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Risk, Financial Stability and FDI

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Abstract

All Foreign Direct Investment (FDI) involves risk. Supplementing the IB literature, we assess the effects of financial system risk on FDI trends. Specifically, we propose a new theoretical paradigm combining institutional risk aversion and institutional affinity, suggesting MNE-generated FDI will be sensitive to sovereign and bank-related risks. Employing a large panel of bilateral FDI holdings from 112 origin countries in the Eurozone, results show that financial stability in origin and host countries, matters for FDI. Policymakers in countries seeking to attract FDI should be attentive to both domestic conditions and the financing environment that MNEs encounter in their home countries.

Keywords: Foreign Direct Investment; Multinational Enterprises; Financial Stability; Institutional Risk Aversion; Euro Area; International Regulation.

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Abstract

All Foreign Direct Investment (FDI) involves risk. Supplementing the IB literature, we assess the effects of financial system risk on FDI trends. Specifically, we propose a new theoretical paradigm combining institutional risk aversion and institutional affinity, suggesting MNE-generated FDI will be sensitive to sovereign and bank-related risks. Employing a large panel of bilateral FDI holdings from 112 origin countries in the Eurozone, results show that financial stability in origin and host countries, matters for FDI. Policymakers in countries seeking to attract FDI should be attentive to both domestic conditions and the financing environment that MNEs encounter in their home countries.

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1. Introduction

There is a very extensive body of literature on the FDI choices of firms. This has firstly been ascribed to particular advantages of the host country. For example, host countries may provide significant new markets that would be impossible to access without a direct presence there, and which may offer the opportunity of employing new skills and capabilities (Lu et al., 2014). They may also offer tax and/or regulatory advantages (Jones and Temouri, 2016). Again, in expanding abroad, firms may opt for a context about which they have some familiarity (Choi et al., 2016). Push factors from the home country may include the need to escape regulation and/or tax, domestic shortfalls in skills and technological capabilities, apprehension about the future productive capacity of the economy and/or market size (Barnard and Luiz, 2018; Cuevara-Cazurra and Ramamurti, 2015). International expansion may also be due to internal firm level dynamics, such as agency failures and/or because of specific ownership dynamics such as family ownership (Ilhan-Nas et al., 2018; Lien and Filatotchev, 2015). However, in all instances, investing abroad involves either reducing or taking on board new risk (Buckley, 2016b). Again, there is a very extensive IB body of literature on such risk. The latter has been conceptualised in political, social, geographical,

technological, regulatory and/or organisational specific terms (Narula, 2015). In general terms, risk may be defined as an unexpected downturn in business outcomes (e.g., profit, market share, security of assets) (Miller 1992).

The existing IB literature has only accorded limited attention to a key element of risk, that posed by changes in macro-economic dynamics, including the stability of the financial system (see Nielsen et al., 2017). This latter risk has particularly concerned policymakers since the Global Financial Crisis (GFC) of the previous decade and resulted in regulatory frameworks such as the Basel accords which typically seek to increase the amount of capital held by banks and other financial sector firms (Acharya et al., 2014). Again, although the corporate finance and governance literature speaks directly to a range of managerial issues, and has formed the base of a burgeoning body of trans-disciplinary scholarship, this has tended to focus on institutional quality and the risks associated with it (Goergen et al., 2017) and more recently, macro and comparative approaches perspectives on institutional affinity (Shukla and Cantwell, 2018). In contrast, the broader structures and assets strand of the finance literature has only received limited attention within studies on key intra-organisational decisions, such as that to venture abroad. In seeking to address this lacuna, this study evaluates external risk and FDI choices, focusing on sovereign risk and financial sector stability, and supplementing earlier IB work that has considered political, fiscal, or industry risk, as well as public policies.

The GFC itself clearly affected FDI inflows (Nielsen et al., 2017) and perhaps, more than any other event in recent history, heightened investor awareness of vulnerabilities in the financial system, particularly the banking system as well as sustainable government finances. Both themes dominated the debate over the past years and will continue to stay on the agenda. A

commonly employed indicator in international financial markets is sovereign risk, measuring as it does a country's ability capacity to finance its sovereign debt and underpinning the pricing of financial instruments such as corporate bonds (Chen et al., 2013). Indeed, there is some nascent work in the finance literature showing that sovereign credit ratings are significant drivers of FDI (Cai et al., 2018). However, sovereign risk is determined by a wide range of macroeconomic vulnerabilities (see Poghosyan, 2012) and does not simply capture financial market risk.

More focused measures of the stability of each country's financial system are likely provided by the regulatory capital held by the banking system, particularly given its contemporary policy attention. In this paper, we hypothesize that financial market stability or bank-related risk is an important factor for FDI. Appealing to a new combination of institutional risk aversion and institutional affinity, we suggest that (i) higher holdings of regulatory capital will lead to increased risk aversion on behalf banks and consequently less lending, particularly to riskier, overseas ventures and (ii) affinity and familiarity ensure that financing to international MNEs is sought from and primarily provided by, home country institutions. As a corollary, FDI will be particularly sensitive to regulatory capital measures in origin countries but much less so to those in host countries, given the relative irrelevance of host country lending institutions to MNEs.

To test our hypotheses empirically we choose to focus on the time span after the GFC (i.e., post-2008) examining the inflows and outflows of FDI to and from European Monetary Union (EMU) countries and the rest of the world. This emphasis on EMU countries allows us to improve our identification strategy (i.e., our approach to isolating explanatory variables) as we are able to mute the central bank transmission channel as all EMU countries face the same

monetary policy. Additionally, during this period incentives regarding FDI were likely predominantly influenced by considerations related to sovereign risk and financial stability. Specifically, in the aftermath of the GFC, worries about fiscal sustainability in the euro area intensified (Afonso et al., 2018). A full-blown sovereign debt crisis ensued, which started from Greece in autumn 2009 and gradually engulfed the whole of the EMU, particularly the so-called periphery economies (Acharya and Steffen, 2015). The European sovereign debt crisis has thus dominated the policy and business agenda in recent years and triggered a series of unconventional measures by the European Central Bank (ECB) to put an end to the crisis. However, we know relatively little, theoretically or empirically, about the effect of such financial instability on FDI flows and the rest of the paper will address such issues.

The rest of the paper is structured as follows: in Section 2, we report a detailed overview of the theory on the risks affecting FDI and we outline the hypotheses of the paper. In Section 3, we provide an exhaustive description of our dataset, and of the underlying literature justifying our choices. In Section 4, we explain the proposed empirical strategy, whose results are disclosed in Section 5. In Section 6, we draw the discussion and conclusion, highlighting what we can take away from our analysis. Eventually, in Section 7, we provide additional details on the composition of our dataset and on some tests that we performed to check the robustness of our results.

2. Risk and FDI: Theoretical and Hypotheses Framework

2.1. Classic Perspectives

The early literature on the internationalisation process argued central to it was risk mitigation (Liesch et al., 2014). Again, it has been argued that *risk aversion* represents a key factor in venturing abroad. Indeed, in a classic 1976 article, Rugman (1976) found that firms that with

larger overseas operations were more successful in mitigating risk. Underlying this was an assumption that there are a range of contextual factors that may intensify or mitigate risk, that are encountered in both the country of origin and domicile.

Over 25 years ago, Miller (1992) noted that the IB literature's focus on external risk concentrates on a limited number of categories, which could be loosely divided into internal or external factors (ibid.). The former may encompass not only shortfalls in capabilities or processes, but also governance and the nature of corporate indebtedness (Betschinger, 2015). In terms of the latter, key concerns have been political or foreign exchange variables, and at the industry level issues such as technological change (Miller, 1992); although recent work has also focused on the uncertainties introduced by various contextual factors, such as institutional distance (Hernandez and Nieto, 2015). Again, in terms of government policy, risk may range from changes in macro-economic policy to the relative provision of public goods (Narula, 2015; Buckley, 2016a). There are a wide range of firm specific uncertainties (e.g. labour, raw materials, production, liability, credit, and behavioural issues) (Miller 1992).

The *internalisation approach* linked the international expansion of firms to efforts to internalise markets, in order to mitigate external market imperfections (Buckley and Casson 2015). Firms will expand until the costs of internalisation outweigh the benefits; importantly, after taking all other factors into account, firms will seek out the most cost effective location[1] (ibid.). As risk is about uncertainties in costs and advantages, assessments of risk are central to international expansion (ibid.; Buckley, 2016b). Over time, internalisation theory has identified an increasing range of potential risk factors, including loss of technological advantages and imperfect knowledge which in turn, have fed into a broad body of literature

[1] For an excellent survey on the literature related to location choice of FDI see Nielsen et al., (2017).

on FDI choices (Buckley, 2018). In turn, risk can be mitigated via corporate structures and diversification (ibid.). Recent work has linked knowledge, networks and culture, as well as individual and group decision making with risk; in other words, the impact of risk is seen as something that is influenced by, and interacts with, other factors in a dynamic fashion (Liesch et al., 2014). Again, Buckley (2016a) argues that firms do not exhibit consistent risk preferences: it is something that is dynamic and adjusts to both external and internal developments.

Early research work on risk in the international domain suggested that it concerned situational or organisational challenges that had, in some manner to be evaded or accommodated (Rugman, 1976). More recent work from the *entrepreneurship perspective* suggested that rather than being risk averse, there is a variation in relative risk tolerance (Dai et al., 2014; Zander et al. 2015). Indeed, it was initially held that international enterprise was risk seeking, although later work has shifted the emphasis to opportunity seeking (Liesch et al, 2014). Other recent research suggested that large MNEs possess more slack resources and other options than small entrepreneurial firms; in other words, the risk premium was lower (Liesch et al, 2014). In turn, this would suggest that entrepreneurial firms may be more, rather than less, risk adverse (ibid.). Rather than directly linking entrepreneurial orientation to either risk aversion or risk propensity, Cavulkil and Knight (2016) concluded that entrepreneurial firms balance opportunity and risk.

In reviewing the present state of knowledge, Buckley (2016a) argues that the conceptual treatment of risk remains work in progress: above all, this reflects the challenges of linking enterpreneurship and internalisation theory. At the same time, it should be recognised that these different strands of thinking are not necessarily contradictory or mutually exclusive; the

challenge is promoting an appropriate synthesis. Recent accounts have added the complexities of managerial decision making into the mix, and the psychological basis thereof (Buckley 2016a). The latter highlights the recent behavioural turn in analysing risk. This would echo Dai et al. (2014) who suggest that the individual dimensions of entrepreneurship and the decision-making process behind it will mould a firm's relative appetite for risk taking across international boundaries. Based on experimental data, Kraus et al. (2015) concluded that risk assessments were primarily based on distance criteria, reflecting awareness as to the limitations of knowledge and understanding of different contexts. Again, Giambona et al. (2017) argue that it is not just political risk per se, but how managers perceive it, that will influence organisational decision making; as much as half of MNEs will avoid investments on account of perceptions of risk. They further suggest that risk aversion is more likely when agency issues are more pronounced (ibid.). Common ground is a broad consensus that risk is multifaceted, and although there are variations in organisational decision making, structural and contextual variations in risk will have far reaching choices in the scale and scope of MNEs expansion.

2.1.1. Risk and Institutions

A further strand of work has linked FDI trends to institutional quality (Wood et al., 2016). As institutions regulate social and economic transactions, risk would be seen something as stemming from incorrect or ineffective sets of regulations (Peng et al., 2008). Hence, Huang et al. (2015) concluded that firms are less likely to be affected by risks when underlying institutions are strong[2]. De Morgantes and Allers (1996) concluded that external risk mitigating strategies adopted by MNEs tended to be ad hoc, possibly owing to a recognition of the complexities entailed in taking account of wider social and political circumstances.

[2] Although a potentially contrary view is presented by Kolstad and Wiig (2012) who stress that Chinese FDI is attracted, in part, to countries with low quality institutions but sizeable natural resources.

Again, this is not to deny the importance of individual decision making, and how actors may impact back on structures, but rather that the range of strategic choices open to actors is moulded by contextual circumstances.

Underlying much of the existing comparative institutional work is the assumption that institutions are relatively closely coupled (Lane and Wood, 2009). This would raise two issues. The first is the assumption of path dependence; if institutional regimes are tightly knit, then changing a system is particularly challenging. For example, corporate law represents the product of a complex range of historical circumstances; this makes for long continuities that may be resistant to change (Wood et al., 2016). However, this does not mean that institutions are immutable; actors will constantly work to adjust the system to suit their specific needs and problems (Hall, 2018). Hence, politics is closely bound up with structural effects (ibid.). Again, within structural constraints, governments may follow distinct ideological paths, leading to policy shifts, which may be more or less risky for investors (Roe and Vallero, 2016). Hence, institutions, risk and politics are seen as closely interlinked.

2.1.2. Applied Evidence from Finance

Indeed, the finance literature has tended to take sovereign yields as a proxy for political risk. Even though this may be not unproblematic, in that other risks may be included in valuation analysis leading to potential double counting, it still recognises the relationship between structural features and politics (Bekaert et al., 2016). However, two issues emerge, one at the applied, and one at the conceptual level. Firstly, recent years have seen a trend for national governments to disengage themselves from monetary policy and financial sector regulation, placing an increasingly strong emphasis on central bank independence (Fernandez-Albertos, 2015). In other words, many governments have chosen to place such policies at arm's length

(Bodea and Hicks, 2014). In other words, an entire policy area has become placed beyond politics, even if this may be contested by emerging political actors and figures. In turn, this will make external lobbying of politicians less effective; firms have to take policy as a given, rather than something that can be amended through political activities. For example, within the Eurozone, national governments have effectively ceded a great deal of control over monetary policy and financial stability issues, and this has eroded their policy tools available in managing debt and economic growth. Again, this impacts on debt; central bank independence means governments cannot solve problems simply by printing more money, and, in turn, this means that the former will have a more predictable, if at times, unpalatable, set of consequences. Moreover, if banks are asked to hold more regulatory capital, this will likely have a detrimental impact on the amount lent to firms (De Goede, 2004; Flinders and Buller, 2006; Dovis et al., 2016).

2.1.3. Emerging Issues

In exploring how MNEs respond to banking risk, in the light of the potential uncoupling of monetary and fiscal policy, and in terms of relative willingness to risk their own or borrowed money through new FDI, this study aims to shed light not just on how contextual effects shape MNE assessments of risks, but how this may potentially impact back on contexts. At a theoretical level, although loose institutional coupling is often seen as a function of institutional shortfalls (Lane and Wood, 2009), the partial decoupling of reserve banking from the other range of state functions represents a product of deliberate policy design. What this means is that although state related risk is often depicted as bound up with politics (Giambona et al. 2017), a dimension of key nation state specific risks has been, at least partially removed from the hands of politicians (Flinders and Buller, 2006). This does not mean that the matter is irrevocably settled; more than twenty years ago, there were calls for

assessments of financial risk to be repoliticised (De Goede, 2004) and, indeed more recently, this has been squarely on the agenda of populist politicians (Dovis et al., 2016).

Where does this leave national and bank debt? On the one hand, the former may represent policy choices and the latter regulatory lapses by governments, which represent the product of conventional political processes (see Haggard and Kaufman, 2018; Sandbu, 2018). On the other hand, with the exception of Greece (where other issues, such as excessive defence spending intruded – see Wood et al., 2015), the post-2008 peripheral Eurozone sovereign debt crisis was largely a product of bank debt being nationalised. Although it was potentially within the grasp of governments to refuse to do so (as the case of Iceland would evidence), the overwhelming pressures was towards assuming this burden, removing the decision making around this from the normal sphere of political debate (Sandbu, 2018). Later, democratically elected governments that sought to challenge or reverse such decisions almost invariably were unable to do so after attaining office. In other words, this would represent an example of structurally induced risks which at the same time were depoliticised. There are two major implications for understanding FDI. The first is that these stand distinct from risks that are more closely coupled with quotidian social and political events; hence, the normal tools open to MNEs for ameliorating risks, such as forging ties with local actors and lobbying may be less effective (c.f. Mbalyohere et al., 2016). The second is that, as noted above, any process of depoliticisation is both difficult to reverse, yet reversible; this may result in extreme political reactions, which will greatly exacerbate the risks faced by MNEs (Dovis et al., 2016). In this paper, we place two structural but systemically depoliticised risk factors – sovereign yields and financial sector regulatory capital – at the heart of our analysis, complementing earlier studies of external risk that have focused on areas that were assumed to be more closely subject to the political sphere.

As noted above, in understanding FDI choices, the IB literature has been influenced by the corporate finance literature (and vice versa) (Goergen et al., 2017), but much less use has been made of insights - and analytical approaches - from other areas of finance. This paper furthermore seeks to fill this lacuna, through taking account of risk factors and analytical approaches not normally encompassed in the IB literature. As Buckley et al. (2018) note, relative ease of borrowing and associated bank debt has implications not only in determining destination choices, but also in facilitating outward FDI; hence we compare country of origin and host factors. At least four main strands of relevant finance literature can be identified. First, studies on the determinants of euro-area sovereign bond yield spreads (vs. German bunds), which are commonly viewed a key indicator of the crisis' intensity (Arghyrou and Kontonikas, 2012; Bernoth and Erdogan, 2012; Afonso et al., 2014, 2018). Second, studies that investigate the role of banking risk in transforming the global financial crisis into the sovereign debt crisis, and the nexus between banking risk and sovereign risk (De Bruyckere et al., 2013; Acharya et al., 2014; Delatte et al., 2017). Third, studies on the relationship between sovereign bond yield spreads and the investor base. These commonly examine foreign vs. domestic holdings of sovereign bonds across different classes of investors, and the factors that drive them (Arslanalp and Tsuda, 2012; Acharya and Steffen, 2015; Cruces and Trebesch, 2013; Battistini et al., 2014). Finally, a related strand focuses on portfolio capital flows involving the euro area during the sovereign debt crisis (Beck et al., 2016).

2.2. Hypothesis development

Our work draws on, and synthesizes, the extant IB and finance literature together in the context of FDI flows and risk. Beginning from the idea that monetary and financial sector policy has become depoliticised and therefore partially uncoupled from other state functions,

we suggest that MNEs will be relatively more sensitive to sovereign and bank-related risks. In terms of sovereign risk, increases in either origin or host country measures, are likely to decrease the FDI of MNEs. Therefore, our first hypothesis reads:

Hypothesis 1a: *The greater the origin country's sovereign risk, the lower is the volume of inward FDI.*

From the viewpoint of the origin country this is consistent with a stronger motive for companies to engage in less risk-taking and accumulate more cash holdings – precautionary motives (see Akguc and Choi, 2013). Different precautionary motives have been explored by the finance literature, such as higher uncertainty about future cash flows (Bacchetta and Benhima, 2014), or about the future macro-economic conditions (Gao and Grinstein, 2014). Analogously, recent work has identified higher cash holdings and less investment generally due to financial crises (Campello et al., 2010; Pinkowitz et al., 2012; Song and Lee, 2014). With respect to host countries, we hypothesise that:

Hypothesis 1b: *The greater the host country's sovereign risk, the lower is the volume of inward FDI.*

As far as the host country is concerned, our hypothesis is consistent with existing evidence which uses sovereign credit ratings as a proxy for sovereign risk and shows that rating changes affect investment (Chen et al., 2013) and FDI inflows (Cai et al., 2018). We opt to measure sovereign risk using long-term sovereign yields, which provide a market-based, and relative to credit ratings a less sticky, and more timely and responsive proxy (see Barroso, 2010 and DeVries and De Haan, 2016). This hypothesis also coheres with previous studies on

the impact of host countries economic fundamentals on inward FDI (Cai et al, 2018; Bevan and Estrin, 2004; Bellak et al., 2009; Wernick et al., 2009; Dellis et al., 2017; for a review see Antonakakis and Tondl, 2012).

The impact of bank-related risk can be interpreted through a "leverage channel", whereby firms borrow from banks to finance investment, including FDI. According to this argument, credit availability will be an important determinant of FDI. The importance of credit cycles for the real economy (Bernanke and Gertler, 1989; Bordo and Jeanne, 2002; Chen et al., 2012) has led to attempts by policymakers to tame them. Regulatory capital holdings constitute an important tool in the arsenal of the regulators. They have increased since the recent financial crisis, to improve the resilience of banks to future shocks. Recent empirical evidence demonstrates that higher capital requirements are associated with decreased bank lending (Bridges et al., 2014; Fraisse et al., 2017; Aiyar et al., 2015). Thus, we can hypothesise that:

Hypothesis 2a: *The lower the origin country's bank risk-taking, as a consequence of higher capital requirements, the lower will be the volume of inward FDI.*

As a matter of fact, an increase in regulatory capital holdings is likely to lead to weakened investment activity via less credit availability.[3] This effect will be stronger for firms wishing to invest overseas where imperfect knowledge considerations are greater. Moreover, it may well matter more in FDI origin countries, where a closer institutional affinity and familiarity between banks and MNEs will see more FDI financing take place than in host markets.

[3] Arguments related to the importance of credit availability for M&As, also called brownfield FDI, have been put forward by Harford (2005), among others. As described by Halford (2005), brownfield FDI could depend on industry, technological and regulatory shocks, which in the latter case certainly played a role with Basel regulation on banks' capital requirements, but also on the availability of "capital liquidity to accommodate the asset reallocation" (Halford, 2005:530).

Consequently, bank-related risk measures are likely to present an asymmetric effect across origin and host countries. Thus, assuming that the financing of FDI in the origin country is predominantly carried out via local banks, our hypothesis reads that:

Hypothesis 2b: *Changes in the amount of capital allocated by host countries' banks as buffer for their risky assets, has no effect on inward FDI.*

3. Data

3.1. Dependent variable

The dependent variable used in our paper is the bilateral FDI holdings of 112 direct investor countries in the Euro Area (EA). In a similar vein to Beck et al. (2016), we compose our dataset using end-of-the-year bilateral FDI in the Euro Area, collected from the IMF Coordinated Foreign Direct Investment Survey (CDIS) between 2009 and 2016.

The CDIS is a dataset published by the IMF in 2010 and updated on an annual basis. It has been created to allow a global analysis of cross-country linkages. In the dataset, the IMF provides data on bilateral direct investment holdings of more than 100 countries, participating in the survey. Moreover, disaggregating countries' FDI positions using their immediate counterpart, the CDIS data allows for a cross-country and over time comparison of FDI positions (Damgaard and Elkjaer, 2017). Consequently, we are in a position to observe bilateral FDI flows, disentangling effects and drivers of origin and host countries. This allows for a better identification of effects as compared to standard approaches used in the literature which implicitly assumes that host characteristics are the main drivers.

To emphasise then, the main advantage of this dataset is that it enables us to disentangle origin and destination of FDI flows. As highlighted in Beck et al. (2016), the understanding of the causes and origins of these flows is of crucial importance for policy makers. For instance, while intra Euro Area flows can be easily managed by the ECB, outside FDI flows – particularly 'sudden stops' in FDI flows – could potentially undermine central banks' goals and targets. On the other hand, as pointed out by the authors, intra-EA capital flows can be more easily managed by the ECB through Target balances and variations in official flows.

Of course, there are some caveats to mention related to the use of this data. Firstly, FDI data from the CDIS is unadjusted for valuation effects. Secondly, to increase the representativeness of the data, CDIS include data on both listed and unlisted firms, however, different valuation methods, especially for unlisted firms, can generate significant geographical asymmetries in the data (Damgaard and Elkjaer, 2017). Thirdly, data from the CDIS is not adjusted for exchange rate effects. Therefore, changes in stock positions could potentially reflect EUR/USD exchange rate movements. As Beck et al., (2016: 452) notes, "Purging these valuation effects from the stock positions would require detailed knowledge about the currency and maturity composition of the holdings, on which data do not exist." Finally, as the dataset discloses FDI by immediate counterpart economy, it also includes transactions performed by MNEs through Special Purpose Entities (SPEs), often for tax avoidance purposes or financial engineering (Dellis et al., 2017; Damgaard and Elkjaer, 2017). This effect might be germane in smaller countries which have relatively large financial sectors.

Therefore, as remarked on by Beck et al. (2016) and Milesi-Ferretti et al. (2010), ideally we would use a panel dataset collecting consolidated bilateral flows, adjusted for exchange rate

effects and recorded on a residence (locational) basis, where "the 'ultimate risk' basis implies that the borrower is the entity ultimately responsible for the liability" (Milesi-Ferretti et al., 2010: 21), but such data does not exist. Thus, to minimise the aforementioned biases and avoid data distortions, following Beck et al. (2016) we exclude countries considered major tax heavens and smaller countries with proportionately large financial sectors.[4] Finally, to mitigate the impact of the exchange rate channel, we build our baseline model 'in levels' and test the robustness of our results to economic growth, using GDP per capita in USD. Note that Table 1 presents summary statistics for our dependent variable and risk measures for GIIPS (i.e., Greece, Ireland, Italy, Portugal and Spain) and non-GIIPS Euro Area countries.[5]

[4] For a detailed overview see Appendix 1.B.
[5] Appendix 2.A provides a pairwise graphical analysis of FDI and risk variables.

Table 1.

Table 1 contains the summary statistics for our dependent variable as well as for our different risk measures on a country by country basis for a greater level of granularity. Panel 1 discloses descriptive statistics on FDI inflows received by EA countries between 2009 and 2016. Panel 2 contains descriptive statistics on Regulatory Capital held by EA banks as a portion of their Risk-Weighted assets. In Panel 3 we report descriptive statistics on 10-year sovereign bond yields of EA countries. Panel 4 shows descriptive statistics on EA banks NPL ratio. Finally, Panel 5 displays descriptive statistics on EA banks Z-Score. For all the Panels, we report statistics on GIIPS and non-GIIPS EA countries separately.

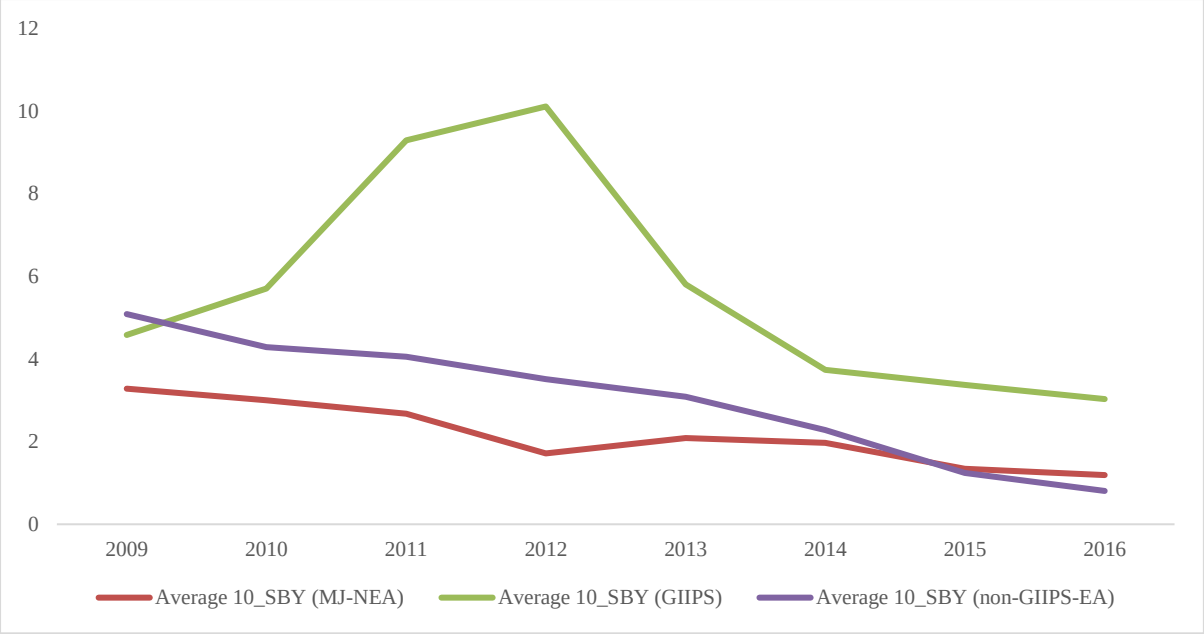
Panel 1: EA FDI inflow (mln $)						
GIIPS	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Greece	GRC	115	405.877	1,085.274	-1,633.905	5,358.714
Ireland	IRL	120	10,968.990	36,481.940	-23,034.350	154,667.400
Italy	ITA	120	17,134.910	27,606.310	7.640	124,198.700
Portugal	PRT	120	1,563.345	4,669.577	-8,047.017	24,486.880
Spain	ESP	120	6,962.184	10,769.410	-13,549.280	38,622.490
Non-GIIPS EA	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Austria	AUT	120	5,389.935	8,987.756	-841.423	35,873.030
Belgium	BEL	120	20,817.410	46,705.070	-3,770.425	225,544.700
Cyprus	CYP	119	2,095.746	5,230.197	-5,192.275	27,625.580
Estonia	EST	120	85.241	281.451	-76.971	1,962.515
Finland	FIN	120	3,085.604	6,469.908	-1,011.345	31,934.490
France	FRA	120	34,176.300	50,160.460	45.023	178,235.400
Germany	DEU	120	27,228.140	47,179.820	87.096	242,784.100
Latvia	LVA	119	41.694	112.753	-40.353	649.823
Netherlands	NLD	120	55,631.900	64,693.200	0.000	248,562.200
Slovak Republic	SVK	120	79.657	383.796	-602.303	2,907.801
Slovenia	SVN	114	13.949	116.841	-246.902	1,140.897
Panel 2: EA Regulatory Capital/Risk-Weighted Assets						
GIIPS	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Greece	GRC	120	13.108	2.527	9.569	16.947
Ireland	IRL	120	19.988	4.480	12.780	26.941
Italy	ITA	120	13.295	1.018	11.650	14.789
Portugal	PRT	120	11.807	1.308	9.780	13.327
Spain	ESP	120	13.031	1.198	11.586	14.849
Non-GIIPS EA	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Austria	AUT	120	16.500	1.027	15.026	17.976
Belgium	BEL	120	18.389	0.637	17.262	19.305
Cyprus	CYP	120	13.351	2.908	7.343	16.943
Estonia	EST	120	24.721	5.969	18.607	35.653
Finland	FIN	120	17.455	3.463	14.188	23.337
France	FRA	120	14.804	2.054	12.324	17.752
Germany	DEU	120	17.423	1.413	14.820	19.160
Latvia	LVA	120	17.578	2.736	13.724	21.823
Netherlands	NLD	120	16.481	3.091	13.478	22.375
Slovak Republic	SVK	120	15.501	2.142	12.571	17.982
Slovenia	SVN	120	14.458	3.294	11.320	19.155

Panel 3: 10-years Sovereign Bonds Yields						
GIIPS	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Greece	GRC	120	10.959	5.244	5.174	22.498
Ireland	IRL	120	4.352	2.771	0.736	9.602
Italy	ITA	120	3.710	1.444	1.488	5.493
Portugal	PRT	120	5.755	2.921	2.423	10.548
Spain	ESP	120	3.741	1.542	1.393	5.845
Non-GIIPS EA	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Austria	AUT	120	2.184	1.195	0.377	3.937
Belgium	BEL	120	2.505	1.311	0.476	4.233
Cyprus	CYP	120	5.350	1.061	3.773	7.000
Estonia	EST	30	6.873	0.920	5.968	7.778
Finland	FIN	120	2.005	1.106	0.363	3.739
France	FRA	120	2.226	1.090	0.467	3.649
Germany	DEU	120	1.673	1.042	0.090	3.223
Latvia	LVA	120	5.064	4.029	0.534	12.358
Netherlands	NLD	120	2.000	1.108	0.292	3.687
Slovak Republic	SVK	120	3.029	1.567	0.543	4.707
Slovenia	SVN	120	3.865	1.644	1.149	5.812
Panel 4: Non-Performing Loans/Total Gross Loans						
GIIPS	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Greece	GRC	120	24.055	11.623	7.000	36.647
Ireland	IRL	120	17.357	5.453	9.800	25.709
Italy	ITA	120	14.334	3.371	9.400	18.064
Portugal	PRT	120	9.325	2.821	4.800	11.962
Spain	ESP	120	6.486	1.714	4.100	9.381
Non-GIIPS EA	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Austria	AUT	120	2.885	0.359	2.300	3.473
Belgium	BEL	120	3.578	0.476	2.799	4.245
Cyprus	CYP	120	27.329	18.361	4.500	48.676
Estonia	EST	120	2.745	1.766	0.870	5.375
Finland	FIN	60	0.550	0.050	0.500	0.600
France	FRA	120	4.112	0.227	3.759	4.495
Germany	DEU	105	2.773	0.442	1.980	3.300
Latvia	LVA	120	9.039	4.703	3.652	15.934
Netherlands	NLD	120	2.912	0.239	2.531	3.227
Slovak Republic	SVK	120	5.222	0.403	4.444	5.836
Slovenia	SVN	120	10.136	3.351	5.071	15.180
Panel 5: Bank Z-Score						
GIIPS	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Greece	GRC	120	4.290	2.160	0.016	6.958
Ireland	IRL	120	6.673	4.605	0.055	13.619
Italy	ITA	120	12.703	1.836	10.031	15.691
Portugal	PRT	120	10.595	2.496	7.667	15.538
Spain	ESP	120	19.277	2.465	15.171	22.833
Non-GIIPS EA	**Country Code**	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Austria	AUT	120	24.207	1.270	22.442	26.454
Belgium	BEL	120	13.899	2.703	9.333	17.455
Cyprus	CYP	120	7.264	3.000	1.999	11.892
Estonia	EST	120	6.603	2.304	0.995	8.549
Finland	FIN	120	9.602	2.450	7.361	15.115
France	FRA	120	17.619	2.176	14.954	21.240
Germany	DEU	120	18.985	3.633	14.001	24.173
Latvia	LVA	120	5.846	1.564	2.907	7.455
Netherlands	NLD	120	8.563	1.729	5.944	11.305
Slovak Republic	SVK	120	17.266	1.004	15.365	18.292
Slovenia	SVN	120	2.431	1.283	-0.241	4.062

3.2. Core risk-taking variables

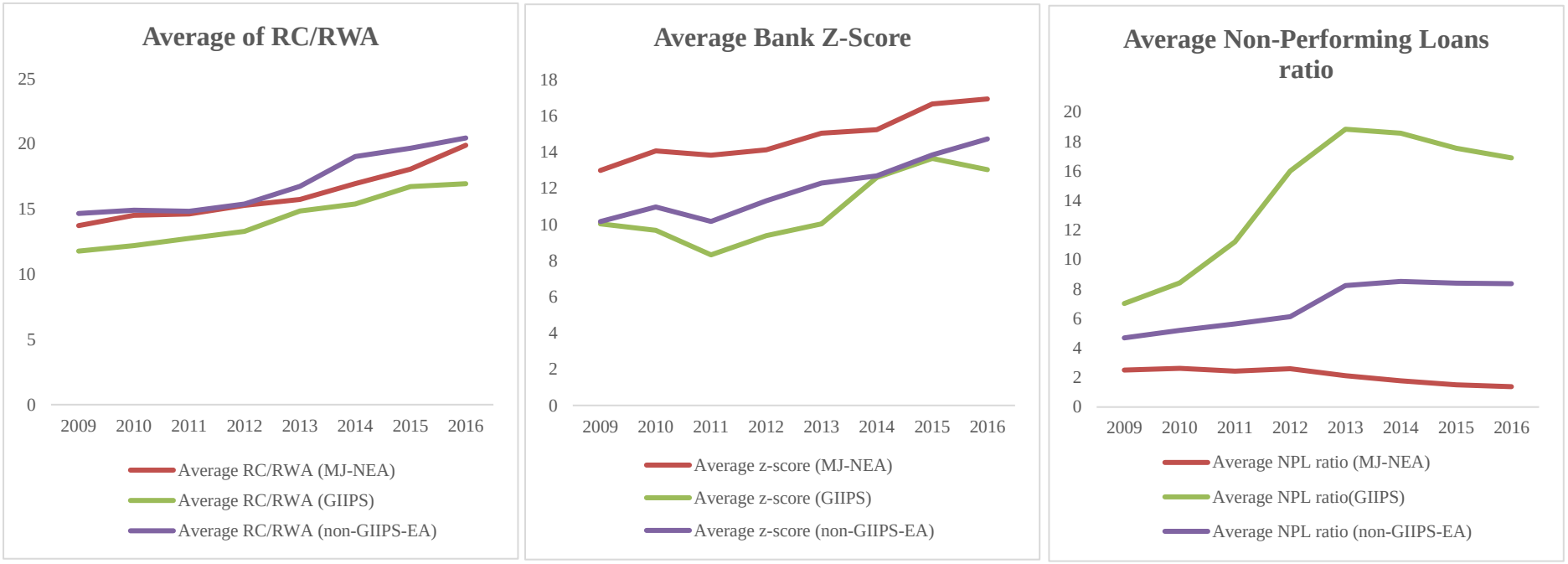
As said, we focus on specific risks for MNEs involved in FDI. Particularly, we look at financial and political stability, arising from concerns about high sovereign indebtedness and a fragile banking sector with implications for the overall economy and consequently on the expected investment return (Acharya et al., 2014).

Figure 1: Sovereign risk assessment



Notes. Average 10-year Sovereign Bond Yields of major non-EA countries (MJ-NEA), Euro Area Periphery (GIIPS) and non-Periphery EA countries (non-GIIPS-EA). In our paper, we use this indicator to measure EA sovereign risk. For a detailed list of the countries included in each of the aforementioned categories, see Table 1.

Figure 2: Banking risk measures



Notes. Averages of Regulatory Capital/Risk-Weighted Assets, Bank Z-Score and Non-Performing Loans/Total Gross Loans of major non-EA countries (MJ-NEA), Euro Area Periphery (GIIPS) and non-Periphery EA countries (non-GIIPS-EA). In our paper, we use this indicator to measure the risk of the EA banking sector. For a detailed list of the countries included in each of the aforementioned categories, see Table 1.

Specifically, to measure sovereign risk we use 10-year government bond yields. This is a widely agreed proxy for sovereign risk (Arghyrou and Kontonikas, 2012; Bernoth and Erdogan, 2012; Afonso et al., 2014, 2018). Recent work (i.e., Cai et al., 2018) has examined the relation between sovereign credit ratings and FDI. While using credit ratings is a reasonable measure, we believe that using sovereign bond yields for our purposes is a superior approach as it reflects the market perspective and should react more quickly to changes in relevant information – see Barroso (2010) and DeVries and De Haan (2016). Again, to maximise our sample coverage, we merge data from IMF International Financial Statistics (IMF IFS), OECD Financial Statistics, Oesterreichische Nationalbank, and Bloomberg.

Figure 1 shows the evolution of our sovereign risk measure. We observe a decline outside the EA zone and for non-GIIPS countries. For GIIPS countries, sovereign risk increased dramatically until mid-2012. After the extraordinary commitment from the ECB to stabilise the EMU, spreads began to fall. They remain, however, at elevated levels by the end of our sample period. Consequently, there is substantial variation that we can exploit.

As proxy for bank risk taking, we opt for using Regulatory Capital to Risk-Weighted Assets. It measures the aggregate amount of core capital allocated by a country's banking sector as a buffer on their risky assets. This variable is commonly used in the banking literature to assess the stability of the banking sector (see De Bruyckere et al., 2013; Acharya et al., 2014; Delatte et al., 2017) and reflects policymakers attempts to address excessive bank risk taking through greater capital buffers. In order to maximise the country sample, we combined data from the IMF Financial Soundness Indicators and World Bank Global Financial Development DataBank.

As we can see from Figure 2, after the GFC, greater worldwide regulation of the banking sector led banks globally to increase the amount of capital allocated as a buffer for their risky assets. The new regulatory frameworks have considerably shrunk the credit availability of banks, hence resulting in lower bank risk taking.

3.3. Additional risk measures and main controls

For robustness reasons, we re-estimate our models using different bank risk measures. We select two popular measures that are frequently used to measure the outstanding risk of banks: 'Banks Z-Score' and nonperforming loans over total gross loans (denoted 'NPL ratio'). The Z-Score, developed by Edward Altman in 1968, captures the probability of default of a firm. This measure has been applied by academics and practitioners to several entities and contexts, but most importantly, for capturing the financial distress of banks (Altman, 2018; ECB, 2016). As the other measures, the Z-Score is included in the 'Financial Institutions: Stability' indicators of the World Bank Global Financial Development DataBank and it is used to predict the probability of default of the banking sector of a given economy. Its value is computed by the World Bank as the ratio of a country's banks capital buffers (capitalisation and returns) to the volatility of their returns. Therefore, the higher this measure, the higher is the amount of capital available to banks to sustain market risk, and the lower is the default risk.

With respect to NPLs, according to the IMF, NPLs affect bank lending through three main channels: (i) profitability, as NPLs generate less income for banks and require more provisions, reducing their net income; (ii) capital, as they require banks to make an allocation of much greater capital; (iii) funding costs, because of the higher funding costs that banks

incur as a result of their impaired balance sheet (Aiyar et al., 2015). Higher NPLs impact the private sector, particularly in countries relying heavily on bank financing such as within the Euro Area, making access to credit harder and more expensive, especially for SMEs (ibid.).

In Figure 2, we observe a drastic increase in the NPL ratio. This trend, especially pronounced for GIIPS countries, reached its highest in the period of the sovereign debt crisis and subsequently stabilised around 2013. The implication of this graph is twofold: on the one hand, it highlights again the importance of the 'regulator' in improving banks' safeness – as the ECB Outright Monetary Transactions (OMT) and Quantitative Easing (QE) programs have reduced GIIPS countries exposure to NPLs; on the other hand, the graph also supports the hypothesis of higher risk aversion of host countries banks, arising from regulatory pressures and banks' balance sheet deterioration.

Finally, we include in our baseline model several additional control variables. In particular, we include standard gravity model variables, controlling for information frictions and transaction costs arising from the individual FDI bilateral transactions. To further robustify our results, we estimate additional models where we added relevant macroeconomic variables and fixed effects. The inclusion of gravity model variables is a standard practice in the literature on bilateral cross-border flows, especially when studying FDI. Portes and Rey (2005) provide evidence that gravity variables proxying country size and transaction costs – arising from informational frictions differences in technology – might explain up to 83% of bilateral cross-country equity flows (Martin and Rey, 2004; Portes and Rey, 2005). Daude and Fratzscher (2008) confirm that FDI is much more dependent on informational frictions than portfolio flows. With respect to gravity variables, we follow Beck et al. (2016) amongst others and include a dummy variable identifying whether the analysed countries share the

same official language and control for the physical distance between the countries (see Appendix 1.A).

4. Empirical Strategy

To analyse the effects of risk and financial stability on FDI, we build a panel dataset including all available bilateral holdings of origin and host countries. Specifically, the dataset contains information on the end-of-the-year positions of 112 foreign direct investor countries in 16 EA countries[6] over the period ranging from 2009 to 2016. We take the logarithm of our dependent variable, as well as our proxy variables for sovereign and banking risk, and equations (1) and (2) below show our chosen regression specification:

$$\log(FDI_{ih,t}) = \alpha + \beta_1\, Comm\_Lang_{ih} + \beta_2 \log(Distance_{ih}) + \beta_3 \log(Country\ Risk_{i,t}) + \epsilon_{ih,t} \quad (1)$$

$$\log(FDI_{ih,t}) = \alpha + \beta_1\, Comm\_Lang_{ih} + \beta_2 \log(Distance_{ih}) + \beta_3 \log(Country\ Risk_{h,t}) + \epsilon_{ih,t} \quad (2)$$

In the regression equations, i is the country of the foreign direct investor (or origin country), while h denotes the host country. $Comm\_Lang_{ih}$ is a dummy variable taking value of 1 if the country i and h share the same official language and zero otherwise. $Distance_{ih}$ represents the physical distance between i and h. $Country\ Risk_{i,t}$ (or $Country\ Risk_{h,t}$) is a proxy for banking or sovereign risk, either for the origin country (with the i subscript) or for the host country (with the h subscript). Finally, $\epsilon_{ih,t}$ represents the error term. We estimate (1) and (2) using a least squares approach with Huber-Eiker-White robust standard errors.

5. Empirical Results

[6] As in Beck et al. (2016), we consider all Euro Area (EA) countries with the exception of small countries with large financial sectors (i.e., Malta and Luxembourg) and Lithuania, as it joined the EA in 2015.

In this section, we present and discuss the estimation results of equations (1) and (2). Table 2 contains our main specification where we focus on the two core risk variables – Regulatory Capital/Risk-Weighted Assets and 10-Year Sovereign Bond Yields. Given the bilateral nature of our data we estimate for each risk proxy, two equations (1) and (2), for the origin and host country risk, respectively. With this we can assess which kind of risk is relevant, i.e. whether the situation in the origin country or the host country matters in the same fashion for FDI. In Tables 3 and 4, we consider other measures of banking risk and split our sample into GIIPS and non-GIIPS countries.

Considering Table 2 first of all, the included gravity variables are statistically significant and have the expected sign. In line with the previous literature (Beck et al.., 2016; Daude and Fratzscher, 2008; Martin and Rey, 2004; and Portes and Rey, 2005), standard gravity variables – proxying information and transaction costs – are important drivers of FDI flows. Sharing the same official language and high proximity, increase foreign direct investment.

Table 2 - Country Risk impact on inward and outward FDI volume

	Country risk			
	Banking Risk measure		Sovereign Risk measure	
	Regulatory Capital/Risk-weighted Assets		*10-year Sovereign Bond Yields*	
	Origin country	Host country	Origin country	Host country
	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	23.893***	14.670***	14.340***	14.849***
	(0.800)	(0.718)	(0.360)	(0.366)
comm_lang	3.257***	3.379***	2.697***	3.099***
	(0.145)	(0.139)	(0.162)	(0.147)
log(distance)	-1.358***	-1.276***	-0.981***	-1.183***
	(0.045)	(0.046)	(0.048)	(0.047)
log(Country Risk)	-3.169***	-0.078	-1.224***	-0.888***
	(0.250)	(0.209)	(0.063)	(0.063)
Observations	5,110	5,110	3,881	4,793
R-squared	0.186	0.157	0.233	0.186

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.1. Country risk impact on FDI

Considering next the effect of the 10-year Sovereign Bond Yields, we can observe that the coefficients in both columns (3) and (4) of Table 2 are statistically significant and present a negative sign. This implies that higher sovereign risk, both domestically as well as in the host country, results in lower FDI in the Euro Area and confirms our hypotheses 1a and 1b in Section 2.2. Such a result is expected as an increase in either origin or host country measures, is likely to decrease the FDI of MNEs given a higher motive for companies to engage in less risk-taking and accumulate more cash holdings. Analogously, recent work has identified higher cash holdings and less investment generally due to financial crises (Song and Lee, 2014). Notably when comparing the magnitude of the coefficient estimates in columns (3) and (4), we observe that the coefficient of the origin country is bigger than the coefficient of the host country. Hence, it appears that origin countries risk situation is more relevant than the host country and provides evidence on the key role held by banks in financing global FDI – via the so-called *lending channel* – discussed by the extant literature (see Bridges et al., 2014; Fraisse et al., 2017; Aiyar et al, 2015; Bacchetta and Benhima, 2014; Halford, 2015).

Continuing to focus on Table 2 and examining the ratio Regulatory Capital/Risk Weighted Assets (RC/RWA), the origin country coefficient estimate in column (1) is statistically significant and has negative sign, implying a reduction of FDI volume invested by MNEs. To the contrary, in column (2) we observe that the coefficient estimate capturing the situation of the host country is not significant. This confirms our hypotheses 2a and 2b; only origin country banking risk matters for the decision to invest in the host country. As discussed in Section 2.2., increases in regulatory capital holding are likely to lead to less credit availability, particularly for firms wishing to invest overseas where imperfect knowledge considerations are greater. Moreover, this appears to matter much more in origin countries,

where a closer institutional affinity and familiarity between banks and MNEs may well see more FDI financing take place than in host markets.

5.2. Robustness

In Table 3 below we include the other proxies for banking risk discussed previously in Section 3.3. Overall, our results and conclusions remain unaffected with further support provided for hypotheses 1a, 1b, 2a and 2b. In particular, both for the Z-Score as well as for the NPL ratio, we confirm that the origin country's, as opposed to the host country's, banking risk situation matters for FDI decisions.

Table 3 - Other Country Risk variables impact on inward and outward FDI volume

	Banking Risk measures			
	Bank Z-Score		*Nonperforming Loans/Total Gross Loans*	
	Origin Country	Host country	Origin country	Host country
	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	15.606***	14.146***	15.786***	13.972***
	(0.438)	(0.430)	(1.414)	(1.865)
comm_lang	3.389***	3.384***	3.342***	3.350***
	(0.139)	(0.139)	(0.589)	(0.619)
log(distance)	-1.284***	-1.273***	-1.322***	-1.276***
	(0.046)	(0.046)	(0.187)	(0.182)
log(Country Risk)	-0.198***	0.074	-0.187***	0.131
	(0.046)	(0.055)	(0.052)	(0.335)
Observations	5,110	5,110	5,110	5,110
R-squared	0.160	0.157	0.161	0.158

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Finally, we have a closer look at the EA countries and split the sample into GIIPS (i.e., stressed) and non-GIIPS (i.e., non-stressed) Euro Area countries. Given the sharper increase of sovereign risk for GIIPS countries over our sample period, the effect of such risk should be more pronounced in GIIPS countries than in non-GIIPS countries. Table 4 contains the

relevant estimation results. Again, our main results, support for our hypotheses and conclusions, remain unaffected. We confirm that banking risk and sovereign risk are both relevant. Banking risk is relevant for the origin country only, while sovereign risk is important for both origin and host country. Furthermore, and as expected, the coefficient estimates of our chosen country risk variables typically become larger in absolute magnitude in the GIIPS country sub-sample. For example, in Table 4, the estimated coefficient for origin country RC/RWA is -2.94 in the non-stressed (or non-GIIPS) sub-sample, whilst the equivalent coefficient in the stressed (or GIIPS) sub-sample is -3.74. Indeed, the sensitivity of FDI to country risk is greater in stressed GIIPS countries for both risk types than in the non-GIIPS countries sub-sample. There is only one exception here for the coefficient of host country sovereign risk, which may again reflect the higher relevance of conditions in the origin country than in the host. Finally, note that several alternative specifications have been estimated, adding various controls and fixed effects. Results are qualitatively unaffected by these alterations and are available in Appendix 2.B.

Table 4 - Country Risk impact on inward and outward FDI volume (Stressed and Non-Stressed EA countries)

	Country risk				**Country risk**			
	Banking Risk measure		Sovereign Risk measure		Banking Risk measure		Sovereign Risk measure	
	Non-Stressed EA countries				Stressed EA countries			
	Regulatory Capital/Risk-weighted Assets		*10-year Sovereign Bonds' yields*		*Regulatory Capital/Risk-weighted Assets*		*10-year Sovereign Bonds' yields*	
	Origin Country	Host country	Origin Country	Host country	Origin Country	Host country	Origin Country	Host country
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	23.050***	13.589***	14.053***	14.607***	27.409***	15.235***	16.894***	17.655***
	(0.999)	(0.873)	(0.440)	(0.452)	(1.377)	(1.341)	(0.710)	(0.768)
comm_lang	3.034***	3.130***	2.512***	2.728***	3.414***	3.621***	3.098***	3.556***
	(0.178)	(0.167)	(0.191)	(0.183)	(0.246)	(0.242)	(0.283)	(0.243)
log(distance)	-1.354***	-1.262***	-0.981***	-1.157***	-1.547***	-1.489***	-1.226***	-1.510***
	(0.056)	(0.057)	(0.059)	(0.058)	(0.092)	(0.095)	(0.090)	(0.093)
log(Country	-2.944***	0.211	-1.146***	-1.136***	-3.739***	0.491	-1.373***	-0.672***
Risk)	(0.309)	(0.264)	(0.078)	(0.077)	(0.421)	(0.383)	(0.101)	(0.124)
Observations	3,450	3,450	2,677	3133	1,660	1,660	1,204	1,660
R-squared	0.188	0.165	0.226	0.215	0.202	0.154	0.280	0.167

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Discussion and Conclusion

Particularly since the GFC, the stability of the financial system has come to the fore of both academic and policy thinking. Specifically, the recent emphasis on macro prudential policy - in other words, policy that recognizes the systemic risks inherent in large financial institutions - has resulted in new thinking. For example, in response to the wave of bank bailouts in the late 2000s, a range of regulatory policies have been implemented, often requiring banks to hold more capital on their balance sheets, in order to try and reduce the vulnerability of the financial system.

It should be noted that the costs of macroprudential policy, rather than any potential benefit, of stabilising the financial architecture are often not considered, either in policy circles or the academic literature. In our paper, we evaluate such costs in the context of FDI. This type of financing can be an important factor in driving firm performance (Borin and Mancini, 2015) and countrywide economic growth[7] (see, *inter alios*, Alfaro et al., 2010) through a variety of channels including technology transfer and increases in human capital and employment.

A number of potential risk factors for FDI have been examined in the IB literature, including those arising from political, social, geographical, technological, regulatory and/or firm specific spheres (Narula, 2015). However, the financial sector has been less considered and consequently, the risks to FDI emanating from both, recent financial crises (e.g., the GFC and sovereign debt crisis) and any policy responses to these, have been underexplored.

We focus on two measures of financial stability - sovereign yields and more explicit measures of bank behaviour such as regulatory capital. Furthermore, we discriminate

[7] Note that Alfaro et al. (2010) show that positive economic growth externalities of FDI are in part, dependent on how well developed the host country's financial markets.

between effects from the host country and the origin country. First, sovereign yields represent the market's judgement on the ability of a country to service its national debt and as such encapsulate economic, political and financial risks. Of course, the GFC gave rise to increased government borrowing to support struggling banks in the Euro Area and elsewhere, the consequent increase in yields leading to the sovereign debt crisis. Relatedly, we hypothesise that FDI will respond negatively to upturns in sovereign yields across both origin and host countries, given that (i) an increase in origin country yield will likely encourage its own MNEs to engage in less risk-taking whilst (ii) an increase in host country yield will imply that other destinations appear more attractive. Our empirical work, using a panel of bilateral FDI holdings for 112 direct investor countries in the Euro Area (EA) from 2009 to 2016, strongly supports both these hypotheses. Moreover, in absolute magnitude, the sovereign risk of the origin country matters more than that of the host country, an interesting finding given the typical weight placed on the importance of the host country characteristics in attracting FDI.

In terms of policy responses to recent financial crises, these often include requirements for financial institutions to hold more regulatory capital. Therefore, our second measure of financial stability is regulatory capital to risk-weighted assets; a measure employed previously in the banking literature to represent the stability of the banking sector (see Delatte et al., 2017). Drawing on and combining the IB and finance conceptualisations of institutional quality and risk aversion respectively, we suggest that banks' institutional risk aversion will be heightened given an increase in regulatory capital to risk-weighted assets. In a practical sense, this will result in reduced bank lending in the aggregate and potentially, proportionately less overseas lending, which might be considered riskier. Furthermore, *ceteris paribus*, changes in regulatory capital in origin countries are more likely to affect FDI than comparable changes in host countries, assuming MNEs are more likely to finance their

operations from banks in their home country. This is an adaptation of the concept of institutional affinity (see Shukla and Cantwell, 2018), whereby cultural ties and familiarity lead to economic and financial ties.

Our empirical work again confirms our ex-ante theorization. In particular, although increases in the origin country regulatory capital measure lead to decreases in FDI, changes in host country measures leave FDI unaffected. Strikingly, these results are robust to the use of other common proxy measures for bank-related risk: namely, bank Z-Score and the ratio of non-performing loans to total gross loans. Additionally, when the Euro Area sample is separated into two subsamples representing non-stressed and stressed (i.e. Greece, Ireland, Italy, Portugal and Spain) countries, the reduction in FDI from origin countries experiencing higher bank risk, is clearly greater in the stressed case.

Overall our theory and empirical results show that financial stability, both in origin and host countries, matters for FDI. We would encourage policymakers in countries that seek to attract FDI to not only be mindful of the domestic conditions that lead to lower sovereign risk but also to be cognisant of the changing financing environment that MNEs may face in their home countries. Host country schemes to support the financing of FDI by overseas MNEs may be appropriate but will need to be aware of the trust deficit that comes with lack of familiarity and affinity. Recent IB and cognate strands of literature have highlighted the extent to which FDI choices represent the outcome of both positive and negative sets of very different types institutional effects, rather than a single institutional feature over-shadowing all others (Buckley et al., 2018; Wood et al., 2016). Approaches to risk will reflect both institutional affinity and aversion (c.f. Shukla and Cantwell, 2018). This study provides further illustration of the dynamics of such processes, focusing on the effects of variations in

bank-related risk, a key systemic feature where the range of regulatory choices is somewhat circumscribed.

Finally, it is important to discuss that the areas of risk highlighted in this study – sovereign and bank – and their respective and interlinked regulatory structures have become relatively depoliticised given the rise of ‘independent’ central banks and supra-national policy setting frameworks, which constrain the range of policy options open to national governments. Our study highlights the potential costs and benefits of financial stability in the context of FDI. However, in a wider social context, the decoupling of institutions from other state functions and, in particular national oversight, may have wider political ramifications than simply where MNEs choose to invest, as evidenced by the contemporary rise of populist movements.

7. Appendices

Appendix 1 – Dataset Description

1.A – Data

Inward FDI: Annual data on foreign countries' FDI holdings in EA countries is collected from the IMF Coordinated Direct Investment Survey (CDIS). From this dataset, we collected 'inward' FDI positions in EA countries, cross-classified by economy of the immediate investor (see IMF's Coordinated Direct Investment Survey Guide – 2015).

Gravity Variables: Gravity variables of 'Geographical Distance' and 'Common Official Language' are instead collected from the 'Comptes Harmonisés sur les Echanges et L'Economie Mondiale (CHELEM)' database, developed by the CEPII Research Center. The 'Geographical Distance' is a dyadic dataset, disclosing many features for the reported country pairs, such as: geographical distance (in kilometres) between the capitals of most of the countries in the world, whether or not the countries share the same official language, whether the countries share colonization history, etc (see Meyer and Zignago, 2011).

Country Risk Variables: Country Risk variables have been gathered the World Bank Global Financial Development Database and from IMF Financial Soundness Indicators Database (with the exception of the 10-year Sovereign Bond Yields, for which we used IMF IFS, supplemented for a few missing observations with OECD Financial Statistics, Oesterreichische NationalBank, and Bloomberg). The World Bank Global Financial Development Database is an extensive dataset gathering information on the functioning of the financial system. Among the information presented in this database, it reports statistics on: financial depth, financial services access, efficiency and stability (resilience) of the financial

system and of the institutions operating in it. Almost all our 'Country Risk' variables have been collected from the Financial Stability Section of this database. Additionally, the IMF Financial Soundness Indicators Database is also a comprehensive dataset providing statistics on financial system resilience. In particular, it contains granular information on: financial intermediaries' stability, as well as detailed statistics on other entities such as financial and non-financial corporations. From the latter database, we collected data on banks' regulatory capital to risk-weighted assets, that we then further supplemented using the World Bank Global Financial Development Database.

GDP per capita: Annual data on GDP per capital has been obtained from World Bank Statistics. This database combines macro-economic data from the World Bank National Account database and from the OECD National Accounts data files.

1.B – Countries

In our analysis we included a broad range of countries (i.e., 112 countries). The countries that we considered are all those voluntarily participating in the IMF Coordinated Direct Investment Survey (CDIS), with the exception of tax heavens, small countries with large financial centres or war zones. Specifically, below we report the detailed composition of our dataset:

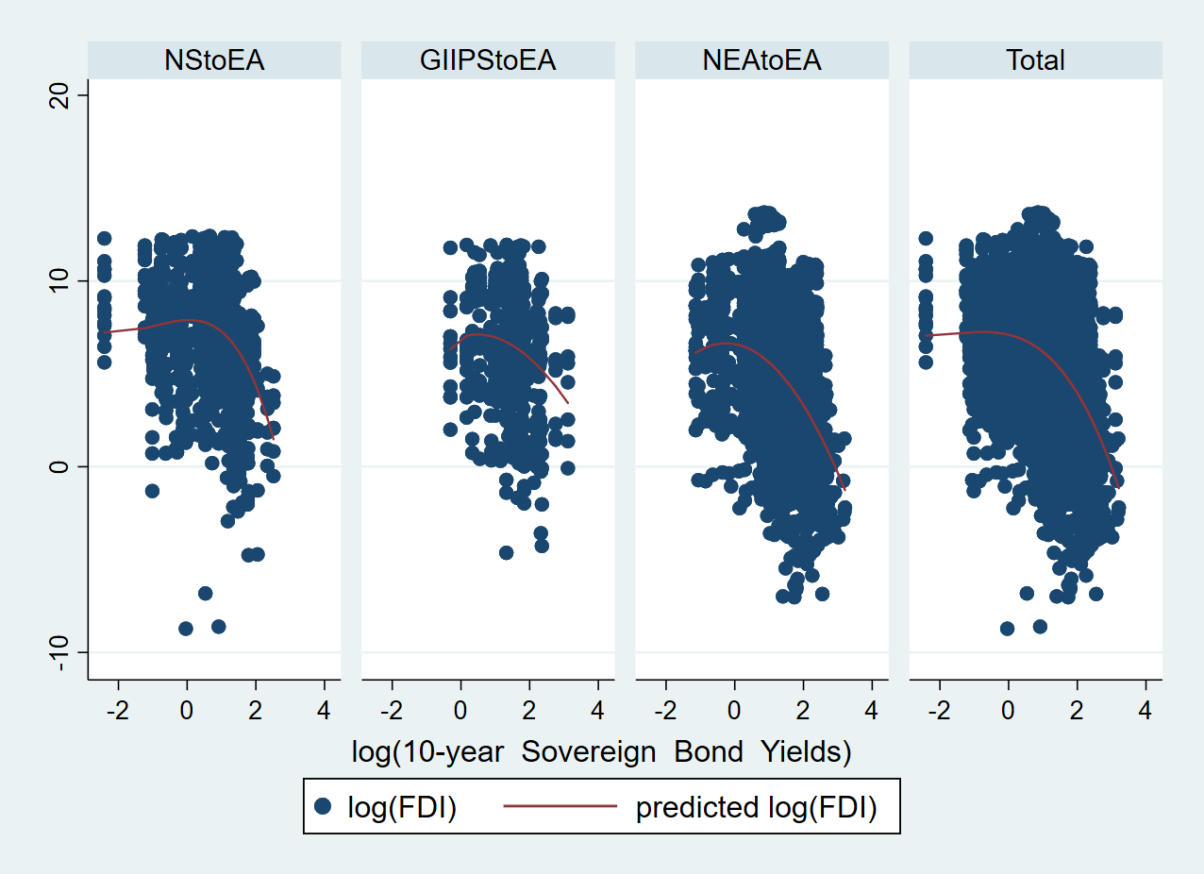
Countries included in the dataset: Within the Euro Area (EA), we considered all countries with the exception of Lithuania, as it joined the EA in 2015, Malta and Luxembourg. With respect to non-Euro Area countries, we consider: Albania, Algeria, Angola, Argentina, Armenia, Australia, Bangladesh, Belarus, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Cabo Verde, Cameroon, Canada, Central African Republic, Chile, China, P.R. Mainland, Colombia, Congo, Republic of Cote d'Ivoire, Croatia, Czech Republic, Denmark, Dominica, Egypt, El Salvador, Gabon, Georgia, Ghana, Guatemala, Guinea, Guinea- Bissau, Guyana, Hungary, Iceland, India, Indonesia, Iran, Islamic Republic of, Israel, Japan, Jordan, Kazakhstan, Kenya, Korea, Republic of Kuwait, Kyrgyz Republic, Lao People's Democratic Republic, Liberia, Macedonia, FYR, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mexico, Mongolia, Morocco, Mozambique, Namibia, New Zealand, Niger, Norway, Oman, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Russian Federation, Rwanda, Saudi Arabia, South Africa, Sri Lanka, Sudan, Swaziland, Sweden, Tanzania, Thailand, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Republica Bolivariana de Vietnam, Yemen, Republic of Zambia, Zimbabwe.

Appendix 2 – Additional analyses

2.A – Pairwise graphical analysis of FDI and Country Risk variables

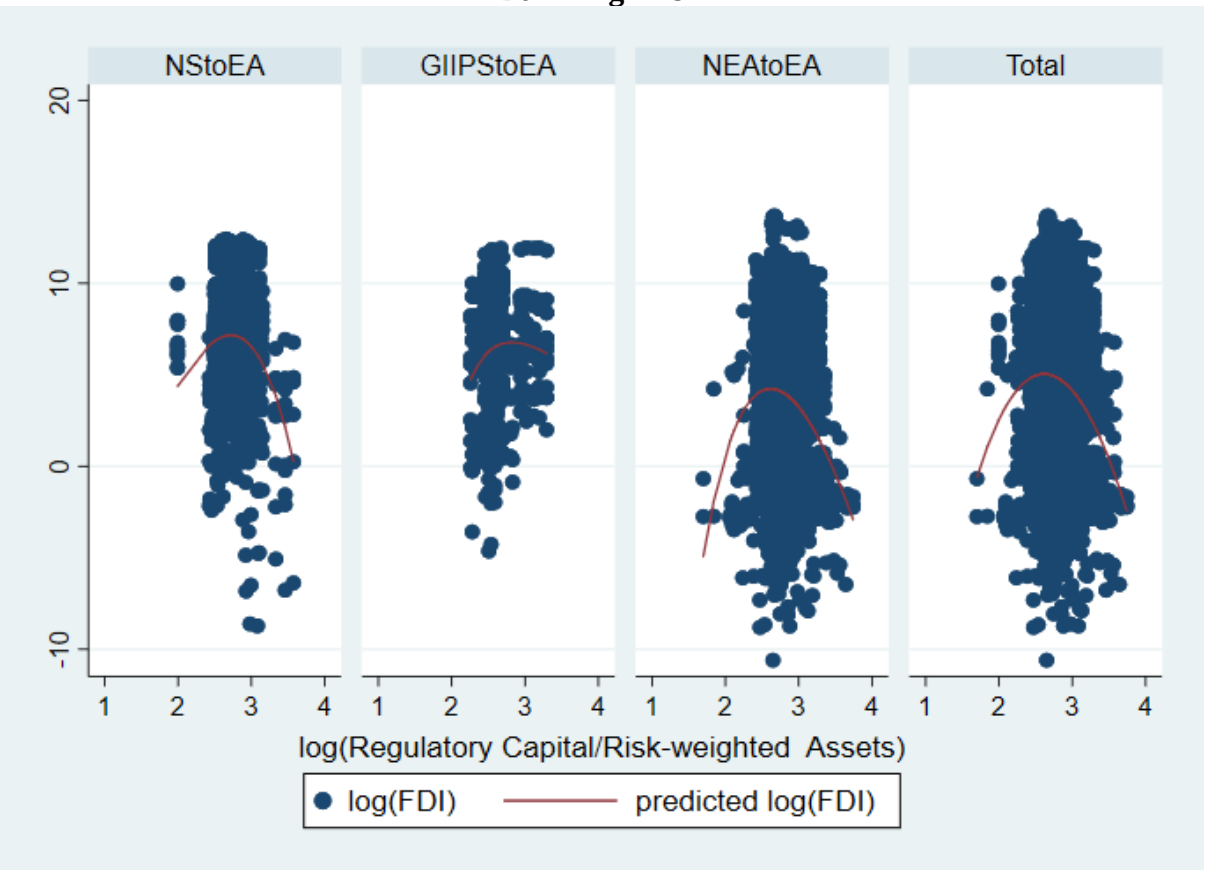
2.A.1 – Logarithm of Euro Area FDI and Origin Countries' Risk

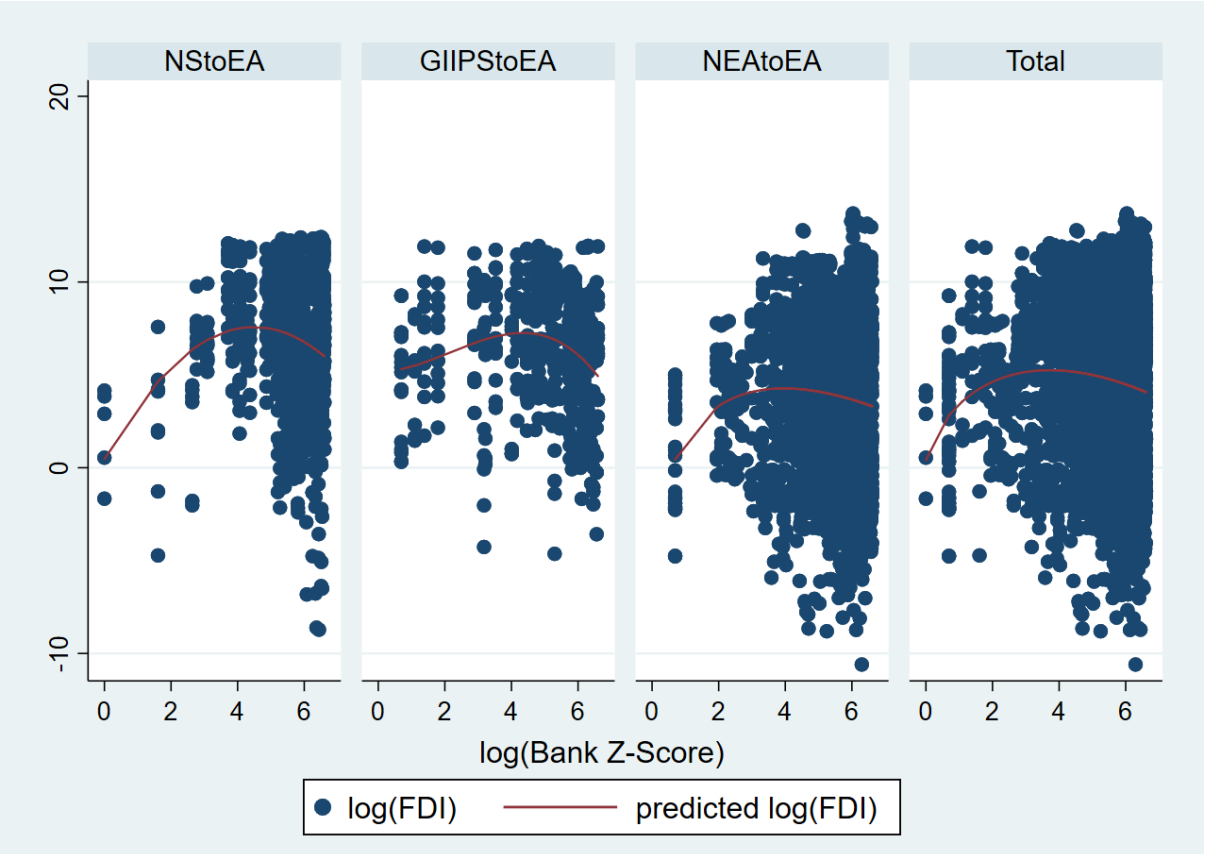
Sovereign Risk

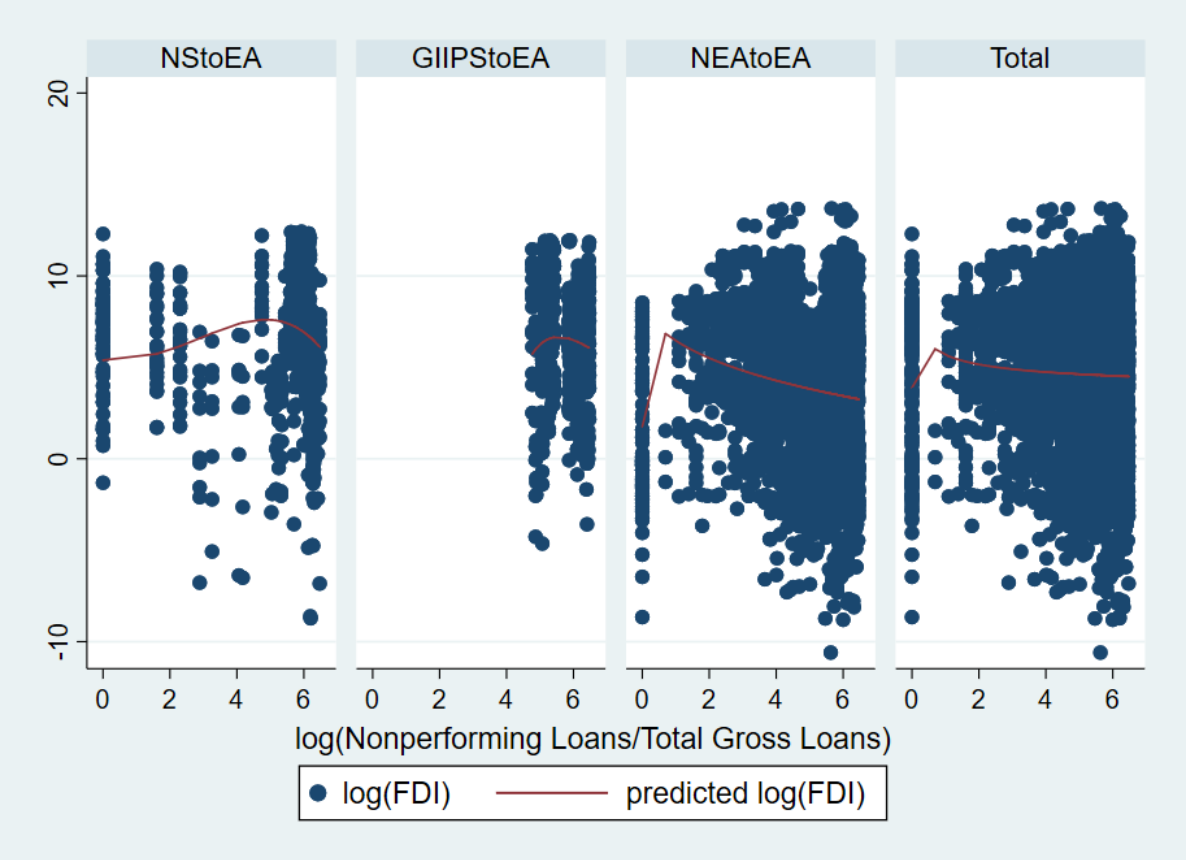


Notes: non-stressed (NS); Euro Area (EA); GIIPS (Greece, Ireland, Italy, Portugal and Spain); Non-Euro Area (NEA).

Banking Risk



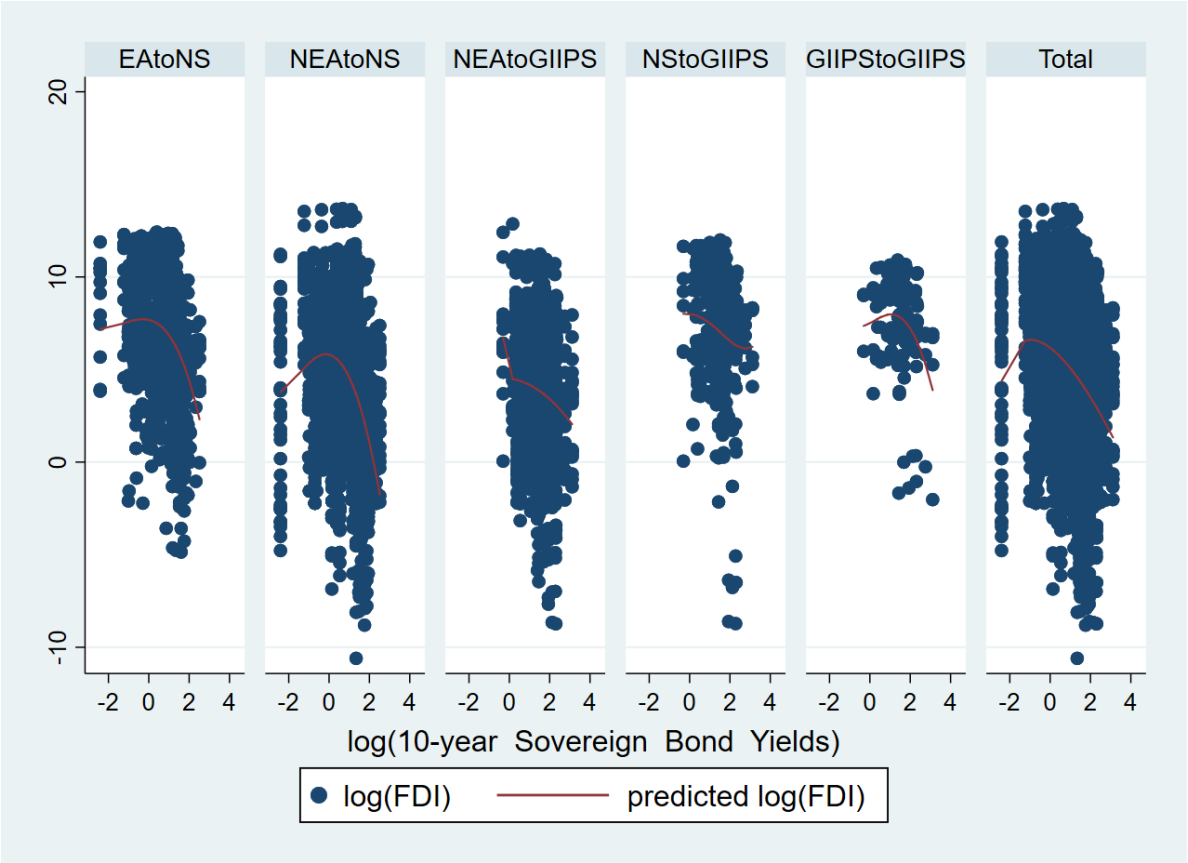




Notes: non-stressed (NS); Euro Area (EA); GIIPS (Greece, Ireland, Italy, Portugal and Spain); Non-Euro Area (NEA).

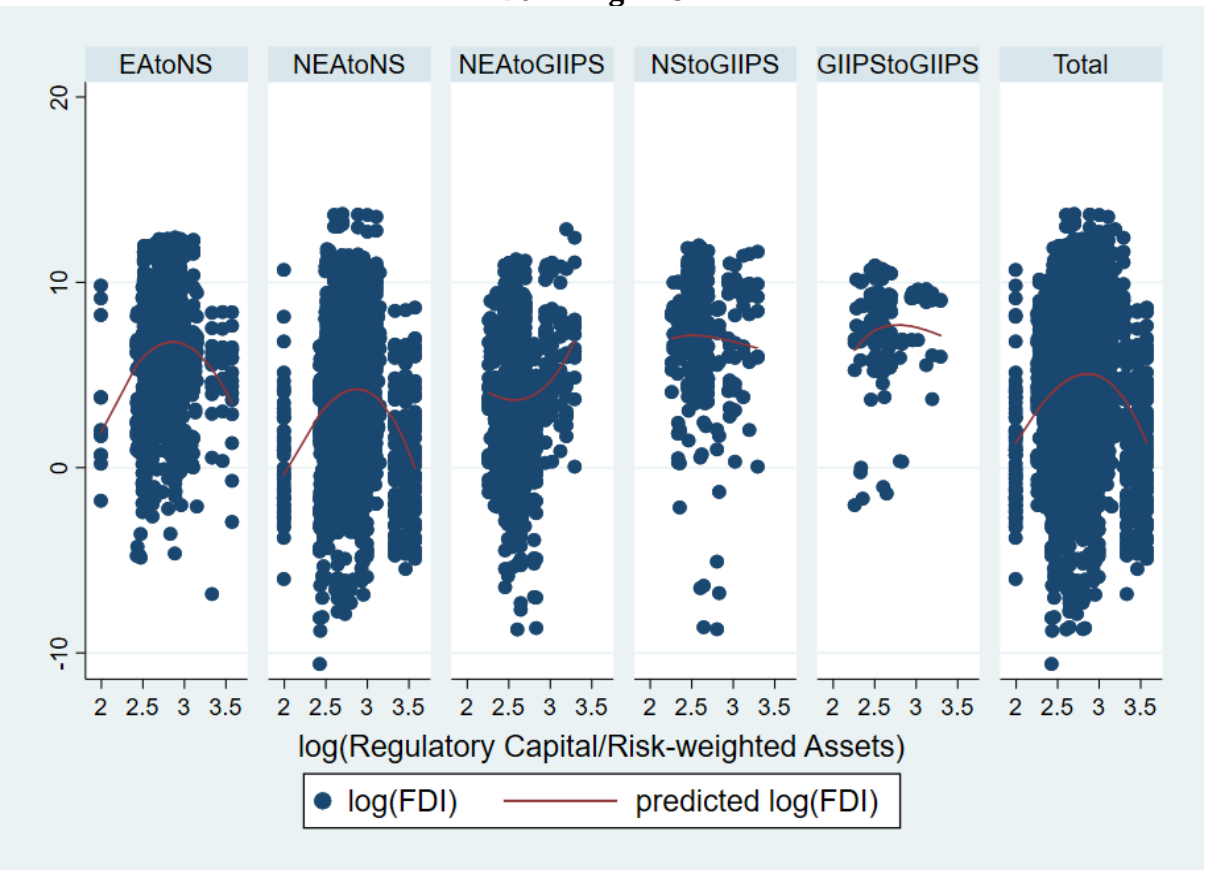
2.A.2 – Logarithm of Euro Area FDI and macro-economic fundamentals

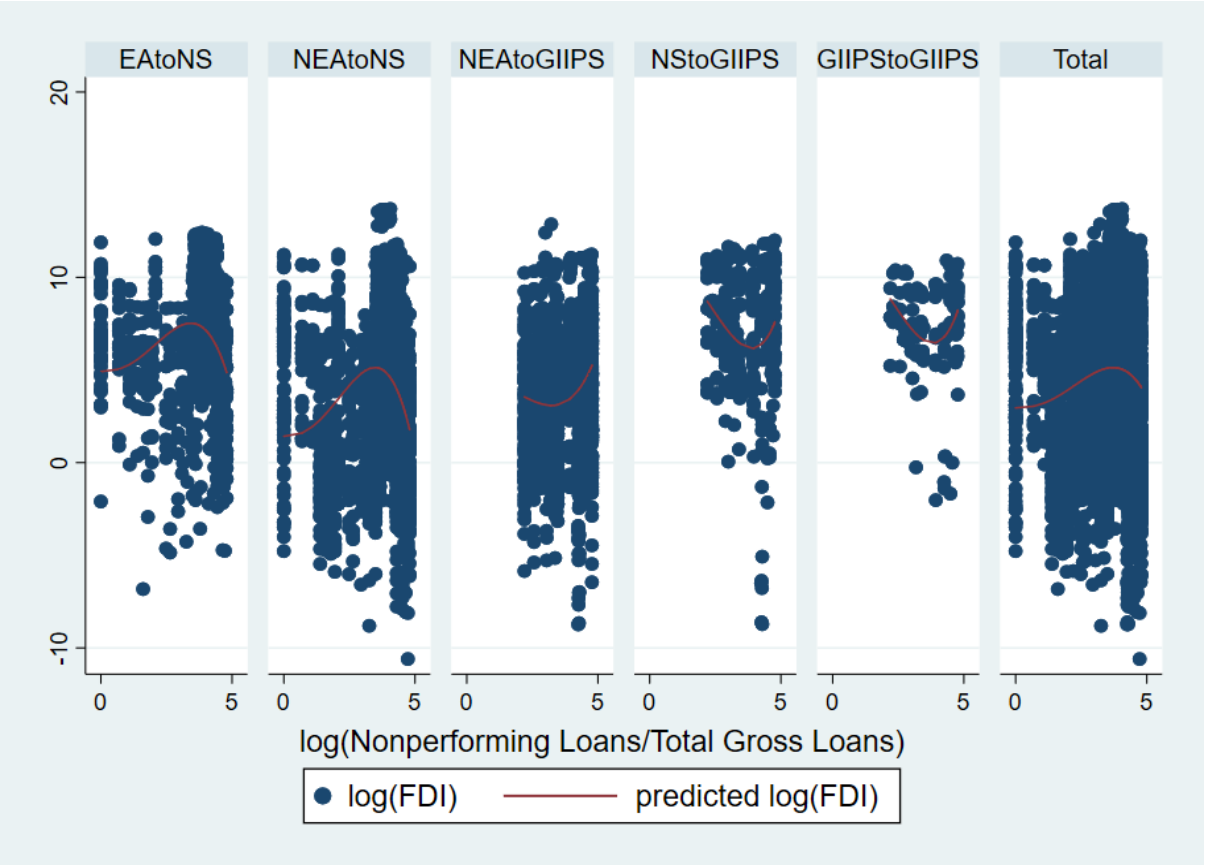
Sovereign Risk

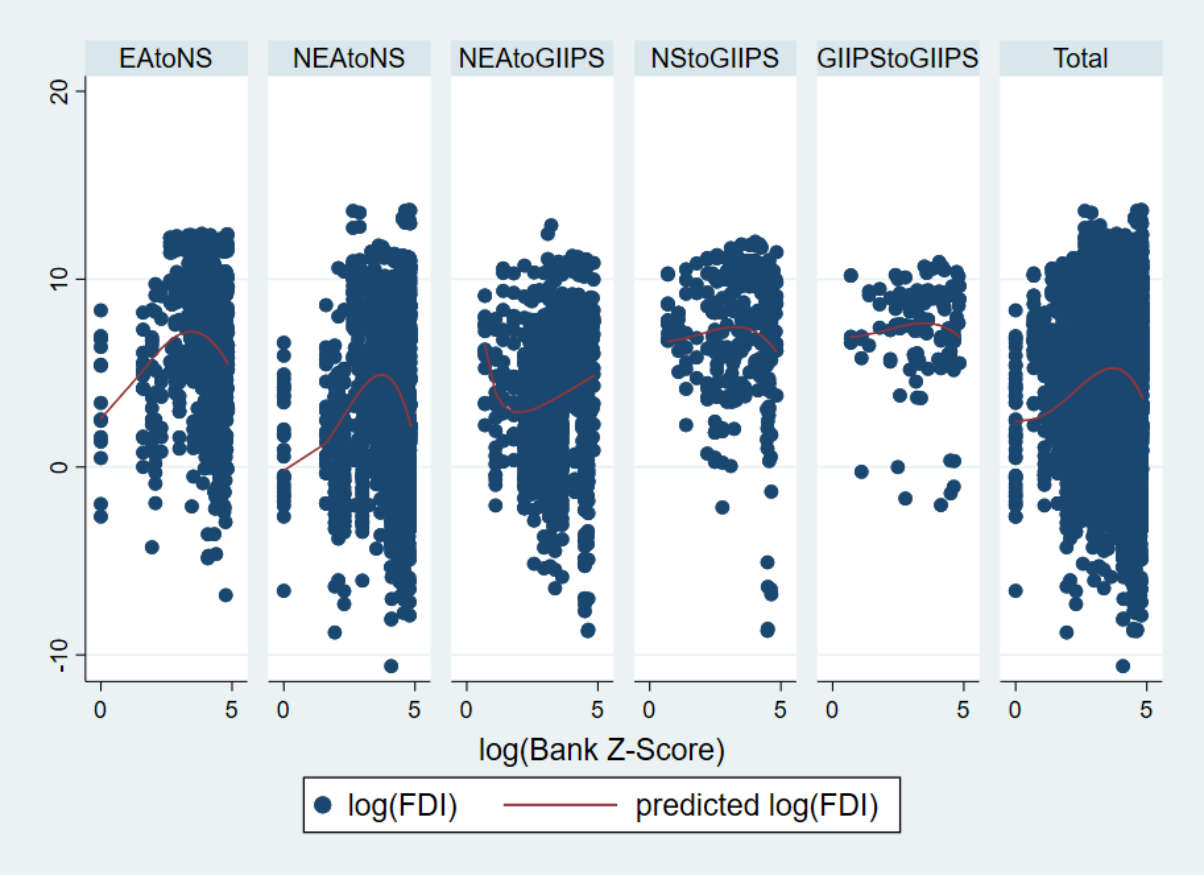


Notes: non-stressed (NS); Euro Area (EA); GIIPS (Greece, Ireland, Italy, Portugal and Spain); Non-Euro Area (NEA).

Banking Risk







Notes: non-stressed (NS); Euro Area (EA); GIIPS (Greece, Ireland, Italy, Portugal and Spain); Non-Euro Area (NEA).

2.B – Additional test results

2.B.1 – Baseline Model – including cross-sectional and time fixed effects

Table 5 - Country Risk impact on inward and outward FDI volume

	Country risk			
	Banking Risk measure		Sovereign Risk measure	
	Regulatory Capital/Risk-weighted Assets		*10-year Sovereign Bonds' yields*	
	Origin country	Host country	Origin country	Host country
	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	23.872***	14.253***	15.661***	15.131***
	(1.654)	(1.825)	(0.906)	(0.875)
comm_lang	1.333***	1.419***	1.466***	1.444***
	(0.389)	(0.399)	(0.371)	(0.400)
log(distance)	-1.370***	-1.283***	-0.951***	-1.220***
	(0.129)	(0.125)	(0.111)	(0.113)
log(Country Risk)	-2.812***	0.538	-1.471***	0.019
	(0.438)	(0.529)	(0.148)	(0.408)
Cross-section F.E.	Yes	Yes	Yes	Yes
Time F.E.	Yes	Yes	Yes	Yes
Observations	5,110	5,110	3,881	4,793
R-squared	0.478	0.457	0.548	0.45

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: In Table 5, we clustered standard errors by host country.

B.2 – Baseline Model – including a proxy for economic growth

Table 6 - Country Risk impact on inward and outward FDI volume

	Country risk			
	Banking Risk measure		Sovereign Risk measure	
	Regulatory Capital/Risk-weighted Assets		*10-year Sovereign Bonds' yields*	
	Origin country	Host country	Origin country	Host country
	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	23.225***	14.542***	14.390***	14.901***
	(0.804)	(0.723)	(0.360)	(0.364)
comm_lang	3.251***	3.378***	2.676***	3.084***
	(0.143)	(0.139)	(0.160)	(0.149)
log(distance)	-1.353***	-1.276***	-0.992***	-1.182***
	(0.045)	(0.046)	(0.048)	(0.047)
log(Country Risk)	-2.955***	-0.033	-1.236***	-0.937***
	(0.250)	(0.211)	(0.063)	(0.063)
Lagged(Growth in log GDP per capita)	0.519***	0.803	0.415***	2.496***
	(0.073)	(0.495)	(0.076)	(0.511)
Observations	5,085	5,110	3,871	4,793
R-squared	0.190	0.157	0.237	0.190

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 - Country Risk impact on inward and outward FDI volume (Stressed and Non-Stressed EA countries)

	Country risk				Country risk			
	Banking Risk measure		Sovereign Risk measure		Banking Risk measure		Sovereign Risk measure	
	Non-Stressed EA countries				Stressed EA countries			
	Regulatory Capital/Risk-weighted Assets		*10-year Sovereign Bonds' yields*		*Regulatory Capital/Risk-weighted Assets*		*10-year Sovereign Bonds' yields*	
	Origin country	Host country	Origin country	Host country	Origin country	Host country	Origin country	Host country
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	22.535***	13.502***	14.095***	14.701***	26.439***	15.012***	16.970***	17.696***
	(1.000)	(0.885)	(0.441)	(0.449)	(1.391)	(1.331)	(0.710)	(0.767)
comm_lang	3.054***	3.130***	2.502***	2.679***	3.350***	3.607***	3.060***	3.553***
	(0.178)	(0.167)	(0.189)	(0.181)	(0.242)	(0.243)	(0.280)	(0.245)
log(distance)	-1.355***	-1.262***	-0.991***	-1.155***	-1.526***	-1.491***	-1.240***	-1.513***
	(0.056)	(0.057)	(0.060)	(0.058)	(0.092)	(0.095)	(0.090)	(0.093)
log(Country Risk)	-2.771***	0.241	-1.159***	-1.241***	-3.456***	0.585	-1.381***	-0.678***
	(0.308)	(0.269)	(0.078)	(0.077)	(0.424)	(0.378)	(0.101)	(0.123)
Lagged(Growth in log GDP	0.503***	0.446	0.415***	3.975***	0.563***	1.656**	0.420***	1.631**
per capita)	(0.097)	(0.698)	(0.101)	(0.746)	(0.103)	(0.677)	(0.106)	(0.674)
Observations	3,439	3,450	2,669	3,133	1,646	1,660	1,202	1,660
R-squared	0.193	0.165	0.230	0.223	0.203	0.156	0.286	0.169

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

B.3 – Baseline Model – including one lag of the dependent variable

Table 8 - Baseline model including also the lag of log(FDI)

	Country risk			
	Banking Risk measure		Sovereign Risk measure	
	Regulatory Capital/Risk-weighted Assets		*10-year Sovereign Bonds' yields*	
	Origin country	Host country	Origin country	Host country
	(1)	(2)	(3)	(4)
Dep. Variable	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Constant	4.938***	1.950***	2.285***	2.363***
	(0.507)	(0.338)	(0.265)	(0.248)
Lagged(log(FDI))	0.872***	0.881***	0.855***	0.870***
	(0.009)	(0.009)	(0.012)	(0.009)
comm_lang	0.430***	0.437***	0.493***	0.438***
	(0.083)	(0.084)	(0.099)	(0.084)
log(distance)	-0.229***	-0.193***	-0.162***	-0.200***
	(0.026)	(0.025)	(0.027)	(0.026)
log(Country Risk)	-0.892***	0.069	-0.112***	-0.096***
	(0.128)	(0.087)	(0.027)	(0.023)
Observations	4,292	4,292	3,321	4,016
R-squared	0.856	0.854	0.841	0.846

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

B.4 – Baseline Model – including both origin and host countries

Table 9 - Baseline model including both origin and host countries

	Country risk	
	Banking Risk	Sovereign Risk
	Reg Capital/Risk-weighted Assets	*10-year Sovereign Bond Yields*
	(1)	(2)
Dep. Variable	log(FDI)	log(FDI)
Constant	23.469***	14.521***
	(0.974)	(0.375)
comm_lang	3.255***	2.462***
	(0.145)	(0.171)
log(distance)	-1.355***	-0.938***
	(0.045)	(0.049)
log(Country Risk_oc)	-3.187***	-0.997***
	(0.250)	(0.070)
log(Country Risk_hc)	0.166	-0.578***
	(0.210)	(0.062)
Observations	5,110	3,642
R-squared	0.186	0.241

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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