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EMPIRICAL EVIDENCE ON EXCHANGE RATE VARIABILITY AND TRADE[29]

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Abstract: *There exists a large body of literature with studies that have found a significant effect of variability of exchange rate on trade. However, these studies refer to the major floating currencies. When taking account of the existing empirical data, researchers have found no convincing effect of exchange rate variability on trade. The exchange rate risk is relevant to the firms and is not always hedged. The effect of exchange rates on trade must exist but probably it was too small to be detected in the available surveys. Moreover, the insignificance of exchange rate volatility as an explanatory variable of foreign trade for developed countries can be justified by the fact that its effects are transmitted through various channels which may be even opposing. At the same time, simulations of theoretical models suggest that, despite small quantitative impact of exchange rate variability on trade, the switch to floating rates might reduce considerably the welfare of traders. This result is in line with opinion surveys of businesses, which consider that exchange rate uncertainty has adverse effects on trade and investment.*

However, empirical tests focusing on emerging countries have shown a significant and negative pattern between exchange rate volatility and trade. Thus, the results contrast with those referring to developed countries, which is probably due to the relative underdevelopment of hedging instruments on currency markets.

Keywords: *Exchange rate variability, Trade, Common Currency*
JEL: *F62, F1, F31*

INTRODUCTION

Exchange rate variability and its connection to trade has been an open issue for lots scientists in recent years. There numerous scientific works with often contradictory outcomes. This paper will make an attempt to find out the causes for those discrepancies taking into account mainly, but not only the historical data available for the EMU starting with the introduction of the Euro, its use and influence on trade of the member states. There is an open question whether currency unions which offer no exchange rate volatility by default bring the optimal solution to enhancement of trade and thus prosperity.

EXPOSITION

Empirical evidence on exchange rate variability and trade

Frankel and Rose (Frankel, 2002) study the effects of currency unions on trade and income, employing a two-stage approach. In the first stage, using a conventional "gravity model", they find that being part of a currency union triples trade with the other currency union members. Moreover, the authors find no evidence of trade diversion.

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McCallum (McCallum, 1995) and Helliwell (Helliwell, 1998), who noticed that Canadian provinces are ten to twenty times more inclined to trade with each other than with US states, after holding constant for distance and size.

First of all, Frankel and Rose make it clear that the method they employed for the estimation of effects of currency union on trade cannot tell how long should it take to reach these large outcomes. In addition, as much of the literature on currency unions points out, the decision to adopt a common currency could be endogenous, that is the observed currency links and trade links could be both determined by a third factor.

The previous results were criticized, among other aspects, on econometric grounds, suggesting that, in order to assess the potential effect of EMU in Europe, one should rely on time series rather than cross-sectional variation. Moreover, Blanchard (Blanchard, 1989) remarked that observations of currency union accounted for less than 1 percent of the sample and they were referring mainly to small and poor countries and dependencies.

In response to this criticism, Rose et al. (Rose, 2001) consider the role of multilateral trade barriers when estimating the effect of currency union on bilateral trade. They define trade barriers as being factors that tend to affect negatively the trade between two countries like customs, exchange rate volatility, and the cost of transport (distance) between two countries. The authors use, instead of the bilateral trade barrier, *the ratio* of the bilateral trade barrier to the average multilateral trade barrier as a determinant of trade between a pair of countries. Consequently, if a country forms a currency union with another country (or group of countries) which was a main trading partner, then both the bilateral and multilateral trade barriers decrease, so the relative trade barrier is not strongly affected.

However, the significant correlation found between trade and growth cannot be interpreted as causality, due to problem of simultaneity bias. A solution to this identification problem is offered in the study of Frankel and Rose (Frankel, 2002) mentioned earlier. The authors use the exogenous regressors from the gravity model to construct an instrument for the actual trade in the output equation. They found that every one percent increase in the overall trade (relative to GDP) raises income per capita by at least one third of percent. Combined with the estimate of currency union on trade mentioned in the previous section, the results of Frankel and Rose support the hypothesis that currency unions may have important beneficial effects through the promotion of trade.

Concerning the stimulus on investment that a decrease in exchanger rate variability may have, the economic theory does not offer a clear answer. On the one hand, since investors are not very diversified internationally and a significant proportion of trade is not hedged, risk-averse firms should increase their investment in case of a reduction in exchange rate risk. On the other hand, changes in exchange rate represent not only a risk, but also an opportunity to make profits. Thus, when the exchange rate is more variable, the probability of very favorable exchange rates and therefore high profits increases; at the same time, this is not matched by an equivalent probability of high losses, only somewhat lower profits. Consequently, higher exchange rate variability offers on average the opportunity for higher profits.

The relationship between exchange rate uncertainty and investment was subject of a large amount of empirical analysis, which has found very little support for it. Thus, as De Grauwe (P., 2013) remarks, the increased variability of exchange rates does not seem to have very significant effect on investment. A theoretical explanation for this is that the reduction in exchange rate uncertainty may not necessarily reduce the systemic risk. Less exchange rate uncertainty may be compensated by greater uncertainty elsewhere, for example output and employment uncertainty. As a result, firms operating in a greater monetary zone may not on average operate in a less risky environment.

Although the impact of a more stable exchange rate arrangement on investment is, from the theoretical point of view, uncertain, in the case of CEE countries the adoption of Euro has to be considered in the broader context of EU enlargement. Accordingly, it can be expected that EU membership will reduce the likelihood and severity of financial contagion. However, the exposure to foreign currency crises will be removed only by adopting the Euro.

The study of (Affuso, 2023) attempted to determine a relationship of causality between the adoption of a common currency and its impact on consumer welfare. They used a Difference-in-

Differences Quadratic Almost Ideal Demand System with staggered treatment that varies in time across treated cohorts. The model is estimated using a panel of 29 EU member countries from 1996 to 2022. In an observational study setting, considering the adoption of the euro as a treatment given to different group cohorts, the estimated model was used to simulate the compensating variation before and after the intervention. The study suggests that the average annual per capita consumer welfare cost of the common currency could range between 1.13% and 2.26% post-adoption across cohorts. The findings point out that European policymakers need to extend the monetary union to include a fiscal union "that could design policies to protect the welfare of citizens of the Eurozone".

A recent study (Campbell, 2023) estimates the impact of CUs (currency union) on trade and finds a noisy zero. A dummy-variable matching approach was adopted to compare the evolution of trade between pairs of countries that have joined a CU and found that CUs have a small effect on trade.

The adoption of the euro (Ferrari, 2023) has increased trade and financial linkages among member states due to higher price stability and the absence of the exchange rate risk. The common currency has, however, deprived the member states of an independent monetary policy and of the possibility to react against idiosyncratic shocks. The introduction of the Euro has not altered the shock absorption through international channels of risk sharing. It has severely affected consumption smoothing through private savings in the periphery countries of the EMU. This implies that there should be more political measures to distribute the private credits uniformly in the EMU in an effort to respond to asymmetric shocks.

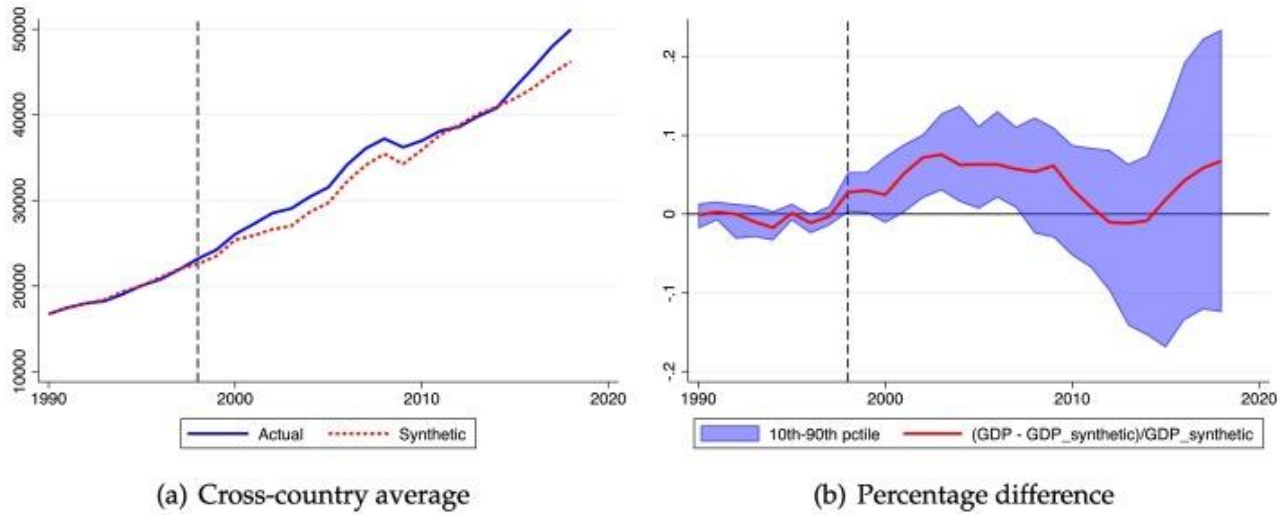

Fig. 2. GDP in euro area countries; Source: (Ferrari, 2023)

The figure depicts that there is a positive correlation between GDP growth following the adoption of the euro. Panel (a) displays those countries with euro demonstrate higher GDP per capita (blue line) than without the euro (red line). Panel (b) plots the cross-country average of the actual GDP change from its synthetic counterpart (red line), along with the 80 central percentiles (blue area).

The complete lack of exchange rate variability offered by currency unions like the EMU is not always flawless. Recent scientific works show dynamics in the acceptance and perception of a common currency like the Euro (being a common currency in the EMU). For example, once the Euro was admitted, the readiness to observe the EU norms decreases. The worst backsliding can be observed in the countries where the euro adoption project had not commenced yet, and thus, it did not extend the period of external pressure-driven compliance. The national pride over Slovakia's success in earning EA membership was cooled down very fast after recognizing that the rights and benefits of the EA come hand in hand with obligations and costs (Bod, 2021). The Greek crisis provoked to establish a provisional fund for assistance (European Financial Stability Facility –

EFSF) in 2010. However, the Slovak population was reluctant to contribute to helping a mature EU state like Greece.

Support for the euro in new Member States (% of respondents)								
	2006		2010		2015		2020	
	For	Against	For	Against	For	Against	For	Against
Bulgaria								
A	–	–	46.1	41.6	42.0	46.0	42.0	49.0
B	–	–	72.0	18.0	51.0	31.0	48.0	36.0
Croatia								
A	–	–	–	–	42.0	47.0	53.0	41.0
B	–	–	–	–	46.0	40.0	57.0	29.0
Czechia								
A	44.3	39.9	36.1	59.4	30.0	63.0	36.0	57.0
B	–	–	83.0	7.0	54.0	36.0	52.0	37.0
Hungary								
A	40.7	40.6	41.8	36.6	53.0	38.0	60.0	30.0
B	–	–	86.0	8.0	56.0	30.0	58.0	22.0
Poland								
A	43.0	39.1	36.4	50.3	39.0	53.0	47.0	46.0
B	–	–	78.0	13.0	58.0	28.0	54.0	31.0
Romania								
A	–	–	58.3	32.1	59.0	32.0	53.0	27.0
B	–	–	84.0	5.0	40.0	42.0	50.0	34.0

Source: A-B: Flash Eurobarometer No. 191, No. 307, No. 418, No. 487; C: AHK (Auslandshandelskammer) Survey 2018, 2015, 2010 (Europobarometer, 2023)

The numbers included in Table 1 are the aggregated numbers of responses for the question "Do you think the introduction of the euro would have positive or negative consequences for you personally?" The survey was made among the residents and the values can be seen in rows *"A"*. In rows *"B"* managers' opinions are aggregated from the respective countries concerning support to the introduction of euro. The percentage of responses indicated in the table includes *"very positive"* plus *"rather positive"* as 'for'; while *"very negativ*e" plus *"rather negative"* as 'against'. Sum of *'for'* and *'against'* is less than 100% because of *"don't know"* or *"no opinion"* options.

In its more than 20 years of existence, the euro has become a symbol of European integration (Regling, 2023). While it is still an ongoing project, it has provided a foundation for euro area member states to achieve stability and economic growth. Safeguarding financial stability is an important element of the European Stability Mechanism's work. We believe that a stronger euro – underpinned by a solid banking and capital markets union – would not only be advantageous for the euro area but for the global financial system as a whole.

CONCLUSION

The analysis of the data has found no convincing effect of exchange rate variability on trade in those countries, that have strong financial systems which hedge any exchange rate risks. However, Canadian enterprises tend to trade with other Canadian counterparts rather than with those in neighboring USA, although the distances might be equal. The exchange rate risk is relevant to those enterprises that do not use hedging techniques. Empirical tests focusing on emerging countries have shown a significant and negative pattern between exchange rate volatility and trade. Thus, the results contrast with those referring to developed countries, which is probably due to the relative

underdevelopment of hedging instruments on currency markets. At the same time, simulations of theoretical models suggest that, despite small quantitative impact of exchange rate variability on trade, the switch to floating rates might reduce considerably the welfare of traders. This result is in line with opinion surveys of businesses, which consider that exchange rate uncertainty has adverse effects on trade and investment.

REFERENCES

Affuso, E. B. (2023). "The Welfare Impact of Euro on European Consumers". *Finance Research Letters, Elsevier, vol. 56(C).* .

Blanchard, O. Q. (1989). The Dynamic Effects of Aggregate Demand and Supply Disturbances. *American Economic Review*, 655-673.

Bod, P. P. (2021). Varieties of Euro Adoption Strategies in Visegrad Countries Before the Pandemic Crisis. *AKJournals*, 519–550. doi:https://doi.org/10.1556/032.2021.00038

Campbell, D. C. (2023). Breaking badly: The currency union effect on trade. *Journal of International Money and Finance*, vol. 136.

Europobarometer. (2023, 09 23). *https://data.europa.eu/data/datasets/s2056_418_eng?locale=en*. Retrieved from https://data.europa.eu.

Ferrari, A. P. (2023). Risk Sharing and the Adoption of the Euro. *Journal of International Economics*, vol. 141.

Frankel, J. R. (2002). An Estimate Of The Effect Of Common Currencies On Trade And Income. *The Quarterly Journal of Economics*, 437-466.

Helliwell, J. (1998). *How much do national borders matter?* . Washington: Washington, DC : Brookings Inst. Press.

McCallum, J. (.-U. (1995). National Borders matter: Canada-US Regional Trade Patterns. *American Economic Review*, 615-623.

P., D. G. (2013). The Political Economyof the Euro. *Annual Review of Political Science*, 153-170.

Regling, K. (2023). The Euro on the Global Stage. *Oxford Review of Economic Policy, Volume 39, Issue 2*, 219–230.

Rose, A. W. (2001). National Money as a Barrier to International Trade: The Real Case for Currency Union. *American Economic Review*, 386-390.