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Bilateral Imbalances in Europe*

Helge Berger

International Monetary Fund
and CESifo

Volker Nitsch

Technische Universität Darmstadt
and CESifo

Abstract

This paper examines the association between trade and financial linkages among European countries. We find that, with the introduction of the euro, trade imbalances among euro area members widened considerably, even after allowing for permanent asymmetries in trade competitiveness within pairs of countries or in the overall trade competitiveness of individual countries. Moreover, there is a significant relationship between patterns of trade and bilateral financial linkages, especially within the euro area; a surplus of a country in a bilateral trade relationship is typically accompanied by a country's positive net financial position vis-à-vis the respective partner country.

1. Introduction

The association between trade and financial linkages between countries has become a matter of growing dispute. A number of studies argue that international capital flows tend to follow trade patterns. Lane and Milesi-Ferretti (2008), for instance, find that bilateral equity holdings are strongly correlated with bilateral trade in goods and services. Similarly, Rose (2005) shows that sovereign debt renegotiations are typically associated with a decline in bilateral trade between the debtor country and its creditors. Martinez and Sandleris (2011), in contrast, question the pair-wise association between trade and finance; they argue that sovereign defaults are followed by a general decline in trade of defaulting countries which, moreover, appears to be particularly concentrated in bilateral relationships involving non-creditor countries.

In this short paper, we examine the association between trade and financial linkages in more detail. Following Berger and Nitsch (2010, 2011a, 2011b), we analyze pair-wise relationships between European countries, focusing in particular on (the evolution of) bilateral imbalances under different exchange rate regimes. Specifically, we ask: "Is there a consistent pattern which shapes trade and capital flows between countries after the introduction of the euro?"

In a series of recent papers, Berger and Nitsch (2010, 2011a, 2011b) explore differences in a country's value of shipments to and from a particular partner. Acknowledging that there is no economic reason to assume that a bilateral trade relationship should necessarily be balanced, they aim to identify empirically potential determinants of the direction and dominance of pair-wise trade patterns. In fact, the emergence of large and persistent trade imbalances is often interpreted as prima facie evidence of underlying rigidities or distortions, an argument that dates back at least to Friedman's (1953) case for flexible nominal exchange rates. Building on this idea, Berger and Nitsch examine the formation of the European Economic and Monetary Union as an experiment to study the effects of exchange rate invariability (and other inflexibilities) on trade imbalances.[1]

Berger and Nitsch (2010, 2011a, 2011b) find that trade imbalances—measured as the fraction of deficits and surpluses in total bilateral trade—have indeed widened considerably

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[1] With the adoption of a common currency, 11 European countries irrevocably fixed their bilateral exchange rates on 1 January 1999.

between euro area member countries after the introduction of the euro. Moreover, since their analysis often controls for various sets of country-specific and pair-wise fixed effects, the estimates indicate that the larger imbalances are not (only) the result of enduring asymmetries in trade competitiveness between a given pair of countries or the consequence of changes in the institutional framework, financing conditions, or trends in the competitiveness of specific countries against all others. Finally, they establish that intra-euro area imbalances have become more persistent, which can be partially linked to labor market inflexibility.

In this paper, we extend Berger and Nitsch's (2010, 2011a, 2011b) analysis by additionally reviewing financial imbalances between countries. In particular, we use a newly available detailed data set on external financial assets and liabilities to examine the direction and dimension of imbalances in financial positions among European countries. More importantly, we examine the association between pair-wise imbalances in trade and capital flows.

Previewing the results, we find a significant relationship between patterns of trade and bilateral financial linkages; a surplus of a country in a bilateral trade relationship is typically accompanied by an improvement in the country's net financial position vis-à-vis the respective partner country. This finding indicates that exporting countries often directly finance (part of) its exports. Moreover, the association is particularly strong for euro area member countries.

More generally, our empirical results are consistent with economic mechanisms which have been previously described to be at work in the euro area. For instance, it has been shown that, with the introduction of the euro, the integration of euro area financial markets has increased, associated with a relative expansion in intra-euro area borrowing; see, among others, Schmitz and von Hagen (2009). However, while previous work emphasizes corresponding changes in trade and capital flows within the euro area at the country level, we show that these findings also hold for pair-wise relationships. As a result, any decrease in pair-wise differences among countries (that is, real convergence) should be associated with a decline in imbalances.

The remainder of the paper is organized as follows. Section 2 describes the empirical methodology and the data. Section 3 presents the results. Finally, we summarize our findings in a brief concluding section.

2. Methodology and Data

In our empirical analysis, we aim to identify country pair-specific features that help explaining the occurrence of a surplus or deficit in bilateral trade, potentially including the pair-wise financial position. Following Berger and Nitsch (2010, 2011a, 2011b), therefore, our key variable of interest is the bilateral trade balance between a reporter country r and a partner country p, defined as the difference between r's exports to p and r's imports from p in a given year t. To account for differences in the importance of a trade relationship both across partners and over time, we normalize the trade surplus or deficit by the total value of bilateral trade:[2]

(1) $\text{TradeBalance}_{rpt} = (\text{Exports}_{rpt} - \text{Imports}_{rpt}) / (\text{Exports}_{rpt} + \text{Imports}_{rpt})$.

Accompanying this measure, we define a complementary variable for bilateral financial linkages. Since no information on gross financial flows (the determinant) is available (to us), we initially use the stocks of pair-wise assets and liabilities:

(2) $\text{FinancialBalance}_{rpt} = (\text{Assets}_{rpt} - \text{Liabilities}_{rpt}) / (\text{Assets}_{rpt} + \text{Liabilities}_{rpt})$.

Similar to the measure of the bilateral trade position, this variable may take values ranging from -1 to 1, with 0 representing a balanced net international investment position between a pair of countries r and p. Accordingly, we interpret changes in this measure over time (Δ FinancialBalance$_{rpt}$ = FinancialBalance$_{rpt}$ - FinancialBalance$_{rpt-1}$) as (normalized) net financial flows, which capture variations in the dominance of a partner in a pair-wise financial relationship.

Our regressions then take the following general form:

(3) $\text{TradeBalance}_{rpt} =$

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[2] Given our interest in the symmetry of trade relations, normalizing by total trade is the natural choice (rather than, for instance, normalizing by country size). Larger magnitudes of the variable of interest indicate greater imbalances in bilateral trade.

$$\alpha + \beta\, Z_{rpt} + \{+ \Sigma_t\, \phi_t\, T_t\}\ \{+ \Sigma_{rp}\, \phi_{rp}\, RP_{rp}\}\ \{+ \Sigma_{rt}\, \phi_{rt}\, R_{rt}\}\ \{+ \Sigma_{pt}\, \phi_{pt}\, P_{pt}\} + \varepsilon_{rpt}\ ,$$

where the regressand is the normalized trade balance (of which we use the absolute value for some analyses), Z is the variable of interest (mainly the measure of bilateral financial linkage), and ε is the disturbance term. We also include various combinations of fixed effects. In our baseline specification, we use common time fixed effects {T} to control for joint variations in trade imbalances over time. We also allow pair-wise imbalances to consistently deviate from the sample average by adding pair-specific fixed effects {RP}. Finally, we replace the common time effects by country time fixed effects for both reporter {R} and partner {P} countries to capture any dynamic country-specific features that could affect the countries' overall trade position, including changes in the institutional environment, trends in country-specific competitiveness, or changes in the ease with which trade imbalances can be financed.[3] Given the comprehensiveness of the set of fixed effects, this constitutes a fairly strong test of the hypothesis that the variable of interest indeed influences the level of trade imbalances.

While the various sets of fixed effects help controlling for many (potentially unobserved) factors, we take the degree of exchange rate flexibility explicitly into account. As a result, we start by examining the effect of the Economic and Monetary Union (EMU) or euro area membership on bilateral trade imbalances. At a later stage, when examining the role of financial imbalances (for which data for the pre-euro period is missing), we partition our sample by exchange rate regime.

In line with previous work on the effects of EMU on trade (Berger and Nitsch, 2008), our analysis focuses on a homogeneous set of 18 European countries. The approach has the advantage of including countries which either share the European Union's (EU) institutional framework or are closely associated with it. The sample comprises the 15 countries which were member of the EU at the time of the introduction of the euro (eleven of which adopted the currency from the beginning, followed by Greece in 2001) plus Iceland, Norway and

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[3] Examples for changing institutional arrangements captured by time fixed effects include the country-specific effects of the "Single Market" initiative but also pre-EMU exchange rate arrangements. Arguably, the introduction of the euro has eased the financing of trade deficits through tighter financial integration and, for some countries, through the decline of real interest rates. Time fixed effects will also capture any systematic decline in (real) exchange rate volatility.

Switzerland. Moreover, in the spirit of Berger and Nitsch (2008), we analyze the longest possible sample, such that the sample period is essentially determined by data availability.

Our key source of data is the International Monetary Fund's *Direction of Trade Statistics* from which we obtained nominal values of bilateral exports and imports on an annual basis. Since country r's trade balance with p is typically not identical to p's inversely-signed trade balance with r (e.g., because of different statistical valuation methods for exports and imports), we analyze the full sample of bilateral imbalances.[4] Our trade data set is augmented, if possible, with information on bilateral external financial assets and liabilities (except reserves and derivatives[5]), provided by Waysand, Ross and de Guzman (2010). While the Waysand, Ross and de Guzman data set represents a great improvement compared to previous efforts to document financial inter-linkages among European countries, the database has, for our purposes, also a few shortcomings. Data for Iceland and Norway is missing, effectively reducing our sample to 16 countries. More notably, the database starts in 2001, which implies that no comparison of the pre-/post-euro episode is possible, thereby making the identification of potential euro effects difficult. Finally, the data set ends in 2008, preventing any analysis of current account adjustment during the global financial crisis as provided, for instance, by Lane and Milesi-Ferretti (2011).

3. Empirical Results

3.1 Bilateral Trade Imbalances

We begin by examining our measure of bilateral trade imbalances in more detail. Figure 1 graphs the evolution of (aggregate) absolute trade imbalances over the full post-war period. Two observations stand out. First, the sample average trade imbalance consistently exceeds the median imbalance, indicating that the distribution could be dominated by a few disproportionately large imbalances between country pairs. Indeed, some bilateral trade relationships are characterized by one-directional trade flows and, thus, high imbalances, especially for small countries (such as Iceland, Ireland, and Greece). Second, median and

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[4] Restricting the sample to only one observation per country pair requires a decision on which observation to analyze and which to ignore. In our sensitivity analysis, we experimented with a number of approaches and found most results to be reasonably robust. For example, including only one observation per country pair while dropping any observations where pair-wise balances differ by more than 10 percentage points between the two reporting countries delivers results quite similar to those tabulated below.

[5] For most countries, reserves and financial derivatives represent less than 10 percent of total assets and liabilities; see Waysand, Ross and de Guzman (2010, p. 53).

mean imbalances display the same U-shaped pattern over time. There have been relatively large bilateral trade imbalances in the Bretton Woods era, followed by a period of moderate imbalances in the 1970s and 1980s, and a renewed increase in imbalances since the mid-1990s. Taken at face value, this pattern is consistent with the hypothesis that a fixed exchange rate regime is associated with larger trade imbalances.

To further analyze this issue, Figure 2 shows the trade balances of various groups of countries over the same period. Specifically, we distinguish between trade relationships for which exchange rates were fixed with the introduction of the euro (intra-EMU trade) and trade pairs for which nominal exchange rates remained flexible (i.e., trade between EMU countries and non-members as well as trade between non-members). Interestingly, the U-shaped pattern applies most strongly to trade between EMU member countries, while trade between non-members displays no clear tendency over time. Trade imbalances between EMU member countries and non-members show a similar but less pronounced U-shape. A possible explanation is that the external value of the euro, while flexible for the euro area as a whole, cannot adjust to individual (and possibly opposing) member country needs.

Following Berger and Nitsch (2010), we show that regression analysis strongly confirms the association between the exchange rate regime and trade imbalances. Table 1 presents the benchmark estimation results. We begin with the most parsimonious specification of equation (3), a regression of the absolute value of bilateral trade imbalances on an EMU membership dummy and a comprehensive set of year fixed effects. As shown in the first column on the left of the table, the estimated β coefficient on the EMU variable is positive and, with a t-statistic of 2.1, significantly different from zero at the 5 percent level; the point estimate of about 0.018 implies that trade imbalances between euro area member countries are on average about 2 percentage points larger than for the rest of the sample. In the next column, we add a comprehensive set of pair-wise fixed effects to our specification so that the EMU coefficient now captures only the time variation in the trade imbalance for EMU member countries after the adoption of the euro. The estimated coefficient not only remains positive and significant, but almost doubles in magnitude to 0.033. This suggests that euro area member countries have experienced an increase in their bilateral trade imbalances with other euro area members by an average of more than 3 percentage points since the adoption of the common currency, which appears large compared to a sample mean of about 0.3. Controlling instead for time-variant country-specific features in the reporter and partner country leaves the

estimation result basically unchanged. As shown in column 3, the estimated effect of euro area membership on trade imbalances remains positive, statistically highly significant, and economically sizable.

The final three columns on the right of Table 1 further generalize these results. The regressions add a dummy variable for the presence of a fixed (or unchanged) exchange rate between two countries other than euro area membership, along with the p-value of a t-test for similarity of the estimated coefficients. While the estimates of the EMU effect on trade imbalances are unaffected by this extension, the coefficients on the variable for other fixed exchange rates vary strongly across specifications. The estimated coefficient is positive and significant when only common time fixed effects are included, possibly reflecting some large imbalances in the immediate post-World War II period. After controlling for pair-wise fixed effects, however, the coefficient falls in magnitude and becomes statistically indistinguishable from zero; it even changes sign (but remains insignificant) for the specification with country time fixed effects.

3.2 The Role of Bilateral Financial Linkages

Our main focus, however, is on the association between trade imbalances and bilateral financial linkages. Berger and Nitsch (2010, 2011a) identify a number of country-specific and country pair-specific determinants of bilateral trade imbalances, the effect of most of which has intensified with the adoption of the euro. Here, we ask: "Do pair-wise patterns in trade typically mirror in bilateral flows of capital?"

Unfortunately, limited data availability seriously restricts our analysis of this issue. Data on bilateral financial linkages between European countries is only available from 2001 onwards (i.e., after the introduction of the euro), so that no comparison of the pre-/post-euro episode is feasible. Therefore, to deal with this issue, we stratify the sample by exchange rate regime and estimate separate regressions by regime, thereby following Lane and Milesi-Ferretti (2011) and Chinn and Wei (forthcoming), among others.

As before, we begin our exploratory analysis with some graphical evidence. Figure 3 provides graphs analogous to Figures 1 and 2 for the now sizably reduced and shortened sample. While bilateral trade imbalances among euro area countries have (further) increased after the introduction of the euro, the change has been, on average, relatively modest, which

may be not too surprising given the short sample period. Moreover, trade imbalances among non-EMU countries, though considerably smaller, seem to display largely similar dynamics, suggesting that differences in the variation of trade imbalances over time are small.

Figure 4 presents the analogues for our stock measure of bilateral financial linkages. Interestingly, almost identical patterns, both qualitatively and quantitatively, are observed: net positions are particularly large among EMU member countries (again in the order of about 0.3), and average imbalances have been largely unchanged over time, with a slight upwards tendency.

In view of the relative stability of (average) bilateral imbalances over time, Figure 5 explores the cross-section variation in financial and trade imbalances in more detail. The figure contains scatter plots of bilateral trade balances against net investment positions, separately for country pairs inside the euro area and for pairs that include (at least) one partner outside EMU. While there is a link between trade and financial flows at the transaction level (e.g., trade finance), there is a priori no reason to expect a similar association at the aggregate level. As shown, however, we observe a positive relationship between the two measures, which is particularly strong for euro area countries. Within the euro area, a country with a large trade deficit vis-à-vis a particular partner (in relative terms) is typically also a sizable debtor country vis-à-vis this partner (again in relative terms).

Table 2 presents accompanying regression results. The three columns of the table report estimation results for different groups of countries, with increasing degrees of exchange rate flexibility when moving from left to right. Moreover, each row in the table tabulates the results from a different estimation specification, so that, in total, coefficient estimates from 9 separate regressions are reported.

Again, we begin with the most parsimonious specification of equation (3), allowing for year-specific intercepts only. For this specification, which explores the association between the two imbalance measures in cross section fashion, the coefficient on the bilateral net investment position for countries which use the euro as their national currency is positive and statistically highly significant, as shown in the upper left cell of the table. The estimate of about 0.6 indicates a remarkably strong association between a country's dominance of a pair-wise relationship with a partner country in both trade and finance. Moreover, the association

between trade and financial imbalances appears to gradually decline for country pairs with more flexible exchange rate regimes; in fact, the point estimate falls to 0.07 and becomes statistically indistinguishable from zero for pair-wise trade involving currencies other than the euro. In sum, the results strongly confirm our previous visual findings.

Since the observed association between trade and financial imbalances among euro area countries may be shaped by pair-specific characteristics other than the common currency (such as, for instance, bilateral distance), we next run bivariate regressions which additionally include a comprehensive set of pair-wise fixed effects (along with year fixed effects). While there is (still) no association between trade and financial imbalances outside the euro area, the estimated coefficients for trade pairs that involve at least one of the euro area countries fall sizably in magnitude and even change sign. Taken at face value, these findings suggest that the (exceptionally strong) bilateral association between trade and finance among euro area countries is indeed (fully) captured by the pair-wise fixed effects. Instead, within the euro area, bilateral net investment positions and trade balances have rather tended to move into opposite directions, for whatever reason, perhaps because deficit countries have turned to alternative sources of financing.[6] To further investigate this issue, we examine (in unreported tests) the changes in the variables of interest in more detail and also run the regressions country by country. It turns out that the aggregate estimation results are exclusively determined by one country, Finland. Over the period from 2001 to 2008, Finland has recorded an often dramatic improvement in its net investment position vis-à-vis all euro area member countries (except France), while at the same time experiencing a decline in its trade balance (except for trade with Spain). Once we control for Finland, the association between trade and financial imbalances becomes significantly positive again; an appendix tabulates the detailed regression results.[7]

Results for the most demanding regression specification, in which we additionally control for country-specific determinants of bilateral trade imbalances, are reported in the bottom panel of Table 2. Not surprisingly, in this set-up, investment positions are no longer measurably associated with trade imbalances.

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[6] For instance, the evidence seems to be broadly consistent with Chen, Milesi-Ferretti and Tressel (2011) who argue that growing external trade deficits of some euro area member countries (with non-European countries) have been partly financed by euro area creditors.
[7] In another sensitivity check, we also experiment with the exclusion of Germany. This perturbation, however, leaves all our estimation results basically unchanged.

In another exercise, we replicate the regressions for our alternative measure of financial imbalances, the year-on-year change in the (normalized) net investment position between a pair of countries. Although presumably more volatile, this measure should allow identifying the linkage between bilateral trade and capital flows more directly.

Table 3 presents the results. As before, we tabulate three sets of results (derived from different estimators) for the three groups of country pairs. Not surprisingly, given the potential noise in short-term fluctuations of the net investment measure, evidence from the cross-section analysis is generally weak. Still, as shown in the upper part of the table, the coefficients take the expected positive sign if a pair includes at least one euro area member country. However, only the estimate for trade with non euro area countries is statistically different from zero.

Next, we apply the within estimator, which relies on the time-series variation of our net flow measure across pair-wise means. Consistent with our findings for the net international investment positions (i.e., stocks), we find a strong positive association between pair-wise trade and financial linkages among euro area member countries; an improvement in the bilateral trade balance is typically accompanied by an improvement in the bilateral investment position. As before, this finding indicates that exporters have mainly tended to finance their exports within the euro area, an association that is not observed for country pairs using different currencies.[8] Overall, our results indicate a measurable association between trade and financial linkages between countries under a fixed exchange regime.

IV. Conclusion

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[8] In unreported results, we use both the level and the change in the net international investment position jointly as regressors and also control for trade persistence. The results remain qualitatively unchanged by these perturbations.

In this paper, we provide consistent evidence that imbalances in trade among euro area member countries have widened markedly after the introduction of the common currency. Moreover, this increase went along with growing discrepancies in net international investment positions, especially within in the euro area. Although bilateral relationships need not necessarily be balanced, a surplus of a country in a bilateral trade relationship is typically accompanied by a country's positive net financial position vis-à-vis the respective partner country.

The paper adds to a number of recent findings in Berger and Nitsch (2010, 2011a, 2011b) on the mechanisms of trade imbalances adjustment policies in a currency union. Specifically, it is argued that any turnaround in the trade account is likely to go along with measurable shifts in investment flows. Interestingly, Lane and Milesi-Ferretti (2011) report suggestive evidence that official external assistance (e.g., funds and loans provided by international institutions) has indeed recently cushioned the scale of current account adjustment in countries with a pegged exchange rate by partly offsetting the exit of private capital flows.

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Figure 1: Bilateral Trade Imbalances over Time
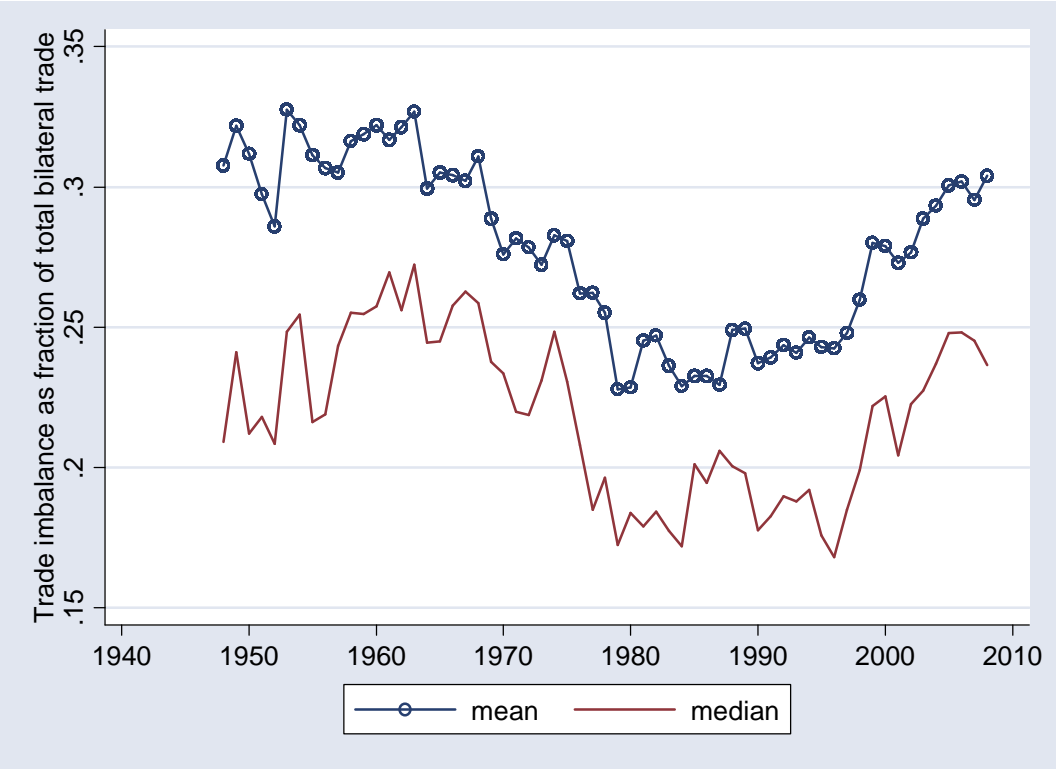
Notes: The figure graphs the absolute difference between a country's exports and imports with a partner as a fraction of total bilateral trade (exports plus imports) for a sample of 18 European countries. Data are taken from the IMF's Direction of Trade Statistics.

Figure 2: Bilateral Trade Imbalances by Group of Country Pairs
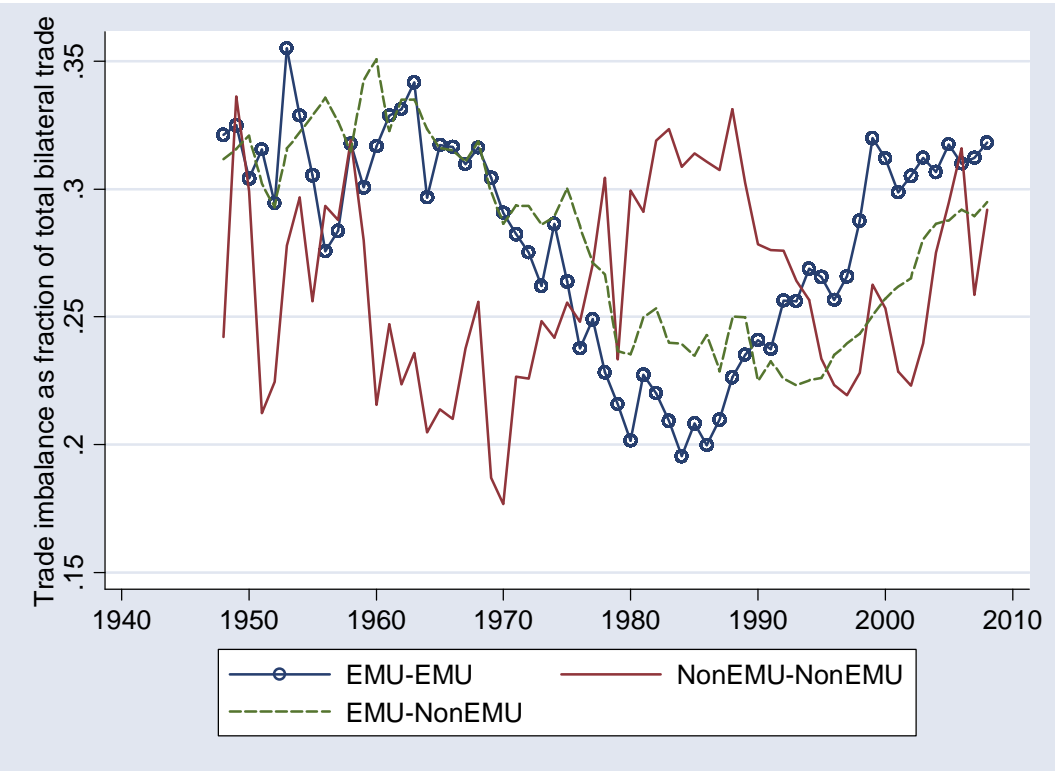
Notes: The figure graphs the average absolute difference between a country's exports and imports with a partner as a fraction of total bilateral trade (exports plus imports) for various groups of country pairs. Data are taken from the IMF's Direction of Trade Statistics.

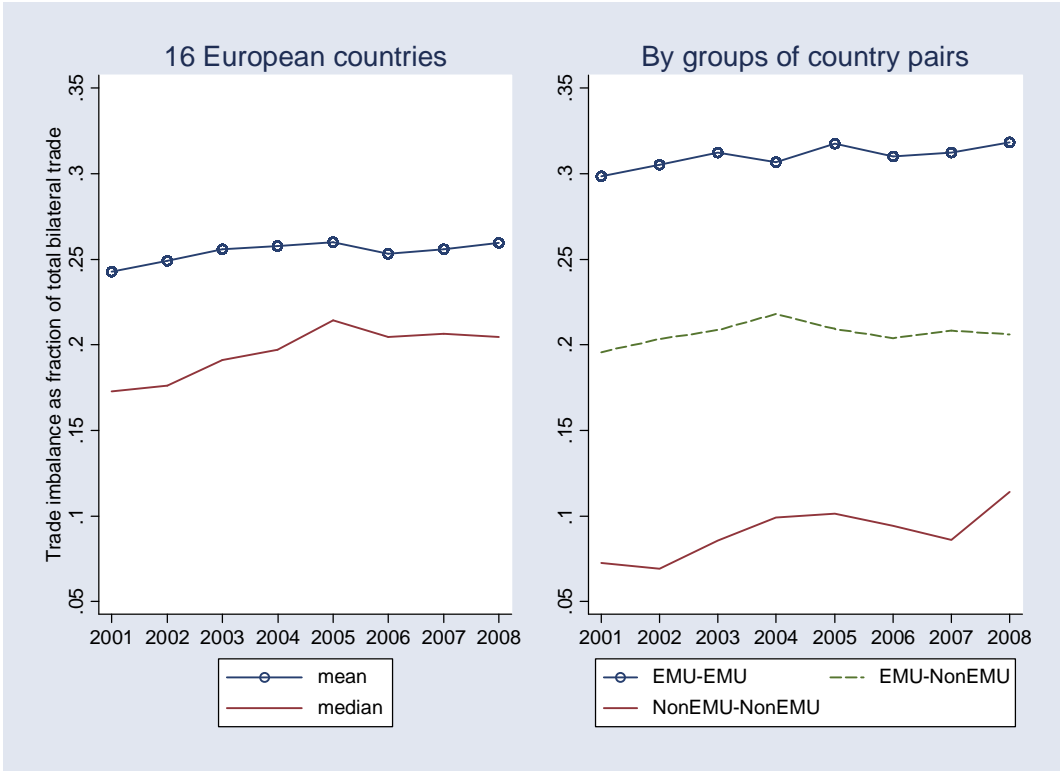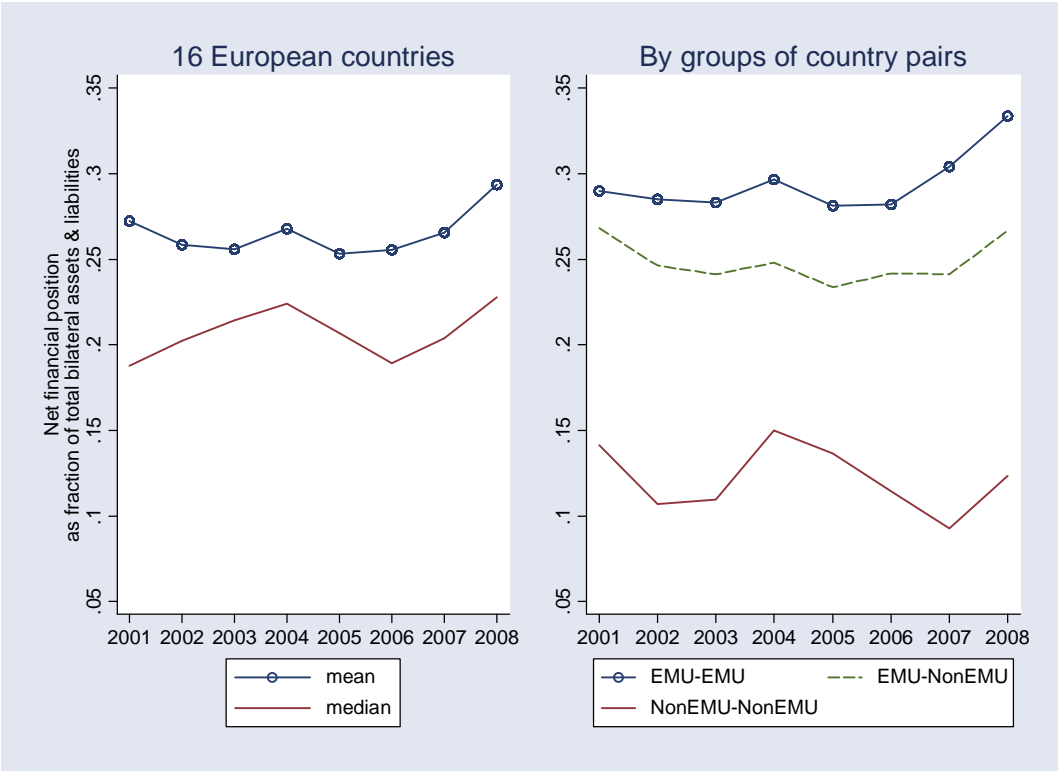**Figure 3: Bilateral Trade Imbalances, 2001-08**

Notes: The figures graph the absolute difference between a country's exports and imports with a partner as a fraction of total bilateral trade (exports plus imports) for a sample of 16 European countries (left) and for various (sub-)groups of country pairs (right). Data are taken from the IMF's Direction of Trade Statistics.

Figure 4: Bilateral Financial Linkages, 2001-08

Notes: The figures graph the absolute difference between a country's external assets and liabilities vis-à-vis a partner as a fraction of total bilateral gross positions (assets plus liabilities) for a sample of 16 European countries (left) and for various (sub-)groups of country pairs (right). Data are taken from Waysand, Ross and de Guzman (2010).

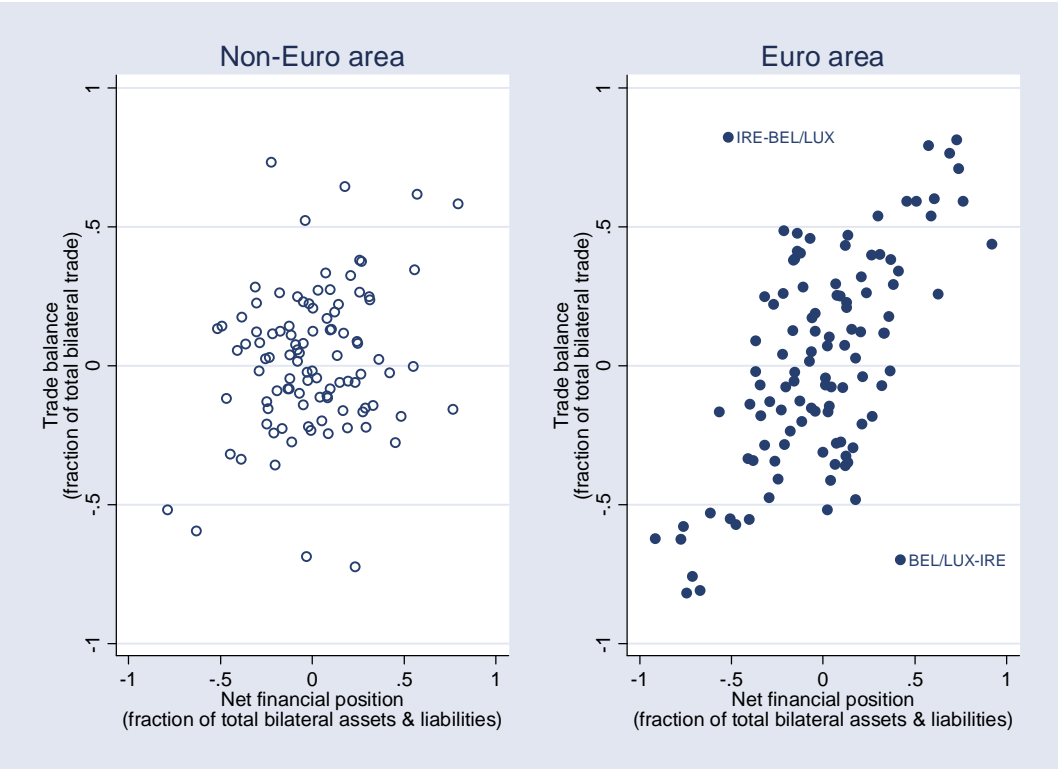**Figure 5: Trade Imbalances and Financial Linkages, 2005**

Table 1: Trade Imbalances under Fixed Exchange Rate Regimes

EMU	0.018* (0.009)	0.033** (0.007)	0.035* (0.015)	0.020* (0.009)	0.033** (0.007)	0.035* (0.016)
Other fixed exchange rate				0.090** (0.009)	0.010# (0.006)	-0.004 (0.010)
Common time fixed effects?	Yes	Yes	No	Yes	Yes	No
Pair-wise fixed effects?	No	Yes	Yes	No	Yes	Yes
Country time fixed effects?	No	No	Yes	No	No	Yes
Number of observations	16,491	16,491	16,491	15,939	15,939	15,939
Adj. R^2	0.02	0.53	0.63	0.02	0.53	0.64
P-value: EMU=Other fixed				0.000	0.015	0.039

Notes: OLS regression. Dependent variable is the absolute trade imbalance as a fraction of total bilateral trade. Robust standard errors are reported in parentheses. **, * and # denote significant at the 1%, 5% and 10% level, respectively.

Table 2: Financial Position and Trade Imbalances by Group of Country Pairs

Sample	EMU	Outside EMU	No EMU country
Period	**2001-2008**	**2001-2008**	**2001-2008**
	Time fixed effects		
Net investment position	0.609** (0.027)	0.149** (0.040)	0.066 (0.067)
Adj. R^2	0.35	0.02	0.00
	Time and pair-wise fixed effects		
Net investment position	-0.051* (0.024)	-0.032# (0.017)	-0.003 (0.073)
Adj. R^2	0.97	0.96	0.69
Net investment position	0.050* (0.021)	-0.027 (0.019)	-0.003 (0.073)
Net investment position × Finland	-0.319** (0.042)	-0.044 (0.045)	
Adj. R^2	0.97	0.96	0.69
	Pair-wise and time-varying country fixed effects		
Net investment position	-0.020 (0.022)	-0.040* (0.020)	0.017 (0.130)
Adj. R^2	0.97	0.96	0.62
Number of observations	880	704	96

Notes: OLS regression. Dependent variable is the trade imbalance as a fraction of total bilateral trade. Robust standard errors are reported in parentheses. **, * and # denote significant at the 1%, 5% and 10% level, respectively.

Table 3: Financial Linkages and Trade Imbalances by Group of Country Pairs

Sample	EMU	Outside EMU	No EMU country
Period	**2001-2008**	**2001-2008**	**2001-2008**
	Time fixed effects		
Δ Net investment position	0.070 (0.143)	0.198* (0.084)	-0.011 (0.092)
Adj. R^2	0.00	0.00	0.00
	Time and pair-wise fixed effects		
Δ Net investment position	0.076** (0.027)	0.039# (0.022)	-0.008 (0.057)
Adj. R^2	0.97	0.96	0.71
	Pair-wise and time-varying country fixed effects		
Δ Net investment position	0.045# (0.025)	0.029 (0.021)	0.034 (0.138)
Adj. R^2	0.98	0.96	0.63
Number of observations	770	616	84

Notes: OLS regression. Dependent variable is the trade imbalance as a fraction of total bilateral trade. Robust standard errors are reported in parentheses. **, * and # denote significant at the 1%, 5% and 10% level, respectively.

Appendix:

Sample	EMU	Outside EMU	No EMU country
Period	**2001-2008**	**2001-2008**	**2001-2008**
	Time fixed effects		
Net investment position	0.636** (0.031)	0.214** (0.042)	0.066 (0.067)
Net investment position × Finland	-0.154** (0.059)	-0.624** (0.069)	
Adj. R^2	0.36	0.07	0.00
	Time and pair-wise fixed effects		
Net investment position	0.050* (0.021)	-0.027 (0.019)	-0.003 (0.073)
Net investment position × Finland	-0.319** (0.042)	-0.044 (0.045)	
Adj. R^2	0.97	0.96	0.69
	Pair-wise and time-varying country fixed effects		
Net investment position	0.021 (0.021)	-0.029 (0.022)	0.017 (0.130)
Net investment position × Finland	-0.187** (0.054)	-0.080 (0.052)	
Adj. R^2	0.97	0.96	0.62
Number of observations	880	704	96

Notes: OLS regression. Dependent variable is the trade imbalance as a fraction of total bilateral trade. Robust standard errors are reported in parentheses. **, * and # denote significant at the 1%, 5% and 10% level, respectively.