	(3.23)	(2.36)	(2.87)
R-Squared (adj)	0.16	0.07	0.74	0.74
Yearly Obs.	34	34	34	34

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table B2: Marginal Effects of Tariffs

Dependent Variable: Current Account (%GDP)

Variables	(1) CHINA	(1) GERMANY	(2) CHINA	(2) GERMANY	(3) CHINA	(3) GERMANY
Lagged CM (λ_1)	-0.119*	-0.069	-0.084	-0.073	-0.070***	-0.044**
	(1.66)	(1.35)	(1.17)	(1.54)	(2.74)	(2.08)
Crisis07 X Lagged CM (λ_2)	-0.497***	-0.152*	-0.282**	-0.131	-0.690***	-0.089
	(2.97)	(1.70)	(2.07)	(0.95)	(5.23)	(1.34)
Lagged Young Age Dependency Ratio		-2.543*		-2.327		-2.982***
		(1.84)		(1.63)		(7.93)
Lagged Old Age Dependency Ratio	5.983***	0.869**	5.567***	0.842**	9.045***	0.862***
	(2.90)	(2.34)	(2.69)	(2.03)	(4.77)	(3.82)
Lagged Government Balance (%GDP)	0.746		0.191		1.760***	
	(1.14)		(0.31)		(3.61)	
Lagged GDP growth	0.064	-0.485*	0.565*	-0.464**	-0.376***	-0.410***
	(0.15)	(1.93)	(1.78)	(2.02)	(4.37)	(2.81)
Lagged Chg. In Openness	-0.045	0.243*	-0.041	0.243*	-0.200***	0.195**
	(0.63)	(1.77)	(0.58)	(1.73)	(3.06)	(2.20)
Lagged Chg. in REER	0.156***	0.307***	0.146***	0.308***	0.050**	0.191***
	(3.35)	(3.63)	(3.16)	(3.99)	(2.18)	(3.12)
Lagged Terms of Trade	0.009		0.049		-0.209***	
	(0.14)		(0.72)		(4.04)	
Lagged Chg. Money M1 Domestic (%GDP)	-0.034		-0.138		0.129*	
	(0.32)		(1.34)		(1.81)	
Lagged Chg. In Reserves (%GDP)	0.333***		0.273***		0.268***	
	(3.91)		(3.29)		(3.59)	
Lagged Chg. Money M1 USA (%GDP)	-0.269	-1.092***	0.215	-1.024***	-0.712*	-0.759**
	(0.40)	(3.56)	(0.36)	(2.79)	(1.84)	(2.55)
Tariffs (simple average)	0.178	0.185				
	(0.85)	(0.42)				
Tariffs (weighted average)			-0.159	0.238		
			(0.98)	(0.40)		
WTO accession (I(t>=2001)					-1.962	
					(1.41)	
WTO accession (I(t>=1995)						0.939
						(1.24)
Crisis07-Dummy (I(t>=2007)	-8.020**	1.628	-3.913	1.340	-11.345***	0.556
	(2.54)	(1.03)	(1.50)	(0.66)	(4.90)	(0.45)
Trend	-0.123	-0.428**	-0.686	-0.357*	-0.718***	-0.523***
	(0.23)	(2.47)	(1.52)	(1.76)	(2.82)	(4.53)
Constant	-57.697***	46.013	-46.816***	40.379	-39.941***	57.265***
	(4.37)	(1.18)	(3.74)	(1.00)	(3.73)	(6.17)
R-Squared (adj)	0.94	0.97	0.93	0.97	0.90	0.95
Yearly Obs.	21	21	21	21	33	33

Notes: SUR estimates. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

References

Aizenman, Joshua, and Rajeswari Sengupta. "Global imbalances: is Germany the new China? A skeptical view." *Open Economies Review* 22.3 (2011): 387-400.

Almås, Ingvild, Mandeep Grewal, Marielle Hvide, and Serhat Ugurlu. "The PPP approach revisited: A study of RMB valuation against the USD." *Journal of International Money and Finance* 77 (2017): 18-38.

Arghyrou, M. G. and G. Chortareas, "Current Account Imbalances and Real Exchange Rates in the Euro Area," Review of International Economics 16 (2008):747–764.

Auer, Raphael A. "What drives TARGET2 balances? Evidence from a panel analysis." Economic Policy 29.77 (2014): 139-197.

Bussière, M., Fratzscher, M., Müller, G., 2006. Current account dynamics in OECD and new EU member states: an intertemporal approach. Journal of Economic Integration 21 (3), 593–618.

Cavallo, Eduardo, Barry Eichengreen, and Ugo Panizza. "Can countries rely on foreign saving for investment and economic development?." *Review of World Economics* (2017): 1-30.

Ca'Zorzi, Michele, Alexander Chudik, and Alistair Dieppe. "Thousands of models, one story: Current account imbalances in the global economy." *Journal of International Money and Finance* 31.6 (2012): 1319-1338.

Calderon, Cesar Augusto, Alberto Chong, and Norman V. Loayza. "Determinants of current account deficits in developing countries." *B.E. Journal of Macroeconomics: Contributions to Macroeconomics* 2.1 (2002).

Cheung, Yin-Wong, Menzie D. Chinn, and Xin Nong. "Estimating currency misalignment using the Penn effect: It is not as simple as it looks." *International Finance* 20.3 (2017): 222-242.

Cheung, Yin-Wong, Menzie D. Chinn, and Eiji Fujii. "The overvaluation of renminbi undervaluation." *Journal of International Money and Finance* 26.5 (2007): 762-785.

Cheung, Yin-Wong, Menzie D. Chinn, and Eiji Fujii. "Pitfalls in measuring exchange rate misalignment." *Open Economies Review* 20.2 (2009): 183-206.

Cheung, Yin-Wong, and Eiji Fujii. "Exchange rate misalignment estimates—Sources of differences." *International Journal of Finance & Economics* 19.2 (2014): 91-121.

Chinn, Menzie D., and Hiro Ito. "What matters for financial development? Capital controls, institutions, and interactions." *Journal of development economics* 81.1 (2006): 163-192.

Chinn, Menzie D., and Eswar S. Prasad. "Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration." *Journal of International Economics* 59.1 (2003): 47-76.

Coudert, Virginie, Cécile Couharde, and Valérie Mignon. "On currency misalignments within the euro area." *Review of International Economics* 21.1 (2013): 35-48.

Couharde, Cécile, Anne-Laure Delatte, Carl Grekou, Valérie Mignon and Florian Morvillier. "EQCHANGE: A World Database on Actual and Equilibrium Effective Exchange Rates." Working Paper CEPII No. 2017-14, 2017.

Corsetti, Giancarlo, Luca Dedola, and Sylvain Leduc. "Exchange rate misalignment, capital flows, and optimal monetary policy trade-offs." *mimeo*, March 2018.

Di Nino, Virginia, Barry Eichengreen, and Massimo Sbracia. "Real Exchange Rates, Trade, and Growth: Italy 1861-2011". Quaderni di storia economica (Economic History Working Papers) 10. Bank of Italy. 2011.

Du, Qingyuan, and Shang-Jin Wei. *A sexually unbalanced model of current account imbalances*. No. w16000. National Bureau of Economic Research, 2010.

Duarte, Pablo, and Gunther Schnabl. "Macroeconomic policy making, exchange rate adjustment and current account imbalances in emerging markets." *Review of Development Economics* 19.3 (2015): 531-544.

Edwards, Sebastian. "Real Exchange Rates, Devaluation, and Adjustment Exchange Rate Policy in Developing Countries." MIT Press, 1989a.

Edwards, Sebastian. "Temporary Terms-of-Trade Disturbances, the Real Exchange Rate and the Current Account." *Economica* (1989b): 343-357.

Edwards, Sebastian. "Thirty years of current account imbalances, current account reversals, and sudden stops." *IMF staff papers* 51.1 (2004): 1-49.

Edwards, Sebastian. "On Current Account Surpluses and the Correction of Global Imbalances." In: Current Account and External Financing, Cowan, Kevin; Edwards, Sebastian and Valdes, Rodrigo O. Santiago: Central Bank of Chile, 2008.

Eichengreen, Barry. "Currency war or international policy coordination?" *Journal of Policy Modeling* 3.35 (2013): 425-433.

Engel, Charles. "Currency misalignments and optimal monetary policy: a reexamination." *American Economic Review* 101.6 (2011): 2796-2822.

Feldstein, Martin. "The role of currency realignments in eliminating the US and China current account imbalances," Journal of Policy Modeling, Elsevier, vol. 33(5) (2011): 731-736.

Freund, Caroline, and Martha Denisse Pierola. "Export surges." *Journal of Development Economics* 97.2 (2012): 387-395.

Garroway, Christopher, Burcu Hacibedel, Helmut Reisen, and Edouard Turkisch. "The Renminbi and Poor-country Growth." *The World Economy* 35.3 (2012): 273-294.

Gnimassoun, Blaise, and Valérie Mignon. "Persistence of Current-account Disequilibria and Real Exchange-rate Misalignments." *Review of International Economics* 23.1 (2015): 137-159.

Gnimassoun, Blaise. "Exchange rate misalignments and the external balance under a pegged currency system." *Review of International Economics* 25.5 (2017): 949-974.

Gruber, Joseph W., and Steven B. Kamin. "Explaining the global pattern of current account imbalances." *Journal of International Money and Finance* 26.4 (2007): 500-522.

Haddad, Mona, and Cosimo Pancaro. "Can real exchange rate undervaluation boost exports and growth in developing countries? Yes, but not for long." *The World Bank, Economic Premise* 2010.

Isard, Peter. *"Equilibrium exchange rates: assessment methodologies*." IMF Working Paper No. 7-296. International Monetary Fund, 2007.

Karunaratne, Neil Dias. "Macro-economic determinants of Australia's current account, 1977–1986." *Weltwirtschaftliches Archiv* 124.4 (1988): 713.

Khan, Mohsin S., and Malcolm D. Knight. "Determinants of current account balances of non-oil developing countries in the 1970s: an empirical analysis." *Staff Papers* 30.4 (1983): 819-842.

Kim, Soyoung. "Effects of monetary policy shocks on the trade balance in small open European countries." *Economics Letters* 71.2 (2001): 197-203.

Lee, Jaewoo, and Menzie D. Chinn. "Current account and real exchange rate dynamics in the G7 countries." *Journal of International Money and Finance* 25.2 (2006): 257-274.

Liesenfeld, Roman, Guilherme Valle Moura, and Jean-François Richard. "Determinants and dynamics of current account reversals: An empirical analysis." *Oxford Bulletin of Economics and Statistics* 72.4 (2010): 486-517.

Liu, Xuepeng. "Tax avoidance through re-imports: The case of redundant trade." Journal of Development Economics 104 (2013): 152-164.

Ma, Guonan and Robert N. McCauley. *"Global and Euro Imbalances: China and Germany." China & World Economy / Vol. 22.1 (2014): 1–29.*

Marchetti, Juan, Michele Ruta, and Robert Teh. "Trade imbalances and multilateral trade cooperation." *CESifo Working Paper* #4050, 2012.

Mattoo, Aaditya, and Arvind Subramanian. "Currency undervaluation and sovereign wealth funds: a new role for the World Trade Organization." *The World Economy* 32.8 (2009): 1135-1164.

Moral-Benito, Enrique, and Oliver Roehn. "The impact of financial regulation on current account balances." *European Economic Review* 81 (2016): 148-166.

Qin, Duo, and Xinhua He. "Is the Chinese currency substantially misaligned to warrant further appreciation?." *The World Economy* 34.8 (2011): 1288-1307.

Sinn, Hans-Werner. *Can Germany be saved?: the malaise of the world's first welfare state*. MIT Press, 2007.

Sinn, Hans-Werner. *The Euro trap: on bursting bubbles, budgets, and beliefs*. Oxford University Press: Oxford, 2014.

Sinn, Hans-Werner, and Timo Wollmershäuser. "Target loans, current account balances and capital flows: the ECB's rescue facility." *International Tax and Public Finance* 19.4 (2012): 468-508.

Staiger, Robert W., and Alan O. Sykes. "'Currency manipulation'and world trade." *World Trade Review* 9.4 (2010): 583-627.

Steinkamp, Sven, and Frank Westermann. "The role of creditor seniority in Europe's sovereign debt crisis." *Economic Policy* 29.79 (2014): 495-552.

Svensson, Lars EO, and Assaf Razin. "The terms of trade and the current account: The Harberger-Laursen-Metzler effect." *Journal of political Economy* 91.1 (1983): 97-125.

Unger, Robert. "Asymmetric credit growth and current account imbalances in the euro area." *Journal of International Money and Finance* 73 (2017): 435-451.

Williamson, John. "The Exchange Rate System, policy analyses in international economics 5." *Washington DC: Institute for International Economics* (1983).

Table 1: Currency Misalignment Effect

Variables	CHINA		GERMANY	
	(1A)	(2A)	(1B)	(2B)
Lagged CM (λ_1)	-0.030	0.030	-0.160***	-0.146***
	(1.07)	(1.05)	(10.14)	(6.23)
Crisis07 X Lagged CM (λ_2)		-0.420***		0.118
		(4.54)		(1.45)
Crisis07-Dummy (I(t>=2007))		-4.708**		0.731
		(2.61)		(0.34)
Time Trend	0.135***	0.314***	0.329***	0.261***
	(3.06)	(3.64)	(14.64)	(3.06)
Constant	2.141***	1.490***	-2.341***	-1.667
	(4.57)	(2.78)	(4.24)	(1.68)
R-Squared (adj)	0.12	0.34	0.75	0.76
Yearly Obs.	34	34	34	34

Dependent Variable: Current Account Balance (%GDP)

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 2A: China's Currency Misalignment Effect & Canonical Economic Variables

Dependent Variable: China's Current Account Balance (%GDP)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lagged CM (λ_1)	0.031	0.030	0.002	0.039	0.025	0.015	0.012	0.031	-0.085**	-0.084**
	(1.04)	(1.03)	(0.05)	(1.39)	(1.19)	(0.50)	(0.38)	(1.05)	(2.09)	(2.19)
Crisis07 X Lagged CM (λ_2)	-0.405***	-0.401***	-0.507***	-0.343***	-0.489***	-0.430***	-0.401***	-0.414***	-0.727***	-0.771***
	(3.54)	(3.66)	(4.05)	(3.18)	(5.00)	(4.39)	(4.17)	(4.45)	(4.17)	(4.77)
Lagged Age Dependency	-0.061									
	(0.22)									
Lagged Age Dependency (young)		-0.088							-0.152	
		(0.32)							(0.48)	
Lagged Age Dependency (old)			2.541						8.865***	8.929***
			(0.96)						(3.14)	(3.21)
Lagged Government Balance (%GDP)				1.240**					1.531***	1.599***
				(2.10)					(3.42)	(3.27)
Lagged GDP growth					-0.329**				-0.400***	-0.409***
					(2.68)				(3.00)	(3.18)
Lagged Chg. in Openness						-0.146			-0.225**	-0.236**
						(1.57)			(2.57)	(2.47)
Lagged Chg. in REER							0.007		0.051*	0.048*
							(0.16)		(1.91)	(1.81)
Lagged Terms of Trade								0.019	-0.118*	-0.140***
								(0.40)	(2.02)	(3.16)
Crisis07-Dummy (I(t>=2007)	-4.717**	-4.746**	-5.449**	-5.779***	-4.670**	-5.787***	-4.463**	-4.394**	-11.944***	-12.470***
	(2.63)	(2.63)	(2.68)	(3.22)	(2.35)	(2.84)	(2.42)	(2.09)	(4.70)	(4.38)
Time Trend	0.265	0.231	-0.062	0.422***	0.283***	0.345***	0.306***	0.301***	-0.970	-0.809*
	(1.26)	(0.92)	(0.16)	(4.20)	(3.13)	(3.90)	(3.24)	(3.08)	(1.59)	(1.96)
Constant	1.064	2.093	-20.039	-2.719**	1.057	-2.992**	-2.699*	-4.514	-38.367**	-44.927**
	(0.06)	(0.14)	(1.09)	(2.35)	(0.57)	(2.58)	(1.96)	(0.95)	(2.15)	(2.62)
R-Squared (adj)	0.53	0.53	0.54	0.58	0.60	0.59	0.55	0.53	0.75	0.76
Yearly Obs.	34	34	34	34	34	33	33	34	33	33

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 2B: Germany's Currency Misalignment Effect & Canonical Economic Variables

Dependent Variable: Germany's Current Account Balance (%GDP)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lagged CM (λ_1)	-0.147***	-0.109***	-0.119***	-0.162***	-0.146***	-0.151***	-0.171***	-0.175***	-0.088**	-0.048
	(6.30)	(4.09)	(4.82)	(5.71)	(6.27)	(6.27)	(7.10)	(4.28)	(2.56)	(1.61)
Crisis07 X Lagged CM (λ_2)	0.120	0.127	0.089	0.114	0.102	0.116	0.089	0.122	-0.017	-0.008
	(1.50)	(1.66)	(1.18)	(1.41)	(1.13)	(1.28)	(1.02)	(1.40)	(0.23)	(0.10)
Lagged Age Dependency	-0.042									
	(0.16)									
Lagged Age Dependency (young)		-1.529***							-2.376***	-2.664***
		(2.85)							(6.29)	(5.65)
Lagged Age Dependency (old)			0.569						0.788**	0.662**
			(1.26)						(2.68)	(2.51)
Lagged Government Balance (%GDP)				-0.250					-0.063	
				(1.45)					(0.53)	
Lagged GDP growth					-0.103				-0.483**	-0.480**
					(0.77)				(2.32)	(2.23)
Lagged Chg. in Openness						-0.040			0.330**	0.312**
						(0.58)			(2.62)	(2.53)
Lagged Chg. in REER							0.210***		0.175**	0.163*
							(2.95)		(2.34)	(2.01)
Lagged Terms of Trade								0.110	0.127	
								(0.80)	(1.41)	
Crisis07-Dummy (I(t>=2007))	0.808	0.007	-0.582	0.766	0.964	0.737	0.648	1.185	0.330	-0.172
	(0.33)	(0.00)	(0.29)	(0.37)	(0.44)	(0.33)	(0.32)	(0.48)	(0.22)	(0.12)
Time Trend	0.269***	0.054	0.075	0.277***	0.252***	0.260***	0.291***	0.223*	-0.435**	-0.386**
	(3.28)	(0.55)	(0.47)	(3.26)	(2.95)	(2.90)	(3.51)	(1.97)	(2.48)	(2.79)
Constant	0.169	36.141**	-12.341	-2.190*	-1.353	-1.524	-1.873*	-11.716	32.175**	53.269***
	(0.01)	(2.76)	(1.44)	(1.93)	(1.29)	(1.43)	(1.85)	(0.97)	(2.67)	(4.93)
R-Squared (adj)	0.75	0.83	0.78	0.77	0.76	0.76	0.80	0.76	0.93	0.93
Yearly Obs.	34	34	34	34	34	33	33	34	33	33

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 3A: China's Currency Misalignment Effect & Monetary Factors

Dependent Variable: China's Current Account Balance (%GDP)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged CM (λ_1)	0.014	0.014	0.015	0.029	0.014	0.014	0.004	-0.009
	(0.43)	(0.44)	(0.55)	(0.81)	(0.42)	(0.46)	(0.14)	(0.34)
Crisis07 X Lagged CM (λ_2)	-0.402***	-0.408***	-0.283***	-0.418***	-0.404***	-0.416***	-0.297**	-0.261**
	(4.18)	(4.40)	(2.77)	(4.09)	(4.40)	(4.59)	(2.31)	(2.48)
Lagged Chg. Money M1 (%GDP)	-0.045						-0.201	-0.230*
	(0.52)						(1.38)	(1.89)
Lagged Chg. Broad Money M3 (%GDP)		0.012					0.053	
		(0.25)					(0.39)	
Lagged Chg. in Reserves (%GDP)			0.314***				0.350***	0.355***
			(3.04)				(3.24)	(3.78)
Lagged Inflation				-0.003			0.099	
				(0.04)			(1.03)	
Lagged Chg. Domestic Credit (%GDP)					0.002		-0.053	
					(0.04)		(0.46)	
Lagged Real interest rate						0.137	0.360**	0.255*
						(1.58)	(2.25)	(2.04)
Crisis07-Dummy (I(t>=2007)	-4.592**	-4.571**	-2.345	-4.677**	-4.536**	-4.105*	-1.836	-1.333
	(2.52)	(2.55)	(1.29)	(2.24)	(2.61)	(1.97)	(0.82)	(0.71)
Time Trend	0.315***	0.314***	0.249***	0.312***	0.313***	0.279***	0.234*	0.185*
	(3.63)	(3.67)	(3.19)	(2.77)	(3.66)	(2.76)	(2.07)	(2.06)
Constant	-2.800**	-2.890**	-2.300**	-2.635	-2.824**	-2.514*	-3.429	-1.801
	(2.31)	(2.49)	(2.19)	(1.40)	(2.40)	(2.03)	(1.66)	(1.58)
R-Squared (adj)	0.56	0.55	0.63	0.52	0.55	0.55	0.65	0.68
Yearly Obs.	33	33	33	34	33	34	33	33

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 3B: Germany's Currency Misalignment Effect & Monetary Factors

Dependent Variable: Germany's Current Account Balance (%GDP)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lagged CM (λ_1)	-0.149***	-0.148***	-0.137***	-0.134***	-0.089***	-0.064**	-0.089***
	(6.25)	(6.28)	(5.03)	(5.36)	(5.24)	(2.65)	(5.24)
Crisis07 X Lagged CM (λ_2)	0.118	0.126	0.108	0.112	0.114	0.063	0.114
	(1.31)	(1.45)	(1.21)	(1.30)	(1.31)	(0.68)	(1.31)
Lagged Chg. Money M1 (%GDP)	0.030					-0.181	
	(0.23)					(0.83)	
Lagged Chg. In Reserves (%GDP)		-0.198				0.015	
		(0.51)				(0.05)	
Lagged Inflation			-0.260			-0.384	
			(1.08)			(1.62)	
Lagged Chg. Domestic Credit (%GDP)				-0.240*		-0.027	
				(1.89)		(0.14)	
Lagged Real interest rate					-0.874***	-0.915***	-0.874***
					(8.02)	(3.12)	(8.02)
Crisis07-Dummy (I(t>=2007)	0.807	0.808	1.207	-0.577	-0.868	0.231	-0.868
	(0.35)	(0.36)	(0.50)	(0.29)	(0.78)	(0.14)	(0.78)
Time Trend	0.250***	0.256***	0.227**	0.258***	0.134***	0.078	0.134***
	(2.78)	(2.78)	(2.23)	(3.06)	(2.92)	(1.02)	(2.92)
Constant	-1.461	-1.591	-0.701	-0.948	6.426***	8.378**	6.426***
	(1.36)	(1.39)	(0.45)	(0.88)	(5.13)	(2.81)	(5.13)
R-Squared (adj)	0.76	0.76	0.76	0.84	0.88	0.89	0.88
Yearly Obs.	33	33	34	30	34	30	34

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 4A: China's Currency Misalignment Effect & Global Factors

Dependent Variable: China's Current Account Balance (%GDP)							
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lagged CM (λ_1)	0.015	0.030	0.007	0.008	0.031	0.005	0.008
	(0.48)	(1.04)	(0.22)	(0.25)	(1.06)	(0.14)	(0.25)
Crisis07 X Lagged CM (λ_2)	-0.397***	-0.422***	-0.373***	-0.334***	-0.421***	-0.297**	-0.334***
	(4.14)	(4.55)	(3.62)	(4.42)	(4.65)	(2.71)	(4.42)
Lagged Chg. Broad Money M3 World (%GDP)	-0.060					-0.093	
	(0.49)					(0.43)	
Lagged World GDP growth		-0.036				-0.191	
		(0.14)				(0.47)	
Lagged Chg. Broad Money M3 USA (%GDP)			0.125			0.157	
			(0.79)			(0.57)	
Lagged Chg. Money M1 USA (%GDP)				-1.063**		-1.124	-1.063**
				(2.33)		(1.19)	(2.33)
Lagged Oil Price					-0.005	0.001	
					(0.19)	(0.03)	
Crisis07-Dummy (I(t>=2007)	-4.289**	-4.747**	-4.288**	-2.769	-4.474*	-2.307	-2.769
	(2.16)	(2.58)	(2.38)	(1.53)	(1.72)	(0.67)	(1.53)
Time Trend	0.305***	0.315***	0.293***	0.274***	0.321***	0.239**	0.274***
	(3.32)	(3.61)	(3.42)	(3.24)	(3.72)	(2.48)	(3.24)
Constant	-2.630*	-2.588*	-2.552**	-2.440*	-2.638*	-1.275	-2.440*
	(1.88)	(1.74)	(2.20)	(2.05)	(2.03)	(0.57)	(2.05)
R-Squared (adj)	0.56	0.52	0.56	0.61	0.53	0.56	0.61
Yearly Obs.	33	34	33	33	34	33	33

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 4B: Germany's Currency Misalignment Effect & Global Factors

Dependent Variable: Germany's Current Account Balance (%GDP)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lagged CM (λ_1)	-0.148***	-0.138***	-0.158***	-0.149***	-0.140***	-0.124***	-0.127***
	(6.06)	(6.25)	(5.35)	(6.15)	(6.38)	(4.18)	(5.86)
Crisis07 X Lagged CM (λ_2)	0.113	0.127	0.193	0.141	0.116	0.259	0.251*
	(1.29)	(1.51)	(1.38)	(1.45)	(1.33)	(1.67)	(2.04)
Lagged Chg. Broad Money M3 World (%GDP)	0.009					0.094	
	(0.08)					(0.48)	
Lagged World GDP growth		0.371**				0.912***	0.851***
		(2.27)				(3.57)	(3.28)
Lagged Chg. Broad Money M3 USA (%GDP)			-0.114			-0.040	
			(0.79)			(0.23)	
Lagged Chg. Money M1 USA (%GDP)				0.337		1.294*	1.388***
				(0.92)		(2.03)	(3.16)
Lagged Oil Price					0.013	0.000	
					(0.75)	(0.02)	
Crisis07-Dummy (I(t>=2007)	0.866	1.049	0.053	0.276	0.193	-1.358	-1.135
	(0.38)	(0.51)	(0.02)	(0.12)	(0.08)	(0.43)	(0.49)
Time Trend	0.252**	0.244***	0.277***	0.259***	0.246***	0.275***	0.264***
	(2.77)	(3.02)	(2.78)	(2.86)	(3.10)	(2.99)	(3.46)
Constant	-1.477	-2.604**	-1.764	-1.522	-1.784	-4.761**	-4.262***
	(1.39)	(2.49)	(1.47)	(1.43)	(1.70)	(2.81)	(3.19)
R-Squared (adj)	0.76	0.78	0.76	0.76	0.76	0.79	0.81
Yearly Obs.	33	34	33	33	34	33	33

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 5: Specifications with Combined Significant Factors

Dependent Variable: Current Account (%GDP)

	EQUATION-BY-EQUATION REGRESSION				SEEMINGLY UNRELATED REGRESSION			
	(1)		(2)		(3)		(4)	
Variables	CHINA	GERMANY	CHINA	GERMANY	CHINA	GERMANY	CHINA	GERMANY
Lagged CM (λ_1)	-0.079**	-0.047	-0.086**	-0.045	-0.074***	-0.050**	-0.077***	-0.047**
	(2.20)	(1.51)	(2.30)	(1.45)	(2.90)	(2.35)	(2.96)	(2.22)
Crisis07 X Lagged CM (λ_2)	-0.657***	-0.054	-0.633***	-0.085	-0.638***	-0.046	-0.568***	-0.082
	(4.25)	(0.63)	(4.07)	(1.29)	(6.02)	(0.60)	(5.83)	(1.21)
Lagged Young Age Dependency Ratio		-2.510***		-2.816***		-2.481***		-2.820***
		(4.69)		(6.12)		(4.81)		(7.91)
Lagged Old Age Dependency Ratio	9.961***	0.740**	8.767***	0.821***	9.559***	0.699**	8.110***	0.789***
	(3.96)	(2.26)	(3.18)	(3.18)	(4.79)	(2.30)	(4.55)	(3.61)
Lagged Government Balance (%GDP)	2.326**		1.547***		2.393***		2.030***	
	(2.80)		(3.59)		(4.74)		(4.44)	
Lagged GDP growth	-0.520**	-0.448**	-0.413***	-0.482**	-0.522***	-0.448***	-0.383***	-0.488***
	(2.73)	(2.15)	(3.80)	(2.20)	(4.06)	(3.24)	(4.32)	(3.64)
Lagged Chg. in Openness	-0.171	0.172	-0.169*	0.230*	-0.166***	0.166	-0.175***	0.234***
	(1.65)	(1.30)	(1.74)	(1.83)	(2.62)	(1.48)	(2.69)	(2.78)
Lagged Chg. in REER	0.068*	0.173*	0.071**	0.201***	0.062***	0.173**	0.054**	0.205***
	(2.01)	(1.85)	(2.70)	(3.00)	(2.61)	(2.52)	(2.26)	(3.36)
Lagged Terms of Trade	-0.152**		-0.123***		-0.149***		-0.166***	
	(2.43)		(3.01)		(3.58)		(4.00)	
Lagged Chg. Money M1 Domestic (%GDP)	0.238				0.248**		0.148**	
	(1.58)				(2.55)		(2.06)	
Lagged Chg. in Reserves (%GDP)	0.233***		0.292***		0.229***		0.243***	
	(4.29)		(4.10)		(3.13)		(3.23)	
Lagged Real interest rate	-0.167	-0.067			-0.163	-0.076		
	(0.94)	(0.34)			(1.45)	(0.39)		
Lagged Chg. Money M1 USA (%GDP)	-0.492	-0.715*		-0.882***	-0.533	-0.690**	-0.706*	-0.875***
	(0.79)	(1.74)		(2.99)	(1.32)	(1.98)	(1.77)	(3.05)
Lagged World GDP growth		0.183				0.206		
		(0.66)				(0.83)		
Crisis07-Dummy (I(t>=2007)	-10.792***	0.432	-9.290***	0.640	-10.627***	0.415	-9.389***	0.661
	(3.85)	(0.31)	(2.98)	(0.49)	(5.33)	(0.32)	(5.04)	(0.52)
Trend	-0.967**	-0.388**	-0.898**	-0.455***	-0.901***	-0.369***	-0.730***	-0.443***
	(2.42)	(2.29)	(2.13)	(3.03)	(3.20)	(2.83)	(2.78)	(4.70)
Constant	-48.852***	47.906***	-44.377**	54.023***	-46.393***	47.939***	-36.241***	54.684***
	(3.03)	(4.79)	(2.66)	(5.72)	(3.75)	(4.07)	(3.43)	(5.94)
R-Squared (adj)	0.83	0.94	0.82	0.94	0.90	0.95	0.90	0.95
Yearly Obs.	33	33	33	33	33	33	33	33

Notes: (Stepwise) SUR estimate. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 6A: Alternative Choices of the Misalignment Measure – China

Dependent Variable: China's Current Account (%GDP)

Variables	CEPII MISALIGNMENT ESTIMATES (Model Parameters, Set of Trade Partners, Trade Weights)					
	(MODEL 3, BROAD, FIXED FULL)	(MODEL 1, NARROW, FIXED FULL)	(MODEL 2, NARROW, FIXED FULL)	(MODEL 3, BROAD, 5-YEAR WINDOWS)	MODEL 3, BROAD, FIXED RECENT)	(MODEL 3, NARROW, FIXED FULL)
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged CM (λ_1)	-0.077***	-0.044*	0.011	-0.084***	-0.077***	-0.053***
	(2.96)	(1.74)	(0.33)	(3.93)	(3.32)	(2.69)
Crisis07 X Lagged CM (λ_2)	-0.568***	-0.632***	-0.245	-0.599***	-0.621***	-0.606***
	(5.83)	(4.63)	(1.18)	(6.97)	(6.58)	(6.84)
Lagged Old Age Dependency Ratio	8.110***	5.630***	0.824	9.525***	8.679***	8.110***
	(4.55)	(3.28)	(0.49)	(5.63)	(5.11)	(4.55)
Lagged Government Balance (%GDP)	2.030***	2.533***	2.415***	2.216***	2.454***	2.030***
	(4.44)	(4.92)	(3.78)	(5.25)	(5.61)	(4.44)
Lagged GDP growth	-0.383***	-0.342***	-0.241**	-0.452***	-0.415***	-0.383***
	(4.32)	(3.47)	(2.04)	(5.25)	(4.83)	(4.32)
Lagged Chg. In Openness	-0.175***	-0.181**	-0.068	-0.179***	-0.182***	-0.175***
	(2.69)	(2.45)	(0.77)	(3.03)	(2.96)	(2.69)
Lagged Chg. in REER	0.054**	0.038	0.001	0.067***	0.057**	0.054**
	(2.26)	(1.50)	(0.04)	(3.05)	(2.57)	(2.26)
Lagged Terms of Trade	-0.166***	-0.155***	-0.091*	-0.186***	-0.189***	-0.166***
	(4.00)	(3.32)	(1.68)	(4.77)	(4.56)	(4.00)
Lagged Chg. Money M1 Domestic (%GDP)	0.148**	0.203**	0.198*	0.162**	0.158**	0.148**
	(2.06)	(2.49)	(1.95)	(2.42)	(2.30)	(2.06)
Lagged Chg. in Reserves (%GDP)	0.243***	0.293***	0.345***	0.251***	0.255***	0.243***
	(3.23)	(3.67)	(3.58)	(3.65)	(3.61)	(3.23)
Lagged Chg. Money M1 USA (%GDP)	-0.706*	-1.047**	-1.443***	-0.554	-0.757**	-0.706*
	(1.77)	(2.43)	(2.73)	(1.50)	(2.02)	(1.77)
Crisis07-Dummy (I(t>=2007))	-9.389***	-23.117***	-8.500	-12.675***	-11.031***	-10.871***
	(5.04)	(4.75)	(1.41)	(6.29)	(5.81)	(5.99)
Trend	-0.730***	-0.373	0.308	-0.984***	-0.808***	-0.730***
	(2.78)	(1.41)	(1.09)	(3.79)	(3.18)	(2.78)
Constant	-36.241***	-20.823**	4.240	-42.075***	-36.874***	-36.241***
	(3.43)	(2.09)	(0.41)	(4.38)	(3.86)	(3.43)
R-Squared (adj)	0.90	0.87	0.79	0.91	0.90	0.91
Yearly Obs.	33	33	33	33	33	33

Notes: SUR estimates. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 6B: Alternative Choices of the Misalignment Measure – Germany

Dependent Variable: Germany's Current Account (%GDP)

(Model Parameters, Set of Trade Partners, Trade Weights)	CEPII MISALIGNMENT ESTIMATES (Model Parameters, Set of Trade Partners, Trade Weights)					
	(MODEL 3, BROAD, FIXED FULL)	(MODEL 1, NARROW, FIXED FULL)	(MODEL 2, NARROW, FIXED FULL)	(MODEL 3, BROAD, 5-YEAR WINDOWS)	MODEL 3, BROAD, FIXED RECENT)	(MODEL 3, NARROW, FIXED FULL)
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Lagged CM (λ_1)	-0.047**	-0.087***	-0.083***	-0.055	-0.060**	-0.099***
	(2.22)	(3.32)	(3.82)	(1.40)	(2.05)	(2.94)
Crisis07 X Lagged CM (λ_2)	-0.082	-0.118	-0.041	-0.091	-0.092	-0.127*
	(1.21)	(1.57)	(0.83)	(1.37)	(1.35)	(1.72)
Lagged Young Age Dependency Ratio	-2.820***	-2.607***	-2.339***	-3.002***	-2.844***	-2.693***
	(7.91)	(7.96)	(6.85)	(8.55)	(8.03)	(8.14)
Lagged Old Age Dependency Ratio	0.789***	0.746***	0.690***	0.928***	0.850***	0.768***
	(3.61)	(3.92)	(3.83)	(4.32)	(4.04)	(3.91)
Lagged GDP growth	-0.488***	-0.489***	-0.480***	-0.527***	-0.515***	-0.538***
	(3.64)	(4.09)	(4.28)	(3.47)	(3.77)	(4.27)
Lagged Chg. in Openness	0.234***	0.213***	0.239***	0.237***	0.241***	0.244***
	(2.78)	(2.90)	(3.39)	(2.62)	(2.84)	(3.14)
Lagged Chg. in REER	0.205***	0.219***	0.217***	0.194***	0.213***	0.232***
	(3.36)	(4.20)	(4.51)	(2.85)	(3.36)	(4.08)
Lagged Chg. Money M1 Domestic (%GDP)	-0.875***	-0.969***	-0.800***	-1.000***	-0.964***	-0.984***
	(3.05)	(3.74)	(3.40)	(3.31)	(3.36)	(3.74)
Crisis07-Dummy (I(t>=2007)	0.661	0.823	0.213	-0.143	0.451	0.665
	(0.52)	(0.81)	(0.23)	(0.14)	(0.41)	(0.71)
Trend	-0.443***	-0.397***	-0.321***	-0.545***	-0.477***	-0.450***
	(4.70)	(4.80)	(3.58)	(7.20)	(5.51)	(5.97)
Constant	54.684***	50.184***	44.352***	56.958***	54.267***	52.427***
	(5.94)	(5.89)	(5.19)	(6.09)	(5.85)	(6.08)
R-Squared (adj)	0.95	0.96	0.96	0.95	0.95	0.96
Yearly Obs.	33	33	33	33	33	33

Notes: SUR estimates. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 7A: China-specific Determinants

Dependent Variable: Current Account (%GDP)

| Variables	(1)	(2)	(3)	(4)	(5)	(6)
Lagged CM (λ_1)	-0.078***	-0.074***	-0.113***	-0.075**	-0.109***	-0.074***
	(2.96)	(2.94)	(3.66)	(2.18)	(3.67)	(2.94)
Crisis07 X Lagged CM (λ_2)	-0.566***	-0.531***	-0.535***	-0.571***	-0.604***	-0.605***
	(5.65)	(5.56)	(5.82)	(5.64)	(6.08)	(5.49)
Lagged Old Age Dependency Ratio	8.053***	7.878***	8.146***	8.147***	8.123***	7.878***
	(4.24)	(4.59)	(4.81)	(4.51)	(4.74)	(4.59)
Lagged Government Balance (%GDP)	2.027***	2.350***	2.035***	2.043***	2.656***	2.350***
	(4.42)	(4.97)	(4.77)	(4.37)	(6.04)	(4.97)
Lagged GDP growth	-0.383***	-0.392***	-0.415***	-0.378***	-0.455***	-0.392***
	(4.32)	(4.58)	(4.19)	(3.77)	(5.09)	(4.58)
Lagged Chg. In Openness	-0.175***	-0.169***	-0.169***	-0.178**	-0.179***	-0.169***
	(2.67)	(2.69)	(2.78)	(2.57)	(3.03)	(2.69)
Lagged Chg. in REER	0.053**	0.052**	0.056**	0.051*	0.037	0.052**
	(2.22)	(2.30)	(2.28)	(1.67)	(1.42)	(2.30)
Lagged Terms of Trade	-0.165***	-0.161***	-0.202***	-0.166***	-0.226***	-0.161***
	(3.80)	(4.01)	(4.32)	(3.98)	(4.93)	(4.01)
Lagged Chg. Money M1 Domestic (%GDP)	0.148**	0.197***	0.179**	0.148**	0.289***	0.197***
	(2.05)	(2.66)	(2.53)	(2.06)	(3.99)	(2.66)
Lagged Chg. in Reserves (%GDP)	0.242***	0.240***	0.208***	0.240***	0.140*	0.240***
	(3.19)	(3.32)	(2.91)	(3.10)	(1.95)	(3.32)
Lagged Chg. Money M1 USA (%GDP)	-0.706*	-0.849**	-0.981**	-0.702*	-1.251***	-0.849**
	(1.77)	(2.16)	(2.53)	(1.75)	(3.50)	(2.16)
Peg-Dummy (I(t={1991-2005,2009}))	-0.055				-0.759	
	(0.09)				(1.45)	
Asian Crisis (I(t=1998))		-1.839*			-2.300**	-1.839*
		(1.66)			(2.37)	(1.66)
Lagged Financial Liberalization			4.382		14.267**	
			(0.92)		(2.19)	
Export rebate "full refund" (I(t≥1988))				0.189	2.631	
				(0.13)	(1.44)	
Crisis07-Dummy (I(t>=2007))	-9.400***	-9.277***	-8.821***	-9.471***	-9.399*>**	-9.277***
	(5.04)	(5.16)	(5.04)	(4.79)	(5.62)	(5.16)
Trend	-0.721**	-0.677***	-0.766***	-0.732***	-0.777***	-0.677***
	(2.56)	(2.67)	(2.94)	(2.77)	(2.94)	(2.67)
Constant	-35.953***	-35.047***	-32.711***	-36.774***	-31.472***	-35.047***
	(3.24)	(3.45)	(3.28)	(3.22)	(3.06)	(3.45)
R-Squared (adj)	0.89	0.92	0.91	0.89	0.93	0.92
Yearly Obs.	33	33	32	33	32	33

Notes: SUR estimates. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

Table 7B: Germany-specific Determinants

| Dependent Variable: Current Account (%GDP)						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Lagged CM (λ_1)	-0.040**	-0.047**	-0.061***	-0.046***	-0.043**	-0.046***
	(1.99)	(2.12)	(2.61)	(2.68)	(2.17)	(2.68)
Crisis07 X Lagged CM (λ_2)	-0.299**	-0.082	-0.068	-0.330***	-0.355***	-0.376***
	(2.48)	(1.21)	(1.01)	(4.36)	(3.41)	(4.92)
Lagged Young Age Dependency Ratio	-2.815***	-2.819***	-2.573***	-1.241***	-1.109**	-1.241***
	(8.33)	(7.89)	(6.36)	(2.77)	(2.13)	(2.77)
Lagged Old Age Dependency Ratio	0.862***	0.790***	0.495	0.384*	0.349	0.384*
	(4.15)	(3.52)	(1.56)	(1.85)	(1.25)	(1.85)
Lagged GDP growth	-0.505***	-0.488***	-0.566***	-0.445***	-0.445***	-0.445***
	(3.96)	(3.63)	(3.89)	(4.14)	(3.72)	(4.14)
Lagged Chg. in Openness	0.242***	0.233***	0.284***	0.174**	0.183**	0.174**
	(3.03)	(2.77)	(3.09)	(2.55)	(2.38)	(2.55)
Lagged Chg. in REER	0.180***	0.205***	0.211***	0.170***	0.145***	0.170***
	(3.08)	(3.07)	(3.52)	(3.48)	(2.71)	(3.48)
Lagged Chg. Money M1 USA (%GDP)	-0.626**	-0.878***	-0.819***	-0.482*	-0.360	-0.482*
	(2.09)	(2.82)	(2.88)	(1.94)	(1.34)	(1.94)
Lagged TARGET2 (%GDP)	-0.135**				0.017	
	(2.07)				(0.24)	
Lagged chg. TARGET2 (%GDP)		0.001			-0.061	
		(0.02)			(1.13)	
Relative misalignment			-0.002		-0.000	
			(1.21)		(0.26)	
Current account balance with the Rest of the Euro Area (%GDP)				0.916***	0.980***	0.916***
				(4.55)	(3.85)	(4.55)
Crisis07-Dummy (I(t>=2007)	3.730*	0.663	1.107	4.407***	4.247***	4.407***
	(1.94)	(0.52)	(0.86)	(3.34)	(2.59)	(3.34)
Trend	-0.470***	-0.443***	-0.318**	-0.224**	-0.209*	-0.224**
	(5.26)	(4.54)	(2.34)	(2.38)	(1.69)	(2.38)
Constant	53.328***	54.664***	54.615***	24.208**	21.779**	24.208**
	(6.11)	(5.93)	(6.05)	(2.50)	(2.03)	(2.50)
R-Squared (adj)	0.96	0.95	0.96	0.97	0.97	0.97
Yearly Obs.	33	33	33	33	33	33

Notes: SUR estimates. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Sources and definitions: See Appendix A.

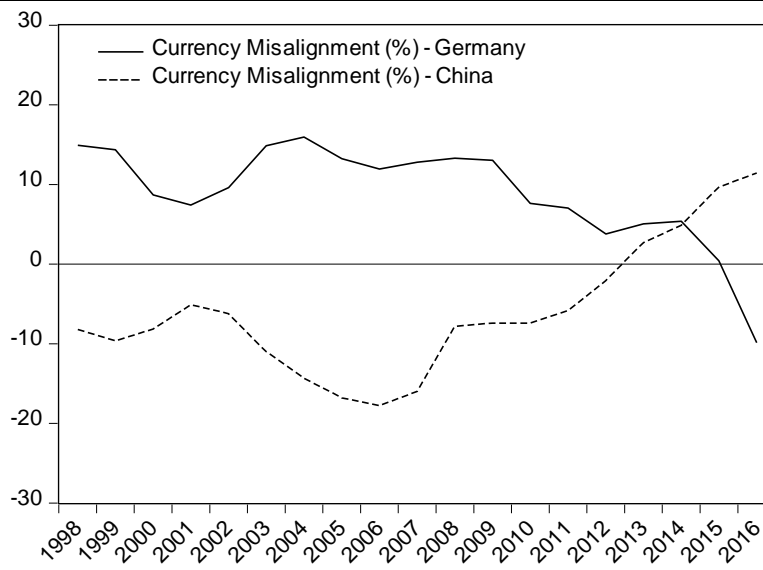Figure 1: Current Account Balances 2015 [bn. US$]
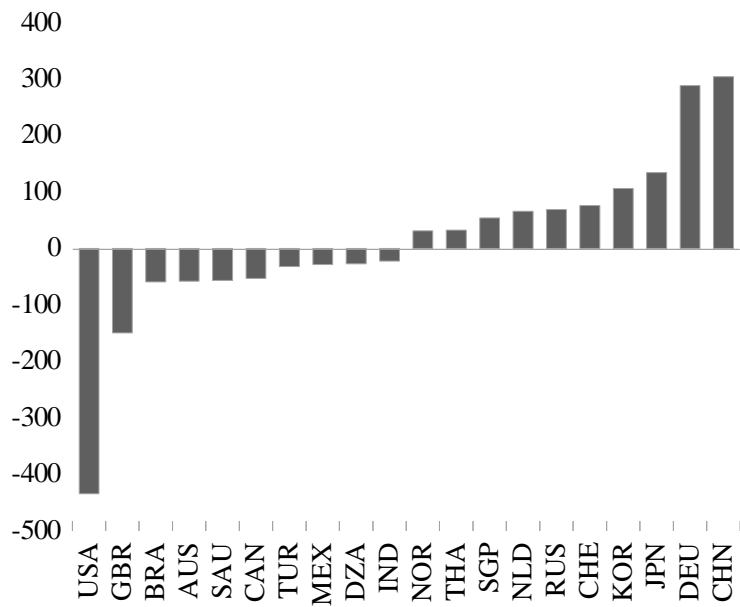
Note: The graph shows the countries with largest and smallest current account balances (bn. USD) in 2015. Data Sources: See Appendix A.

Figure 2: Current Account Balances – China vs. Germany
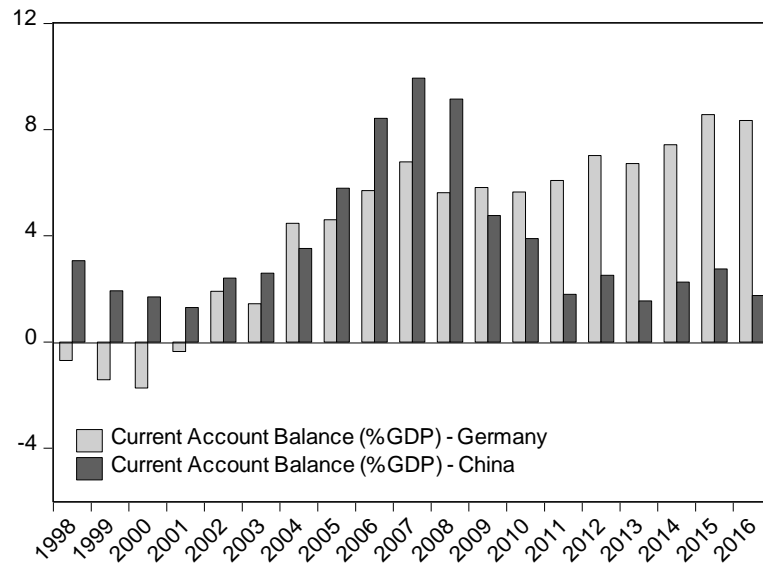
Data Sources: See Appendix A.

Figure 3: Currency Misalignment

Data Sources: See Appendix A.

37