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Merchanting and Current Account Balances*

Elisabeth Beusch, Barbara Döbeli,
Andreas Fischer† and Pınar Yeşin

Swiss National Bank, Boersenstrasse 15, PO Box, CH-8022 Zurich, Switzerland

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Abstract: Merchanting is goods trade that does not cross the border of the firm's country of residence. Merchanting grew strongly in the last decade in several small open economies, particularly in Finland, Ireland, Sweden, and Switzerland, and has become an important driver of these countries' current account. Because merchanting firms reinvest their earnings abroad to expand their international activities, this practice raises national savings in the home country without increasing domestic investment. This results in a significantly large current account surplus. To show the empirical links between merchanting and the current account balance, two exercises are performed in this paper using a sample of 53 countries during 1980-2011. The first exercise estimates the savings impact of merchanting countries in empirical models of the medium-term current account and shows that the presence of merchanting activity in a country indeed increases its current account balance by 3% on average. The second exercise shows that merchanting's impact on the country's current account is sensitive to firm mobility.

Keywords: Merchanting, industry dynamics, current account adjustment

JEL Classification Number: F10, F20, F32

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†Corresponding author information: email: andreas.fischer@snb.ch, telephone: +41 44 631 32 94, FAX: +41 44 631 39 80

1 Introduction

Merchanting can be considered as an offshore business. A merchanting firm purchases goods from a supplier abroad and sells these on to a buyer abroad without the goods entering or leaving the firm's country of residence. These goods do not undergo any transformation between purchase and resale, and remain in the ownership of the firm. Thus a merchanting firm acts as an intermediary between companies that produce a good and companies that demand the good, both located abroad, by providing storage and transportation. Because merchanting is common in commodity trading, merchanting and commodity trading are often used as synonyms. However, in practice, merchanting involves trading of many other types of goods as well. The difference between revenues from the sale of such goods abroad and the incurred expenses to acquire, store, and transport them is recorded as (net) merchanting.

Merchanting has recently become a significant economic activity in some countries. Figure 1 plots merchanting as a share of GDP since 1990 for the four currently-largest merchanting countries, namely Finland, Ireland, Sweden, and Switzerland. The figure shows that merchanting grew steadily after 2000 and continued to expand even during the financial crisis. The dynamics for Ireland are particularly striking: merchanting as a share of GDP grew rapidly from 1.7% in 2004 to 4.7% in 2010.

The growing importance of merchanting as an economic activity has also had an impact on the level, persistence, and composition of the current account. Because the traded goods never enter or leave the firm's country of residence, the receipts and expenses of this activity are not recorded under trade in goods. Instead, merchanting is recorded under trade in services component. For some countries, merchanting's growth has generated large shifts in its trade balance, and contributed to a sizable current account surplus.[1] Figure 1 also shows that merchanting displayed a large degree of per-

[1] In terms of Figure 1, Sweden's and Switzerland's current account with respect to GDP were 7.1% and 11.7% in 2011. For the other countries, the same numbers are Finland -0.7% and Ireland 0.1%.

sistence over time, and resisted the financial crisis well: A significant fall is not observed for merchanting. Current account balances that are driven by merchanting are thus also more persistent in their levels over time.[2]

This paper's objective is to show empirically that merchanting is an important driver of the current account and that firm dynamics can bring about rapid current account adjustment. Because merchanting firms reinvest their earnings abroad to expand their international activities, this practice raises national savings in the home country without increasing domestic investment. This results in a significantly large current account surplus. To show the empirical links between merchanting and the current account, two exercises are performed in this paper. The first exercise estimates the savings impact of merchanting countries in empirical models of the medium-term current account and shows that merchanting indeed increases the current account. The second exercise shows that merchanting's impact on the country's current account is sensitive to firm mobility.

These new empirical results for merchanting contribute to the international literature on external adjustment in two ways. A first contribution is to expand the list of determinants that explain medium-term current account behavior. The empirical model used in this study is closely related to empirical models in Chinn and Prasad (2003), Gruber and Kamin (2007, 2009), Chinn and Ito (2006, 2007, 2008), Lee et al. (2008), and Gagnon (2011). Using pooled regressions with cluster-corrected standard errors in a sample of 53 countries during 1980-2011, we show that merchanting increases the medium-term current account balance-to-GDP ratio on average by 3 percentage points. A second contribution is to show that the relocation of merchanting firms to other countries has large effects on a country's current account balance. The empirical results on firm mobility add to the growing literature on the interconnection between the fragmentation of firm activities in a globalized world and international macroeconomics.[3]

[2]The persistence of the current account driven by merchanting activity brings new challenges for global imbalances and external adjustment.

[3]This field is rapidly growing. Recent studies by Bems and Johnson (2012), Johnson and Noguera

The paper is organized as follows. Section 2 defines merchanting. The same section provides statistical evidence that shows merchanting's high level of persistence even during the financial crisis. Section 3 describes the empirical methodology and the data used in the panel regression models. Sections 4 presents the empirical results. Section 5 concludes.

2 Merchant trade: definitions and data

This section discusses definitional issues in its first subsection. The second subsection illustrates the fact that merchanting activity is diverse across countries and sectors on the basis of select merchanting countries in our sample. In a third subsection summary statistics are presented to motivate the empirical analysis in section 4.

2.1 Definitions

The IMF defines merchanting as the purchase of goods by a resident of the compiling economy from a nonresident combined with the subsequent resale of the same goods to another nonresident without the goods being present in the compiling economy, see the IMF Balance of Payments Manual, fifth edition (1993, pg.68).[4] The amount recorded under merchanting is the amount received by the domestic resident from the foreign customer less the amount paid by the domestic resident to the foreign goods provider. The net profit resulting from these two transactions is recorded as a positive export value of business services, while any net loss is recorded as a negative export value of business services. Hereafter, we refer to net merchanting simply as merchanting.

(2012), and Johnson (2012), for example, highlight the importance of capturing the microstructure of trade relationships to better replicate international business cycles. See also section 2.1 on further information regarding fragmentation of firm activities.

[4]In this paper, the analysis for merchanting uses the IMF BPM5 classification, which treats merchanting as a component of trade in services. See IMF (2008) for a discussion how changes in the Balance of Payments Manual from BPM5 to BPM6 will influence how merchanting is to be reported in national statistics.

Merchanting can arise from different sources and for any homogeneous tradeable good.[5] A traditional form of merchanting is commodity broking where the merchanting firm buys and sells the goods from third parties and trades at world prices. A different case is where merchanting is the result of the international fragmentation of production processes within a firm and reflects the organizational plans of a global multinational that locates merchanting services in one country while the underlying production and ultimate distribution is elsewhere. In this case, the income from merchanting ultimately accrues to the foreign multinational and transfer pricing strategies might generate a measured current account surplus.[6]

2.2 Characteristics of merchanting firms

Merchanting's growth benefited strongly from the expansion of the global supply chain. The fragmentation and relocation of production processes have played a crucial part in merchanting's development. Although we are unaware of any empirical study that examines the microstructural features of merchanting firms, several observations can be offered.

A first feature is firm mobility. Merchanting firms are actively targeted by several countries. Singapore, for example, created the Global Trading Programme in 2001. The intention is to attract mobile commodity trading houses with low taxes and light regulation.[7] Malaysia has a similar relocation program designed to attract 20 commodity trading firms by 2017. Firm relocation also explains why merchanting activities are concentrated in select cities: Dublin, Geneva, Hong Kong, Houston, London, and

[5] Computer chips, books, hazelnuts, chemical raw materials, crude oil are some examples.

[6] The same may hold for commodity traders that have vertically integrated production and distribution. The locational choice for merchanting services is often driven by tax optimization strategies. See Swiss National Bank (2012) for more information on merchanting.

[7] See for example the information under `http://www.rikvin.com/taxation/singapore-corporate-tax-rates/` (retrieved on 20 March 2013) as well as "Singapore's low taxes lure Trafigura," Financial Times, 22.5.2012.

Singapore.[8] This agglomeration can partially be explained by the tax environment of the merchanting countries. The average corporate tax rate is lower in countries where merchanting is prevalent compared to countries where merchanting is absent.[9].

A further feature of merchanting firms is the importance of international communication networks between buyers and sellers. This point is illustrated by Swiss merchanting. A large share of Swiss merchanting activity is in commodities. The possibility that a seafaring activity is conducted in a landlocked country stems from the fact that factors beyond transport costs matter: well established communication networks, the proximity of financial services, a non restrictive regulatory environment, and a flexible labor market.

Another feature of merchanting is that it is not concentrated in a specific sector across the globe. For example, in Switzerland, merchanting is concentrated in commodities, chemicals, and pharmaceuticals. In Finland, electronics and computers are the main merchanting activities, whereas in Ireland, publishing and chemical processing are important.[10] This heterogeneity across sectors makes it difficult to create a merchanting index that captures their activities across time.[11]

2.3 Properties of the data

The number of economies reporting merchanting has increased in recent years. Nevertheless, only 67 economies reported merchanting data to the IMF for 2010.[12] Some of the largest economies (including China, the United Kingdom, and the United States)

[8]Furthermore, merchanting is often highly concentrated among large firms. In the Irish case, the top ten companies account for approximately 70% to 80% of overall merchant trade in 2010 (Private correspondence with the Irish Central Bank.) Similar to Ireland, the eight largest merchanting firms are responsible for 70% of Switzerland's merchanting activity (see Beusch and Döbeli (2012)).

[9]See Table A2 in the Appendix

[10]This information is based on email exchanges with national authorities.

[11]The problem is further compounded by the fact that often national statistical agencies do not record merchanting's export destination or the activity's sector.

[12]Close to 200 countries reported balance of payments data to the IMF for that year. Among the 67 countries with merchanting data in 2010, 15 entries were identically zero.

and some likely important merchanting economies (including Hong Kong and Singapore) did not report merchanting data to the IMF.[13]

Following the existing literature on the determinants of the medium-term current account, such as Lee et al. (2008), we choose our sample consisting of 53 countries which would cover about 90% of the world GDP. The countries in our sample are listed in the Appendix. Within our sample, merchanting data is available only for 27 countries from the IMF BOPS in 2007.[14] Therefore we extend and expand the available data on merchanting by using data provided by central banks and/or national statistical offices. Thus our dataset has merchanting data for 35 countries in 2010. Still merchanting data on some important countries are missing in our sample.[15]

Figure 2 plots the merchanting-to-GDP ratio on the horizontal axis and the current account-to-GDP ratio in 2010 for these 35 countries with available merchanting data. The figure shows that merchanting is relatively small for most countries. However, in most countries with a sizeable level of merchanting activity, i.e., greater than 0.5% of GDP, merchanting seems to contribute to a sizeable current account surplus. We observe that the positive merchanting positions are large and concentrated among many small open economies with current account surpluses. By contrast, the negative merchanting positions tend to be small and are dispersed across many countries without a clear relationship with the current account. Based on these observations from Figure 2, our empirical analysis focuses on countries with a positive value in merchanting.

[13]Some countries provided data in the past but no longer do. Sweden and the Netherlands are a case in point. The problem of missing observations for the non reporting countries is compounded by an underreporting bias for those countries that do report. First, there is the problem of lagged reporting when new firms are identified to be engaged in merchanting activities. Second, not all merchanting firms are identified in the country BOP surveys. We do not attempt to correct for these problems, but note that these biases understate results presented in section 4.

[14]However, merchanting is identically zero for two countries.

[15]Hong Kong's Census and Statistics Department publishes data on the "gross margin involved in merchanting" as part of Hong Kong's offshore trade statistics. We however chose to not include this data because the high value (approx. 11% of GDP in 2011) and Hong Kong's trade links with China suggest that merchanting in Hong Kong is not comparable with merchanting as we understand it based on the Balance of Payments Manual.

Table 1 provides statistical information for the 13 countries that we call merchanting countries in the empirical section 4. These countries have had a merchanting-to-GDP ratio of 0.5% or higher for at least one year during our sample period 1980-2011. All measures in Table 1 are expressed as a share of GDP. The country rank for merchanting, shown in the first column, is based on the average merchanting value during 2008-2011. Next, the table presents mean, standard deviation, minimum, and maximum values for merchanting based on annual data from 2000 to 2011. Four countries have an average merchanting income greater than 1% of GDP. These are Finland, Ireland, Sweden, Switzerland. The standard deviations are small and do not show large discrepancies. The minimum values show that apart from Malaysia, all the merchanting countries register positive merchanting during 2000 and 2011.[16]

The last four columns of Table 1 show data on merchanting/GDP, goods balance/GDP, services (excluding merchanting)/GDP, and the current account/GDP for these countries. All figures are net balances for the year 2011. For Belgium and Finland, merchanting is larger than the goods and the service balance (excluding merchanting). The last column shows that almost all merchanting countries have positive current account/GDP ratios.

To motivate the empirical analysis in section 4, Figure 3 offers a descriptive observation as to whether merchanting mitigates adjustments in the trade balance in the merchanting countries.[17] It is generally believed that the trade imbalance can be corrected through external demand or exchange rate adjustments. To determine whether merchanting behaves similarly to other trade components, Figure 3 plots merchanting, trade in goods, and trade in services (excluding merchanting) for the last decade. Each series is expressed

[16]The IMF Balance of Payments Statistics includes values for Ireland for the years 2000 and 2001 (-1.1% and 0) too. Based on the information that the Central Statistics Office of Ireland only started to collect data on merchanting in 2004 we ignore these earlier values. It should also be noted that the Belgian time series includes breaks due to methodological changes from 2006 to 2007, and 2009 to 2010.

[17]The three observations for Luxembourg are not displayed but follow similar patterns as described further in the text.

in terms of net balances and as a ratio of GDP. For each country, merchanting is less volatile than the other two series. A striking feature of the three time series is that merchanting was hardly affected by the financial crisis (post 2007) or by the great trade collapse (2008-2009), whereas the other two series reveal temporary or even structural shifts. Figure 3 also offers additional information to the information offered in Table 1. It shows that merchanting has been increasing or stable over time for all countries for which merchanting is substantial according to our definition. Furthermore, it also shows a slow compositional shift from trade in goods towards merchanting in countries like Switzerland and Sweden.

The analysis on positive merchanting positions is also motivated by the linkages between export volatility and external savings.[18] For example, it is argued that volatile oil exports lead to an increase in precautionary savings, which results in a positive external balance.[19] By contrast, a visual inspection of Figure 3 suggests that merchanting firms' revenues exhibit a high level of persistence on the aggregate country level. While a smooth revenue stream may lower the need for precautionary savings, merchanting firms invest their earnings abroad to expand their activities. This structural feature of merchanting firms increases the savings-investment gap and thereby increases the current account surplus.[20]

A simple regression analysis supports the view that while the share of merchanting

[18] There is a large literature that examines the links between export income volatility and external savings. Recent examples include Cherif and Hasanov (2012) and Bems and de Carvalho Filho (2011).

[19] As a consequence, volatile export revenues of oil producing countries are often filtered out of empirical models of the medium-term current account. See in particular Lee et al. (2008), Chinn and Prasad (2003), Gruber and Kamin (2007, 2009), Chinn and Ito (2006, 2007, 2008), and Gagnon (2011).

[20] A further consideration for external adjustment, not pursued in this paper, is a firm's sensitivity to exchange rate movements. Bosworth and Collins (2010), Crane et al. (2007) , and Wren-Lewis and Driver (1998) highlight the observation that external adjustment through trade in services is slower than through trade in goods. The common view is that an exchange rate appreciation facilitates external adjustment to correct a trade surplus. Because a large share of merchanting activity brings together buyers and sellers of standardized products (i.e., commodities, microchips, etc) traded outside of the national borders, the volume of this service is heavily dependent on global demand and less on domestic currency movements. This means that merchanting should be less sensitive to exchange rate movements than say trade in goods.

is growing in some countries, it is also highly persistent. Table 2 presents panel AR(1) regressions for those 38 countries for which we have merchanting data. The coefficient for the lagged variable is considerably higher for merchanting (i.e., 0.82) than for trade in goods (0.72) and trade in services excluding merchanting (0.79). It is also important to note that the crises dummies for the years 2008 and 2009 are not significant for merchanting. This says that merchanting was not heavily influenced by the financial crisis. This is not true for the other trade components.

To highlight the smoothness of merchanting over the financial crisis, variances of the residuals from the AR(1) regression in Table 2 are presented in Table 3. In all periods considered, the variance of the residuals for merchanting is negligible compared to that of trade in services and that of trade in goods. In particular, during the post-crisis period the variance of the residuals for trade in services and trade in goods increased, while that of merchanting does not show a different behavior compared to the pre-crisis period.

The properties of increasing size and high persistence mean that merchanting does not behave like other components in the trade balance. These properties also imply that the current account balance of merchanting countries becomes more sticky. In other words, larger adjustments in either the exchange rate or external demand are needed to correct imbalances in the merchanting countries. These issues are analyzed more formally in the next sections.

3 Empirical methodology

The empirical framework used to estimate the medium-term determinants, i.e., four-year averages, on current account balances follows Lee et al. (2008). In this model, the pooled

regression is specified as follows:

$$CA_{it} = \alpha + \beta X_{it} + \gamma D_{it} + \epsilon_{it}, \tag{1}$$

where CA_{it} is the current account balance of country i expressed as a share of GDP for year t. Similarly, X_{it} is a vector of macroeconomic and demographic variables, D_{it} captures institutional or structural features through dummy variables, and ϵ_{it} denotes the residual. In our setup, equation (1) is extended to include merchanting:

$$CA_{it} = \alpha + \beta X_{it} + \gamma D_{it} + \rho M_{it} + \epsilon_{it}, \tag{2}$$

where M_{it} captures the merchanting activities of country i. Merchanting, M_{it} is a dummy: +1 if merchanting with respect to GDP $> 0.5\%$ in a particular year; otherwise 0. A threshold of 0.5% is used to capture merchanting effects of a certain volume. The impact effect is expected to be positive. The sample of 13 merchanting countries is given in Table 1.

The sample follows Lee et al. (2008) and covers 53 countries for the period 1980-2011.[21] The panel is unbalanced, meaning that for some variables the length of the series varies by country due to missing data. The Appendix lists the data sources and offers brief comments.

The macroeconomic and demographic variables, X_{it}, in equation (2) are standard in the literature and are briefly discussed next.[22] These variables include the fiscal balance, demographic determinants, net foreign assets (NFA), and economic growth. For the fiscal balance, it is assumed that a higher government budget balance raises national saving. This, in turn, increases the current account balance.[23] The fiscal balance in equation (2)

[21] See Appendix for a list of the countries.
[22] See also Appendix 2.1 in Lee et al. (2008) for further discussion of the database.
[23] Only in the case of Ricardian equivalence, where private saving fully offsets changes in public saving, is the link broken between government budget balances and current account balances.

is defined as the ratio of the general government budget balance to GDP in deviation from the average budget balance of trading partners: if the government budget balance improves in all countries, there would be a world-wide macroeconomic effect but little expected effect on the current account balance of each country.

The demographic determinants assume that a higher share of the economically inactive dependent population reduces national saving and decreases the current account balance. To proxy for this, Lee et al. (2008) include an old-age dependency ratio as well as population growth. The intention of the latter variable is to capture the share of economically dependent young people. Both demographic variables are measured in deviation from trading-partner averages and are expected to decrease the current account balance.

NFA enters as a determinant in equation (2). The assumption is that economies with a high NFA benefit from higher net foreign income flows, which tend to create a positive association between NFA and current account balances. The initial NFA position is used in equation (2) to avoid capturing a reverse link from the current account balance to NFA.

Economic growth is included for two reasons. If economies in the early stages of development have a greater need for investment, this is often financed through external borrowing. As developing economies grow and approach the income levels of advanced economies, their current account balances should improve. Alternatively, if countries are at a similar stage of development, the stronger economic growth relative to its trading partners should lower the current account balance.

Equation (2) includes two measures of growth. The first variable is the ratio of GDP per capita in purchasing power parity terms to the U.S. level, which Lee et al. (2008) define as relative income. This variable is assumed to measure the relative stage of economic development. The second growth variable is the deviation of the real per

capita GDP growth rate from its trading partner average. This variable is used to capture relative economic growth. In equation (2), the current account balance is expected to increase with relative income but to decrease with relative growth.

Equation (2) also includes countries' oil balance. Higher oil prices increase the current account balance of oil-exporting countries and decrease the balance of oil-importing countries. In equation (2), Norway is treated as a separate oil country because of its high level of intergenerational savings.

Several dummy variables, D_{it}, are included in equation (2) to capture country or industry specific features.[24] A dummy that controls for small open economies with large financial centers is included among others. The evidence in Lee et al. (2008) shows that financial centers tend to run substantial current account surpluses. This effect is captured with a dummy for the following countries: Belgium, Hong Kong, Luxembourg, the Netherlands, Singapore, and Switzerland.

Empirical evidence shows that crisis dummies have an impact even after controlling for a range of macroeconomic factors. Chinn and Ito (2006), Gagnon (2011), and Lee et al. (2008) show that economic crises tend to unleash strong current account adjustments as a by-product of macroeconomic contraction because of the reduced availability of international financing. Two sets of crises dummies are considered. The first dummy controls for the Asian crisis. Aizenman (2008) and others argue that Asian countries increased their precautionary savings after the Asian crisis to insure themselves against future crisis. This dummy acts as a levels shift. The second dummy captures episodes of banking crises. We use the Laeven and Valencia (2010) measure of international banking crises. The motivation is to capture temporary output losses that are linked to banking crises.

A last set of dummy variables control for aging societies and the introduction of the euro. These dummies have not been used extensively in the literature but do enter

[24]In the four year-averages the dummy is set to +1 if it takes value +1 in one of the four years.

the Lee et al. (2008) setup. The aging dummy is +1 for Germany, Italy, Japan, and Switzerland and 0 for the rest. This dummy treats the four aging societies as outliers. Further, we introduce a first euro dummy that takes value +1 for Germany starting in 1999 and 0 for all other countries, and a second euro dummy that takes value +1 for Greece, Portugal, and Spain, and 0 for all other countries. The intention here is to capture potential extreme countries within the currency union. In the specification where we replicate Lee et al. (2008) there is only one euro dummy with value +1 for Germany, -1 for Greece, Portugal, and Spain, and 0 for the rest.

4 The empirical impact of merchanting in medium-term CA models

This section presents the empirical results. The first set of results presented in subsection 4.1 show that merchanting is a robust determinant of the current account. Merchanting's impact effect of 3% in the baseline specification is sizable. Further robustness checks are presented in subsection 4.2. The regressions show that the results from 4.1 are not sensitive to different specifications of the merchanting dummy. The last set of results in subsection 4.3 consider the importance of firm relocation. The empirical findings show that the relocation of merchanting firms to a single economy does not weaken the empirical effect found for the baseline estimates.

4.1 Merchanting countries in medium-term current account models

Our baseline regressions of equation (2) are presented in Table 4. Column 1 shows regression estimates for the medium-term model as specified by Lee et al. (2008) without dummy variables. All the estimated coefficients are correctly signed, however the demographic and growth variables are statistically insignificant. Column 2 shows the same

regression but now adds the merchanting dummy. This variable has a coefficient of 0.04 and is statistically significant at the 1% level. This result says that the current account is increased by 4% for those countries that have merchanting income greater than 0.5% of GDP. In other words, merchanting increases the current account balance.

Next, the Asian crisis dummy is added to the specification. The regressions with and without the merchanting dummy are shown in columns 3 and 4. The regression estimates in column 4 show that merchanting unleashes almost the same level of external savings as the Asian crisis. Both dummies are highly statistically significant.

A further check is to determine whether merchanting holds up with other dummies that have been argued to be important. The regressions in columns 5 and 6 include the small financial centers dummy, the banking crisis dummy, the euro dummy, and the aging dummy. The regression in column 6 shows that the strength of these dummy variables is weakened once merchanting is introduced. For example, the dummy for small financial centers is no longer significant in column 6. The significance of the euro dummy is only significant at 10% level when merchanting is introduced. Similarly, the banking and the aging dummies never figure prominently with or without merchanting.

Another check is to compare the results in Table 4 with the estimates from Lee et al. (2008). For this exercise, we shorten our sample from 1980 to 2007 and consider the alternative specification in Lee et al. (2008) based on the lagged current account.[25] These results are given in Table 5. Columns 2 and 5 show that the merchanting dummy remains significant in the shortened samples for the NFA and the lagged capital account specification. Our estimates for the NFA specification in column 1 are close to the estimates of Lee et al. (2008) shown in column 3 under the IMF heading. The main difference in the coefficients is for population growth. In Lee et al. (2008), this coefficient is about six times smaller. Instead for the lagged current account specification shown in

[25]The Lee et al. (2008) sample is from 1973 to 2004. Hence, we are unable to fully replicate their results.

columns 4 to 6, there is the additional difference for the coefficient on the fiscal balance. Our estimates show that this coefficient is five times smaller and statistically insignificant compared to the estimates by Lee et al. (2008), which are reproduced in column 6.

4.2 Merchanting countries: robustness checks

In this subsection, alternative definitions of merchanting countries are shown to be robust in equation (2). The previous regressions were based on a single definition for merchanting countries, i.e., whether merchanting in a year is greater than 0.5% with respect to GDP. The regression results with alternative definitions of merchanting countries are presented in Table 6.

The regressions show that the volume of merchanting activity is important for its impact on the current account. The regressions in the first three columns define a dummy variable to equal one if a country reports positive or negative merchanting values at least once during the averaged 4 years. In each of these regressions, merchanting is not statistically significant. The regression in column 4 uses the definition from Table 4 with a threshold of 0.5%. It is reproduced for completeness. Next, in the regression shown in column 5, the threshold is increased from 0.5% to 1.0%. Here, there is no difference in the estimates between the regressions in columns 4 and 5. Similarly, the regression in column 6 augments the threshold to 2.0% with no change in the coefficient and in statistical significance. These results show that the definition used in Tables 4 and 5 is robust to higher threshold levels.

4.3 The relocation of merchanting firms

Merchanting is subject to firm relocation. In section 2.2, it was noted that several Asian countries seek to attract merchanting firms. In this section, we consider whether our previous estimates are robust to firm relocation and whether small and large countries are equally affected. The exercise assumes that global merchanting activity relocates

either to Singapore, a small country, or the United States, a large country, in 2004. For this purpose, we subtract the nominal values of merchanting from all countries' current account starting from 2004 onwards, as well as from their GDP. We add these values to the data of either Singapore or the US. Next, we calculate new merchanting/GDP ratios for all countries for 2004-2007 and 2008-2011. All other variables that enter the regression normalized by GDP are also adjusted accordingly. With these hypothetical data, we run the same regression as in section 4.1, and consider the impact of merchanting on the current account.

The relocation results show that merchanting affects the current account of both countries. More importantly, firm relocation to Singapore can increase the country's already large current account surplus. Alternatively, in the U.S. case, it can improve the country's trade balance and contribute to the narrowing of global imbalances.

Table 7 presents the regression results of firm relocation. The regressions show that if merchanting were to be concentrated in a single country starting from 2004 onwards, merchanting would still affect the current account of both countries. We begin with the baseline regressions of no relocation shown in columns 1 and 2. They are reproduced from Table 4. Again, they show that merchanting activity beyond a certain volume raises external savings by 3% on average. Next, the regressions in columns 3 and 4 show the impact of global merchanting relocating to the United States. The results show that the U.S. current account would improve by 2% if relocation occurred but the impact is statistically insignificant. Similarly, the regressions in columns 5 and 6 perform the same exercise for Singapore. The panel estimates in column 6 show that average external savings would increase by 7%.[26]

[26]The choice of the relation date 2004 was at a critical juncture of global merchanting. If the relocation date is set in 2008 instead of 2004, the impact is in the order of 5% and 3% respectively and significant for both countries.

5 Conclusion

Merchanting has become an important component in the current account for several countries. This activity grew steadily in the last decade because of the fragmentation of production processes. Merchanting proved to be crisis resistent, thus increasing a country's current account balance even at a time when global imbalances were temporarily shrinking. Panel regressions show that merchanting increases a country's current account by 3% with respect to GDP, about the size of precautionary savings stemming from the Asian crisis. Because many countries do not report merchanting activities, the estimated impact of merchanting on the current account balance is certainly larger.

The size and persistence of merchanting has changed the dynamics of a country's current account. Merchanting mitigates external adjustment in that it raises national savings without increasing domestic investment. The importance of merchanting in the medium-term current account models also has implications for the adjustment debate on global imbalances. Because merchanting is difficult to predict (i.e., poor data quality and firm relocation), this introduces a further source of uncertainty in studies by Cline and Williamson (2011), Lee et al. (2008), and others that make exchange rate assessments based on medium-term current account models.

The empirical evidence for merchanting supports several directions for future research. One avenue would be to develop a theoretical model that shows why merchanting improves the current account balance. A starting point would be to assume that large merchanting activity reflects temporary monopoly power in an intertemporal smoothing model. Another avenue that merits greater analysis is estimating merchanting's sensitivity to exchange rate movements. Our conjecture is that merchanting is less sensitive to real exchange rate movements, than say, is trade in goods. While several studies highlight the differences in exchange rate elasticities between goods and services, elasticities for merchanting across sectors have not been estimated.

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Appendix

Data description

Sample:

Algeria, Argentina, Australia, Austria, Belgium, Brazil, Canada*, Chile*, China*, Columbia, Croatia*, Czech Republic, Denmark, Egypt*, Finland, France, Germany, Greece, Hong Kong*, Hungary, Indonesia*, India, Ireland, Israel*, Italy, Japan, Korea, Luxembourg, Malaysia, Mexico, Morocco, New Zealand, Netherlands, Norway*, Pakistan, Peru*, Philippines, Poland, Portugal, Russia, Singapore*, Slovakia, Slovenia, South Africa*, Sweden, Switzerland, Spain, Thailand*, Tunisia, Turkey, Venezuela*, United Kingdom, United States*.

Countries denoted with a * have no available merchanting data during the sample period 1980-2011.

Merchanting Dummy:

Austria (**7**), Belgium (**3**), Denmark (**2**), Finland (**3**), France (**1**), Germany (**1**), Hungary (**2**), Ireland (**2**), Luxembourg (1), Malaysia (1), Netherlands (1), Sweden (**4**), Switzerland (**3**).

Note: The number of observations where the dummy is +1, i.e., when Merchanting/GDP $> 0.5\%$ is given in the parentheses. Numbers in bold denote a sequence of +1 dummy values that terminate with the final observation. For example, *Denmark (**2**)* denotes a dummy of +1 for the observation 2004-2007 and 2008-2011, otherwise the dummy is zero.

Table A1: Data and their sources

Variable	Source	Projection	Comment
Current account	IMF BOPS	WEO	Measured as ratio to GDP
GDP	WDI	WEO	Real GPD in 2000 USD.
Fiscal balance	WEO	WEO	General government net lending†
Old-age dependency ratio	UN	UN	Old-age dependency ratio (population between 30 and 64 as ratio to population > 65).†
Population growth	UN	UN	Population growth†
GDP growth	WDI	WEO	GDP growth (per capita, real LCU) †
Initial net foreign assets (NFA)	IFS, LM	IFS, LM	When NFA is missing in the Lane and Milesi-Feretti data, it is substituted with IFS data.
Oil balance, Norway	WDI	WEO	
Oil balance, others	WDI	WEO	Swiss oil balance is estimated for the projection (not contained in WEO).
Relative income	CGER	WEO	Relative income (ratio of per capita PPP GDP to US level, 2000 USD).
Merchanting	BOPS, other	BOPS, other	Missing BOPS data is replaced by central bank and statistical offices' data whenever possible.
Trade data:			
Non-oil and oil trade	DOTS, WDI		Total exports/imports from DOTS, fuel exports/imports from WDI.
Goods and services trade	UN		
Weights for global consistency calculation	DOTS		Own calculation
Weights for deviation from trading partner	UN		Own calculation
Dummy variables:			
Banking crisis	LV		Laeven and Valencia (2010) class. Borderline crises are not taken into account.
Asian crisis	Lee et al. (2008)		Asian crisis 1997-2011 1=emerging Asia countries as classified by IMF; 0=all other. See Lee et al. (2008).
Financial center	Lee et al. (2008)		1=Switzerland, Luxembourg, Hong Kong, Netherlands, Singapore, Belgium; 0=all other. See Lee et al. (2008).
Euro introduction	Lee et al. (2008)		1=Germany, -1=Portugal, Spain, Greece; 0=all other.
—— : Germany	own		1=Germany; 0=all other.
—— : Periphery	own		1=Portugal, Spain, Greece; 0=all other.
Aging population	Lee et al. (2008)		1=Germany, Switzerland, Japan, Italy; 0=all other.

† Measured in deviation of trading partner average.

Tax rates in merchanting countries

Average corporate tax rates have been lower in countries where merchanting has been prevalent compared to countries where merchanting has been absent. Between 2000 and 2010, the average corporate tax rate in the 12 merchanting countries in our sample was 25%, whereas for the non merchanting countries it was 30%. Table A2 below lists average and latest tax rates for merchanting versus no-merchanting countries. The (unweighted) average measure based on World Bank corporate tax rates understates the true difference between merchanting and non merchanting countries. Several countries, such as Hong Kong, Singapore, and the United States, which we define as non-merchanting country in the empirical analysis because of a lack of merchanting data, also have low corporate taxes. Further, for some countries, taxes for merchanting activity is considerably lower than the national corporate tax rates.

Table A2: Tax rates for merchanting countries

	Average 2000-2010		Latest year†	
	merchanting	no merchanting	merchanting	no merchanting
Profit tax[a]	-	-	13.81%	16.89%
Income, profit & capital gains tax[b]	25%	30.21%	23.52%	29.76%
Total tax rate[c]	45.11%	48.46%	43.52%	46.17%

Data is from the World Bank. Merchanting countries are defined in the appendix. No merchanting countries are 44 countries, i.e., the rest of the sample.

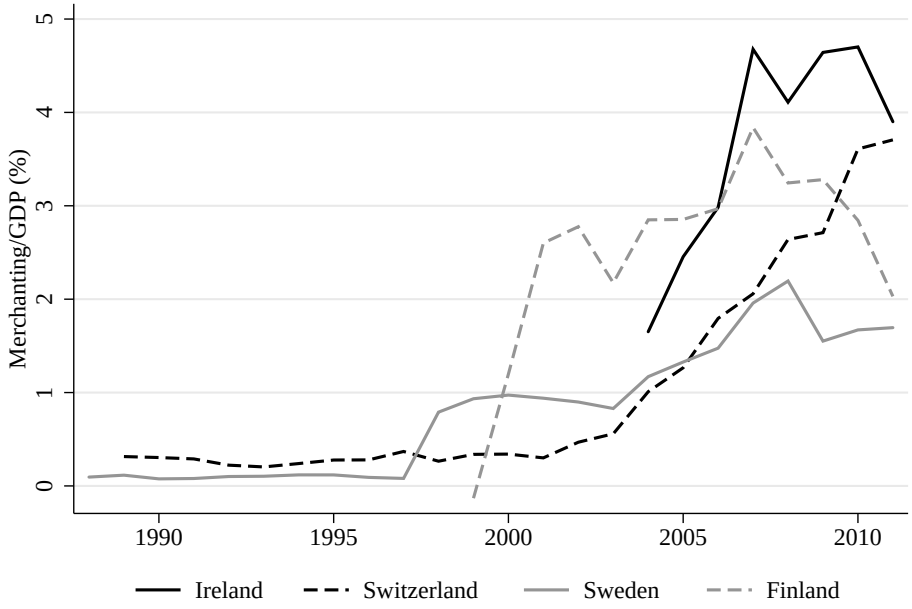
† 2010 values for income and total tax rate. 2011 for profit tax

[a] Profit tax in % of commercial profit.

[b] Taxes on income, profits and capital gains (measured as % of revenue) are levied on the actual or presumptive income of individuals, on the profits of corporations and enterprises, and on capital gains, whether realized or not, on land, securities, and other assets. Intra-governmental payments are eliminated in consolidation.

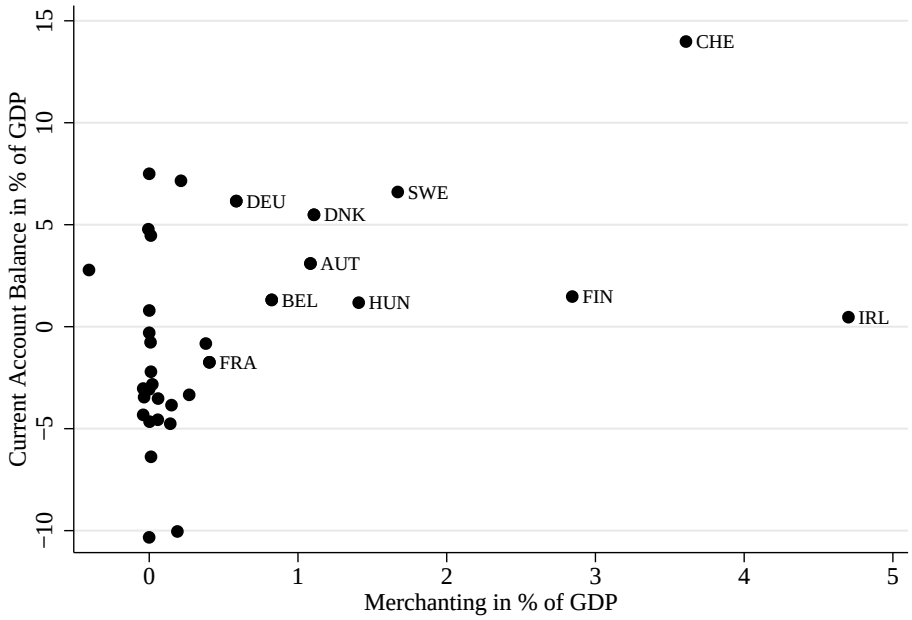
[c] Total tax rate (as % of profit) is the total amount of taxes payable by businesses (except for labor taxes) after accounting for deductions and exemptions as a percentage of profit.

Figure 1: Merchanting/GDP



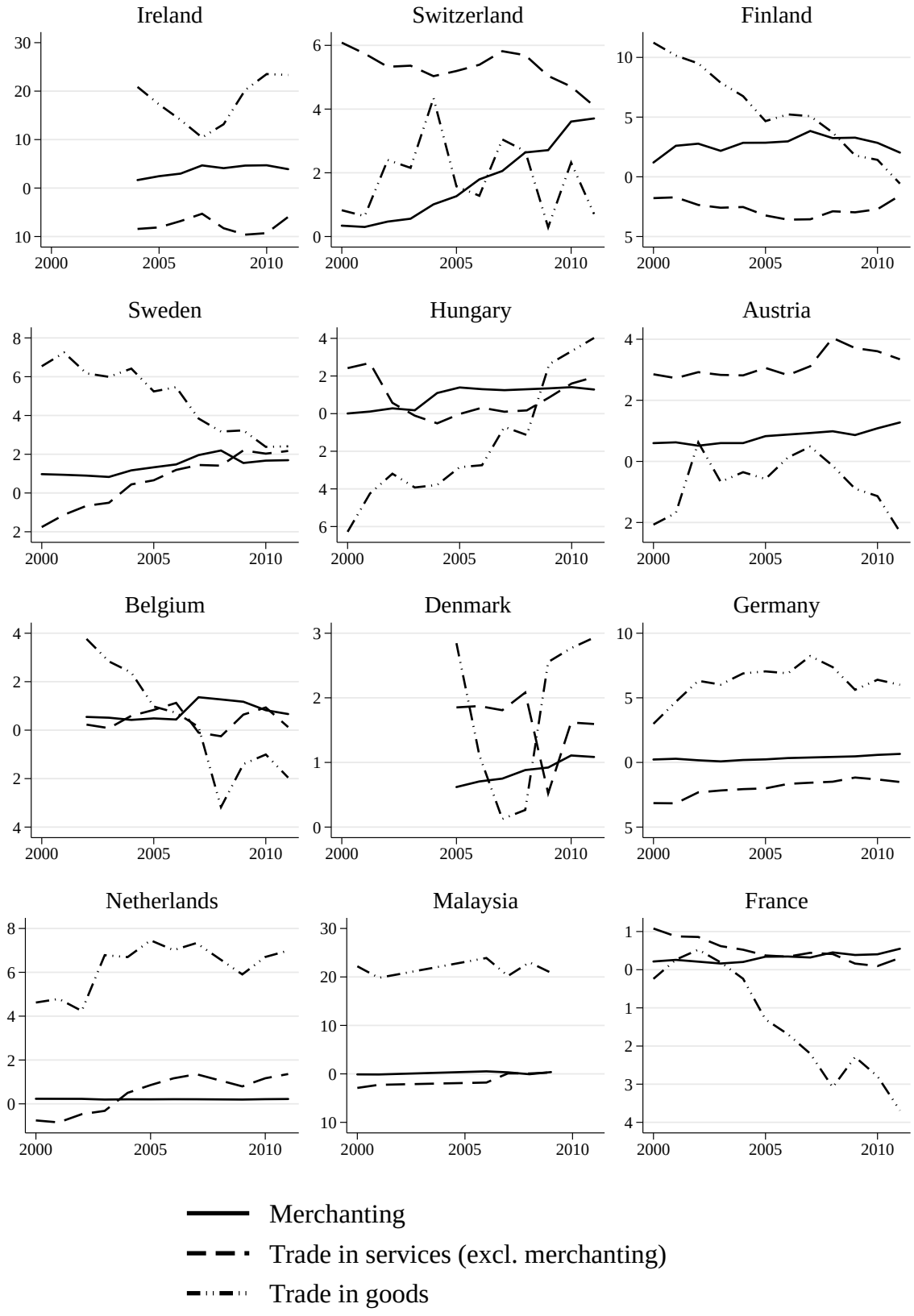
Source: IMF BOPS, national institutions, WDI

Figure 2: Merchanting/GDP and CA/GDP balances in 2010



Source: IMF BOPS, national institutions, WDI

Figure 3: Components of the current account in merchanting countries (% of GDP)



Source: IMF BOPS, national institutions, WDI

Table 1: Statistics for merchanting/GDP in countries with at least one observation crossing the threshold of 0.5%

		Merchanting during 2000-2011				**Merchanting**	**Goods**	**Services**‡	**CA balance**
Rank†	Country	Mean	Std. Dev.	Min	Max	As share of GDP (in %) **in 2011**			
1	**Ireland**	3.64	1.15	1.65	4.70	3.90	23.33	-5.95	0.07
2	**Switzerland**	1.71	1.24	0.30	3.71	3.71	0.71	4.10	11.65
3	**Finland**	2.72	0.68	1.20	3.84	2.03	-0.57	-1.57	-0.70
4	**Sweden**	1.39	0.44	0.83	2.19	1.70	2.41	2.17	7.11
5	**Hungary**	0.91	0.58	0.01	1.41	1.28	4.02	1.94	1.47
6	**Austria**	0.82	0.23	0.51	1.28	1.28	-2.31	3.34	1.91
7	**Denmark**	0.87	0.19	0.62	1.11	1.09	2.93	1.60	6.67
8	**Belgium**	0.77	0.36	0.42	1.36	0.66	-1.96	0.13	-0.73
9	**Germany**	0.34	0.17	0.08	0.66	0.66	6.01	-1.51	5.72
10	**France**	0.32	0.12	0.16	0.55	0.55	-3.69	0.31	-2.17
11	**Netherlands**	0.21	0.01	0.20	0.23	0.22	6.99	1.36	9.13
12	**Malaysia**[a]	0.16	0.28	-0.12	0.52	0.37	20.87	0.30	16.48
-	**Luxembourg**[b]	0.87	0.78	0.00	1.53	0.00	-10.42	38.18	11.99

Source: IMF BOPS, national institutions, WDI

† Rank for average Merchanting/GDP (2008-2011).

‡ Services excluding merchanting.

[a] Data for Malaysia available only for 2000, 2001, 2006-2009.

[b] Data for Luxembourg available only for 2002-2004

Table 2: AR(1) regression

Dependent variables⋆:	Merchanting†	Services‡	Goods
Own lag	0.83***	0.79***	0.72***
	[0.02]	[0.03]	[0.03]
Dummy for 2008	-0.00	-0.00*	-0.01*
	[0.00]	[0.00]	[0.00]
Dummy for 2009	-0.00	-0.00**	0.01***
	[0.00]	[0.00]	[0.00]
Time variable	0.00***	0.00**	0.00
	[0.00]	[0.00]	[0.00]
Constant	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]
Observations	585	585	585
Countries	38	38	38
R^2	0.768	0.632	0.525
R^2 overall	0.924	0.968	0.925
R^2 between	0.966	0.998	0.994

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

⋆ Variables all as ratio to GDP (WDI), annual data (1980-2011)

† The backbone of the underlying data is from the IMF BOPS. Data for merchanting is included/extended from national sources for Australia, Brazil, Denmark, Finland, Japan, Korea, Netherlands, New Zealand, Slovenia, Sweden, and Switzerland.

‡ Services excluding merchanting.

Table 3: Variance of residuals from AR(1) regressions

Variance of residuals	2000-2007	2008-2011	2000-2011
Merchanting	0.0000	0.0000	0.0000
Trade in services†	0.0001	0.0006	0.0001
Trade in goods	0.0004	0.0028	0.0005

† Services excluding merchanting.
Residuals are from the regressions shown in Table 2.

Table 4: Baseline CA Regressions (1980-2011)

VARIABLES	1	2	3	4	5	6
Fiscal balance	0.27***	0.26***	0.26***	0.24***	0.22***	0.21**
	[0.09]	[0.09]	[0.09]	[0.09]	[0.08]	[0.08]
Old age dependency ratio	-0.10	-0.10	-0.05	-0.05	0.02	0.01
	[0.07]	[0.07]	[0.07]	[0.06]	[0.07]	[0.06]
Population growth	0.07	0.14	0.17	0.25	0.49	0.55
	[0.75]	[0.79]	[0.72]	[0.75]	[0.72]	[0.76]
Initial NFA	0.06***	0.06***	0.05***	0.05***	0.03**	0.03***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Oil balance, Norway	0.18**	0.24***	0.17**	0.24***	0.27***	0.32***
	[0.08]	[0.08]	[0.08]	[0.08]	[0.08]	[0.08]
Oil balance, rest	0.21***	0.21***	0.27***	0.27***	0.30***	0.30***
	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]
Output growth	0.09	0.10	0.11	0.13	0.13	0.14
	[0.17]	[0.16]	[0.15]	[0.15]	[0.15]	[0.15]
Relative income	0.02	0.01	0.03**	0.02	0.02	0.01
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Banking crisis dummy					-0.00	-0.01
					[0.01]	[0.00]
Asian crisis dummy			0.05***	0.05***	0.05***	0.05***
			[0.01]	[0.01]	[0.01]	[0.01]
Financial centre dummy					0.03**	0.03
					[0.01]	[0.02]
Euro introduction dummy: Germany					0.02*	0.01
					[0.01]	[0.01]
Euro introduction dummy: Periphery					-0.04***	-0.04***
					[0.01]	[0.01]
Aging society dummy					0.01	0.02
					[0.01]	[0.01]
Merchanting/GDP>0.5%		**0.03*** [0.01]**		**0.04*** [0.01]**		**0.03*** [0.01]**
Constant	-0.00	0.00	-0.01	-0.01	-0.01	-0.01
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Observations	287	287	287	287	287	287
R^2	0.566	0.599	0.624	0.658	0.668	0.696

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1
Note: Sample includes years 1980-2011; four year averages; dependent variable is the CA/GDP ratio. See Appendix for variable definitions.

Table 5: Comparative CA regressions (1980-2007)

	initial NFA (1 to 3)			**lagged CA (4 to 6)**		
	own estimates		**IMF**	**own estimates**		**IMF**
VARIABLES	1	2	3	4	5	6
Fiscal balance	0.21**	0.21**	0.20***	0.04	0.04	0.19***
	[0.08]	[0.08]		[0.07]	[0.08]	
Old age dependency ratio	-0.05	-0.06	-0.14**	0.01	0.01	-0.12**
	[0.07]	[0.07]		[0.05]	[0.05]	
Population growth	-0.26	-0.18	-1.21***	-0.09	-0.05	-1.03
	[0.71]	[0.75]		[0.62]	[0.65]	
Initial NFA	0.04***	0.04***	0.02***			
	[0.01]	[0.01]				
Lagged CA				0.67***	0.64***	0.37***
				[0.06]	[0.06]	
Oil balance, Norway	0.28***	0.33***		0.25***	0.28***	
	[0.08]	[0.08]		[0.06]	[0.06]	
Oil balance, rest	0.33***	0.33***	0.23***	0.19***	0.20***	0.17***
	[0.05]	[0.04]		[0.04]	[0.04]	
Output growth	0.07	0.09	-0.21**	-0.11	-0.08	-0.16*
	[0.14]	[0.14]		[0.13]	[0.12]	
Relative income	0.01	0.00	0.02*	-0.00	-0.00	0.02*
	[0.01]	[0.01]		[0.01]	[0.01]	
Banking crisis dummy	-0.01*	-0.01	0.01*	-0.01*	-0.01	0.01
	[0.01]	[0.01]		[0.00]	[0.00]	
Asian crisis dummy	0.04***	0.04***	0.06***	0.03***	0.03***	0.04***
	[0.01]	[0.01]		[0.01]	[0.01]	
Financial centre dummy	0.03**	0.03*	0.03***	0.04***	0.04***	0.03***
	[0.01]	[0.02]		[0.01]	[0.01]	
Euro introduction dummy	0.01*	0.01		0.02**	0.01**	
	[0.01]	[0.01]		[0.01]	[0.01]	
Aging society dummy	0.01	0.02		0.01	0.01	
	[0.01]	[0.01]		[0.01]	[0.01]	
Merchanting/GDP>0.5%		**0.03****			**0.01****	
		[0.01]			**[0.01]**	
Constant	-0.01	-0.01		-0.00	-0.00	
	[0.01]	[0.01]		[0.01]	[0.01]	
Observations	234	234		220	220	
R^2	0.649	0.677	0.52	0.737	0.742	0.56

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1
Note: Sample includes years 1980-2007; four year averages; dependent variable is the CA/GDP ratio.

Table 6: Robustness of merchanting countries

VARIABLES	1	2	3	4	5	6
Fiscal balance	0.22***	0.23***	0.23***	0.21**	0.22***	0.22***
	[0.08]	[0.08]	[0.08]	[0.08]	[0.08]	[0.08]
Old age dependency ratio	0.02	0.02	0.02	0.01	0.02	0.02
	[0.07]	[0.07]	[0.07]	[0.06]	[0.06]	[0.07]
Population growth	0.49	0.53	0.53	0.55	0.54	0.43
	[0.73]	[0.72]	[0.72]	[0.76]	[0.74]	[0.74]
Initial NFA	0.03**	0.03**	0.03**	0.03***	0.03**	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Oil balance, Norway	0.27***	0.27***	0.27***	0.32***	0.30***	0.29***
	[0.08]	[0.08]	[0.08]	[0.08]	[0.08]	[0.08]
Oil balance, rest	0.30***	0.30***	0.30***	0.30***	0.30***	0.30***
	[0.05]	[0.04]	[0.05]	[0.04]	[0.04]	[0.04]
Output growth	0.13	0.13	0.13	0.14	0.13	0.13
	[0.15]	[0.15]	[0.15]	[0.15]	[0.15]	[0.16]
Relative income	0.02	0.02	0.02	0.01	0.01	0.01
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Banking crisis dummy	-0.00	-0.00	-0.00	-0.01	-0.01	-0.00
	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]
Asian crisis dummy	0.05***	0.05***	0.05***	0.05***	0.05***	0.05***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Financial centre dummy	0.03**	0.03**	0.03**	0.03	0.03*	0.03**
	[0.01]	[0.01]	[0.01]	[0.02]	[0.02]	[0.01]
Euro introduction dummy: Germany	0.02*	0.02*	0.02*	0.01	0.02*	0.02**
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Euro introduction dummy: Periphery	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Aging society dummy	0.01	0.02	0.01	0.02	0.02	0.01
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Merchanting/GDP>0	0.00		0.00			
	[0.01]		[0.01]			
Merchanting/GDP<0		0.00	0.00			
		[0.01]	[0.01]			
Merchanting/GDP>0.5%				**0.03*** **		
				[0.01]		
Merchanting/GDP>1%					0.03***	
					[0.01]	
Merchanting/GDP>2%						0.04**
						[0.01]
Constant	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Observations	287	287	287	287	287	287
R^2	0.669	0.669	0.669	0.696	0.686	0.681

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1
Note: Sample includes years 1980-2011; four year averages; dependent variable is the CA/GDP ratio.

Table 7: Relocation of merchanting activity in 2004

			Relocation			
	Benchmark		**to the USA**		**to Singapore**	
VARIABLES	1	2	3	4	5	6
Fiscal balance	0.22***	0.21**	0.23***	0.23***	0.23***	0.21***
	[0.08]	[0.08]	[0.08]	[0.08]	[0.07]	[0.07]
Old age dependency ratio	0.02	0.01	0.02	0.02	0.01	0.00
	[0.07]	[0.06]	[0.07]	[0.06]	[0.07]	[0.07]
Population growth	0.49	0.55	0.48	0.53	1.68	1.49
	[0.72]	[0.76]	[0.73]	[0.73]	[1.37]	[1.18]
Initial NFA	0.03**	0.03***	0.03**	0.03**	0.03*	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Oil balance, Norway	0.27***	0.32***	0.28***	0.30***	0.18	0.25**
	[0.08]	[0.08]	[0.08]	[0.08]	[0.12]	[0.10]
Oil balance, rest	0.30***	0.30***	0.30***	0.30***	0.30***	0.30***
	[0.04]	[0.04]	[0.04]	[0.04]	[0.05]	[0.05]
Output growth	0.13	0.14	0.13	0.13	0.45	0.39*
	[0.15]	[0.15]	[0.15]	[0.15]	[0.28]	[0.22]
Relative income	0.02	0.01	0.01	0.01	0.05	0.03
	[0.01]	[0.01]	[0.01]	[0.01]	[0.03]	[0.02]
Banking crisis dummy	-0.00	-0.01	-0.01	-0.01	-0.00	-0.00
	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]	[0.01]
Asian crisis dummy	0.05***	0.05***	0.05***	0.05***	0.06***	0.06***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]
Financial centre dummy	0.03**	0.03	0.03**	0.03**	0.03	0.02
	[0.01]	[0.02]	[0.01]	[0.02]	[0.02]	[0.02]
Euro introduction dummy: Germany	0.02*	0.01	0.02*	0.02*	0.02	0.02
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Euro introduction dummy: Periphery	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Aging society dummy	0.01	0.02	0.01	0.02	0.01	0.02
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Merchanting/GDP>0.5%		**0.03*** **		**0.02**		**0.07***
		[0.01]		**[0.01]**		**[0.03]**
Constant	-0.01	-0.01	-0.01	-0.01	-0.03	-0.03*
	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.02]
Observations	287	287	287	287	287	287
R^2	0.668	0.696	0.676	0.683	0.647	0.685

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

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