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Working Papers / Documents de travail

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WP 2025 - Nr 31

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ABSTRACT

This paper studies the main determinants of bilateral financial flows in the euro area to achieve sustainable and fair financing opportunities. We revisit the modern theory of the optimal currency area considering the impact of heterogeneity in inequality measures, within and across countries, on cross-border financial flows. To do so, we introduce financial and social fragmentation in gravity models of European capital flows. We use data from 19 Eurozone countries from 2000 to 2021 and show how fragmentation impacts capital flows, namely foreign direct investment, cross-border loans as well as portfolios, equity and bond flows. Since capital is, in principle, free to flow in the Eurozone, our analysis directly identifies the roles of potential sources of fragmentation: social inequalities, lack of market openness, and domestic regulations such as macroprudential controls. Overall, our results show that financial integration in Europe entails more capital flows of any type while social fragmentation across European countries is detrimental to capital flows, no matter which type. This is strong evidence of the importance of financial and social fragmentation in the Eurozone on the distribution of capital.

This work was supported by the Chaire RBC en innovations financières and the Agence Nationale de Recherche Française (ANR-21-CE41-0010 and ANR-17-EURE-0020) and from Excellence Initiative of Aix-Marseille University - A*MIDEX.).

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1. Introduction

"Let them eat cake." Although the authenticity of this remark by Marie-Antoinette has been disputed, it has long been used as a reference for the disconnection between the fate of the leaders and that of the population. The scientific literature has paid unequal attention to capital flows and how they are affected by issues fragmenting society in general, or more specifically in the context of sustainable development (Kavadis et al., 2024). On the global scene, this point is largely in agreement with the societal challenges stated in the UN Sustainable Development Goals (UN, 2021) which include questions raised by inequalities across the world. Given the importance of the issue, we concentrate on the role of inequalities on capital flows. Specifically, we study inequalities within and between countries of the Eurozone to show how inequalities and financial fragmentation impact capital flows.

Financial and banking fragmentation should matter in Europe for many reasons. Fragmented markets imply different investment opportunities between countries, households and firms with the same relevant characteristics, limiting cross-border financial linkages and risk sharing (Baele et al., 2014). This phenomenon calls into question the effectiveness of the European Central Bank's (ECB) monetary policy and the transmission mechanisms within the euro area (Gagnon and Gimet, 2023). The adoption of a monetary union between countries should entail free capital movements helping to compensate external and internal imbalances among members (Ingram, 1969). In the Eurozone, this phenomenon took place during the first decade that followed the adoption of the euro. Free capital mobility and the easing of credit conditions generated by the monetary union during the 2000-2007 period entailed a well-documented increase in cross-border banking and financial flows within the Eurozone (Cerutti, Claessens and Ratnovski, 2017). However, the lack of a macroprudential framework has created conditions favorable to a financial crisis (Agénor, Jackson and Pereira da Silva, 2019). As an example, the lack of cycle synchronicity and asymmetry between home and host regulations are the main determinants of the observed low cross-border flows in the Eurozone since the 2008 crisis (Merler, 2015). In particular, the drop in cross-border loans in the Eurozone was substantial after the 2008 financial crisis compared with the rest of the world (European Central Bank, 2013 and 2019 annual reports). While the 2008 liquidity crisis was mitigated by an intervention of the ECB, these interventions exacerbate overborrowing in financially stressed economies (Fagan and McNelis, 2020). Consequently, risk premiums as well as the cost of borrowing increased in these economies, which accentuated financial fragmentation (Cartapanis, Gagnon and Gimet, 2023). Finally, as recently as June 2022, the ECB Governing Council highlighted the importance of fragmentation in the European financial system in a context where monetary policy should be as symmetric as possible across members.

Social inequalities should also matter in Europe (Van Der Straaten et al., 2023). The World Bank (2020)[4] documents heterogeneity in the evolution of income in Europe between 2004 and 2018. For example, inequalities decreased or remained constant in countries like Belgium or Finland, while they increased in Italy and Spain. It is also well established that wealth inequalities are higher than income inequalities and that wealth is concentrated at the top of the distribution in a set of European countries. Examples include Germany and Austria and suggest noteworthy disparities in the rates of return on wealth, the growth rate of average income, and the saving rate within and across the Eurozone economies (Chancel, 2019). In countries that have reached comparable technological and globalization levels, the disparities in wealth and income distributions are mainly linked to differences in taxes and redistribution policies in the labor market, and in access to education and health services (Blanchard and Rodrik, 2021).

Given the importance of such sources of fragmentation and their potential influence on investors and firms' investment decisions as well as on economic policies, we study the role of social fragmentation.

[4] The World Bank (2020), the World Bank database, https://data.worldbank.org/indicator/SI.POV.GINI.

We measure social fragmentation through income and wealth inequalities, *within* each country and *between* countries in the Eurozone. One strong point of our approach is the different disaggregated inequality measures we use. These measures – that cover the right (the richest) and left (the poorest) tails of wealth and income distributions within each country of the Eurozone as well as inequality measures across countries of the zone – add to the understanding of the role of inequalities within and between countries of the Eurozone.

We study the role of these variables as well as the role of financial fragmentation on different types of capital flows across countries of the Eurozone from 2000 to 2021 in gravity models to identify the determinants of bilateral flows across countries inside the zone taking into account multilateral resistances (Anderson and Van Wincoop, 2003). We estimate traditional and enlarged gravity models on each type of flows using the Poisson regression by pseudo maximum likelihood (PPML).

We study five European types of capital flows encompassing both portfolio and direct investments: portfolio flows, equity and debt flows, foreign direct investments (FDI) and cross-border loans (CBL). We argue that studying several types of flows is important to assess the impact of financial and social fragmentation since the comparison reveals a disparity among flow types, and therefore different impacts on different types of investment and economic decisions. Indeed, the literature on these different flow types provides motivation for such a disaggregated analysis. For example, portfolio flows are affected by the cost of capital. For debt, when the cost of capital increases due to financial crises, financial inflows and financing opportunities are reduced, and increasingly so for domestic credit of low-wealth households. Financial crises further generate higher inequalities: on the one hand high-income households and firms choose to invest abroad ahead of the crash, and when, on the other hand, the crisis increases bankruptcies and lay-offs, it results in impacting more importantly the most vulnerable households (Honohan, 2005).

Our results reveal that European capital flows are affected by both financial and social fragmentation, which measure different underlying factors and are not a substitute for one another. First, financial integration in Europe entails more capital flows of any type. This is a straightforward result. On the inequality front, our evidence on domestic inequalities within a country and contextual variables varies importantly across the types of flows considered.

Domestic inequalities have two distinct effects on flows. For financial markets (stocks and bonds), increasing domestic inequalities increases flows. This is what we call a *diversification effect of social fragmentation* attributed to the fact that domestic inequalities are associated with an increase in the wealth of the richest decile of the population who seeks to diversify his/her wealth increase in other markets. This creates an augmented demand for foreign shares and bonds that explains why these flows increase. This result is consistent with standard evidence in the international asset allocation literature (e.g., Guidolin and Timmermann, 2008) that shows that agents aim to diversify their portfolio of assets. On the other hand, domestic inequalities entail a diminution of FDIs inflows in European countries. This is what we call the *demand effect of social fragmentation.* This result is consistent with the result derived by Markusen (2013) whose model predicts that horizontal multinational activity is negatively related to per capita income differences between countries. Therefore, domestic inequalities are a deterrent to these investments.

When accounting for multilateral resistances, our analysis also presents evidence on social fragmentation as we study the importance of wealth and income spreads between countries on capital flows. Our results show clearly that social fragmentation between European countries is detrimental to capital flows, no matter which type. This is strong evidence of the importance of social fragmentation in the Eurozone on the distribution of capital.

This paper is organized as follows. We first review the state of the literature on gravity models and capital flows as well as on the presence of potential inequalities. We present the data used for this analysis. We then discuss extensions of the gravity model introducing fragmentation and several national

measures to capture home bias. The empirical analysis is presented for portfolio, equity and bond flows for an initial general picture and is followed by foreign direct investments and cross-border loans. The final section concludes.

2. Context and Literature Review

2.1 Eurozone context

Further to the Eurozone context given above, we specifically study financial and social fragmentation in the zone because its rules make it possible to eliminate or control for potential explanations empirically identified for fragmentation. *First*, the Eurozone provides an environment that is exempt from currency risk and the monetary union eliminates most of the political risk. While the absence of currency risk is obvious, euro countries that experience financial difficulties are backed by the European Stability Mechanism (ESM), mitigating political risk and associated expropriations through union rules. The case of Greece in the 2008 financial crisis is an illustration of how the potential default of a country and the resulting expropriation risk is mitigated. This is important since currency (Hau and Rey, 2006) and political risks (Beaulieu, Cosset and Essaddam, 2005 and Kayakawa, Kimura and Lee, 2013) are two important drivers of investments decisions. Furthermore, the legal system in place in each country provides different levels of property protection, for which we control in our empirical analysis. *Second*, the Eurozone also provides an environment where all reporting rules are the same, which prevents results from differentiating themselves on that basis. *Third*, given that our sample only considers flows circulating across countries of the Eurozone, it implies that heterogeneous corporate governance rules and standards across countries cannot explain flows. In this context, the Eurozone is one of the best environments to study the impact of financial and social fragmentation on capital flows because it controls for factors usually associated with capital flows.

2.2 Traditional gravity models and their extensions

Gravity models provide a strong theoretical background for testing our hypotheses on financial and social fragmentation. Classical gravity models (e.g., Leamer and Levinsohn, 1995; Evenett and Keller, 1998) examine the relationships between trade, size and distance (Head and Mayer, 2014). The standard form of the models depends on the assumption of consumers' homothetic preferences implying that consumers' relative demand for good is constant independently of income level. In standard gravity models, trade flows can be explained by a country's economic size and the distance between two economic partners. Portes and Rey (2005) extend the gravity model to capital flows. Their empirical work shows that information flows (or social networks) have a positive impact on both cross-border finance and trade. Okawa and Van Wincoop (2012) theorized this relationship. In addition, Aviat and Coeurdacier (2005) document a complementary relationship between both pillars of the balance of payments, trade in goods and trade in assets. Frictions and financial market incompleteness are analyzed as a source of home bias (Obstfeld and Rogoff, 2000; Martin and Rey, 2003; and Davis, Nalewaik and Willen, 2000). Lane and Milesi-Ferretti (2008) extend these approaches to finance by considering fixed effects controlling for disparities between trading partners.

To enlarge the focus of gravity models to capital flows and inequalities, we base our approach on arguments developed by Markusen (2013). Markusen adds non-homothetic preferences to traditional trade models. Doing so, he derives two important results in the context of our work. First, he shows the role of intra-country income distributions for trade flows, and second, his model predicts that horizontal multinational activity is negatively related to per capita income differences between countries. These

results open the way for the introduction of income distributions in gravity models of trade and capital flows.

Gravity models have been tested on specific capital flows. Regarding the literature on foreign direct investments, for example, Lee, Lee and Chen (2022) and Basu and Guariglia (2007) study the documented negative empirical link between FDIs, inequalities and growth. Closer to our work, Mishra and Jena (2019) study bilateral FDI flows in a gravity model framework, yet they do include inequality measures in their research. Regarding cross-border loans, Cerutti, Casanova and Pradhan (2023) and Delate, Guillin and Vicard (2022) use gravity models to study the flows of cross-border loans across countries among other capital flows. Cross-border loans have been studied using gravity models recently by Cerutti, Casanova and Pradhan (2023) and Cerruti, Hale and Minoiu (2015). Nonetheless, it remains that the role of inequalities in gravity models of bilateral capital flows is relatively unexplored. In particular, we contribute to this literature by highlighting how social fragmentation has an heterogenous effect in Europe depending on the types of flows considered. This is relevant evidence in a context of a single monetary policy and an objective to favor capital flows across the zone.

Therefore, we examine the impact of fragmentation by flow type. In fact, the existing literature provides the intuition as to why the aggregate portfolio flows may not be representative. In terms of equity markets subject to a trend towards financial integration, firms and investors face lower discount rates and additional financing sources in the real sector, all of which promote higher investment levels and improved average income distribution by transferring wealth from creditors to debtors (Aghion and Bolton, 1997). All in all, it is nonetheless possible that valuation changes have an asymmetric impact depending on income levels if equity market participation is not homogeneous across income groups. Lower discount rates may also result in an increase in inequalities if operating cash flows are not reinvested in the real economy because they generate dividend payments. It is a well-recognized fact that more advanced economies have large firms that profit importantly from the stock market tending to enlarge inequalities.

Furthermore, the literature on financial fragmentation in Europe highlights the importance of increasing the quantity of CBLs, as banks in Europe mostly do business in their home country (Gagnon and Gimet, 2023). CBLs are therefore a relevant measure to study the impact of inequalities since they are an indicator of whether financing is uniformly accessible across the zone. It is important to extend the empirical literature to the banking sector since credit market imperfections imply distortions in access to credit between risky and less risky households and firms (Acemoglu, 2001).

Finally, FDIs are a key element in international economic integration since they create linkages between economies due to the physical nature of their investments. The introduction of traditional FDI gravity model variables (including M&A) yields similar results to those for trade. The size of the two partner countries has a positive effect on FDI flows in horizontal strategies, while distance has a negative effect. Two main strategies are generally distinguished for FDIs. The first is horizontal (Markusen, 1984), which aims at market access. This involves FDI primarily in countries with similar economic profiles (market seeking). The second is vertical (Helpman, 1984) and relates to the objective of breaking down production processes into separate stages and locating them in different countries. The literature shows that information asymmetries and transport costs negatively affect the development of such strategies (Ghosh and Wolf, 2000; Van Bergeijk and Brakman, 2010). Our focus on the Eurozone implies that we are mainly dealing with horizontal FDIs, substituting production in foreign countries to exports in economies with similar production specialization access (Helpman, 1984; Markusen, 1984, Coeurdacier et al. 2009). Given that our analysis focuses on Eurozone countries, corporate governance outside the scope of the legal system and macroeconomic stability does not significantly influence FDI flows in our sample and the Eurozone provides an interesting ground to test our hypotheses. While multinationals

allow for capital flows across countries, there is an unanswered question that is still very much up for debate: what is the relationship between fragmentation in the zone and FDIs? The same question can be asked for all types of flows.

2.3 Social Fragmentation

As recognized by Erauskin and Turnosky (2019 and 2022), social inequalities such as wealth and/or income inequalities in a country can be affected by capital and banking flows across countries and play a role in banking and financial market fragmentation. Ceteris paribus, with liquid assets such as shares, inequalities might also represent investment opportunities for which the marginal product of capital is higher than for more illiquid assets such as CBLs. If this is the case, in terms of portfolio management, it means that countries with larger inequalities enlarge/enhance investors' and lenders' investment opportunity sets, bringing diversification benefits. This argument aligns with Portes and Rey (2005) since they use it to motivate their model. On the other hand, diversification benefits might be lowered or disappear if the legal environment does not offer the same level of protection of foreign investments or private property across countries. The same argument can hold in terms of arbitrage opportunities. If inequalities exist, there might be a claim to arbitrage. Capital should flow where the risk return ratio is the lowest.

In the context of Europe, Herzer and Nunnenkamp (2013) focus on the effects of inward and outward FDIs on income inequality. Their main result centers on the long-run effect of FDIs on inequality which is shown to be negative. Our objective is to complement their evidence with structured empirical results from the gravity models and a broader set of capital flows to characterize the set of opportunities for firms and investors.

The empirical literature on the impact of inequality on cross-border financial flows is in its infancy. Several related studies are relevant for our purpose, however. At the national level, Saez and Zucman (2016), based on a survey of consumer finance in the United States, show that the share of equity held by wealthy households is high in the United States and thus, an increase in wealth concentration is driven by the rise in top incomes. Smith, Zidar and Zwick (2023) show that the holding of illiquid assets by American households rises sharply with wealth. From a European perspective, Boermans et al. (2018) show the European investors favor European assets over foreign ones, especially since the introduction of quantitative easing by the European Central Bank. Finally, the analysis of bilateral cross-border flows shows that the home bias within the area is relatively low, especially for listed equities, with a higher proportion of investment funds' exposure to debt issued by other euro-area countries (Carvalho, 2022).

2.4 Financial Market Integration

The literature has mainly focused on equity to measure the state of financial market fragmentation (Bekaert et al., 2013, among others). Studying a larger set of asset classes and capital flows is an important research question given that fragmented markets imply different investment opportunities between countries, households, and firms with the same relevant characteristics, limiting cross-border financial links and risk-sharing (Baele et al., 2014). Carrieri, Chaieb and Errunza (2022) establish that barriers to investment exist across emerging countries as well as between them and developed countries.

2.5 The Interaction Between Inequalities and Financial Market Integration

While the interaction of international trade and financial market integration has been studied in the literature, the impact of capital flows and financial integration on inequalities has received less attention. In addition, the issue has been mainly driven by developing markets rather than developed ones, such

as the Eurozone. For example, Bumann and Lensink (2016) study international financial liberalization and show that the financial liberalization movement reduces inequality. Using worldwide panel data, Furceri, Loungani and Ostry (2018) find that capital account liberalization increases inequality. Of the existing literature, the paper most related to ours is Jaumotte, Lall and Papageorgiou (2013), who also measure financial international openness in terms of asset movements. They find a limited overall impact of globalization on inequalities. Their results show two offsetting tendencies which help explain why the aggregate effect is small. Trade globalization is associated with a reduction in inequality, while financial globalization - and foreign direct investment in particular - is associated with an increase.

3. Data

We now present our dataset and provide the motivation for our variables of interest. The paper relies on a euro area yearly dataset for the 2000 – 2021 period. Countries included in our analysis are: Austria, Belgium, Cyprus, Germany, Spain, Estonia, Finland, France, Greece, Ireland, Italy, Lithuania, Luxembourg, Latvia, Malta, The Netherlands, Portugal, Slovakia and Slovenia. Claessens (2017) puts forwards four different determinants of financial fragmentation: natural barriers, market forces, policy intervention, and regulatory policies. Our choice of variables also mirrors these considerations with the addition of social fragmentation variables. Table 1 details the variables, their sources, and their nomenclature.

Dependent variables ($flows_{R,P,t}$). We evaluate our augmented gravity models on five types of bilateral capital movements in order to test several hypotheses regarding the importance of fragmentation on different types of capital movements related to different economic contexts. We first look at (i) aggregate bilateral financial stock movements ($PT_{R,P,t}$). We then decompose further using both (ii) equity ($EQUITY_{R,P,t}$) and (iii) debt bilateral stocks ($DEBT_{R,P,t}$). We next look at specific categories relevant to Europe and provide insight on how different types of investors (small to medium businesses or multinationals) may be exposed to social and financial fragmentation (cross-border loans ($CBL_{R,P,t}$) and foreign direct investment ($FDI_{R,P,t}$)). In fact, natural barriers or financial frictions can be linked to information asymmetry (Claessens, 2017) and help to explain the choice of investors to prefer local rather than cross-border assets, which creates a home bias, which motivates our choice of enlarging our set of flows to (iv) FDIs and (v) CBLs.

Baseline models independent variables. These variables are at the root of gravity models (Portes and Rey, 2005 and Head and Mayer, 2014) and constitute a benchmark in explanatory power. They are (i) size for both markets ($SIZE_{R,t}$ and $SIZE_{P,t}$) and (ii) distance between the two capitals ($DIST_{RP}$).
Contextual variables. (i) contingent border ($CONTIG_{RP}$) (McCallum, 1995), (ii) legal system ($LEG\_CL_{P,t}$) and (iii) cost of capital: Contingent border control for proximity and to potentially reduce barriers to capital movements associated with similar culture or lower cost of acquirement of information in neighborhood countries (CEPII website). The legal system in place might influence where flows land given that different legal systems offer different investors protection (La Porta et al., 1997; La Porta, 1998). We consider that context, as well as that of financial centers serving as cross-border hubs for FDI and CBL. Pogliani, Peter and Woolridge (2022) study such financial centers which cater predominantly to non-residents and serve as large intermediaries of cross-border financial flows. Such centers in the Eurozone are Cyprus, Ireland, Luxembourg, Malta, and the Netherlands. Finally, the cost of capital measures control for the economic and financial environment of a given country by being a proxy for the level of systematic risk incurred.

Fragmentation variables. (i) Financial integration indexes and (ii) national macroprudential regulations. (i) We measure international financial liberalization using the de facto measure asset positions proposed by Lane and Milesi-Ferretti (2007) for several reasons. First, changes in these measures better capture the significant and rapid change in the degree of international financial integration recently experienced. Conversely, the index suggested by Chinn and Ito (2008) changes slowly, as it captures "the extent and intensity of capital controls" from a *de jure* perspective. Second, although the growth in cross-border financial assets is undoubtedly driven by underlying changes in regulations, by basing our empirical analysis on an extension of the traditional stochastic portfolio framework, it is more convenient to focus on the flow of assets as a reflection of international financial integration. Finally, one of our objectives is to highlight the contrast between liberalization with respect to foreign investment costs versus liberalization with respect to foreign borrowing costs. Since these differences are most directly reflected in the flow of financial assets and are likely to be obscured by some composite index, there is further reason for measuring the impact of international financial integration in terms of portfolio shares.
ii) National macroprudential regulations will matter for cross border loans. In fact, Arregui et al. (2013) postulate that an asymmetry in the macroprudential measures between countries encourages financial arbitrage and cross-border lending for high-income agents, increasing inequalities within and between countries.
On the lenders' side, regulations can take the form of common capital requirements and leverage ratios. To measure their effect, we use the loan coverage ratio, LCR, a common macroprudential measure of liquidity. This variable is common across countries but varies across time. In addition, we measure the risk related to the borrower side national regulations using the non-performing loans ratio, NPL. Strict borrower-based measures can theoretically generate a higher selection on credit acquisition that exclude low-wealth households (Rabitsch and Punzi, 2017). The total effect on welfare depends on the level of collateral required (Mendicino et al., 2018), but the empirical literature is still in its infancy and has not settled on this question (Colciago, Samarina and de Haan, 2019).

Social fragmentation. Inequality measures in wealth and income dispersion are frequently used in the scientific literature. Income represents household revenue constituted by labor earning, transfers, and financial asset holdings. Wealth characterizes people's saving abilities and is calculated by assets (financial or real estate) minus debt (mortgage and loans) (Piketty et al., 2018). We also introduce two measures of fragmentation which are either a dummy variable that equals one when the partner country has a higher measure than the reporting country and zero otherwise and the absolute value of the spread of wealth (income) between the two countries.

4. Methodology

We first estimate the traditional gravity model on each type of flows using the Poisson regression by pseudo maximum likelihood (PPML). Our estimation method is based on Santos Silva and Tenreyro (2006 and 2022)[5] and the code provided in Santos Silva and Teneyro (2015), as they show that the gravity model with the OLS estimator is not consistent in the presence of heteroskedasticity, and the logarithmic form of the gravity equation is not appropriate given it does not consider the absence of

[5] They demonstrate several empirical shortfalls to the OLS method applied to the log gravity model, especially in the presence of heteroscedasticity and dependent variables equal to zeros in some periods. They show that the Poisson pseudo-maximum likelihood estimation (PPML) circumvents these issues and perform significantly better than the traditional approach of applying OLS to log values.

bilateral flows.[6] We use the recommended two-way clustered standard errors and a pseudo R-squared measure corresponding to the square of the correlation between the fitted values and the observed values. Finally, we follow the literature and treat outflows and inflows separately, instead of averaging the reciprocal flows (Anderson, 2011). Let us first define R = 1,.., 19, the euro area reporting countries and P=1,.., 18, the euro area economic partners, $flows_{RP,t}$ are a specific type of financial flows (portfolios, stocks, bonds, foreign direct investments and cross-border loans from country R to country P at time t, $CONTIG_{RP}$ is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$the logarithm of the distance between the capitals of the reporting country R and the partner country P , $SIZE_{R,t}$ is the lagged and logged market value of financial markets (stocks and/or bonds according to the type of flows) of the reporting country at time t, $SIZE_{P,t}$ is the lagged and logged market value of financial markets (stocks and/or bonds according to the type of flows) of the partner country at time t:

$$flows_{RP,t} = exp\left[\beta_0 + \beta_{CT}CONTIG_{RP} + \beta_D DIST_{RP} + \beta_{SR}SIZE_{R,t} + \beta_{SP}SIZE_{P,t}\right].\varepsilon_{RP,t.} \quad (1)$$

Then, we expand the classic gravity model of financial assets trades with a set of indicators to consider the economic profile of each country and its partners to identify the main determinants of financial and banking fragmentation. More precisely, in addition to the traditional gravity model variables, we consider macroeconomics, as well as financial and social factors that could enhance or hinder bilateral banking and financial flows. Social integration is accounted with $INE_{Rt}$is a measure of inequality in the reporting country at time t, INE_{Pt} is a measure of inequalities in the partner country at time t and $\varepsilon_{ij,t}$ the error term. Note that the inequality variable changes across specifications: i) the pretax income decile repartition for the poorest (*inc10*) and ii) the richest (*inc90*) iii) the spread between the richest and poorest decile of income (*incsprd*) iv) the wealth decile repartition for the poorest (*wealth10*) and v) the richest (*wealth90*) as well as vi) the spread between the richest and poorest decile of wealth (*wealthsprd*). We therefore estimate the following model for each type of flows:

$$flows_{RP,t} = exp\left[\beta_0 + \beta_{CT}CONTIG_{RP} + \beta_D DIST_{RP} + \beta_{SR}\ln\left(SIZE_{R,t}\right) + \beta_{SP}\ln\left(SIZE_{P,t}\right) + \beta_{INER}INE_{Rt} + \beta_{INEP}INE_{Pt}\right].\varepsilon_{RP,t}\ . \quad (2)$$

Finally, we estimate the unconstrained version of the model with baseline, contextual, social and financial variables where $CC_{R,t}$ is a variable of returns on financial markets that approximates the cost of capital in the reporting country at time t, $CC_{P,t}$ is a variable of returns on financial markets that approximates the cost of capital (weighted average of stock and bond markets returns) in the partner country at time t, $IFI_{R,t}$ and $IFI_{P,t}$ are the Lane and Milesi-Ferreti (2007) indicator of financial openness in the reporting and partner country respectively , $LEG\_CL_{P,t}$ equals one if the partner country has common law for legal system:

$$PT_{RP,t} = exp\left[\beta_0 + \beta_{CT}CONTIG_{RP} + \beta_D DIST_{RP} + \beta_{SR}SIZE_{R,t} + \beta_{SP}SIZE_{P,t} + \beta_{CCR}CC_{R,t} + \beta_{CCP}CC_{P,t} + \beta_{LEG}LEG\_CL_{P,t} + \beta_{IFIR}IFI_{R,t} + \beta_{IFIP}IFI_{P,t} + \beta_{INER}INE_{Rt} + \beta_{INEP}INE_{Pt}\right].\varepsilon_{RP,t}. \quad (3)$$

[6] While the results presented in the paper rely on the Poisson Pseudo maximum Likelihood, we perform robustness checks regarding the estimation methods used to estimate the gravity models. Following Portes and Rey (2005)), Head, Mayer and Ries (2010), and Head and Mayer (2014), the equation is also estimated with Ordinary Least Squares (OLS) using ln(PT_{RPt}), ln($EQUITY_{RPt}$), ln($DEBT_{RPt}$) or ln (FDI_{RPt}) and ln(CBL_{RPt}), as dependent variables and the gamma pseudo maximum likelihood estimator, as a robustness check. Results are omitted for brevity. The main results carry over the robustness check.

Eq. (3) presents the estimation equation for the full unconstrained models with for portfolios flows ($PT_{RP,t}$) as a reference case. We now present the differences in modelling for different types of flows.

4.1 Specifications of Gravity Models for Equity Flows

We estimate the same model specifications for equity with the indicator of financial openness specific to equity flows: $GEQ_{R,t}$ is the Lane and Milesi-Ferretti (2007) indicator of financial openness for equity markets in the reporting country, $GEQ_{P,t}$ is the Lane and Milesi-Ferretti (2007) indicator of financial openness for equity in the partner country.

4.2 Specifications for Gravity Models for Debt Flows

The models estimated for debt flows are essentially the same as those for portfolio flows, except that the size and return variables represent the bond market in the country of interest.

4.3 Specifications for Gravity Models for Foreign Direct Investments

Gravity models for FDI have been introduced by Buch, Kokta and Piazolo (2003), Egger and Pfaffermayr (2004) and Bevan and Estrin (2004) to assess the impact of the Eurozone creation and country insertion in the zone on FDIs. We estimate the same models for FDIs as presented for equity flows. We note that in this case, among the economic factors that are found in the literature as sound determinants of FDIs (see e.g., Nguyen and Cieślik, 2021), we control for market size (proxied by stock market size) and market fragmentation directly in the exogenous variables of the gravity model.

4.4 Specification for Cross-Border Loan Flows

The financial variables for cross-border loans are specific as they include borrower-based macroprudential measures, as highlighted by the literature (Gagnon and Gimet, 2020). We estimate the following gravity model for cross-border loans given by:

$$CBL_{R,P,t} = exp\big[\beta_0 + \beta_{CT}CONTIG_{ij} + \beta_D DIST_{RP} + \beta_{SR}TotCredit_{R,t} + \beta_{Sj}TotCredit_{P,t} + \beta_{IFIR}IFI_{R,t} + \beta_{IFIP}IFI_{P,t} + \beta_{LEG}LEG\_CL_{P,t} + \beta_{LCR}LCR_{R,P,t} + \beta_{NPLR}NPL_{R,t} + \beta_{NPLP}NPL_{P,t} + \beta_{INER}INE_{Rt} + \beta_{INEP}INE_{Pt}\big].\varepsilon_{RP,t}, \quad (4)$$

where $CBL_{RP,t}$ are cross-border loans from the reporting country to the partner country at time *t*, $TotCredit_{Rt}$ is the lagged logged size of the loan markets in the reporting country at time *t*, $TotCredit_{Pt}$ is the lagged logged size of the loan markets in the partner country at time *t*, $LCR_{RP,t}$ is a dummy variable that represents common lender-based financial regulation for both countries at time *t*, $NPL_{R,t}$ is a variable that reflects the presence of borrower-based macroprudential measures in the reporting country at time *t* approximated by the ratio of non-performing loans and $NPL_{P,t}$ is a variable that reflects the presence of borrower-based macroprudential measures in the partner country at time *t* approximate by the ratio of non-performing loans.

4.5 Multilateral Resistances for the Reporting Country

In this section, we extend our analysis from the previous section to account for multilateral resistances in reporting countries and thus, rooting our analysis strongly into the theoretical foundations of gravity models. Anderson and Van Wincoop (2003) underscore the importance of controlling for a potential bias relative to unobservable factors named multilateral resistance in the original model. We follow the approach undertaken in Aviat and Coeurdacier (2005) and add reporting countries and time dummies to the model. The estimated equation for each flow type ($flows_{R,P,t}$) becomes:

$$flows_{R,P,t} = exp\big[\beta_0 + \sigma_{R,t} + \beta_{CT}CONTIG_{RP} + \beta_D DIST_{RP} \quad + \beta_{SP}SIZE_{Pt} \quad + \beta_{CCP}CC_{P,t} + \beta_{LEG}LEG\_CL_{P,t} + \beta_{IFIP}IFI_{P,t} + \beta_{INEP}INE_{Pt}\big].\varepsilon_{RJ,t}. \tag{5}$$

The specification accounts for the reporting country and time fixed effect ($\sigma_{R,t}$) while allowing to investigate and test the effects of financial and social fragmentation.

4.6 Eurozone Fragmentation

We now aim to extend our analysis by controlling for multilateral resistances in both the reporting and partner countries (Anderson and VanWincoop, 2003 and Fally, 2015). In this context, all country-specific variables in the model are absorbed by fixed effects. However, this approach documents social fragmentation since it measures the effects of inequalities *between* countries of the Eurozone rather than *within* a given country. To that end, we introduce spreads between inequality measures in the partner and reporting countries ($BETWEEN_{RPt}$). We use two specifications to capture this effect. We first use a dummy variable that equals one when the partner country has a higher measure of the given inequality measure than the reporting country and zero otherwise. In the second approach, we use the magnitude of the spread of the inequality measure of each country between the partner and reporting country in absolute value. The equation estimated is:

$$flows_{R,P,t} = exp\Big[\beta_0 + \sigma_{R,t} + \rho_{P,t} + \beta_{CT}CONTIG_{RP} + \beta_D DIST_{RP} \quad + \beta_{LEG}LEG_{RP,t} + \beta_{BETRP}BETWEEN_{RP}\Big].\varepsilon_{rp,t}, \tag{6}$$

where $LEG_{R,P,t}$ is a dummy variable equal to 1 if both countries share a legal system and 0 otherwise and $\sigma_{R,t}$ and $\rho_{P,t}$ are the reporting country-time and partner country-time fixed effects.

4.7 Testable Hypotheses

Considering the literature review in Section 2, we present in this section the hypotheses that we test within the gravity model framework for different categories of capital flows. These hypotheses are formulated to measure the effect of social and financial fragmentation and to anchor our paper in the gravity model literature where it is customary to test whether the distance is still significant after we control for other factors. Much of the literature has theorized that distance is a proxy for other more fundamental factors (Portes and Rey, 2005).

Consistently with the literature on gravity models that introduces new factors to the model, for example contiguity (McCallum, 1995), financial integration (Portes and Rey, 2005) language translation (Sin 2018), religion and genetic similarities (Groemann, 2023) and culture (Aggarwal, Kearney and Lucey,

2011), we aim to find whether the introduction of a new factor reduces transaction cost and therefore the impact of the distance between two markets. In our setting, we aim to see whether a new factor, namely social fragmentation measured via income and wealth inequalities, is empirically important. In addition, Portes and Rey (2005) have already documented the importance of financial openness for capital flows. Thus, we want to assess whether social fragmentation is still relevant once we control for financial fragmentation. The first two hypotheses are linked to inequality measures *within a* country while the third hypothesis relates to inequality measures *across* countries of the Eurozone and informs on the importance of capital flows due to variations in inequality measures across countries.

- **H_{soc}**: Social integration has no impact on capital flows
  Against the bilateral alternative that social fragmentation is important. Empirically, this is tested in eq. (2) with $\beta_{INER} = 0$ and/or $\beta_{INEP} = 0$ against bilateral alternatives $\beta_{INER} \neq 0$ and $\beta_{INEP} \neq 0$.

If the impact is significantly positive, we associate it with what we call the *diversification effect of social fragmentation,* that is, a larger gap between the highest and the lowest decile of inequalities can lead the richer investors to invest abroad to diversify their wealth or income. Conversely, if the impact is negative, it implies that when the gap shrinks between the highest and the lowest deciles, investors invest less abroad. We call this effect the *demand effect of inequalities* since it implies that domestic markets are more appealing for investors to invest their capital.
We also consider a second hypothesis in which financial and social fragmentation interact as complements or substitutes for one another. This implies that both financial and social fragmentation should not remain significant when added jointly to gravity models,

- **H_{FS}**: social integration is not a proxy from financial integration;
  Against the alternative hypothesis that coefficients on both social and financial fragmentations are significant when present together in the model. Empirically, this is tested in Eq. (3) with $\beta_{INER} = 0$ and/or $\beta_{INEP} = 0$ against bilateral alternatives $\beta_{INER} \neq 0$ and $\beta_{INEP} \neq 0$.

Finally, the hypotheses up to now are linked to inequality measures within one country. The following hypothesis relates to inequality measures across countries of the Eurozone and informs on the importance of capital flows due to variations in inequality measures across countries.

- **H_{Frag}** : Social fragmentation across countries of the Eurozone has no impact on capital flows;
  Against the bilateral alternative hypothesis that social fragmentation across countries is important for capital flows. Empirically, this is tested in eq. (5) with $\beta_{BET} = 0$ against bilateral alternatives $\beta_{BET} \neq 0$.

5. Results

The models are first estimated with a baseline set of variables (distance, size for both countries and contingent border). In sections 5.1 to 5.6, we focus on domestic measures of inequality that relate to our first two hypotheses. We produce results on inequality measures across European countries that relate to our third hypothesis in Section 5.7. We present our evidence for portfolio flows followed by equity and debt flows to cover the type of capital most liquid and most studied first. We then present results for FDIs followed by CBLs.

5.1 Portfolio Flow Gravity Models

First, we present results associated with the estimation of gravity models with aggregate portfolio flows as the dependent variable. Results are reported in Table 2. In the second column of Table 2, the baseline results are reported. As expected, portfolio flows are proportional to market size and inversely proportional to distance, with p-values close to zero. This evidence draws a similar picture as that of Portes and Rey (2005) in a related context. In terms of inequalities, several measures are significant when added to the baseline model. Thus, we reject the first hypothesis $\mathbf{H_{SOC}}$. In particular, the top decile of the wealth distribution (*wealth90*) as well as the spread between the top decile and the bottom decile of the wealth distribution (*wlthsprd*) are significant and positive in both countries. The top decile of the income distribution (*inc90*) as well as the income spread (*incsprd*) are also positive and p-values are around 0.01. Thus, when the top of the wealth distribution (*wealth90*) becomes wealthier, it increases European cross-border portfolio flows. However, the evidence is mixed once we add financial fragmentation measures to the model. Then, the main determinant of portfolio flows is Lane and Milesi-Ferreti's measure of financial openness (IFI_R and IFI_P) and cost of capital measures for both countries. In this case, the signs are positive, and p-value are around 0.01 for both countries in all specifications, as expected. Measures of R squared increase importantly when financial variables are taken into account. The legal system of the partner country (LEG_CL_P) often reveals a p-value lower than 0.05. From this evidence, the case to augment the traditional baseline gravity model appears to be limited, especially for social inequalities as only the top decile of the income distribution (and corresponding spread) remains significant for the reporting country. This means that we cannot reject the second hypothesis, H_{FS}, stating that social fragmentation does not matter after controlling for financial fragmentation. We now look at more specific measures of flows and show that our variables of interest (contextual, social and financial) and testable hypotheses are relevant for those flows categories.

5.2 Equity Flow Gravity Models

Table 3 presents the results for the estimation of the gravity models with equity flows as the dependent variable. First, the results show that the traditional gravity variables are significant at a 5% level significance and of expected signs, even when financial and social fragmentation are introduced in the model. Second, we find that financial controls are highly relevant in addition to the traditional gravity model, regardless of the social inequality measures introduced. Higher returns and cost of capital in both countries lead to an increase in equity flows as well as a greater financial openness. For equity, the distance coefficient ($DIST_{RP}$) is not significantly different from zero when the contingent border is significant and vice versa which is revealed by p-values at around 0.02 for these coefficients. The legal system in the partner country (LEG_CL_P) is often significant and positive (increasing inflows of equity in a common law country) with p-values close to zero (Laporta et al., 1997).
In terms of inequalities, the wealth spread (*wlthsprd*) and the right tail of the distribution (*wealth90*) always has a positive and significant impact on equity flows within both countries, even after controlling for the financial context. In other words, when individuals in the wealthiest part of the distribution become wealthier, it increases both outflows and inflows of capital (Saez and Zucman, 2016). In terms of income, the spread measure (*incsprd*) as well as the right tail of the distribution (*inc90*) are also highly significant and positive in both countries (although with coefficients of smaller magnitude than wealth). Thus, for equity flows, we clearly reject the testable hypotheses, H_{SOC} and H_{FS}.

5.3 Debt Flow Gravity Models

Table 4 presents the results for the extended gravity model estimated on European debt flows. First, the dummy variable indicating a shared border ($CONTIG_{RP}$) is never significant for debt, contrary to what is presented above for equity. This result aligns with the evidence in the bond literature: in the absence of foreign exchange risk, which applies to the Eurozone, there is no home bias (Burger et al., 2018). The sign and significance of the distance ($DIST_{RP}$) (significantly negative with p-values all below 0.02) and size of the bond markets ($SIZE_R$ and $SIZE_P$) (significantly positive with p-values all very close to zero) coefficients are as expected. The inequality measures for the reporting country are significant at 5%, even once we control for the size of the financial sector. The right tail of the wealth distribution ($wealth90_R$) as well as the wealth spread ($wlthsprd_R$) for the reporting country are positive and significant with p-value close to zero. This finding implies that when the wealthy get wealthier in the reporting country, they invest this increasing share of their wealth more intensely into European debt outside of their national borders. Also, the right tail of the income distribution ($inc90_R$) for the reporting country matters significantly and positively in the gravity model. Finally, in terms of financial variables, we find that the return on the bond market in the reporting country (CC_R) is not important (p-values larger than 0.10) to explain debt flows when income measures are introduced and increasing yields on debt in the partner country does not explain debt flows. As expected, measures of financial openness have p-values close to zero and positive coefficients for the reporting countries. However, they are not important for the partner countries. In terms of inequalities, the measure of right tail of the income and wealth distributions are positive and often significant at the 5% level. Finally, the legal system of the partner country being the common law does not seem to matter for debt movements in Europe. This is not surprising since Laporta et al. (2004) document that the legal system mostly mattered for equity holders, who are the last claimants. In the context of bond flows, as was the case for equity flows, our first two hypotheses are rejected and we conclude that social fragmentation matters, even after controlling for financial fragmentation.

5.4 FDI Flow Gravity Models

Table 5 presents the results for FDIs' determinants. The classic gravity model presents the expected sign and close to zero p-values for distance (negative) and both countries' size (positive). The common border variable never reveals a p-value below 0.05. The financial openness measures are always positive for both partner and reporting countries and present p-values close to zero (GEQ_R and GEQ_P). No specification of the model leads to an insignificant distance coefficient ($DIST_{RP}$) with p-values across models for this variable very close to zero. This shows that in the case of FDIs despite the overall fit of the gravity model, other factors would explain why distance is a deterrent to this type of investment. The common law system in the partner country (LEG_CL_P) has a positive impact on the inflows of FDIs in this country. The returns obtained on the stock market (CC_R) in both reporting and partner country (CC_P) do not have a significant impact on FDI flows, except for three cases for the reporting countries with small and positive coefficients and associated p-value between 0.05 and 0.10. We find a negative and significant at 5% impact for FDI when the right tail of the wealth ($wealth90_P$) and income distributions ($inc90_p$) in the partner country increases as well as the spread (inc$sprd_P$). Increasing income inequalities also has the same effect. In the case of FDI, our results on the right tail of the income distribution ($inc90_R$) and the spread (inc$sprd_R$) also show a significant negative impact in the reporting country. This is coherent with what was witnessed during the COVID crisis. Thus, this result suggests that inequalities within a given country will deter FDIs in Europe. Since foreign direct investors are looking for a greater market base when they invest in the Eurozone due to their horizontal nature, when the rich become richer, a smaller proportion of the population has disposable income and wealth which

decreases the overall demand for goods. The FDIs measured in Europe are mostly horizontal and are not dependent on salary levels in the partner countries, as in vertical FDIs. If that were the case, we would get a negative and significant sign to $inc10_P$. Given the nature of direct investment, which is largely an investment in physical assets, combined with the horizontal nature of FDIs in Europe, it appears normal that inequalities in income or wealth would reduce FDI flows rather than increase them as it is the case for other types of capital flows. Again, in the case of FDI flows, our first two hypotheses are rejected, highlighting the relevance to of social fragmentation in the context of capital flows.

5.5 Cross-Border Loan Gravity Models

The coefficients for distance between capital ($DIST_{RP}$), common border ($CONTIG_{RP}$) and size ($SIZE_R$ and $SIZE_P$) have associated p-values very close to zero, as expected. For the size coefficients, both reporting and partner countries have a positive coefficient, ranging between .378 and .982 and a p-value very close to zero. While the significance and sign of the coefficients are comparable in the existing literature, the exact magnitude of these coefficients can vary given differences in model specifications. These results extend the existing evidence on the baseline model of capital flows, as well as those found previously on the specific case of bank loans (Martin and Rey, 2003; Portes and Rey, 2005; Head, Mayer and Ries, 2010; De Benedictis and Taglioni, 2011).

Inequality variables are introduced next. Results show that wealth measures are especially relevant for CBLs. In particular, the right tail of the distribution coefficient (*wealth90*) revealing p-values close to zero for both partner and reporting countries. As before, when the rich get richer in both countries, cross-border loans increase. The same result is found for the positive coefficient associated with wealth spread (wlthsprd). When financial variables are introduced, however, only the wealth indicators of inequalities in the reporting country remain significantly positive. As for the income measures, they are not significant in general. One exception is the lower tail of the income distribution in the partner country ($inc10_p$) which is found to have a negative sign. This result is not robust, however, to the introduction of the financial variables and controls which we discuss next.

The measure of financial fragmentation consists of regulation variables in addition to the baseline gravity model. The first indicator introduced is the liquidity coverage ratio (LCR), a time indicator variable depicting the evolution in the requirements made by the ECB. It is a lender-based measure common to all euro countries. It is found not to be very important with p-values larger than 0.10 in all specifications. The second measure of fragmentation highlights the difference in European country borrower-based regulation related to nonperforming loans). Our result shows that increasing the nonperforming loans ratio in the reporting country (NPL_R) decreases cross-border flows to the partner countries. The partner countries' nonperforming loans measure (NPL_P) has p-values larger than 0.20 in most specifications. These findings suggest that loans tend to leave from countries with slacker regulations regarding nonperforming loans and therefore higher nonperforming loan ratios. Consequently, financial fragmentation is detrimental to cross-border loans. The legal system of the partner is positive and significant (LEG_CL_P), often at a 5% level. Finally, it is important to note that the distance coefficient is often no longer significant when all variables are included with different measures of wealth and income which is good news for the model. In the case of CBL flows, we reject the Hsoc hypothesis for wealth measures. The evidence is not as strong for income, especially when we account for the financial controls. We still reject the second hypothesis H_{FS} for the wealth measure associated with the reporting country, but we cannot reject in the other cases.

5.6 Fixed Effects for the Reporting Country Resistance

We now present results for robustness checks accounting for time and fixed effects in the reporting country. Results are presented in the Appendix and show, in essence, that our main results are unchanged. Table A.1 presents the results for the portfolio flows. The results are the same as before, namely that for aggregate portfolio flows ($PT_{R,P,t}$), measures of social inequalities are no longer significant once financial integration measures are taken into account. Table A.2 presents the results for equity flows ($EQUITY_{R,P,t}$) that are the same as before, except that the coefficient for left tail of the income distribution ($inc10_P$) is negative and significant at 5%, even after controlling for financial integration. A similar observation can be made from debt flows ($DEBT_{\mathrm{RP,t}}$) results presented in Table A.3. However, we find that the left tail of the income distribution ($inc10_P$) is now significant but positive at 5%. Combined with the results on stocks, we find that fluctuations on the left tail of the income distribution of the partner country ($inc10_P$) reveals a substitution effect from stocks to bonds. This can be explained by the fact that when a larger proportion of the population becomes poorer as it is the case here, the net inflows of debt increase since risk aversion leads investors to buy bonds in larger proportion than shares. These results underscore the importance of testing several measures of social inequalities. The left and right tails of the income and wealth distribution are indeed related differently to flows. Finally, Table A.4 and A.5 show that results are unchanged for FDIs and CBLs respectively. We conclude that the addition of one fixed effect for one country in our gravity models does not, in general, change our conclusions on the sign and significance of the variables in our models. Given that the presence of multiple dummy variables, the question of reduced power might explain why in a few cases we lose the significance of explanatory variables linked to distance and financial measures.

5.7 European Fragmentation

We now present the results for the analysis accounting for both countries fixed effects. We introduce measures of spreads between the two countries to investigate the effects of social fragmentation across the Eurozone. These spreads reflect changes in the income and wealth distributions that are different between countries in the Eurozone. Results are presented for the two specifications (either the absolute value of the spread or a dummy variable for when the measure is higher in the partner country) in Table 7 to 12.

In Table 7, we find that portfolio flows increase when the spread between the right tail of the wealth distribution (*wlth90_BET*) in absolute value increases at a 10% level while they decrease when the spread in the lower income increases (*inc10_BET*) and when wealth inequalities (*wlthsprd_BET*) are higher in the partner country (dummy) at a 10% level.

Table 8 shows that social fragmentation matters importantly for equity market flows. When the spread (absolute value) increases in the left tail of the wealth distribution (*wlth10_BET*), equity flows decrease. Equity flows also decrease when the spread increases for the right tail of the income distribution (*inc90_BET*) and the between country inequalities (*incsprd_BET*) for both absolute value and dummy measures. We note that when the partner country left tail of the income distribution (*inc10*_BET) in dummy variable increases more than the reporting country's equity flows increase. Finally, equity flows decrease when the spread of the income distribution (*incsprd_BET absolute value*) increases and when the higher decile in income is higher (*inc90_BET dummy*) in the partner country that the reporting country. This shows that larger inequalities reduce flows.

For debt flows, presented in Table 9, we also find negative effects of social fragmentation for several measures of inequalities across the Eurozone, when the spread in absolute value between countries increases in the lower wealth decile (*wealth10_BET*), as well as when the spread in absolute value

increases in the higher end of the income distribution (*inc90_BET*). When the partner country has higher measures of revenue in the lower end of the distribution than the reporting country (dummy for *inc10_BET*), debt flows decrease. When the rich have a larger part of the wealth distribution in the partner country (wealth90_sprd dummy) and when wealth inequalities are higher between countries in Europe (*wlthsprd_BET* dummy), debt flows decrease.

FDIs in Table 10 are also impacted by social fragmentation but in a smaller magnitude: only the absolute value of the spread of the lower end of the wealth distribution (*wlth10_BET*) impacts negatively FDIs flows at a 5% level. The higher tail of the income distribution (*inc90_BET* dummy and *incsprd_BET*) also impacts FDIs negatively but only at a 10% significance level.

Finally, Table 11 show results for CBL flows. The absolute value of the spread in the lowest decile of wealth as well as the dummy (*wealth10_BET*) increase CBL flows. Those results suggest that when a partner country reduces poverty and increases the wealth held by the poorest, it increases flows regardless of what happens in the other country. Our analysis reveals the reverse when the rich get richer faster in the partner country (*wealth90_BET* and *wealthsprd_BET* dummies) where CBLs decrease. In terms of the spreads between the income distribution, we find that the signs are reverse in this case. Although the significance of this evidence is not as strong, one possible explanation for this finding would be a temporarily decreased competitiveness of small businesses when salaries increase too rapidly. These businesses will decrease their demand for loans.

Taken collectively, our evidence reveals an important result across all categories of flows: when inequality spreads and social fragmentation increase, flows are almost always reduced. In other words, we reject our hypothesis $\mathbf{H_{FRAG}}$ of the non-significance of social fragmentation between countries after accounting for multilateral resistances for all the models considered. This is another way of showing that inequalities are detrimental to flows and that governmental policies should aim at reducing inequalities to let capital flows easily. Inequalities and the different changes in the income and wealth across countries appear to be an important source of fragmentation in the Eurozone.

5.8 Discussion of Results

While the results obtained with the baseline models are in line with the existing gravity literature, we find that a greater level of financial market integration in both the reporting and the partner country increases all flows. This effect – all flows increasing with a greater level of financial market integration - is measured for all models and dependent variables. When we do not control for fixed effects, it is interesting to note that controlling for the regulatory context as well as financial and social fragmentation does not render distance insignificant for most specifications and types of flows, but that often the contingent border appears unimportant. We also note that the distance coefficient is reduced once financial and social fragmentation are present in the model. Thus, we conclude that our proposed model accounting for financial and social fragmentation captures some, but not all of the home bias traditionally depicted in the distance and common border variables. When we control for two fixed effects, depending on the nature of the flows, there are occurrences in which, even after controlling for social fragmentation, distance and a common border remain important, mainly for bonds, FDI and CBL. This paper shows that inequalities matter and cannot be proxied by financial fragmentation. Furthermore, our evidence regarding H_{SO} and H_{FS} underscores the importance of decomposing capital flows into categories. In fact, controlling for financial fragmentation absorbs most of the effect of inequalities on portfolio flows, but it is no longer the case when the dependent variable is disaggregated. Thus, social fragmentation plays a different role according to the nature of the flows under study. For debt flows, equity flows and CBLs, social fragmentation matters, especially when measured by the wealth and income differential between the richest and the poorest decile. In general, increasing wealth inequalities (measured by *wealth_spread*) in both the reporting and the partner countries implies more

flows. This is a *diversification effect*, as wealthier fringes of the distribution aim to diversify internationally in liquid assets. This result is consistent with standard evidence in the international asset allocation literature (e.g., Guidolin and Timmermann, 2008) that shows that agents aim to diversify their portfolio of assets. For FDIs, the same wealth spread measure is found to be significant and negative, but only for the partner countries. This *demand effect* of inequalities suggests that the physical investment entailed in FDIs is deterred by the decrease in purchasing power of the population when inequalities increase, given the horizontal nature of FDI in the Eurozone. In fact, the horizontal FDIs is Europe are typically motivated by an enlargement of the market for international businesses. This result is consistent with Markusen (2013) whose model predicts that horizontal multinational activity is negatively related to per capita income differences between countries. Our evidence suggests that growing inequalities decrease the potential for market growth in a given country and therefore deter direct investments. This is interesting given that this negative relationship would typically be associated with foreign exchange and political risk. Given that these risks are mitigated in the Eurozone, this is an important contribution of our paper, as our effect can be associated directly to the effects of social fragmentation on consumption demand.

Contextual variables accounting for the national cost of capital and the legal system in the partner country are statistically significant, but their effect is often mitigated. In fact, a higher cost of capital implies more portfolio and equity flows, but the magnitude of the effect is more modest than with traditional gravity model variables. The common law legal system in the partner country is an attractive feature for portfolios flows. For debt flows, when inequalities are important, the legal system variable loses its significance. Since debt owners are more protected than equity owners, it is not surprising that the legal system matters less for more protected markets. The common law legal system attracts more FDIs, possibly again reflecting the further mobility constraint placed on that type of investment and the role of financial hubs for FDIs and CBL. In that latter case, a common border is important for CBL flows given that these types of loans concern mainly small investors and corporations; it makes sense that a shared border would increase flow.

Our fixed effect analysis complements the appreciation of these results in showing that not all flows are influenced in the same way by changes in inequalities. For example, when the 10^{th} percentile spread is enlarged, equity flows increase while when the 90^{th} spread grows, equity flows diminish. Our most important result in this analysis, consistent with the rejection of our third hypothesis related to fragmentation between countries H_{FRAG}, remains that when inequality spreads grow in the Eurozone, it is detrimental to capital flows, illustrating the importance and relevance of social fragmentation.

6. Conclusion

In this paper, we use gravity models augmented with social and financial fragmentation measures to document their impacts on capital movement in Europe. Our rationale for using European data is twofold: first, the European case presents an interesting natural experiment where many factors such as exchange rates, political risk and monetary policies are common. Therefore, any remaining sources of fragmentation measured in our model are not proxies for these important factors. Second, the existing literature on social fragmentation measured as wealth and income inequalities documents global markets, with a focus on emerging markets. We argue that, even in countries that have already achieved a high degree of social and financial convergence, our measures of inequalities and fragmentation remain relevant. In fact, we test three hypotheses regarding financial and social fragmentation. We concluded that financial fragmentation has a significant impact on capital movements, along with social inequality measures. We further find that both financial and social fragmentation remain significant

when added jointly to gravity models. We therefore conclude that they measure different phenomena relevant to capital movements.

We further document how different types of capital movements lead to different reactions to variations in fragmentation. Larger wealth inequalities imply more capital movements for equity, bonds and CBLs (a diversification effect of inequalities) with easier access to financing for the wealthier, but not for FDIs (a demand effect of inequalities). For FDIs, our results show that the physical investment entailed in FDIs is deterred by greater inequalities in the host country. These findings raise further questions in terms of economic policy. Indeed, our empirical evidence coupled with the recent evidence on monetary policies and inequalities (McKay and Wolf, 2023) suggest that the traditional of objectives of Central Banking could be enlarged to include targets in terms of inequalities in order to provide a balanced distribution of capital within the Eurozone and to avoid the asymmetric impact of shocks. Furthermore, common borrower-based measures could help alleviate the current fragmentation within the European credit market.

We conclude with three policy recommendations. First, in order to provide a more balanced distribution of capital within the Eurozone and to avoid the asymmetric impact of shocks, the European Central Bank would do well to diversify their objective to account for inequalities. This will be all the more favourable as it will allow greater homogeneity in the transmission of monetary policy *within* and *between* countries. Second, the European banking union must be deepened and strengthened by common borrower-based measures in order to eliminate the market fragmentation inside the Eurozone. Finally, the adoption of the capital union could support regional capital market integration, offer new financing opportunities for small and medium sized enterprises, support sustainable investments, limit home bias and promote the European financial market stability.

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Table 1. Data description

Dependent Variables : $flows_{R,P,t}$		
Portfolio flows	$PT_{R,P,t}$	Total Portfolio held by the reporting country in the partner country /JRC-ECFIN database from the ECB (in euros) (outflows from country *R* to country *P*)
Equity flows	$EQUITY_{R,P,t}$	Assets, Equity held by the reporting country in the partner country/ Coordinated Portfolio Investment Survey (CPIS) (outflows from country R to country *P*)
Debt flows	$DEBT_{R,P,t}$	Assets, Debt Securities held by the reporting country in the partner country/ Coordinated Portfolio Investment Survey (CPIS) (outflows from country *R* to country *P*)
Cross-Border Loans	$CBL_{R,P,t}$	MFI to non-MFI loans end of period /ECB database from country *R* to country *P*. All currencies combined, reported in euros.
Foreign Direct Investment	$FDI_{R,P,t}$	FDI directional principle held by the reporting country in the partner country/ JRC-ECFIN database from the ECB (in euros) (outflows from country *R* to country *P*)
Independent variables *Geographic variables*		
Common border	$CONTIG_{RP}$	= 1 if both countries have common frontier (CEPII gravity database)
Distance	$DIST_{RP}$	Log distance in km between capitals / (CEPII gravity database)
Regulatory variables / common variables / banking model		
Common macroprudential measure on liquidity	$LCR_{,t}$	1= Effective October 1, 2015, the LCR is set at 60%. 2 =Effective January 1, 2016, the LCR is increased to 70% 3 =Effective January 1, 2017, the LCR is increased to 80% (iMaPP database and ECB lender-based measures)
Regulation variables / common variables / financial and banking models		
Common law Legal system	$LEG\_CL_{P,t}$	= 1 if the receiving country has the common law as a judicial system. From Raphael Laporta's website based on La Porta et al. (1997) and following contributions.
Banking Variables / National variables / banking model		
Banking sector size	$TotCredit_{R,t}$ $TotCredit_{R,t}$	Lagged log of the total credit to non-financial corporations, households and non-profit institutions serving households (ECB)

Risk	$NPL_{R,t}$ and $NPL_{P,t}$	Non-performing loans ratio – (Supervisory Banking Statistics ECB)
Financial Variables / National variables / financial model		
Financial markets size	$SIZE_{R,t}$ and $SIZE_{P,t}$	Lagged log of capitalisation (in Euros) for a given market: (stock, bonds and financial market as a whole). ECB database.
Cost of capital	$CC_{R,t}$ and $CC_{P,t}$	For stocks: national index returns (Standard and Poor's and World Bank Bonds: FTSE fixed income index (Refinitiv) For financial markets: weighted average returns on financial markets (stock + bonds).
volume-based measure of financial integration in flows	$IFI_{R,t}$ and $IFI_{P,t}$	$IFI_{i,t} = \frac{(FA_{it} + FL_{it})}{GDP_{it}}$ where *FA* and *FL* refer to the stocks of aggregate foreign assets and liabilities, respectively where *i* is either reporting or partner country. Milesi-Ferretti and Lane (2007 and 2022)
volume-based measure of financial integration in equity	$GEQ_{R,t}$ and $GEQ_{P,t}$	$GEQ_{i,t\,it} = \frac{(PEQA_{it} + FDIA_{it} + PEQL_{it} + FDIL_{it})}{GDP_{it}}$ where *PEQA (L)* and *FDIA (L)* are the stocks of portfolio equity and FDI assets (liabilities) where *i* is either reporting or partner country. Lane and Milesi-Ferretti (2007 and 2022)
Social inequalities variables / national variables : INE_{it}		
Income inequality	$inc10_{R/P,\,t}$ $inc90_{R/P,\,t}$ $incsprd_{R/P,\,t}$	the income decile repartition (10 and 90 deciles) (pre tax)(WID database). The poorest (P10) and richest (P90) decile are used as well as the spread between the richest and poorest (P90- P10).
Wealth inequality	$wealth10_{R/P,\,t}$ $wealth90_{R/P,\,t}$ $wlthsprd_{R/P,\,t}$	Measured with the decile (10 and 90) of wealth decile repartition (WID database) The poorest (P10) and richest (P90) decile are used as well as the spread between the richest and poorest (P90-P10).
European social fragmentation $BETWEEN_{R,P,t}$		
Income fragmentation	inc10_BET inc90_BET incsprd_BET	Defined as either the absolute value of the spread between the income measures of the partner and reporting country or a dummy variable that equals to when the partner has a higher measure than the reporting country.
Wealth fragmentation	wlth10_BET wlth90_BET wlthspred_BET	Defined as either the absolute value (AB) of the spread between the wealth measures of the partner and reporting country or a dummy variable that equals one (D) when the partner has a higher measure than the reporting country.

Table 2. Results for portfolio flows

$CONTING_{RP}$	0.164	0.218	0.251	0.140	0.261*	0.208	0.270*	0.162	0.269*	-0.100	0.080	-0.099	0.082
	[0.210]	[0.218]	[0.159]	[0.199]	[0.137]	[0.211]	[0.145]	[0.221]	[0.159]	[0.202]	[0.160]	[0.202]	[0.160]
$DIST_{RP}$	-0.625***	-0.616***	-0.214**	-0.668***	-0.261***	-0.654***	-0.241**	-0.628***	-0.206*	-0.793***	-0.366***	-0.795***	-0.366***
	[0.115]	[0.116]	[0.107]	[0.098]	[0.098]	[0.103]	[0.108]	[0.129]	[0.114]	[0.126]	[0.122]	[0.127]	[0.122]
$SIZE_R$	0.661***	0.642***	0.736***	0.656***	0.764***	0.656***	0.759***	0.639***	0.745***	0.655***	0.740***	0.655***	0.740***
	[0.074]	[0.095]	[0.062]	[0.073]	[0.054]	[0.077]	[0.057]	[0.083]	[0.060]	[0.068]	[0.055]	[0.068]	[0.055]
$SIZE_P$	0.617***	0.611***	0.757***	0.597***	0.743***	0.598***	0.741***	0.599***	0.735***	0.628***	0.748***	0.628***	0.748***
	[0.072]	[0.095]	[0.065]	[0.070]	[0.047]	[0.073]	[0.052]	[0.082]	[0.055]	[0.073]	[0.051]	[0.073]	[0.051]
CC_R			0.007**		0.006**		0.006**		0.007**		0.008**		0.008**
			[0.003]		[0.003]		[0.003]		[0.003]		[0.003]		[0.003]
CC_P			0.009***		0.009***		0.009***		0.008***		0.009***		0.009***
			[0.003]		[0.002]		[0.002]		[0.003]		[0.003]		[0.003]
IFI_R			0.004***		0.004***		0.004***		0.004***		0.004***		0.004***
			[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
IFI_P			0.005***		0.005***		0.005***		0.005***		0.005***		0.005***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
LEG_CL_P			0.190		0.419**		0.425**		0.269**		0.221		0.222
			[0.131]		[0.183]		[0.215]		[0.127]		[0.138]		[0.138]
$wealth10_{R\_}$		-0.167	0.254										
		[0.384]	[0.371]										
$wealth10_P$		-0.409	-0.181										
		[0.390]	[0.349]										
$wealth90_R$				0.463***	0.175								
				[0.149]	[0.127]								
$wealth90_P$				0.339**	-0.089								
				[0.136]	[0.086]								
$wlthsprd_R$						0.375***	0.129						
						[0.113]	[0.102]						
$wlthsprd_P$						0.296***	-0.077						
						[0.107]	[0.089]						
$inc10_R$								-2.629	-0.552				
								[1.627]	[1.085]				
$inc10_P$								-1.178	1.251				
								[1.197]	[0.910]				
$inc90_R$										0.118***	0.072***		
										[0.029]	[0.020]		
$inc90_P$										0.081***	0.028		
										[0.031]	[0.023]		
$incsprd_R$												0.117***	0.071***
												[0.029]	[0.020]
$incsprd_P$												0.080***	0.027
												[0.031]	[0.022]
Constant	-3.107**	-2.888*	-9.401***	-6.992***	-9.798***	-6.441***	-9.655***	-1.138	-9.538***	-8.533***	-11.56***	-8.379***	-11.47***
	[1.378]	[1.488]	[1.151]	[1.584]	[1.161]	[1.567]	[1.192]	[1.981]	[1.619]	[1.601]	[1.009]	[1.579]	[1.002]
Obs	4,053	2,842	1,902	3,183	2,184	2,842	1,902	2,614	1,709	2,614	1,709	2,614	1,709
R-squared	0.565	0.544	0.750	0.598	0.756	0.592	0.753	0.560	0.750	0.592	0.778	0.592	0.778

Table 2 presents the estimated coefficients from the estimation of eq. (1) eq. (2) and eq (3) of the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-way clusters and are reported below each coefficient in round brackets. P-values are reported in brackets []. The dependent variable, $PT_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficient are

associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country and partner country, $SIZE_R$ is the market value of the financial markets (stocks and bonds) of the reporting country, ,$SIZE_P$ is the market value of the financial markets (stocks and bonds) of the partner country, CC_R is the cost of capitalof financial markets in the reporting country, CC_P is the cost of capital of financial markets in the partner country, $IFI_{R,}$ is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, IFI_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries have a common law as a legal system, $wealth10_R$ and $wealth10_P$ are the 10th decile repartition of the wealth distribution for the reporting and partner country, $wealth90_R$ and $wealth90_P$ are the 90th decile repartition of the wealth distribution for the reporting and partner country, $wlthsprd_R$ and $wlthsprd90_P$ are the spread between the 90th decile and 10th repartitions of the wealth distribution for the reporting and partner countries, $inc10_R$ and $inc10_P$ are the 10th decile repartition of the income distribution for the reporting and partner counties, $inc90_R$ and $inc90_P$ are the 90th decile repartition of the income distribution for the reporting and partner countries, $incsprd_R$ and $incsprd90_P$ are the spread between the 90th decile and 10th repartitions of the income distribution for the reporting and partner countries,

Table 3. Results for equity flows

$CONTING_{RP}$	1.069*	1.134**	1.001***	1.068	0.863***	1.176*	0.887***	0.974*	0.909***	0.732	0.449**	0.729	0.449**
	[0.566]	[0.549]	[0.347]	[0.662]	[0.301]	[0.680]	[0.309]	[0.560]	[0.293]	[0.460]	[0.203]	[0.459]	[0.203]
$DIST_{RP}$	-0.810**	-0.837**	-0.181	-0.890***	-0.252	-0.908***	-0.243	-0.915***	-0.211	-0.914***	-0.491***	-0.917***	-0.493***
	[0.328]	[0.352]	[0.167]	[0.336]	[0.188]	[0.339]	[0.189]	[0.296]	[0.160]	[0.277]	[0.130]	[0.275]	[0.130]
$SIZE_R$	0.348***	0.295**	0.535***	0.362***	0.506***	0.388***	0.537***	0.383***	0.504***	0.405***	0.527***	0.406***	0.527***
	[0.102]	[0.137]	[0.099]	[0.089]	[0.074]	[0.104]	[0.082]	[0.123]	[0.064]	[0.103]	[0.059]	[0.103]	[0.059]
$SIZE_P$	0.366**	0.428**	0.600***	0.326**	0.580***	0.370**	0.572***	0.353**	0.602***	0.365***	0.617***	0.365***	0.617***
	[0.155]	[0.204]	[0.129]	[0.157]	[0.118]	[0.164]	[0.118]	[0.153]	[0.122]	[0.139]	[0.098]	[0.138]	[0.098]
CC_R			0.005***		0.004***		0.005***		0.005***		0.004***		0.004***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
CC_P			0.003**		0.003***		0.003***		0.003***		0.003**		0.003**
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
GEQ_R			0.008***		0.007***		0.007***		0.007***		0.007***		0.007***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
GEQ_P			0.012***		0.011***		0.011***		0.012***		0.011***		0.011***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
LEG_CL_P			1.002***		0.608*		0.396		1.128***		0.937***		0.939***
			[0.264]		[0.317]		[0.369]		[0.179]		[0.193]		[0.194]
$wealth10_{R\_}$		0.672	-0.500										
		[1.116]	[0.753]										
$wealth10_P$		-1.951*	-0.364										
		[1.014]	[0.462]										
$wealth90_R$				0.783*	0.559**								
				[0.401]	[0.240]								
$wealth90_P$				1.306***	0.411**								
				[0.286]	[0.208]								
$wlthsprd_R$						0.572*	0.448**						
						[0.342]	[0.200]						
$wlthsprd_P$						1.086***	0.422**						
						[0.234]	[0.192]						
$inc10_R$								-4.928	-1.744				
								[3.716]	[1.855]				
$inc10_P$								-6.237***	-0.254				
								[2.327]	[1.469]				
$inc90_R$										0.096	0.113***		
										[0.088]	[0.031]		
$inc90_P$										0.147***	0.111***		
										[0.038]	[0.031]		
$incsprd_R$												0.096	0.112***
												[0.087]	[0.031]
$incsprd_P$												0.146***	0.110***
												[0.038]	[0.031]
Constant	19.380***	19.260***	8.817***	8.146*	4.587*	9.601**	4.711*	23.755***	10.273***	11.368**	3.613**	11.488**	3.789***
	[1.628]	[1.916]	[1.484]	[4.513]	[2.597]	[4.308]	[2.480]	[2.080]	[1.960]	[4.754]	[1.483]	[4.688]	[1.454]
Obs	2,121	1,665	1,394	1,803	1,527	1,665	1,394	1,582	1,458	1,582	1,458	1,582	1,458
R-squared	0.218	0.220	0.678	0.394	0.681	0.364	0.688	0.246	0.705	0.264	0.769	0.265	0.769

Table 3 presents the estimated coefficients from the estimation of eq. (1) eq. (2) and eq (3) of the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets. P-values are reported in brackets []. The dependent variable, $EQUITY_{R,P,t}$ and the reported coefficients are associated with the explanatory

variables are the same as defined in the footnote below Table 2 except : $GEQ_{R,}$ is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, GEQ_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country.

Table 4. Results for debt flows

$CONTING_{RP}$	0.172	0.091	0.136	0.173	0.234	0.188	0.255	0.167	0.226	-0.000	0.090	0.002	0.093
	[0.193]	[0.177]	[0.158]	[0.176]	[0.168]	[0.186]	[0.174]	[0.197]	[0.188]	[0.236]	[0.242]	[0.236]	[0.242]
$DIST_{RP}$	-0.524***	-0.455***	-0.305***	-0.493***	-0.357***	-0.517***	-0.348***	-0.537***	-0.321**	-0.674***	-0.458**	-0.674***	-0.458**
	[0.122]	[0.121]	[0.118]	[0.107]	[0.118]	[0.118]	[0.128]	[0.134]	[0.136]	[0.177]	[0.198]	[0.178]	[0.198]
$SIZE_R$	0.621***	0.521***	0.558***	0.627***	0.667***	0.643***	0.675***	0.596***	0.627***	0.591***	0.624***	0.591***	0.624***
	[0.077]	[0.092]	[0.093]	[0.084]	[0.086]	[0.088]	[0.090]	[0.088]	[0.096]	[0.074]	[0.079]	[0.074]	[0.080]
$SIZE_P$	0.790***	0.804***	0.757***	0.742***	0.713***	0.761***	0.722***	0.827***	0.760***	0.843***	0.780***	0.843***	0.780***
	[0.046]	[0.062]	[0.053]	[0.038]	[0.038]	[0.047]	[0.046]	[0.048]	[0.049]	[0.049]	[0.047]	[0.049]	[0.047]
CC_R			-0.002		0.001		0.001		0.001		0.010***		0.010***
			[0.004]		[0.004]		[0.004]		[0.004]		[0.004]		[0.004]
CC_P			0.003		-0.001		-0.001		0.001		-0.004		-0.004
			[0.005]		[0.004]		[0.004]		[0.004]		[0.004]		[0.004]
IFI_R			0.002***		0.002***		0.002***		0.002***		0.002***		0.002***
			[0.000]		[0.000]		[0.000]		[0.001]		[0.000]		[0.000]
IFI_P			0.000		0.000		0.001		0.001		0.000		0.000
			[0.000]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
LEG_CL_P			-0.244		0.060		0.159		-0.151		-0.062		-0.063
			[0.149]		[0.184]		[0.227]		[0.162]		[0.120]		[0.120]
$wealth10_{R\_}$		1.265**	1.324**										
		[0.606]	[0.672]										
$wealth10_P$		0.223	0.061										
		[0.374]	[0.395]										
$wealth90_R$				0.507***	0.374***								
				[0.078]	[0.060]								
$wealth90_P$				-0.085	-0.163								
				[0.102]	[0.102]								
$wlthsprd_R$						0.317***	0.211***						
						[0.066]	[0.061]						
$wlthsprd_P$						-0.088	-0.185*						
						[0.098]	[0.110]						
$inc10_R$								0.084	1.084				
								[1.287]	[1.291]				
$inc10_P$								2.321	3.290**				
								[1.794]	[1.425]				
$inc90_R$										0.107***	0.103***		
										[0.032]	[0.030]		
$inc90_P$										-0.005	-0.021		
										[0.033]	[0.029]		
$incsprd_R$												0.105***	0.101***
												[0.032]	[0.030]
$incsprd_P$												-0.005	-0.021
												[0.033]	[0.028]
Constant	8.316***	9.298***	8.308***	6.205***	6.221***	6.964***	6.957***	7.351***	5.588***	5.538***	4.970***	5.655***	5.091***
	[1.302]	[1.409]	[1.476]	[1.333]	[1.524]	[1.406]	[1.606]	[1.930]	[2.009]	[1.476]	[1.249]	[1.446]	[1.227]
Obs	2,251	1,656	1,491	1,788	1,623	1,656	1,491	1,641	1,218	1,641	1,218	1,641	1,218
R-squared	0.772	0.766	0.782	0.783	0.792	0.774	0.782	0.795	0.780	0.801	0.808	0.801	0.807

Table 4 presents the estimated coefficients from the estimation of eq. (1) eq. (2) and eq (3) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The

dependent variable, $DEBT_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficients are associated with the explanatory variables are the same as defined in the footnote below Table 2.

Table 5. Results for FDI flows

$CONTING_R$	-0.600	-0.588	-0.382	-0.693*	-0.335	-0.643*	-0.356	-0.625	-0.398	-0.491	-0.087	-0.492	-0.088
	[0.369]	[0.394]	[0.279]	[0.381]	[0.270]	[0.378]	[0.266]	[0.399]	[0.282]	[0.398]	[0.275]	[0.398]	[0.275]
$DIST_{RP}$	-1.256***	-1.359***	-1.121***	-1.412***	-0.978***	-1.399***	-0.980***	-1.285***	-0.993***	-1.141***	-0.755***	-1.142***	-0.755***
	[0.199]	[0.229]	[0.165]	[0.230]	[0.146]	[0.235]	[0.154]	[0.232]	[0.165]	[0.204]	[0.141]	[0.205]	[0.142]
$SIZE_R$	0.496***	0.514***	0.695***	0.475***	0.602***	0.479***	0.586***	0.473***	0.601***	0.455***	0.602***	0.455***	0.601***
	[0.061]	[0.095]	[0.076]	[0.066]	[0.062]	[0.067]	[0.061]	[0.063]	[0.064]	[0.066]	[0.065]	[0.066]	[0.065]
$SIZE_P$	0.460***	0.492***	0.465***	0.446***	0.513***	0.462***	0.513***	0.465***	0.495***	0.442***	0.490***	0.442***	0.490***
	[0.067]	[0.104]	[0.080]	[0.075]	[0.059]	[0.078]	[0.060]	[0.079]	[0.065]	[0.076]	[0.064]	[0.076]	[0.064]
CC_R			0.003*		0.002		0.002		0.003*		0.003*		0.003*
			[0.002]		[0.002]		[0.002]		[0.002]		[0.002]		[0.002]
CC_P			0.000		0.001		0.001		0.000		-0.000		-0.000
			[0.002]		[0.002]		[0.002]		[0.002]		[0.002]		[0.002]
GEQ_R			0.009***		0.009***		0.008***		0.009***		0.009***		0.009***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
GEQ_P			0.006***		0.008***		0.008***		0.006***		0.007***		0.007***
			[0.001]		[0.002]		[0.002]		[0.002]		[0.002]		[0.002]
LEG_CL_P			1.091**		1.473***		1.664***		0.845**		1.013***		1.011***
			[0.486]		[0.473]		[0.549]		[0.381]		[0.335]		[0.335]
$wealth10_{R\_}$		-1.029	-1.413*										
		[0.961]	[0.789]										
$wealth10_P$		-0.899	0.314										
		[1.040]	[0.789]										
$wealth90_R$				0.384	-0.085								
				[0.270]	[0.319]								
$wealth90_P$				0.387	-0.421**								
				[0.239]	[0.205]								
$wlthsprd_R$						0.355	0.030						
						[0.233]	[0.284]						
$wlthsprd_P$						0.345	-0.421**						
						[0.217]	[0.212]						
$inc10_R$								-1.434	2.386				
								[2.176]	[2.856]				
$inc10_P$								-2.939*	-0.653				
								[1.674]	[2.267]				
$inc90_R$										-0.042	-0.112**		
										[0.044]	[0.047]		
$inc90_P$										-0.018	-0.088**		
										[0.044]	[0.042]		
$incsprd_R$												-0.041	-0.111**
												[0.043]	[0.047]
$incsprd_P$												-0.017	-0.086**
												[0.044]	[0.042]
Constant	6.586***	6.379***	2.278	3.752*	4.841**	3.711*	4.487*	8.592***	1.846	8.557***	7.352***	8.472***	7.199***
	[1.452]	[1.867]	[1.679]	[2.100]	[2.267]	[2.167]	[2.310]	[2.140]	[1.976]	[2.189]	[1.891]	[2.156]	[1.875]
Obs	4,195	2,937	2,259	3,289	2,559	2,937	2,259	2,725	2,483	2,725	2,483	2,725	2,483
R-squared	0.261	0.261	0.504	0.267	0.516	0.266	0.508	0.264	0.492	0.253	0.506	0.253	0.505

Table 5 presents the estimated coefficients from the estimation of eq. (1) eq. (2) and eq (3) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The dependent variable, $FDI_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country

P, at time *t* and the reported coefficients are associated with the explanatory variables are the same as defined in the footnote below Table 2 except : $GEQ_{R,}$ is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, GEQ_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country.

Table 6. Results for cross-border loans

$CONTIG_{RP}$	0.599*	0.713**	0.866***	0.420	0.778***	0.532*	0.740***	0.696*	0.883***	0.550	0.905***	0.550	0.903***
	[0.327]	[0.343]	[0.249]	[0.286]	[0.240]	[0.278]	[0.221]	[0.381]	[0.305]	[0.353]	[0.337]	[0.354]	[0.337]
$DIST_{RP}$	-0.660***	-0.658***	-0.429***	-0.839***	-0.477***	-0.804***	-0.494***	-0.615***	-0.451**	-0.655***	-0.395	-0.657***	-0.396
	[0.165]	[0.171]	[0.163]	[0.195]	[0.165]	[0.187]	[0.152]	[0.200]	[0.215]	[0.200]	[0.274]	[0.200]	[0.275]
$TotCredit_R$	0.982***	1.028***	1.086***	0.956***	0.846***	0.980***	0.878***	0.967***	0.842***	0.931***	0.820***	0.931***	0.820***
	[0.132]	[0.132]	[0.130]	[0.119]	[0.125]	[0.106]	[0.106]	[0.137]	[0.123]	[0.124]	[0.126]	[0.124]	[0.126]
$TotCredit_P$	0.378***	0.385***	0.563***	0.373***	0.555***	0.382***	0.538***	0.336***	0.516***	0.358***	0.521***	0.358***	0.521***
	[0.069]	[0.096]	[0.076]	[0.073]	[0.072]	[0.074]	[0.071]	[0.077]	[0.076]	[0.076]	[0.079]	[0.076]	[0.079]
$IFI_{R,}$			0.007		0.026**		0.028***		0.005		0.025		0.025
			[0.016]		[0.011]		[0.011]		[0.020]		[0.017]		[0.017]
$IFI_{P,}$			0.005***		0.005***		0.004***		0.004***		0.005***		0.005***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
LEG_CL_P			0.764**		1.047*		0.837		1.053***		0.993**		0.990**
			[0.354]		[0.562]		[0.605]		[0.271]		[0.392]		[0.391]
LCR			-0.025		-0.064		-0.049		-0.071		-0.058		-0.058
			[0.041]		[0.043]		[0.043]		[0.050]		[0.053]		[0.053]
NPL_R			-0.111***		-0.057***		-0.052***		-0.076***		-0.058**		-0.058**
			[0.029]		[0.021]		[0.017]		[0.025]		[0.024]		[0.025]
NPL_P			0.015		0.016		0.017		0.011		0.021		0.021
			[0.011]		[0.021]		[0.018]		[0.012]		[0.018]		[0.018]
$wealth10_R$		-0.434	-3.184***										
		[0.726]	[0.959]										
$wealth10_P$		-1.118*	-0.704										
		[0.588]	[0.602]										
$Wealth90_R$				0.644***	0.589**								
				[0.225]	[0.239]								
$Wealth90_P$				0.553**	-0.100								
				[0.220]	[0.275]								
$wlthsprd_{R\_}$						0.648***	0.709***						
						[0.214]	[0.212]						
$wlthsprd_P$						0.513***	0.032						
						[0.153]	[0.249]						
$inc10_{R\_}$								-2.132	-2.336				
								[2.531]	[2.997]				
$inc10_P$								-4.318**	-3.333				
								[2.022]	[2.936]				
$inc90_R$										0.078*	0.057		
										[0.042]	[0.052]		
$inc90_P$										0.056	-0.018		
										[0.040]	[0.065]		
$incsprd_R$												0.077*	0.056
												[0.041]	[0.051]
$incsprd_P$												0.057	-0.017
												[0.040]	[0.064]
Constant	-6.666***	-7.642***	-12.65***	-11.62***	-11.37***	-12.28***	-12.93***	-3.886	-5.938*	-9.986***	-9.692***	-9.929***	-9.681***
	[1.958]	[2.099]	[2.152]	[1.735]	[1.797]	[2.009]	[1.977]	[2.749]	[3.602]	[2.064]	[2.110]	[2.049]	[2.073]
Obs	2,556	1,734	1,298	1,877	1,415	1,734	1,298	1,587	1,211	1,587	1,211	1,587	1,211
R-squared	0.458	0.474	0.597	0.458	0.567	0.478	0.567	0.474	0.574	0.477	0.589	0.476	0.589

Table 6 presents the estimated coefficients from the estimation of eq. (1), (2) and (4) for the euro area economic partners. The model is estimated with the pseudo-maximum likelihood method presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-way clusters and are reported under each coefficient. P-values are reported in brackets []. The dependent variable, $CBL_{R,P,t}$, are portfolio stocks from country the reporting to the partner country at time *t*. The reported coefficient are associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country, $TotCredit_R$ is total credit to non-financial corporations, households and non-profit institutions serving households of the reporting country, $TotCredit_P$is total credit to non-financial corporations, households and non-profit institutions serving households of the partner country , $IFI_{R,}$ is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, IFI_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries has the common law as a legal system, *LCR* is the common macroprudential measure on liquidity, NPL_R is the ratio of nonperforming loans in the reporting country, NPL_P is the ratio of nonperforming loans in the partner country, $wealth10_R$ and $wealth10_P$ are the 10th decile repartition of the wealth distribution for the reporting and partner country, $wealth90_R$ and $wealth90_P$ are the 90th decile repartition of the wealth distribution for the reporting and partner country, $wlthsprd_R$ and $wlthsprd90_P$ are the spread between the 90th decile and 10th repartitions of the wealth distribution for the reporting and partner country, $inc10_R$ and $inc10_P$ are the 10th decile repartition of the income distribution for the reporting and partner country, $inc90_R$ and $inc90_P$ are the 90th decile repartition of the income distribution for the reporting and partner country, $incsprd_R$ and $incsprd90_P$ are the spread between the 90th decile and 10th repartitions of the income distribution for the reporting and partner country.

Table 7. Results for portfolio flows for a model with both country-years fixed effects

		AV	D	AV	D	AV	D	AV	D	AV	D	AV	D
$CONTIG_{RP}$	0.176	0.152	0.179	0.195	0.173	0.188	0.174	0.205	0.175	0.151	0.174	0.150	0.175
	[0.123]	[0.129]	[0.122]	[0.120]	[0.120]	[0.124]	[0.118]	[0.139]	[0.122]	[0.144]	[0.122]	[0.144]	[0.122]
$DIST_{RP}$	-0.254**	-0.238*	-0.256**	-0.206	-0.258**	-0.180	-0.259**	-0.197	-0.255**	-0.211	-0.253**	-0.211	-0.254**
	[0.118]	[0.132]	[0.118]	[0.127]	[0.114]	[0.148]	[0.114]	[0.141]	[0.117]	[0.143]	[0.117]	[0.143]	[0.118]
wlth10_BET		-0.506	0.056										
		[0.367]	[0.108]										
wlth90_BET				0.201*	-0.217								
				[0.114]	[0.141]								
wlthsprd_BET						0.131	-0.247*						
						[0.116]	[0.142]						
inc10_BET								-3.629***	0.016				
								[1.229]	[0.081]				
inc90_BET										-0.004	-0.045		
										[0.022]	[0.093]		
incsprd_BET												-0.005	-0.033
												[0.022]	[0.094]
Constant	13.004***	13.060***	12.986***	12.547***	13.135***	12.470***	13.162***	12.867***	13.001***	12.853***	13.025***	12.860***	13.019***
	[0.810]	[0.889]	[0.816]	[0.904]	[0.775]	[1.041]	[0.770]	[0.947]	[0.812]	[0.974]	[0.797]	[0.973]	[0.798]
Obs	5,264	3,439	5,264	3,849	5,264	3,439	5,264	3,393	5,264	3,393	5,264	3,393	5,264
r2_p	0.957	0.948	0.957	0.948	0.958	0.949	0.958	0.956	0.957	0.955	0.957	0.955	0.957

Table 7 presents the results for the gravity model estimation from eq.(6) The dependent variable, $PT_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The first column represents the baseline model without any social fragmentation variables. The model is estimated with the pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-way clusters and are reported below each coefficient in brackets []. The coefficients associated with the explanatory variables are: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country. From column 2 to 13, the model is estimated with a measure of segmentation ranging from: the spread in the first decile of the wealth distribution between the partner and the reporting country (wealth10_BET) , the spread in the last decile of the wealth distribution between the partner and the reporting country (wealth90_BET), the spread between the difference between the richest and poorest wealth deciles between the partner and the reporting country (wealthsprd_BET), the spread in the first decile of the income distribution between the partner and the reporting country (inc10_BET) , the spread in the last decile of the income distribution between the partner and the reporting country (income90_sprd), the spread between the difference between the richest and poorest income deciles between the partner and the reporting country (incsprd_BET). To avoid perfect multicollinearity, for each measure, the first column reports the results using the absolute value of the spread (AV) and the second column represents a dummy variable equal to 1 when the spread is positive, that is when the measure for the partner is higher than for the reporting country.

Table 8 Results for equity flows for a model with both country-years fixed effects

		AV	D	AV	D	AV	D	AV	D	AV	D	AV	D
$CONTIG_{RP}$	0.417*	0.335	0.407*	0.407	0.418*	0.384	0.418*	0.393*	0.431*	0.325	0.405**	0.325	0.409**
	[0.235]	[0.243]	[0.233]	[0.250]	[0.241]	[0.248]	[0.238]	[0.228]	[0.229]	[0.234]	[0.202]	[0.234]	[0.202]
$DIST_{RP}$	0.020	-0.078	0.010	0.031	0.019	-0.025	0.019	-0.001	0.021	-0.018	0.016	-0.020	0.017
	[0.183]	[0.202]	[0.181]	[0.189]	[0.182]	[0.192]	[0.183]	[0.195]	[0.178]	[0.185]	[0.172]	[0.185]	[0.171]
wlth10_BET		-1.343**	-0.233										
		[0.565]	[0.162]										
wlth90_BET				-0.032	0.007								
				[0.229]	[0.179]								
wlthsprd_BET						-0.209	0.014						
						[0.230]	[0.168]						
inc10_BET								-3.904	0.286**				
								[3.028]	[0.126]				
inc90_BET										-0.099**	-0.497***		
										[0.041]	[0.147]		
incsprd_BET												-0.099**	-0.508***
												[0.041]	[0.145]
Constant	24.472***	25.385***	24.632***	24.440***	24.472***	24.951***	24.471***	24.852***	24.308***	25.177***	24.744***	25.189***	24.742***
	[1.229]	[1.383]	[1.235]	[1.322]	[1.227]	[1.365]	[1.229]	[1.318]	[1.201]	[1.243]	[1.139]	[1.243]	[1.129]
Observations	2,310	1,720	2,310	1,863	2,310	1,720	2,310	1,726	2,310	1,726	2,310	1,726	2,310
r2_p	0.977	0.976	0.978	0.975	0.977	0.975	0.977	0.976	0.978	0.977	0.979	0.977	0.979

Table 8 presents the results for the gravity model estimation from eq..(6) The dependent variable, $EQUITY_{R,P,t}$, is the portfolio stocks from the reporting country R to the partner country P, at time t. The first column represents the baseline model without any social fragmentation variables. The model is estimated with the pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in brackets []. The coefficients associated with the explanatory variables are: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country. From column 2 to 13, the model is estimated with a measure of segmentation ranging from: the spread in the first decile of the wealth distribution between the partner and the reporting country (wealth10_BET) , the spread in the last decile of the wealth distribution between the partner and the reporting country (wealth90_BET), the spread between the difference between the richest and poorest wealth deciles between the partner and the reporting country (wealthsprd_BET), the spread in the first decile of the income distribution between the partner and the reporting country (inc10_BET) , the spread in the last decile of the income distribution between the partner and the reporting country (income90_sprd), the spread between the difference between the richest and poorest income deciles between the partner and the reporting country (incsprd_BET). To avoid perfect multicollinearity, for each measure, the first column reports the results using the absolute value of the spread (AV) and the second column represents a dummy variable equal to 1 when the spread is positive, that is when the measure for the partner is higher than for the reporting country.

Table 9 Results for debt flows for a model with both country-years fixed effects

		AV	D	AV	D	AV	D	AV	D	AV	D	AV	D
$CONTIG_{RP}$	0.106	0.092	0.109	0.115	0.091	0.103	0.083	0.163**	0.103	0.129*	0.104	0.129*	0.105
	[0.080]	[0.085]	[0.078]	[0.082]	[0.070]	[0.080]	[0.065]	[0.077]	[0.069]	[0.071]	[0.079]	[0.071]	[0.080]
$DIST_{RP}$	-0.334***	-0.326***	-0.339***	-0.325***	-0.338***	-0.323***	-0.339***	-0.309***	-0.352***	-0.314***	-0.330***	-0.314***	-0.333***
	[0.100]	[0.103]	[0.099]	[0.101]	[0.097]	[0.102]	[0.091]	[0.100]	[0.095]	[0.098]	[0.100]	[0.098]	[0.101]
wlth10_BET		-0.494**	0.079										
		[0.233]	[0.090]										
wlth90_BET				0.104	-0.319***								
				[0.083]	[0.114]								
wlthsprd_BET						-0.105	-0.515***						
						[0.113]	[0.113]						
inc10_BET								-1.306	-0.196***				
								[1.351]	[0.069]				
inc90_BET										-0.041***	-0.032		
										[0.016]	[0.057]		
incsprd_BET												-0.041***	-0.008
												[0.016]	[0.056]
Constant	27.236***	27.311***	27.234***	27.113***	27.355***	27.283***	27.417***	27.103***	27.473***	27.242***	27.227***	27.245***	27.234***
	[0.680]	[0.718]	[0.673]	[0.700]	[0.666]	[0.701]	[0.619]	[0.682]	[0.651]	[0.668]	[0.680]	[0.667]	[0.682]
Obs	2,450	1,815	2,450	1,919	2,450	1,815	2,450	1,800	2,450	1,800	2,450	1,800	2,450
r2_p	0.973	0.968	0.974	0.968	0.975	0.968	0.977	0.973	0.974	0.974	0.973	0.974	0.973

Table 9 presents the results for the gravity model estimation from eq (6) The dependent variable, $DEBT_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The first column represents the baseline model without any social fragmentation variables. The model is estimated with the pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in brackets []. The coefficients associated with the explanatory variables are: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country. From column 2 to 13, the model is estimated with a measure of segmentation ranging from: the spread in the first decile of the wealth distribution between the partner and the reporting country (wealth10_BET) , the spread in the last decile of the wealth distribution between the partner and the reporting country (wealth90_BET), the spread between the difference between the richest and poorest wealth deciles between the partner and the reporting country (wealthsprd_BET), the spread in the first decile of the income distribution between the partner and the reporting country (inc10_BET) , the spread in the last decile of the income distribution between the partner and the reporting country (income90_sprd), the spread between the difference between the richest and poorest income deciles between the partner and the reporting country (incsprd_BET). To avoid perfect multicollinearity, for each measure, the first column reports the results using the absolute value of the spread (AV) and the second column represents a dummy variable equal to 1 when the spread is positive, that is when the measure for the partner is higher than for the reporting country

Table 10 Results for FDI for a model with both country-years fixed effects

		AV	D	AV	D	AV	D	AV	D	AV	D	AV	D
$CONTIG_{RP}$	0.459***	0.433***	0.467***	0.452***	0.457***	0.409**	0.456***	0.471**	0.449***	0.474**	0.450***	0.474**	0.452***
	[0.160]	[0.166]	[0.165]	[0.156]	[0.161]	[0.165]	[0.161]	[0.202]	[0.159]	[0.192]	[0.158]	[0.192]	[0.158]
$DIST_{RP}$	-0.405*	-0.216	-0.407**	-0.376*	-0.405*	-0.260	-0.405*	-0.302	-0.416**	-0.300	-0.403**	-0.300	-0.403**
	[0.212]	[0.251]	[0.207]	[0.216]	[0.213]	[0.229]	[0.212]	[0.266]	[0.212]	[0.263]	[0.198]	[0.263]	[0.198]
wlth10_BET		-1.979***	0.136										
		[0.701]	[0.264]										
wlth90_BET				-0.176	-0.054								
				[0.205]	[0.267]								
wlthsprd_BET						-0.268	-0.088						
						[0.179]	[0.281]						
inc10_BET								0.253	0.104				
								[2.717]	[0.150]				
inc90_BET										0.013	-0.412*		
										[0.033]	[0.215]		
incsprd_BET												0.011	-0.413*
												[0.033]	[0.215]
Constant	13.524***	12.741***	13.461***	13.529***	13.553***	12.951***	13.575***	12.980***	13.548***	12.932***	13.752***	12.939***	13.751***
	[1.371]	[1.588]	[1.370]	[1.386]	[1.339]	[1.473]	[1.339]	[1.676]	[1.366]	[1.662]	[1.283]	[1.662]	[1.279]
Obs	4,731	3,106	4,731	3,478	4,731	3,106	4,731	3,075	4,731	3,075	4,731	3,075	4,731
r2_p	0.892	0.887	0.892	0.883	0.892	0.885	0.892	0.891	0.892	0.891	0.894	0.891	0.894

Table 10 presents the results for the gravity model estimation from eq.(6) The dependent variable, $FDI_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The first column represents the baseline model without any social fragmentation variables. The model is estimated with the pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in brackets []. The coefficients associated with the explanatory variables are: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country. From column 2 to 13, the model is estimated with a measure of segmentation ranging from: the spread in the first decile of the wealth distribution between the partner and the reporting country (wealth10_BET) , the spread in the last decile of the wealth distribution between the partner and the reporting country (wealth90_BET), the spread between the difference between the richest and poorest wealth deciles between the partner and the reporting country (wealthsprd_BET), the spread in the first decile of the income distribution between the partner and the reporting country (inc10_BET) , the spread in the last decile of the income distribution between the partner and the reporting country (income90_sprd), the spread between the difference between the richest and poorest income deciles between the partner and the reporting country (incsprd_BET). To avoid perfect multicollinearity, for each measure, the first column reports the results using the absolute value of the spread (AV) and the second column represents a dummy variable equal to 1 when the spread is positive, that is when the measure for the partner is higher than for the reporting country.

Table 11 Results for cross-border loans flows for a model with both country-years fixed effects

		AV	D	AV	D	AV	D	AV	D	AV	D	AV	D
$CONTIG_{RP}$	0.609***	0.669***	0.617***	0.610***	0.650***	0.609***	0.666***	0.840***	0.677***	0.727***	0.602***	0.729***	0.603***
	[0.195]	[0.206]	[0.193]	[0.201]	[0.190]	[0.201]	[0.191]	[0.237]	[0.200]	[0.219]	[0.185]	[0.218]	[0.186]
$DIST_{RP}$	-0.980***	-0.943***	-0.971***	-0.963***	-0.961***	-0.954***	-0.939***	-1.085***	-0.937***	-1.119***	-0.985***	-1.119***	-0.984***
	[0.172]	[0.184]	[0.166]	[0.196]	[0.152]	[0.218]	[0.154]	[0.232]	[0.176]	[0.213]	[0.160]	[0.212]	[0.161]
wlth10_BET		1.735**	0.415**										
		[0.845]	[0.206]										
wlth90_BET				0.082	-0.517***								
				[0.157]	[0.184]								
wlthsprd_BET						0.117	-0.522***						
						[0.154]	[0.189]						
inc10_BET								-4.703	-0.417**				
								[2.924]	[0.205]				
inc90_BET										-0.045	0.375**		
										[0.034]	[0.170]		
incsprd_BET												-0.048	0.345*
												[0.034]	[0.178]
Constant	15.200***	14.722***	14.95***	15.091***	15.33***	15.031***	15.18***	16.084***	15.1***	16.289***	15.02***	16.298***	15.03***
	[1.206]	[1.267]	[1.181]	[1.411]	[1.073]	[1.546]	[1.082]	[1.571]	[1.190]	[1.476]	[1.128]	[1.471]	[1.135]
Obs	2,691	1,809	2,691	1,959	2,691	1,809	2,691	1,656	2,691	1,656	2,691	1,656	2,691
r2_p	0.910	0.902	0.912	0.901	0.913	0.899	0.913	0.916	0.911	0.915	0.911	0.915	0.911

Table 11 presents the results for the gravity model estimation from eq. (6) The dependent variable, $CBL_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The first column represents the baseline model without any social fragmentation variables. The model is estimated with the pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in brackets []. The coefficients associated with the explanatory variables are: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country. From column 2 to 13, the model is estimated with a measure of segmentation ranging from: the spread in the first decile of the wealth distribution between the partner and the reporting country (wealth10_BET) , the spread in the last decile of the wealth distribution between the partner and the reporting country (wealth90_BET), the spread between the difference between the richest and poorest wealth deciles between the partner and the reporting country (wealthsprd_BET), the spread in the first decile of the income distribution between the partner and the reporting country (inc10_BET) , the spread in the last decile of the income distribution between the partner and the reporting country (income90_sprd), the spread between the difference between the richest and poorest income deciles between the partner and the reporting country (incsprd_BET). To avoid perfect multicollinearity, for each measure, the first column reports the results using the absolute value of the spread (AV) and the second column represents a dummy variable equal to 1 when the spread is positive, that is when the measure for the partner is higher than for the reporting country.

Table A.1. Results for portfolio flows with reporting (R) country fixed effects

$CONTIG_{RP}$	0.104	0.139	0.105	0.043	0.127	0.082	0.116	0.085	0.107	-0.061	0.062	-0.060	0.062
	[0.152]	[0.159]	[0.122]	[0.162]	[0.123]	[0.162]	[0.124]	[0.163]	[0.121]	[0.186]	[0.134]	[0.186]	[0.134]
$DIST_{RP}$	-0.491***	-0.491***	-0.241***	-0.537***	-0.203**	-0.527***	-0.195**	-0.530***	-0.181**	-0.632***	-0.229**	-0.633***	-0.228**
	[0.105]	[0.097]	[0.089]	[0.124]	[0.080]	[0.120]	[0.086]	[0.134]	[0.090]	[0.167]	[0.103]	[0.167]	[0.103]
$SIZE_P$	0.628***	0.619***	0.835***	0.624***	0.805***	0.627***	0.810***	0.604***	0.804***	0.615***	0.807***	0.615***	0.807***
	[0.070]	[0.087]	[0.049]	[0.070]	[0.038]	[0.072]	[0.042]	[0.073]	[0.044]	[0.066]	[0.043]	[0.066]	[0.043]
CC_P			0.010***		0.009***		0.010***		0.010***		0.009***		0.009***
			[0.002]		[0.002]		[0.002]		[0.002]		[0.002]		[0.002]
IFI_P			0.005***		0.006***		0.006***		0.005***		0.005***		0.005***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.000]		[0.000]
LEG_CL_P			0.231**		0.454***		0.450***		0.335***		0.321***		0.322***
			[0.111]		[0.147]		[0.173]		[0.095]		[0.102]		[0.102]
$wealth10_P$		-0.379	-0.370										
		[0.271]	[0.245]										
$wealth90_P$				0.375***	-0.071								
				[0.130]	[0.079]								
$wlthsprd90_P$						0.317***	-0.056						
						[0.096]	[0.079]						
$inc10_P$								-1.168	0.490				
								[1.041]	[0.764]				
$inc90_P$										0.071**	0.014		
										[0.032]	[0.019]		
$incsprd90_P$												0.070**	0.014
												[0.031]	[0.019]
Constant	5.504***	5.569***	0.517	3.780***	1.126	3.947***	0.921	6.518***	0.438	4.361***	0.439	4.419***	0.453
	[1.570]	[1.708]	[0.833]	[1.260]	[0.788]	[1.361]	[0.810]	[1.975]	[0.889]	[1.246]	[0.830]	[1.254]	[0.828]
Obs	4,415	3,722	3,038	3,969	3,285	3,722	3,038	3,540	2,852	3,540	2,852	3,540	2,852
r2_p	0.849	0.839	0.933	0.853	0.932	0.852	0.933	0.836	0.930	0.845	0.930	0.845	0.930

Table A.1 presents the estimated coefficients from the estimation of eq. (5) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The dependent variable, $PT_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficient are associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country and partner country, $SIZE_P$ is the market value size of the financial markets (stocks and bonds) of the partner country, CC_P is the cost of capital of financial markets in the partner country, IFI_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries has the common law as a legal system $wealth10_P$ is the 10th decile repartition of the wealth distribution for the partner country, $wealth90_P$ is the 90th decile repartition of the wealth distribution for partner country, $wlthsprd90_P$ is the spread between the 90th decile and 10th repartitions of the wealth distribution for the partner country, $inc10_P$ is the 10th decile repartition of the income distribution for the reporting and partner country, $inc90_P$ is the 90th decile repartition of the income distribution for the partner country, $incsprd90_P$ is the spread between the 90th decile and 10th repartitions of the income distribution for the partner country.

Table A.2. Results for equity flows with reporting (R) country fixed effects

$CONTIG_{RP}$	1.082**	1.195**	0.701***	0.964*	0.595**	1.112**	0.586**	0.949*	0.594***	0.511	0.269	0.509	0.269
	[0.531]	[0.477]	[0.245]	[0.508]	[0.254]	[0.527]	[0.249]	[0.492]	[0.229]	[0.489]	[0.265]	[0.488]	[0.265]
$DIST_{RP}$	-0.505**	-0.544**	0.010	-0.719***	-0.049	-0.655***	-0.041	-0.608***	-0.094	-0.833***	-0.264	-0.836***	-0.266
	[0.215]	[0.239]	[0.137]	[0.240]	[0.147]	[0.231]	[0.149]	[0.207]	[0.122]	[0.197]	[0.169]	[0.197]	[0.169]
$SIZE_P$	0.284*	0.306*	0.767***	0.297**	0.767***	0.313**	0.756***	0.282*	0.776***	0.331***	0.784***	0.331***	0.784***
	[0.161]	[0.186]	[0.085]	[0.133]	[0.090]	[0.132]	[0.089]	[0.147]	[0.085]	[0.116]	[0.076]	[0.116]	[0.076]
CC_P			0.010***		0.009***		0.009***		0.010***		0.008***		0.008***
			[0.002]		[0.001]		[0.001]		[0.002]		[0.001]		[0.001]
GEQ_P			0.016***		0.015***		0.015***		0.016***		0.015***		0.015***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
LEG_CL_P			1.160***		0.879***		0.695**		1.211***		1.000***		1.002***
			[0.205]		[0.275]		[0.326]		[0.153]		[0.164]		[0.164]
$wealth10_P$		-1.726**	-0.132										
		[0.837]	[0.434]										
$wealth90_P$				1.287***	0.254								
				[0.332]	[0.178]								
$wlthsprd90_P$						1.044***	0.279*						
						[0.263]	[0.167]						
$inc10_P$								-6.041**	-2.790**				
								[2.613]	[1.305]				
$inc90_P$										0.198***	0.109***		
										[0.045]	[0.032]		
$incsprd90_P$												0.196***	0.108***
												[0.044]	[0.032]
Constant	23.20***	22.90***	12.96***	17.10***	12.03***	17.67***	11.98***	26.14***	14.58***	18.51***	11.23***	18.65***	11.31***
	[2.079]	[2.177]	[1.272]	[2.085]	[1.255]	[1.939]	[1.208]	[2.815]	[1.446]	[1.700]	[1.001]	[1.689]	[0.997]
Obs	2,173	1,867	1,650	1,967	1,750	1,867	1,650	1,801	1,719	1,801	1,719	1,801	1,719
r2_p	0.664	0.665	0.935	0.761	0.937	0.752	0.937	0.663	0.938	0.706	0.946	0.706	0.946

Table A.2 presents the estimated coefficients from the estimation of eq. (5) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The dependent variable, $EQUITY_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficient are associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country and partner country, $SIZE_P$ is the market value size of the financial markets (stocks and bonds) of the partner country, CC_P is the cost of capital of financial markets in the partner country, GEQ_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries has the common law as a legal system $wealth10_P$ is the 10th decile repartition of the wealth distribution for the partner country, $wealth90_P$ is the 90th decile repartition of the wealth distribution for partner country, $wlthsprd90_P$ is the spread between the 90th decile and 10th repartitions of the wealth distribution for the partner country, $inc10_P$ is the 10th decile repartition of the income distribution for the reporting and partner country, $inc90_P$ is the 90th decile repartition of the income distribution for the partner country, $incsprd90_P$ is the spread between the 90th decile and 10th repartitions of the income distribution for the partner country.

Table A.3. Results for debt flows with reporting (R) country fixed effects

$CONTIG_{RP}$	-0.004	-0.004	-0.021	0.013	0.007	0.015	0.012	0.023	0.011	0.053	0.049	0.054	0.049
	[0.108]	[0.110]	[0.112]	[0.102]	[0.104]	[0.105]	[0.106]	[0.102]	[0.104]	[0.097]	[0.100]	[0.097]	[0.100]
$DIST_{RP}$	-0.278***	-0.261***	-0.220**	-0.267***	-0.223***	-0.260***	-0.213***	-0.280***	-0.212**	-0.286***	-0.231***	-0.285***	-0.230***
	[0.075]	[0.082]	[0.086]	[0.070]	[0.072]	[0.074]	[0.076]	[0.083]	[0.085]	[0.076]	[0.077]	[0.076]	[0.077]
$SIZE_P$	0.824***	0.808***	0.819***	0.810***	0.820***	0.808***	0.818***	0.819***	0.825***	0.818***	0.829***	0.818***	0.829***
	[0.037]	[0.044]	[0.046]	[0.041]	[0.043]	[0.043]	[0.044]	[0.038]	[0.041]	[0.038]	[0.041]	[0.038]	[0.041]
CC_P			-0.000		-0.001		-0.001		-0.003		-0.003		-0.003
			[0.004]		[0.003]		[0.004]		[0.004]		[0.003]		[0.003]
IFI_P			0.001**		0.001**		0.001**		0.001***		0.001***		0.001***
			[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
LEG_CL_P			-0.122		-0.034		0.005		-0.107		-0.043		-0.044
			[0.110]		[0.131]		[0.161]		[0.078]		[0.078]		[0.078]
$wealth10_P$		0.128	0.096										
		[0.217]	[0.279]										
$wealth90_P$				-0.046	-0.076								
				[0.057]	[0.078]								
$wlthsprd90_P$						-0.048	-0.085						
						[0.050]	[0.081]						
$inc10_P$								1.554*	1.996**				
								[0.864]	[0.889]				
$inc90_P$										-0.024	-0.029*		
										[0.016]	[0.016]		
$incsprd90_P$												-0.024	-0.029*
												[0.016]	[0.016]
Constant	15.200***	15.312***	14.898***	15.566***	15.285***	15.558***	15.305***	14.667***	13.983***	16.031***	15.674***	16.018***	15.658***
	[0.786]	[0.811]	[0.860]	[0.964]	[1.047]	[0.940]	[1.036]	[0.751]	[0.783]	[0.943]	[0.985]	[0.936]	[0.978]
Obs	2,277	1,928	1,807	2,026	1,905	1,928	1,807	1,825	1,543	1,825	1,543	1,825	1,543
r2_p	0.956	0.953	0.954	0.952	0.953	0.953	0.954	0.961	0.960	0.961	0.960	0.961	0.960

Table A.3 presents the estimated coefficients from the estimation of eq. (5) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The dependent variable, $DEBT_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficient are associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country and partner country, $SIZE_P$ is the market value size of the financial markets (stocks and bonds) of the partner country, CC_P is the cost of capital of financial markets in the partner country, IFI_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries has the common law as a legal system $wealth10_P$ is the 10th decile repartition of the wealth distribution for the partner country, $wealth90_P$ is the 90th decile repartition of the wealth distribution for partner country, $wlthsprd90_P$ is the spread between the 90th decile and 10th repartitions of the wealth distribution for the partner country, $inc10_P$ is the 10th decile repartition of the income distribution for the reporting and partner country, $inc90_P$ is the 90th decile repartition of the income distribution for the partner country, $incsprd90_P$ is the spread between the 90th decile and 10th repartitions of the income distribution for the partner country.

Table A.4. Results for FDI flows with reporting (R) country fixed effects

$CONTIG_{RP}$	-0.283	-0.257	-0.108	-0.288	0.107	-0.283	0.052	-0.354	-0.103	-0.274	0.169	-0.275	0.167
	[0.300]	[0.299]	[0.359]	[0.317]	[0.300]	[0.316]	[0.307]	[0.314]	[0.362]	[0.319]	[0.308]	[0.319]	[0.309]
$DIST_{RP}$	-0.927***	-0.947***	-0.885***	-0.973***	-0.766***	-0.960***	-0.743***	-1.014***	-0.903***	-0.935***	-0.683***	-0.936***	-0.683***
	[0.184]	[0.206]	[0.229]	[0.198]	[0.182]	[0.205]	[0.185]	[0.202]	[0.210]	[0.184]	[0.173]	[0.184]	[0.173]
$SIZE_P$	0.392***	0.396***	0.478***	0.368***	0.549***	0.375***	0.561***	0.374***	0.486***	0.367***	0.500***	0.367***	0.500***
	[0.064]	[0.087]	[0.083]	[0.076]	[0.065]	[0.077]	[0.066]	[0.069]	[0.068]	[0.070]	[0.071]	[0.070]	[0.071]
CC_P			0.002		0.004*		0.005**		0.002		0.002		0.002
			[0.003]		[0.003]		[0.002]		[0.003]		[0.004]		[0.004]
GEQ_P			0.006***		0.009***		0.009***		0.006***		0.007***		0.007***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
LEG_CL_P			1.008***		1.987***		2.280***		0.950***		1.123***		1.121***
			[0.368]		[0.364]		[0.415]		[0.265]		[0.233]		[0.234]
$wealth10_P$		-0.578	0.187										
		[0.727]	[0.811]										
$wealth90_P$				0.239	-0.713***								
				[0.187]	[0.184]								
$wlthsprd90_P$						0.214	-0.723***						
						[0.161]	[0.184]						
$inc10_P$								-1.470	-0.121				
								[1.447]	[1.830]				
$inc90_P$										-0.014	-0.100***		
										[0.033]	[0.036]		
$incsprd90_P$												-0.014	-0.099***
												[0.032]	[0.035]
Constant	11.96***	11.97***	10.25***	11.21***	12.31***	11.17***	12.14***	13.29***	10.29***	12.79***	11.78***	12.77***	11.70***
	[1.369]	[1.509]	[1.571]	[1.663]	[1.764]	[1.634]	[1.801]	[1.731]	[1.753]	[1.692]	[1.917]	[1.678]	[1.900]
Obs	4,387	3,688	3,253	3,927	3,492	3,688	3,253	3,543	3,374	3,543	3,374	3,543	3,374
r2_p	0.756	0.751	0.813	0.755	0.830	0.754	0.831	0.753	0.816	0.752	0.826	0.752	0.826

Table A.4 presents the estimated coefficients from the estimation of eq. (5) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The dependent variable, $FDI_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficient are associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country and partner country, $SIZE_P$ is the market value size of the financial markets (stocks and bonds) of the partner country, CC_P is the cost of capital of financial markets in the partner country, GEQ_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries has the common law as a legal system $wealth10_P$ is the 10th decile repartition of the wealth distribution for the partner country, $wealth90_P$ is the 90th decile repartition of the wealth distribution for partner country, $wlthsprd90_P$ is the spread between the 90th decile and 10th repartitions of the wealth distribution for the partner country, $inc10_P$ is the 10th decile repartition of the income distribution for the reporting and partner country, $inc90_P$ is the 90th decile repartition of the income distribution for the partner country, $incsprd90_P$ is the spread between the 90th decile and 10th repartitions of the income distribution for the partner country.

Table A.5. Results for cross-border loans with reporting (R) country fixed effects

$CONTIG_{RP}$	0.556*	0.668**	0.718***	0.481	0.682**	0.565*	0.664**	0.544*	0.654**	0.522	0.720**	0.520	0.718**
	[0.299]	[0.304]	[0.257]	[0.308]	[0.289]	[0.291]	[0.264]	[0.325]	[0.293]	[0.335]	[0.322]	[0.335]	[0.322]
$DIST_{RP}$	-0.530***	-0.458**	-0.551***	-0.667***	-0.600***	-0.611***	-0.586***	-0.571***	-0.706***	-0.507**	-0.583**	-0.510**	-0.585**
	[0.176]	[0.179]	[0.177]	[0.246]	[0.216]	[0.228]	[0.197]	[0.195]	[0.239]	[0.222]	[0.266]	[0.222]	[0.267]
$SIZE_P$	0.375***	0.360***	0.588***	0.356***	0.591***	0.361***	0.574***	0.361***	0.590***	0.350***	0.586***	0.350***	0.586***
	[0.063]	[0.085]	[0.067]	[0.068]	[0.064]	[0.070]	[0.065]	[0.069]	[0.066]	[0.069]	[0.067]	[0.069]	[0.067]
CC_P			0.005***		0.005***		0.005***		0.005***		0.005***		0.005***
			[0.001]		[0.001]		[0.001]		[0.001]		[0.001]		[0.001]
IFI_P			0.865**		1.047**		0.907*		1.137***		1.026***		1.023***
			[0.386]		[0.512]		[0.545]		[0.290]		[0.382]		[0.382]
LEG_CL_P			0.017		0.022		0.022		0.010		0.023		0.023
			[0.012]		[0.020]		[0.018]		[0.013]		[0.020]		[0.020]
$wealth10_P$		-0.891*	-0.543										
		[0.466]	[0.589]										
$wealth90_P$				0.574***	-0.024								
				[0.221]	[0.281]								
$wlthsprd90_P$						0.506***	0.048						
						[0.153]	[0.240]						
$inc10_P$								-3.921***	-4.170*				
								[1.455]	[2.399]				
$inc90_P$										0.042	-0.007		
										[0.035]	[0.049]		
$incsprd90_P$												0.042	-0.006
												[0.035]	[0.048]
Constant	6.905***	6.493***	3.630***	4.893***	4.093***	4.750***	3.868***	8.774***	6.196***	5.794***	4.125***	5.802***	4.099***
	[1.351]	[1.582]	[1.314]	[1.163]	[1.046]	[1.249]	[1.121]	[1.561]	[1.999]	[1.483]	[1.355]	[1.477]	[1.342]
Obs	2,555	2,141	1,800	2,247	1,890	2,141	1,800	2,112	1,753	2,112	1,753	2,112	1,753
r2_p	0.764	0.772	0.848	0.790	0.848	0.795	0.847	0.770	0.854	0.763	0.848	0.763	0.848

Table A.5 presents the estimated coefficients from the estimation of eq. (5) the euro area economic partners. The model is estimated with the Poisson pseudo-maximum likelihood method (PPML) presented in Santos Silva and Teneryo (2006). Robust standard errors are calculated using two-ways clusters and are reported below each coefficient in round brackets P-values are reported in brackets []. The dependent variable, $CBL_{R,P,t}$, is the portfolio stocks from the reporting country *R* to the partner country *P,* at time *t*. The reported coefficient are associated with the explanatory variables: $CONTIG_{RP}$is a dummy variable that takes the value 1 if both countries share a common border, $DIST_{RP}$ the logarithm of the distance between the capitals of reporting country and partner country, $SIZE_P$ is the market value size of the financial markets (stocks and bonds) of the partner country, CC_P is the cost of capital of financial markets in the partner country, IFI_P is the Lane and Milesi-Ferretti (2007) indicator of financial openness in the reporting country, LEG_CL_P equals one if the partner countries has the common law as a legal system $wealth10_P$ is the 10th decile repartition of the wealth distribution for the partner country, $wealth90_P$ is the 90th decile repartition of the wealth distribution for partner country, $wlthsprd90_P$ is the spread between the 90th decile and 10th repartitions of the wealth distribution for the partner country, $inc10_P$ is the 10th decile repartition of the income distribution for the reporting and partner country, $inc90_P$ is the 90th decile repartition of the income distribution for the partner country, $incsprd90_P$ is the spread between the 90th decile and 10th repartitions of the income distribution for the partner country.