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European Financial Integration Reconsidered

——Distance Matters——

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All direct legal barriers of cross-border banking and investment activities are abolished in Europe. Using a new data set, we take a closer look at the determinants of intra-European portfolio investment activities. It becomes clear that distance has remained important for cross-border investments within the euro zone.

1. Motivation

The introduction of the euro marked a milestone in European monetary history and thus in intra-European financial integration. Theoretically, financial integration is facilitating the intra-European cross-border allocation of capital. By this, financial integration should lead to lower prices of financial products for consumers and investors and so should raise the economies growth potential. However, it is a well known fact that until now the European financial sector seems to be much less integrated than the real economy (Adam *et al.* (2002); Baele *et al.* (2006))[1]. In a recent study, the EU Commission quantifies that the overall level of EU-wide GDP would increase by more than 1 percent as a result of further financial integration[2].

One important feature of European financial markets is that there exists considerable diversity in the degree of development and sophistication (Guiso *et al.* 2004). These specific initial conditions for financial integration could be a threat or a chance. Still, it is an open question whether the existing differences in financial systems are generating a specific home bias or in contrast, lead to a higher degree of financial integration based on portfolio diversification (Lewis (1999); Baele *et al.* (2006)). Both should be reflected in the role of geographic distance. In general, distance could have at least a double-edged impact on finance. On the one hand, with distance correlations of business cycles and economic risk could be expected to decline. Consequently, from a portfolio perspective, distance might thus offer perspectives for successful risk diversification. On the other hand, it can be argued that transaction costs tend to increase with distance. In the case of financial markets this is primarily due to increasing information and monitoring costs. Existing empirical papers on geographical distance and finance, taking broader country sets into account, find a negative link between international asset holdings or international capital flows and distance (Portes/Rey (1999); Portes *et al.* (2001), Wei/Wu (2001); Buch *et al.* (2003); Buch (2005))[3]. However, in a well-designed monetary and financial union, as the euro zone, the impact of distance should become negligible.

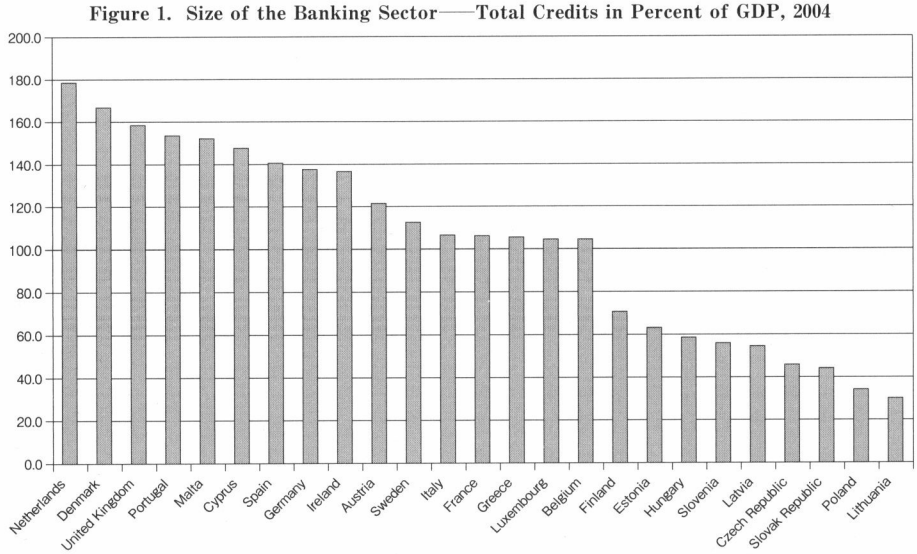
Until recently, the academic debate on European financial integration is focusing on price related indices and has largely abstracted from quantitative indicators. This is also due to a weak data base on this type of indicators. Only nowadays the International Monetary Fund (IMF) is offering a data set on bi-lateral cross-border portfolio investment[4]. Using this data set enables us to take a closer look at European financial integration, its degree and its determinants. Here we follow the general ideas of Lane/Milesi-Ferretti (2002 ; 2003 ; 2004) and Portes/Rey (1999) in measuring financial integration by cross-border investment activities and seek to fill at least two analytical gaps. First, and in contrast to existing studies, the development of European financial integration can be analyzed from a new quantitative angle. Therefore, the share of intra-EU-12 portfolio investment to overall international asset holdings of the EU-12 countries is calculated. Within this setting, the relative importance of intra-European portfolio investment activities over time is investigated. Second, the importance of distance for European integration is scrutinized. The role of distance on European financial integration has, to the best of my knowledge, not been analyzed so far. The general hypothesis tested here is whether the importance of distance for financial integration decreased after the introduction of a common currency in Europe. Major findings are : with the introduction of the Euro as a single currency the European financial integration made a jump. However, recently financial integration is stagnating——the importance of distance for cross-border investment decisions is still given.

The paper is organized as follows : In the next section, a brief overview on the structure of European financial markets is presented. Section 3 reviews earlier empirical evidence on the role of distance in financial markets. Section 4 gives some insights on the data set, explains the estimation approach and presents the empirical results. Section 5 concludes.

2. Stylized Facts

In general, the financial sector can be divided into two parts : the banking sector and the capital market. In Europe, the size,

Figure 1. Size of the Banking Sector——Total Credits in Percent of GDP, 2004



Source) The World Bank. World Development Indicators 2006. CD-ROM.

Table 1. Law Traditions in Europe and Market-capitalization in Percent of GDP

	Common law	*Civil law*			*Market-capitalization in percent of GDP*
	British tradition	*French Tradition*	*German Tradition*	*Scandinavien Tradition*	
Austria			X		29.4
Belgium		X			218.1
Finland				X	98.8
France		X			90.8
Germany			X		43.6
Greece		X			61.0
Ireland	X				62.8
Italy		X			47.1
Luxemburg		X			157.4
Netherlands		X			107.5
Portugal		X			43.8
Spain		X			90.5

Sources) LaPorta *et al.*(1998); Schrooten(2005).

structure and regulation of national financial markets differ widely. Within the European Union (EU), the largest banking sector, measured in banking credits as percent of GDP, can be found in the Netherlands followed by Denmark and the United Kingdom (figure 1). Extraordinary low numbers are reported from the Eastern European New Member states of the EU. Here, the financial sector is very young and can be considered as relatively underdeveloped. However, in times of financial integration, the size of the traditional financial system of a given country as a measure of its degree of financial development is loosing significance.

Taking a closer look at the size of the capital markets reveals a similar feature: The intra-European differences are huge. Focusing on the EU-12 the average market capitalization reached 88 percent in 2004. Outliners are Luxembourg, Belgium and the Netherlands with a market capitalization of more than 100 percent. Austria, Germany and Portugal report the lowest degree of market capitalization within the EU-12. The widespread hypothesis that market-based financial systems are usually rooted on *common law*-traditions can not be confirmed for the EU-12 (table 1). In contrast, Ireland——a country with *common law*-tradition——shows a remarkably smaller degree of market capitalization than several European countries with a civil law tradition.

3. The Literature——A Short Overview

The analysis of European financial integration borrows its major arguments from the huge literature on the welfare effects of international financial integration, especially from the angle of risk sharing. Most of the papers are arguing within a neoclassical framework and come to the result that the benefits of financial integration are substantial. Therefore, in theory financial integration is often viewed as a locomotive for growth. However, several empirical studies show that welfare gains of international financial integration are lower than textbook argumentation predicts. This might be due to frictions within the financial system of a given economy or result from the lack of information about the financial system from the point of view of an external investor (Gertler/Rogoff (1990); Lucas (1990); Barro (1995); Boyd/Smith (1996); Pagano (1993) and

King/Levine (1993) introduced the financial sector into the endogenous growth theory. Within these theoretical frameworks financial intermediaries fulfil several important tasks: They produce information on investment, allocate the capital in an economy, facilitate the trading diversification and monitoring of risk and mobilise savings. However, the financial market is far from being perfect (Gourinchas/Jeanne (2006)). Consequently, sector specific transaction costs emerge (τ). International financial integration could be one way to increase competition within the domestic financial sector and thus to decrease these transaction costs (Obstfeld (1994); Krugman/Obstfeld (2003)).

Empirically, financial integration can be measured either by price-based indicators such as the convergence of the interest rates or by volume-based indicators on international financial stocks and flows (Baele *et al.* 2006)[5]. According to the general assumptions of the price approach an increase in financial integration within the Euro zone should be reflected in a convergence of the nominal interest rates. Following this approach financial integration can be measured by the development of the standard deviation of the interest rates for a given financial product. Indeed, it can be shown that the integration of the money market gained momentum with the introduction of the single currency. This part of the financial market seems to be already integrated (Baele *et al.* 2006). Nevertheless, the market for deposits and loans are still segmented (Schrooten 2005). Interest rates for bank credits are varying remarkably. Nowadays, even an increase disintegration of the financial sectors seems to be observable. However, differences in the interest rates might not only reflect the degree of integration but also risk distinctions as well as differences in the relevant institutional framework in Europe.

A summary volume-based indicator of international financial integration was introduced by Lane/Milesi-Ferretti who calculated the financial openness of a given country in accordance to the real sector openness indicator. Nevertheless, several empirical studies show there seems to be evidence for the existence of a home bias all around the world (Adam *et al.* (2002); Baele *et al.* (2006)). Nowadays, the determinants of financial integration are also analyzed within the framework of gravity models (Portes *et al.* (2001); Buch *et al.* (2003)). The standard gravity model explains the intensity of the bilateral economic relationship between country i and country j by only two variables: GDP of country and the geographic distance between the two countries[6]. Most of these studies come to the result that the coefficient in negative and has remained rather stable over time. In such a setting geographical distance is often used as a proxy for transportation or information cost (Freund/Weinhold (2000)).

During the last decade European financial integration seems to have accelerated, however, until recently the degree of real sector integration seem to be significantly higher. The theoretical literature on European financial integration, distance and information costs is still pretty much in its infancies. Basic ideas are borrowed either from gravity models or from the standard literature on finance and growth. According to the standard gravity model, it can be argued that the intensity of the financial relationship between two countries is proportional to the size of their markets, and it is inversely related to geographical distance. However, in a fully-fledged monetary union distance should not play any significant role.

4. Data, Variables and Empirical Results

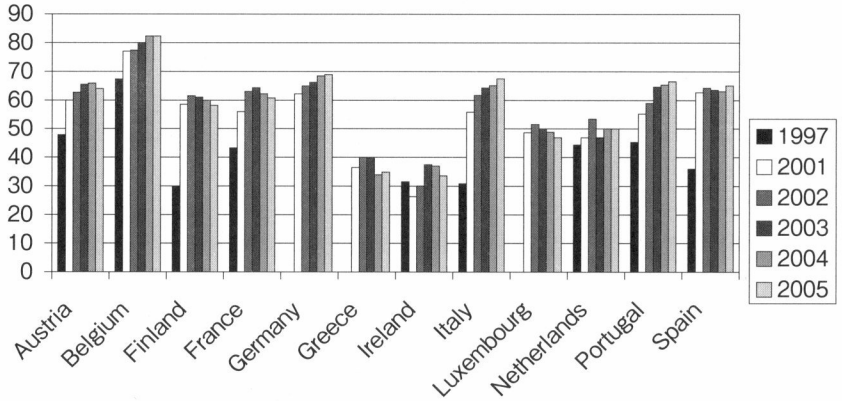
The International Monetary Fund provides data on portfolio investment activities (Coordinate Portfolio Investment Data Survey (CPIS))[7]. In general, the survey reports international investment position of a given country i at market price. While such an approach has several limitations it is the only manner in which assets and liabilities can be valued in the same way[8].

Focusing on Europe, the data set gives several new insights concerning financial integration.

- First, intra-EU portfolio investment is more than two times higher than European portfolio investment with the rest of the world. In this sense distance matters. In 2005, EU-12 portfolio investment reached 10 848.6 billions US Dollar. Out of this 6 193.8 billions US dollar were spent within the group of EU-12.
- Second, intra-EU-12 financial integration increased tremendously after the introduction of the euro: In 2001, within the group of EU-12 bi-lateral portfolio assets amounted for 2 392.9 billions US dollar. This sum more than doubled until 2005. However, the rise in absolute terms can be at least partly explained by the overall increase in international financial integration and as well as by the underlying market valuation of financial assets over time.
- Third, focusing on the country level it becomes clear that there exist huge differences within the group of the EU-12 member states concerning the degree of European financial integration. Major players are Belgium, Germany and Italy. Greece and Ireland are far much less integrated than the other members of the euro zone. In nearly all countries the introduction of the common currency was accompanied by an increasing importance of intra-EU-12 investment activities (figure 2). However nowadays, the degree of intra-EU-12 financial integration measured in cross-border investment shares tends to stagnate or even decrease in several countries.

To analyse the determinants of intra-European portfolio investment activities the following simple model is estimated

Figure 2. Intra EU-12 Portfolio Investment in Percent of Total Portfolio Investment



Source) International Monetary Fund. Own calculations.

Table 2. Determinants of Intra-European Portfolio Investment

	2001	2002	2003	2004	2005
Constant	5.34**	5.47**	4.34**	5.10**	5.18**
	(2.11)	(2.30)	(1.98)	(2.06)	(2.12)
GDPCAP	0.28	0.26	0.49	0.36	0.35
	(0.68)	(0.57)	(1.17)	(0.80)	(0.75)
POP	0.35***	0.33***	0.36***	0.32***	0.30***
	(3.58)	(3.18)	(3.72)	(3.06)	(2.80)
DIST	−1.01***	−0.97***	−0.91***	−0.95***	−0.92***
	(−7.05)	(−6.64)	(−6.74)	(−6.44)	(−6.24)
R^2	0.40	0.37	0.40	0.37	0.35
N	131	131	132	130	130

Note) The dependent variable are the assets of country i vis-à-vis country j in million US-dollar, GDPCAP=GDP per capita in country j, POP=population of country j, DIST=distance between country i and j. The dependent variable as well as GDPCAP, DIST and POP are taken in logs. ***(**, *)=significant at the 1(5,10) %-level, t-values in brackets.

$$\log X_{ij,t} = \beta_1 + \beta_2 \log DIST_{i,j} + \beta_3 \log GDPCAP_{j,t} + \beta_4 \log POP_{j,t} + \varepsilon, \quad (1)$$

whereby $X_{ij,t}$ is the cross-border portfolio investment of country i in country j at time t. Bi-lateral portfolio-investment data are taken from the IMF data base. The distance data are from the DIW Berlin database. All other data are from the IMF International Financial Statistics.

While in the baseline regression the log of portfolio investments is used as dependent variable the log of distance, the log of GDP per capita in country j for the given year and the log of population size of country j at time t are taken as independent variables. This allows us to interpret the estimated coefficients as elasticities. In line with standard gravity models, GDP per capita in country j is used as a measure of the state of development of the host county. Population of country j is reflecting the size of the market in country j. According to economic theory it can be assumed that investment flows to poorer countries with attractive investment opportunities. In contrast to this theoretical prediction, empirical papers show that in the international context capital flows "uphill" (Lucas (1990), Prasad *et al.* (2007)). There seems to be evidence that the linkages between the state of development of a given economy and portfolio investments from abroad are rather complex——consequently the sign of the independent variable GDPCAP is not clear cut. Nevertheless, the size of the market reflected in the variable POP is assumed to show a positive sign: Foreign investment increases with the size of the economy. In the literature distance is assumed to affect international investment in two ways: First, with distance correlations between business cycles might be declining. Within such a setting, distance itself generates an incentive to invest abroad. Therefore the expected sign of the variable is positive. Second, it is assumed that information costs tend to increase with distance. Consequently, the expected link between distance and international investment activities is negative. Since technological progress would lead to a decrease of information costs several studies point out that the impact of distance should decline over time. However, here we do not take the variable distance in level but in log. Accordingly, we have to be cautious with the interpretation of the coefficient.

It is assumed that none of these explanatory variables is influenced by cross-border financial asset holdings of the reporting country. Thus, problems of endogeneity do not emerge. Equation 1 is estimated separately for each year (2001–2005).

Results are reported in Table 2. The variables GDPCAP and POP show the expected signs. However, GDPCAP is insignificant for all the years under consideration. In other words, the state of development of the host country seems to be not relevant for the investment decision. One possible explanation is, that the linkages between economic development and cross-border capital flows are rather complex. Counterrotating factors might be in place. This would be in line with the result of recent empirical studies on the determinants of international capital flows report which show that simple textbook arithmetic does not hold in the case of international capital flows (Gourinchas/Jeanne (2007); Prasad *et al.* (2007)).

As for population, the variable shows the expected positive sign. With the market size of the host country intra-European portfolio investment is increasing, possibly reflecting lending activities to large economies such as Germany, Italy and France. The coefficients are rather stable for period under consideration. An increase of population of 1 percent leads to additional portfolio investments of around 0.3 percent.

The variable distance shows a negative sign for all years and is highly significant. In other words, even within the euro zone distance matters. According to our results the distance coefficient declined only slightly after the introduction of the euro——thus the importance of distance remained nearly unchanged over the last few years in Europe. This empirical finding is in line with results of studies analysing a broader country set and thus focusing on the determinants of international investment activities. However, surprisingly the importance of distance seems to be higher in the euro zone than reported on the international level (Buch (2005)).

5. Conclusions

A high degree of financial integration is one of the central aims of the euro zone. Indeed, focusing on intra-EU-12 portfolio investment it can be shown that the cross-border investment activities increased tremendously after the introduction of the common currency. However nowadays, the degree of intra-EU-12 financial integration measured in cross-border investment activities tends to stagnate or even decrease in several countries.

Theoretically, with the introduction of the common currency and the creation of the currency union distance should become negligible for investment decisions within the euro zone. The importance of distance for any investment decision reflects the existence of a home-bias and thus the degree of market integration. Empirically, it is shown that distance as well as the market size still affects intra-European investment decisions. Both factors seem to be rather persistent over the last years. Until now, financial systems differ widely with respect to size and structure in Europe. Financial intermediaries operate under national rules which vary considerably with the EU. Increasing incentives for cross-border investment and a higher degree of financial integration might result from further harmonization of the institutional framework. Therefore, with respect to future research it would be of interest to investigate the influence of institutional differences on the national level on cross-border investment decisions.

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Notes

1) To counteract this fact and to force financial integration, the Financial Service Action Plan (FSAP) which should result in a legislative framework to was implemented in 1999. "While free capital mobility has been a reality in the EU since the late 1980s, financial market segmentation has persisted, due to exchange rate risk until EMU in 1999 and even after that date due to different regulations and institutions across the EU." (Guiso *et al*., 2004 p. 526).

2) http://ec.europa.eu/internal_market/economic-reports/docs/com-2002-743-annex1en.pdf.

3) These findings are in accordance with the literature on real sector integration. Gravity models on foreign trade typically find a negative impact of geographical distance on bilateral trade links, after controlling for other factors.

4) In this paper, a new dataset on intra-European portfolio-investment is used to shed some light on the question whether the importance of distance has changed over time. This data set has been provided by the International Monetary Fund (IMF). The data set is covering the years 2001-2005. We are focusing on the cross-border financial activities within the EU-12. This are the following member states of the Euro zone : Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

5) In some papers news based measurement techniques are applied. However, since these news based approaches refer to reactions of the interest rate on news they can be considered as price-related indices.

6) The impact of some unobservable variables are considered as to be collected in the constant term.

7) http://www.imf.org/external/np/sta/pi/datarsl.htm. Last update : July 2007.

8) For details : http://www.imf.org/external/pubs/ft/cpis/2002/pdf/cpisindex.pdf.

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