



# What lies beneath the euro's effect on financial integration? Currency risk, legal harmonization, or trade?

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## ABSTRACT

Although recent research shows that the euro has spurred cross-border financial integration, the exact mechanisms remain unknown. We investigate the underlying channels of the euro's effect on financial integration using data on bilateral banking linkages among twenty industrial countries in the past thirty years. We also construct a dataset that records the timing of legislative–regulatory harmonization policies in financial services across the European Union. We find that the euro's impact on financial integration is primarily driven by eliminating the currency risk. Legislative–regulatory convergence has also contributed to the spur of cross-border financial transactions. Trade in goods, while highly correlated with bilateral financial activities, does not play a key role in explaining the euro's positive effect on financial integration.

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## 1. Introduction

The introduction of the single European currency has been one of the most important developments in the international markets over the past century. The sixteen European countries that have so far abandoned their national monies and adopted the euro did so expecting that monetary union and the accompanying integration policies would shield their economies from adverse shocks, smooth consumption, and promote non-inflationary growth. On its tenth anniversary, the debate on the costs and benefits of the euro is as intense as ever.

Given the difficulty of measuring the growth benefits of the euro with limited time-series data, the literature has focused on quantifying the effects of the euro on goods trade (see [Rose \(2009\)](#), and [Baldwin \(2006\)](#) for surveys). Examining the effect of the single currency not only on trade, but also on financial integration is fundamental as the free movement of capital across borders is a key prerequisite for the functioning of a currency area ([Mundell, 1961](#)). Thus, following the construction of new datasets on cross-border investment for a large number of countries (CPIS data from the IMF), recent studies examine the euro's impact on international capital flows (see [Lane \(2006b, 2009\)](#) and [Papaioannou and Portes \(2009,](#)

[2010\)](#) for reviews).<sup>1</sup> These studies augment an otherwise standard gravity equation of financial holdings/flows with an indicator variable that takes on the value one when the two countries are members of the euro area (and zero otherwise). This approach is certainly the natural first step in analyzing whether financial integration is higher among the euro area countries compared to other economies. Yet, this approach does not identify the *sources* of the euro's effect on financial integration. As [Baldwin \(2006\)](#) forcefully emphasizes in the similar context of the euro's impact on goods trade, it is vital that we investigate the underlying roots of this effect. For example, is the documented positive effect of the euro on financial integration driven by elimination of the currency risk among member countries? Or is it an outcome of various financial sector legislative–regulatory reforms that European countries undertook simultaneously with the euro's introduction? What if the positive effect of the euro on financial integration is simply due to increased goods trade?

In this paper, we address these questions, which were overlooked by the aforementioned studies that investigate the effect of the euro on financial integration. Our main contribution is to identify the

<sup>1</sup> [Lane \(2006a\)](#) and [Coeurdacier and Martin \(2009\)](#) estimate that the monetary union increased cross-border bond holdings among the euro area countries by 230% and 150% respectively. Similarly [Lane and Milesi-Ferretti \(2008\)](#), [Coeurdacier and Martin \(2009\)](#), and [De Santis and Gerard \(2006\)](#), among others, document that the euro has increased international equity investment among member states by as much as 150%. In the same vein, [Spiegel \(2009a,b\)](#) finds that cross-border bank lending increased three-fold in Portugal and Greece after the euro's introduction. [Blank and Buch \(2007\)](#) find a positive and significant increase in intra-euro area financial linkages following the introduction of the euro.

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sources of the euro's impact on financial integration.<sup>2</sup> We do so exploiting a unique (confidential) dataset from the Bank of International Settlements (BIS) that reports bilateral cross-border bank assets and liabilities for twenty advanced economies over the past thirty years. Although our focus is primarily in understanding the underlying mechanisms on euro's impact on financial integration, the rich panel structure allows us to perform a comprehensive before-after analysis of the impact of the single currency on cross-border integration accounting for time-invariant country-pair characteristics and global trends. This is important since due to data limitations most previous studies employed cross-sectional approaches.<sup>3</sup> A natural concern with the cross-sectional estimates in the literature is that they might reflect hard-to-account-for and unobserved country-pair factors that are both correlated with the euro and financial integration. Accounting for such factors is essential, as recent studies show that information asymmetries, distrust and cultural dissimilarities are significant determinants of cross-border investment (e.g. *Portes and Rey, 2005; Portes et al., 2001; Aviat and Coeurdacier, 2007; Guiso et al., 2009; Ekinici et al., 2008; Buch, 2003; Giannetti and Yafeh, 2008; Mian, 2006; Buch et al., forthcoming*).<sup>4</sup>

Thus before we analyze the sources of euro's impact, we start our analysis quantifying the total effect of the single currency on cross-border financial integration. We estimate difference-in-difference specifications that compare the “within” country-pair impact of the single currency among the twelve initial euro area member countries (the treatment group) with the general evolution of banking activities across the control group of economies (that consists of other EU and non-EU industrial countries). Our results suggest that following the adoption of the euro cross-border bilateral bank holdings and transactions increased by roughly 40% among the euro area countries. We obtain similar, though somewhat smaller estimates in the range of 25%–30%, when we compare the increase in banking integration in the twelve countries that first adopted the euro with the three EU15 nations that have not joined the currency union. Both estimates, although highly significant, are much lower than the ones found in previous studies examining the impact of the single currency on various types of capital flows/holdings. This illustrates that failing to account for country-pair fixed-effects and global trends can lead to inflated estimates, due to omitted-variable bias.

After quantifying the total effect of the euro we turn to the main focus of our analysis and investigate the roots of this impact. First, we explore the impact of reducing currency risk and eliminating exchange rate fluctuations among the euro area countries. Among policy circles this was always considered to be the main channel of the euro's impact on financial integration and trade. To isolate the effect of the nature of the currency regime from other policies and developments, we use the recent update of the *Reinhart and Rogoff (2004)* exchange rate regime classification (from *Ilzetzki et al. (2008)*) and construct time-varying measures of the flexibility of bilateral exchange rates. This allows us to control for the fall in the exchange rate volatility among the EU currencies in the 1990s before the euro's adoption, when the EU countries joined the exchange rate mechanism

(ERMII). Our panel specifications show that international banking activities increase significantly among pairs of countries that adopt hard pegs. Most importantly for our focus, once we control for the nature of the exchange rate regime, the indicator variable that switches to one after 1999 for the euro area countries drops significantly compared to the unconditional specifications; in addition, in most permutations it becomes statistically indistinguishable from zero. This illustrates that the euro's positive effect is mainly driven by elimination of the currency risk. This result is also interesting in the light of the so-called “fear of floating” literature, which argues that due to commitment issues, developing countries

**Table 1**  
Legislative measures (directives) of the Financial Services Action Plan (FSAP).

	Directive No.	Directive title	Deadline
1	1998/26/EC	Implementation of the Settlement Finality Directive	
2	2000/46/EC	Directive on the taking up, pursuit and prudential supervision of the businesses of electronic money institutions	27/04/2002
3	2000/64/EC	Directive amending the insurance directives and the ISD to permit Information exchange with third countries	17/11/2002
4	2001/17/EC	Directive on the reorganisation and winding-up of Insurance undertakings	20/04/2003
5	2001/24/EC	Directive on the reorganisation and winding-up of banks	5/5/2004
6	2001/65/EC	Directive amending the 4th and 7th Company Law Directives to allow fair value accounting	9/10/2004
7	2001/86/EC	Directive supplementing the Statute for a European Company with regard to the involvement of employees	10/10/2004
8	2001/97/EC	Directive amending the money laundering directive	15/06/2003
9	2001/107/EC	1st Directive on UCITS (Undertakings for Collective Investments in Transferable Securities)	13/08/2003
10	2001/108/EC	2nd Directive on UCITS (Undertakings for Collective Investments in Transferable Securities)	13/08/2003
11	2002/13/EC	Directive amending the solvency margin requirements in the insurance directives	20/09/2003
12	2002/47/EC	Directive on financial collateral arrangements	17/12/2003
13	2002/65/EC	Directive on the Distance marketing of Financial Services	1/01/2004
14	2002/87/EC	Directive on the supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate	11/8/2004
15	2002/83/EC	Solvency 1 Directive for life insurance	20/09/2003
16	2002/92/EC	Directive on insurance mediation	15/01/2005
17	2003/6/EC	Directive on insider dealing and market manipulation	12/10/2004
18	2003/41/EC	Directive on the prudential supervision of pension funds	23/09/2005
19	2003/48/EC	Directive on the taxation of savings income in the form of interest payments	1/1/2004
20	2003/51/EC	Directive modernising the accounting provisions of the 4th and 7th Company Law Directives	1/01/2005
21	2003/71/EC	Directive on prospectuses	1/07/2005
22	2004/25/EC	Directive on Take Over Bids	5/20/2006
23	2004/109/EC	Transparency Directive	1/20/2007
24	2004/39/EC	Directive on Markets in Financial Instruments (update of ISD) - MiFID	1/20/2007
25	2005/56/EC	10th Company law Directive on cross-border mergers	12/15/2007
26	2006/48/EC	Directive on the relating to the taking up and pursuit of the business of credit institutions	12/31/2006
27	2006/49/EC	Directive on the capital adequacy of investment firms and credit institutions	12/31/2006

The Table reports the timing of circulation by the EU Commission of the 27 Directives of legislative–regulatory harmonization in banking, insurance, and capital markets included in the Financial Services Action Plan (FSAP). Section 2.2 and the Supplementary Appendix give details for each of the FSAP Directives.

<sup>2</sup> In recent work *Hale and Spiegel (2009)* also investigate the sources of the euro effect using disaggregated firm-level data on bond issuance before and after the euro. They find that after the introduction of the single currency an increased number of mostly non-financial firms issued euro denominated securities.

<sup>3</sup> A notable exception is the study by *Blank and Buch (2007)*, who also report “within” estimates controlling for country-pair fixed-effects. However their study does not aim to identify the underlying channels of the euro's positive impact on cross-border investment, which is the main question we pursue in this paper.

<sup>4</sup> The parallel literature that assesses the impact of currency unions on trade shows that accounting for country-pair unobservables is fundamental. For example while cross-sectional (“between”) studies document that the euro's impact on trade was as large as 200%, the average fixed-effect (“within”) estimates falls to 8%–12% (see *Rose (2009)* and *Baldwin (2006)*).

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