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Determinants of Spanish foreign direct investment. (Destination countries financial development and financial vulnerability of the investor)

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DETERMINANTS OF SPANISH FOREIGN DIRECT INVESTMENT. (DESTINATION COUNTRIES FINANCIAL DEVELOPMENT AND FINANCIAL VULNERABILITY OF THE INVESTOR)

ABSTRACT

By using time-varying measures of domestic country financial development (DCFD) and financial vulnerability at the parent level (FV), we analyze their effects on Spanish outward foreign direct investment (OFDI) during different periods of financial stress in Spain. To this end, we considered the bilateral stock positions to 127 countries considering 75 different activities over the period 2008-2017. We show that Spanish foreign affiliates tend to be located in countries with higher financial development, especially after the period with higher FV and financial stress in Spain. We also show how the effects of DCFD on Spanish OFDI differed across groups of activities and when considering different levels of FV. Typically, the higher the parent company's indebtedness (higher vulnerability), the lower the effects of financing in the destination countries on accumulated foreign direct investment.

Keywords:
Outward foreign direct investment, Destination country financial development, Financial vulnerability, Spain.

JEL Classification: C12, F21; F23, F34; G15

RESUMEN

Mediante el uso de medidas variables en el tiempo de desarrollo financiero en los países domésticos (DCFD) y vulnerabilidad financiera a nivel de matriz (FV), analizamos sus efectos sobre la inversión extranjera directa española en el exterior (OFDI) durante diferentes periodos de estrés financiero en España. Para ello, consideramos el stock de inversión en 127 países considerando 75 actividades diferentes durante el periodo 2008-2017. Mostramos que las filiales extranjeras de empresas españolas tienden a localizarse en países con mayor desarrollo financiero, especialmente tras el periodo con mayor VF y estrés financiero en España. También mostramos cómo los efectos del DCFD sobre la OFDI española difieren entre grupos de actividades y al considerar diferentes niveles de VF. Normalmente, cuanto mayor es el endeudamiento de la empresa matriz (mayor vulnerabilidad), menores son los efectos de la financiación en los países de destino sobre la inversión extranjera directa acumulada.

Palabras clave:
Salida de inversión extranjera directa, Desarrollo financiero del país de destino, Vulnerabilidad financiera, España.

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1. INTRODUCTION

T He literature agrees that the institutional environment and absorptive capacities of the destination countries are determinants that multinational enterprises (MNEs) evaluate with caution when carrying out their foreign direct investment outward (OFDI) projects (Beazer & Blake, 2018; Choromides, 2018; Estrin et al., 2009). A common factor for MNEs in almost any foreign investment in new strategic assets is that they face high fixed and sunk costs that must be paid upfront. Normally MNEs, especially when they are small and medium enterprises, depend on the availability of external financing to cover the undertaking investment, which would make it a common determinant for all of them.

MNEs' access to external financing to undertake OFDI may depend on the type of project and the financial products used. Debt instruments to finance infrastructure projects are usually used to indebt the project company after an adequate risk allocation. Debt financing that firms incorporate into their balance sheets to carry out their investments depends to a large extent on their creditworthiness and cash flow generation. However, the financial development of capital markets appears to be a common determinant. Desbordes & Wei (2017, p. 155-156) examine direct and indirect effects that financial development may have on FDI using previous empirical literature, which illustrates that financially vulnerable firms should rely on both the destination country financial development (DCFD) and the source country financial development (SCFD).

Investors often do not provide all the investment capital when they take control of a foreign enterprise but rather tend to finance an important part of their investment in the local market (Lipsey, 2004). Several reasons could be argued in favor of a larger role of the DCFD over that of the SCFD on OFDI in financially vulnerable sectors. Firms may choose to raise external finance in the host countries if local conditions are favorable (Harrison et al., 2004). They may also prefer local financing because home-country financing exposes them to exchange rate risk, and ties up liquid funds and collateralizable assets that could be otherwise deployed (Bilir et al., 2019). Domestic parent companies may also find difficulties in obtaining credit from domestic banks as cross-border projects are

difficult to monitor, and international claims are not easily enforced (Bilir et al., 2019; Buch et al., 2014; Desbordes & Wei, 2017).[1]

MNEs may also face credit constraints in the source country which are expected to be associated with lower OFDI, especially for bank dependent investors and those firms that had few alternative sources of financing (Klein et al., 2002). The lower access to credit in the source country may reduce the number of new international ventures as SCFD is likely to matter relatively more for the funding of new FDI (Desbordes & Wei, 2017), but may also cause foreign affiliates to lose the financial advantage they might have had over local firms (Alfaro & Chen, 2012; Bilir et al., 2019).

These statements are particularly important in the case of Spain, especially during the period of higher financial stress after the 2008 financial crisis, as there were important credit restrictions to the private sector as banks faced liquidity stress that eroded their ability to lend. The stress of the Spanish financial system reached its historical maximum at the end of 2008 but continued to be extremely high in the context of the European sovereign debt crisis, especially by mid-2011 and mid-2012, particularly affecting the financial intermediaries' segment (Cambón & Estévez 2016).

In this context, it is of interest to analyze the effects that the DCFD had on Spanish OFDI during the study period, which covers both normal and crisis phases. Our hypothesis is that the DCFD should have played a role in determining the level of Spanish OFDI. However, this role may have been, to some extent, conditioned by the financial vulnerability at the parent level (FV) since, in many cases, it determines the risk profile as a potential guarantor of the financing.

Overall, we show that the DCFD had positive effects on Spanish OFDI, but these effects vary when considering different levels of FV, as well as when disaggregating Spanish OFDI across different activities and periods.

The remainder of the paper is organized as follows. In Section 2 we discuss the theoretical framework and present our hypotheses. In Section 3 we explain the research method, measurement of variables, and the

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[1] Domestic banks with presence in the destination country are in better position to monitor the firm's affiliates and collect collateral, to which should be added the comparative advantage they already have in terms of knowledge about the domestic parent company (Buch et al., 2014). In this case, the flow of information may reduce asymmetries and improve credit risk management.

empirical methodology applied. In Section 4 we show and discuss the empirical results obtained. In Section 5 we present our conclusions.

2. THEORETICAL FRAMEWORK

T
He reasons why MNEs undertake FDI activities are explained by different theories such as the proximity-concentration hypothesis and the factor-proportions hypothesis (Brainard, 1997), which describe the roots of the distinction between horizontal and vertical FDI, respectively. This strand of literature was complemented by the knowledge-capital theoretical model (Carr et al., 2001; Markusen, 1997), which integrates both vertical and horizontal motivations for FDI. Also, the eclectic paradigm Dunning (1980, 2000) combines previous theories and suggests that MNEs become multinational to exploit ownership, location, and internalization advantages.

The literature also highlights the importance of financing and its effects on OFDI. From an aggregated point of view, Donaubauer et al. (2019) using UNCTAD´s data covering manufacturing as well as service activities from 43 source countries, which reported bilateral FDI stock position to 137 destination countries during the period 2001-2012, showed that both SCFD and DCFD have positive effects on FDI. Other authors, (Alfaro et al., 2004, 2010; Alfaro et al., 2009; Hermes & Lensink, 2003; Yao et al., 2021) showed the financial development should be considered a primary pillar for attracting FDI. Feinberg & Phillips (2004) reported that among affiliates of U.S. based multinationals, nearly two-thirds of affiliates debt was raised in the host country, while domestic parent companies held only one-sixth. Other authors, (Bilir et al., 2019; Ju & Wei, 2010) have noted that DCFD may also have a negative indirect competitive effect by making a country a less attractive destination for MNEs. Desbordes & Wei (2017) also argued that the effect of financial market development in the host country on inward FDI is theoretically ambiguous. Therefore, based on the above considerations, we pose our first hypothesis:[2]

H1: *All else constant, higher financial development in destination countries increases the level of Spanish OFDI*.

MNEs' access to external financing to undertake OFDI may depend on the type of investment project (e.g., greenfield or brownfield) which may have different effects on the parent company debt ratio (Yang et al., 2021). Buch et al. (2014) stated that financial constraints matter more

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[2] For our purposes, we assume that external finance is raised in the form of debt finance credits from banks in the destination countries.

than economical and productivity constraints to large firms that consider investing abroad, as they are more likely to expand overseas since small firms are not productive enough to consider growing internationally. Therefore, financial constraints at the parent level have a negative impact on OFDI. Yang et al. (2021) analyzed the effect of OFDI on the parent company's debt ratio before and after the 2008 financial crisis, concluding that on average OFDI does not increase the firm's debt ratio, or at least it is not evident. This statement could provide some ambiguity about the constraining effects of having higher leverage at the parent level to address OFDI. However, they also mention that since the debt ratio of Chinese firms is too high, reducing the debt ratio of OFDI firms is conducive to making firms more competitive in the international market, so it would be necessary to construct a more perfect financial risk assessment mechanism. Based on the previous arguments, we pose our second hypothesis:[3]

H2. *All else constant, higher financial development in destination countries increases the level of Spanish OFDI. This increase is relatively lower when considering higher financial vulnerability at the parent level.*

The credit restrictions of the Spanish financial intermediary segment eroded their ability to lend during the period of higher financial stress after the 2008 financial crisis, and could have increased the importance of financing in the destination countries, as Spanish investors faced difficulties in raising external funds in the home country. Therefore, based on the previous argumentation, we pose our final hypothesis.

H3. *The effects of the financial development in destination countries on Spanish OFDI were greater during the period of higher financial stress in Spain to compensate the credit restrictions in the home country.*

The ability of firms to finance the upfront fixed costs of OFDI varies across sectors, with some financially vulnerable activities having to rely heavily on external financing to engage in OFDI (Bilir et al., 2019; Buch et al., 2010; Rajan & Zingales, 1998; Vanita & Thukral, 2019). Therefore, we disaggregated the Spanish investments across different groups of activities to pose the following hypothesis:

H4. *The effects of the financial development in destination countries on Spanish OFDI differed across groups of activities.*

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[3] Financial constraints are measured at the parent activity (division) level, and guarantees may be required to obtain the loan with the possibility of collateralizing assets of the foreign affiliate but considering the parent company as well.

3. RESEARCH METHOD

3.1 Data and measurement of variables

The analysis covers information on Spanish bilateral OFDI stock position over the period 2008-2017 in 127 destination countries and 75 activities collected at division-level (two digits of the Spanish Nomenclature of Economic Activities (NACE) 2009). The list of destination countries and activities can be found in Tables A and B of the Appendix, respectively.

   -*Dependent variable: Spanish bilateral OFDI stock position.*

The dependent variable accounts for the OFDI stock position at the NACE 2009 division-level. This variable is considered by some authors to be more accurate and reliable than the one based on annual FDI flows, which are more volatile and sensitive to both economic conditions and financial constraints. Bilateral FDI stock position data have been used in previous studies to measure the FDI of source countries (Bergstrand & Egger, 2007; Donaubauer et al., 2019; Head & Ries, 2008). We used division-level data on Spanish OFDI stock from,[4] administered by the Directorate-General for International Trade and Investment of the Spanish Ministry of Industry, Trade and Tourism. OFDI data are taken for presentation in compliance with the Spanish legislation on foreign investments in accordance with international recommendations.[5] The participations are valued based on the book value of the equity of the direct investment enterprise.[6] The data are declared in the currency of denomination of the

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[4] http://www.comercio.mityc.es/comercio/bienvenido/Inversiones+Exteriores/ Estadisticas/DATAINVEX.htm

[5] The disclosure of information is regulated by the Resolution of 3 April 2008 and correction of errors in the Spanish B.O.E. of 26 May 2008, and the Resolution of 17 March 2009. The declaration forms were adapted to the new National Classification of Economic Activities (2009), the Resolution of 18 June 2009 extended the information to be provided, and successive modifications were made to the report forms (D-4 and D-8). The international recommendations governing the treatment of information are the Balance of Payments Manual, 5th Edition, International Monetary Fund; Benchmark Definition on Foreign Direct Investment, OECD.

[6] As noted in Baltagi et al (2007), the usage of FDI stocks have been criticized as they are measured at their book value and reflect prices of various years rather than constant or current values. However, the increasing international accounting harmonization, and especially the changes incorporated through Resolutions of 2008 and 2009, helped to expand and rationalise the information requested. With it, the data quality was reinforced to adapt it to the OECD and IMF recommendations on investment statistics. Dellis et al. (2017) using OECD database on FDI statistics (OECD BMD4), showed that their results were robust to the use of the FDI data set from UNCTAD. Therefore, we understand that the correlation of our data with other studies that have used other sources

balance sheet of each foreign company. The conversion to euros is done by applying the exchange rate in force on 31st December of the corresponding year for each currency. In line with UNCTAD statistical procedures, all empty data is considered 0 value. FDI stocks may be negative if foreign affiliates are net lenders to the parent company in the source country, in these cases, we consider 0 value following Donaubauer et al. (2019). As Kucera & Principi (2017) we excluded FDI in foreign securities holding entities.[7]

Spain's investment intensity abroad (in relative terms with respect to GDP) increased from 10% in 1998 to 45.5% in 2017. Its investment position represented 1.9% of the world FDI stock in 2017, higher than its production of 1.6% and similar to its share in world trade of 2% (UNCTAD).[8] The Spanish stock position represented by the countries and activities analyzed in our sample, was on average, 98% of the total OFDI. From an aggregate point of view, the spatial distribution pattern of Spanish OFDI behaved differently from the norm for global transactions. During the period under study, 30% of Spain´s total OFDI stock position was in Latin American markets, with almost 30% in the EU, with a much lower presence in emerging economies of Asia. When dividing the Spanish investment stock position by broad sectors throughout the study period, non-manufacturing activities presented a more stable trend, with no growth between 2010 and 2013. On the other hand, manufacturing activities presented a more irregular behavior, decreasing in several years, which may indicate certain divestments.

-*Independent variables:*

Destination countries financial development

Our measure of financial development is the domestic credit allocated to the private sector by banks and other financial intermediaries, normalized by GDP. This measure reflects the use of bank financing in each destination country and has been extensively used in the literature (Beck et al., 2007; Bilir et al., 2019; Desbordes & Wei, 2017; Donaubauer et al. 2019, section 4.4; Osei & Kim, 2023). Data are taken from the World Bank Global Financial Development Database (WB-GFD). Our proxy for

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[7] (UNCTAD), is suitable for providing adequate understanding on the long-run behaviour of Spanish OFDI. Nevertheless, due to the complexity of data processing results should be interpreted with caution.

[7] This is in line with DataInvex technical specifications which literally state that: 'It is convenient to separate the ETVE type operations (Foreign Securities Holding Entities) because they can have a very high cash value and a very limited economic result. An operation of this nature can be valued at billions of euros and at the same time generate no investment in fixed assets or jobs in the country that appears as the recipient'.

[8] https://unctad.org/topic/investment/world-investment-report

financial development is time-varying. It enters the model lagged by one year to reduce potential simultaneity bias and in logarithms to attenuate the influence of outlying values. The average for each country during the whole study period can be seen in Table C in the Appendix. From a theoretical point of view, a higher level of DCFD, ceteris paribus, may have an ambiguous effect on OFDI due to competition effects (Bilir et al., 2019). However, as in previous studies, we expect higher DCFD levels to positively affect the financing of local affiliates and thus have a positive effect on Spanish OFDI.

*Measures of parent activities financial vulnerability in Spain

As firms in a given sector face similar financial needs and constraints (Rajan & Zingales, 1998) we matched the Spanish OFDI split at the NACE 2009 division-level with our indicators of FV at the same level of disaggregation. Our measures of FV are time-varying and are obtained from the Bank of Spain´s Central Balance Sheet Data Office and SABI-Bureau van Dijk (BvD). [9] The measures used were: debt-to-equity ratio (Debtit), [10] which we use as our preferred measure, as it is especially useful in the event of a business downturn to evaluate how much leverage is utilized; solvency ratio (Solvit) which we use to complement the information of the debt-to-equity ratio to eliminate ambiguity; interest coverage ratio (IntCovit) to see how the day-to-day operations yield enough profit to meet interest payments; asset tangibility ratio (Tangit) to assess the importance of the availability of tangible assets that can be pledged as collateral to raise finance. We also introduced an efficiency measure, the asset turnover ratio (AsTurit) to see the influence of the efficiency in the use of assets generating revenues on borrowing requirements in the destination countries.

-Control variables

The gravitational and first set of control variables used are taken from Kucera & Principi (2017), with the simplification of the property rights protection using the rule of law indicator as a proxy. All these variables are commonly used in the literature and helped us to maximize the

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[9] Unlike Rajan & Zingales (1998), and other subsequent works that used the same approach, our measures of FV are time-varying due to the different periods of financial stress and corporate leverage in Spain. We also use different measures of FV because we work with a larger number of activities, not only those corresponding to the manufacturing sector.

[10] We used the debt-to-equity ratio to eliminate the ambiguity between the terms debt and liabilities. As noted by Buch et al. (2014), the impact of the parent's debt ratio might be ambiguous a priori, depending on the time at which the external financing was obtained.

sample size. [11] The variable's description and their sources can be found in Table D of the Appendix.

3.2 Empirical strategy

We created an augmented gravity model to estimate the effects of the DCFD on Spanish bilateral OFDI, considering the FV at the parent activity level, to reflect financial constraints of potential guarantors. The gravitational approach to analyzing FDI patterns has gained theoretical ground in recent years (e.g., Bergstrand & Egger, 2007; Head & Ries, 2008; Kleinert & Toubal, 2010). Kleinert & Toubal (2010) showed that the gravity FDI model can be derived by considering factor-proportion models in addition to the proximity-concentration theory, and by combining both frameworks, the gravitational equation may be applied for both horizontal and vertical models. Schneider & Wacker (2022) used bilateral data on FDI stocks to show that the gravity model best explains the global allocation of FDI when incorporating parameter heterogeneity. Other authors have also used it to estimate financial determinants related to OFDI (Donaubauer et al., 2019; Sosa et al., 2013). Therefore, we specify our baseline model specification in a panel setting as follows:

$$FDI_{cit} = exp[\alpha + \beta_1(lnDCFD_{ct-1}) + \beta_j(FV_{it-1}) + \beta_h(lnDCFD_{ct-1} \times FV_{it-1}) + \beta_k(X_{ct-1}) + \beta_z(X_{c-1}) + \mu_t + \gamma_i] + \varepsilon_{cit}$$

where subscript c refers to an investment destination country, i is the economic activity and t is the time in years. We refer to an investment market as a country-activity pair (c, i). Thus, 〚FDI〛_cit refers to the Spanish OFDI stock position in the investment market (c, i) at year t. 〚DCFD〛_(ct-1) is a time-varying measure of financial development in destination countries, 〚FV〛_(it-1) is a time-varying measure of FV in each specific activity. X_(c-1) and X_(ct-1) are country level and time-varying country level variables, respectively. By combining country-activity, we have the possibility to account for a total set of specific effects to obtain estimated coefficients that consider the variation within investment markets over time. The terms μ_t and γ_i denote the set of time and activity fixed effects (FE), which will help to reduce the risk of functional form misspecification, and ε_cit is the error term. Consequently, as for Kucera & Principi (2017), our panel's structure is based on a country-activity pair level, having country level data for the

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[11] As a robustness test, we used another measure of capital input contemplating capital services (Inklaar et al., 2019), which considers the different investment patterns of countries in terms of nine different types of capital assets, since assuming that all capital input shares are identical is unlikely to hold. However, if we were to use this measure of capital input, the sample of countries would be considerably reduced.

explanatory variables, and one dimension of time in years, and additionally a variable to consider the FV of the different activities at the parent level. Due to the time interval of the study, we assume that the effects are country specific. ln refers to natural logarithms. No structure is imposed to isolate one particular multilateral effect (i.e., horizontal, vertical, export-platform).

We used a Poisson pseudo-maximum likelihood (PPML) for our model with FE (Santos Silva & Tenreyro, 2006) [12], having all explanatory variables lagged one period to reduce possible endogeneity concerns (Donaubauer et al., 2019). The PPML estimator has also been used in other studies (Desbordes & Wei, 2017; Head & Ries, 2008; Kleinert & Toubal, 2010; Ly et al., 2018; Sosa Andres et al., 2013) as it provides a natural way to deal with zero values in the dependent variable and a correct treatment of the error factors in the empirical analysis. The estimator is robust to different patterns of heteroscedasticity and to distributional misspecification, which makes it consistent as long as the conditional mean function is correctly specified. [13] We estimated the model in levels and used the iterated re-weighted least squares (IRLS) optimization algorithm to deal with the possibility of having regressors with high collinearity, obtaining a robust estimator for different data configurations (Santos Silva & Tenreyro, 2011). Following Santos Silva & Tenreyro (2006), to account for the correct specification of the conditional mean, we performed a heteroskedasticity-robust RESET test (Ramsey, 1969) for the validation of the usage of the Poisson estimator.

When it comes to introducing the FV at the parent activity level, we considered Donaubauer et al. (2019) who obtained average marginal effects using observed values for the variables that were not otherwise fixed. However, by showing the marginal effects in the tables with a single estimate, it could be a priori difficult to infer the effects as the value of the interaction term cannot change independently of the values of the component terms, being not possible to estimate a separate effect for the

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[12] For panel data, Wooldridge (1999, p. 94) also defended the virtues of the PPML estimator with FE for being 'fully robust in the sense that only the structural conditional mean assumption is needed for consistency and asymptotic normality, and the robust variance matrix estimate is easy to obtain, and specification testing is fairly straightforward'.

[13] As stated by Santos Silva & Tenreyro (2006), in order to obtain a consistent estimator what is needed is to have a correct specification of the conditional mean, and for obtaining a more efficient estimator, the relation between the conditional mean and the conditional variance must be analysed. Although we did not perform any specific test, we checked different relationships between the conditional mean and the conditional variance using a Poisson, a Gamma, and a Negative Binomial PML estimator. As expected, the Poisson was our preferred estimator.

interaction (Williams, 2012).[14] We introduced the interaction terms for each measure of FV at the parent activity level, assessing how the effects of DCFD vary with different values of each measure of FV. We calculated the average marginal effects at representative values (MERs) and adjusted the predictions by changing over the range of meaningful values of FV established by the 25th, 50th, 75th, and 95th percentiles. When introducing the sectoral and period binary variables we created a model factorial specification with a multiple interaction term.

4. EMPIRICAL RESULTS AND DISCUSSION

Before starting the econometric analysis to test our hypotheses we performed two tasks. First, we created in the dataset a binary variable to differentiate between periods of financial stress in Spain, and an additional variable to differentiate groups of activities more homogeneous among them to perform the sectoral analysis. Second, we verified that the model using the Poisson estimator provided no evidence of misspecification of the functional form. [15]

4.1. Baseline Equation. Effects of DCFD on Spanish OFDI by representative values of FV at the parent activity level

The control variables used in the model are taken from Kucera & Principi (2017) with the simplification of rights protection using the rule of law indicator as a proxy. The initial direct effects of our main independent variable, DCFD, are presented in Table 1, which considers the whole study period.

The average marginal effects of DCFD are positive and statistically significant at 5% level in all regressions regardless of the measure of FV considered. These results are in line with previous studies (Bilir et al., 2019; Chen et al., 2015; Desbordes & Wei, 2017) and leads us to support Hypothesis 1. This would indicate that foreign affiliates of Spanish MNEs tend to be located in countries with better bank credit allocation. In this

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[14] It is important to notice that the marginal effect of a single variable in a nonlinear model is conditional on the rest of the independent variables, as well as an interaction effect is conditional on the covariates in the model. Therefore, based on Ai & Norton (2003) we made Spanish OFDI depend on our independent variables $DCFD_{ct}$ and FV_{it}, their interaction term, a vector of additional control variables X, and a constant term independent of $DCFD_{ct}$ and FV_{it}. We report marginal effects for interaction terms exploring the nature of the response surface of the measures of FV_{it}.

[15] We carried out different heteroskedasticity-robust RESET tests using the factorial specification with the interaction term incorporating one FV measure at a time.

situation, they could have borrowed from host banks by providing their own collateral or might benefit from guarantees provided by their parent company, which would be scrutinized by the local financiers especially if they do not have pre-existing business relationships. Therefore, we re-evaluate the effects of DCFD on Spanish OFDI by examining the coefficients of our interaction term when fixing the parent activity measures of FV at the 25th, 50th, 75th and 95th percentile levels.

Table 1
Baseline Equation. Effects of DCFD on Spanish OFDI by representative values of FV at the parent activity level

Dependent variable $K\ OFDI$ stock position					
	ln(DCFD) × Debt	ln(DCFD) × Solv	ln(DCFD) × IntCov	ln(DCFD) × Tang	ln(DCFD) × AsTur
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
ln(DCFD)	0.434**	0.433**	0.444**	0.431**	0.409**
	(0.202)	(0.204)	(0.206)	(0.195)	(0.203)
Percentile FV_i					
p25	1.07	1.55	1.11	0.16	0.82
p50	1.46	1.74	1.51	0.25	1.36
p75	1.99	1.96	2.20	0.36	1.70
p95	3.43	2.28	4.32	0.54	2.35
DCFD x Perce. FV_i					
p25	0.457**	0.389**	0.400**	0.427**	0.517**
	(0.205)	(0.198)	(0.202)	(0.187)	(0.212)
p50	0.443**	0.427**	0.426**	0.430**	0.400**
	(0.203)	(0.202)	(0.203)	(0.192)	(0.203)
p75	0.423**	0.471**	0.472**	0.435*	0.327
	(0.204)	(0.216)	(0.213)	(0.224)	(0.215)
p95	0.370	0.535**	0.613**	0.443	0.187
	(0.232)	(0.247)	(0.292)	(0.311)	(0.267)
Control variables	GDPpc, population, distance, common language, trade openness, capital input, property rights protection.				
Observations	85,125	85,125	85,125	85,125	85,125
Invest. Markets	9,525	9,525	9,525	9,525	9,525
RESET test p-values	0.940	0.930	0.940	0.911	0.932

Notes: (i) *p<0.1, **p<0.05, ***p<0.01. (ii) Constant term, time and activity fixed effects included in all regressions. (iii) Standard errors using the delta method. in parentheses. (iv) All right-hand variables lagged one period. (v) IRLS optimization algorithm used in all regressions. (vi) Investment market is a country-activity pair (c, i). (vii) DCFD. Time-varying measure of destination countries financial development. (viii) Time-varying measures of parent activities financial vulnerability: a) Debt. debt-to-equity ratio; b) Solv. solvency ratio; c) IntCov. interest coverage ratio; d) Tang. asset tangibility ratio; e) AsTur. asset turnover ratio.

The results of the debt-to-equity ratio, show how, as the level of indebtedness increases, the coefficients of the effects of DCFD on Spanish OFDI decrease progressively, losing their statistical significance at the 95th percentile. In line with Buch et al. (2014), this could be explained by the fact that a higher leverage, ceteris paribus, would leave fewer assets

available to serve as collateral for new loans, rather than considering that the increased borrowing occurs to make new investments.

This reasoning would be corroborated by the results of the measures used to reduce the possible ambiguity of the debt-to-equity ratio, solvency and interest coverage, as higher ratios of both increase the effect of DCFD found in columns (2) and (3), respectively. This would allow us to support Hypothesis 2, since higher FV at the parent level led to lower financing effects in the destination countries on Spanish OFDI.

The relatively high level of indebtedness during the period also affects the interpretation of the asset tangibility measure. Although activities with a higher ratio might pledge more collateral to raise external financing, we may see that as the ratio increases the predicted mean effect of DCFD on Spanish investments decreases column (4). As stated by Buch et al. (2014) and Desbordes & Wei (2017), our results suggest that we should interpret the measure in terms of higher tangible asset endowment that foreign affiliates would have to make, which could be more difficult to finance if the company had a higher level of indebtedness or if there were credit restrictions. Finally, from an operational point of view, having a greater operating efficiency decreases the effect of DCFD on Spanish OFDI, column (5), as it reduces the need for external financing. This would be in line with Sasidharan & Padmaja (2018) who state that highly productive firms are likely to have more foreign affiliates since they may partly cover the upfront fixed costs of FDI through internal financing.

4.2 Effects of DCFD on Spanish OFDI by representative values of FV at the parent activity level and periods of financial stress in Spain

In this subsection, instead of obtaining the marginal effect of the difference in the adjusted predictions for the two periods, we created a factorial specification with a multiple interaction term presenting the results separately to compare them with the direct average marginal effect of DCFD.

In Table 2, we introduced the binary variable that reflects the different periods of FV and financial stress in Spain. The first, and important, thing to note, is that the measures that account for the creditworthiness and cash flow to serve the interest payments present higher vulnerability at the parent level at all representative values during the period of higher financial stress, columns (1), (3), and (5). The average marginal effects of DCFD continue to be positive and statistically significant, but the predicted means and the statistical level of significance are lower, whereas they increase during the period of lower FV (e.g., considering the

debt-to-equity ratio, the predicted mean of DCFD is statistically significant at 1% level (0.577, p < .01), column (2). This indicate that after the period of higher FV and financial stress in Spain, Spanish OFDI trended towards more financially developed markets. This would lead us to reject Hypothesis 3, since financing in destination countries does not seem to compensate the credit restrictions in the country of origin during the period of higher financial stress.

The increase of the effects of DCFD could have been influenced by the deleveraging process (and changes in the country risk perception) that took place during the period of higher financial stress[16], and shows that the financial development in the destination countries could have been an important lever for Spanish OFDI. Although the easing of credit constraints in the Spanish banking system since 2013 should also be considered, once the parent companies improved their financial capacity and risk profiles, it seems reasonable to consider that their foreign affiliates could have made more investments at the end of the study period by obtaining bank financing in the destination countries using the parent company as the guarantor. This reasoning would be consistent with the importance of the collateral channel (Raff et al., 2018).

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[16] Between 2004 and 2008, the Spanish non-financial corporate sector significantly increased its debt-to-GDP ratio, which remained relatively stable until 2011, when it reached its peak. From that point in time, the ratio decreased continuously until 2015 (Eurostat). In addition, Spanish companies benefited from a large decline in debt servicing costs, which brought the debt burden in 2016 to levels similar to those of 1999 (BIS).

Table 2
Effects of DCFD on Spanish OFDI by representative values of FV at the parent activity level and periods of financial stress in Spain

Dependent variable $K\,OFDI$ stock position										
	ln(DCFD) × Debt		ln(DCFD) × Solv		ln(DCFD) × IntCov		ln(DCFD) × Tang		ln(DCFD) × AsTur	
	1	0	1	0	1	0	1	0	1	0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ln(DCFD)	0.339*	0.577***	0.342*	0.582***	0.354*	0.578**	0.334*	0.599***	0.322	0.559**
	(0.192)	(0.219)	(0.195)	(0.219)	(0.198)	(0.223)	(0.190)	(0.213)	(0.198)	(0.221)
Percentile FV_i										
p25	1.19	1.01	1.51	1.60	1.51	1.60	0.17	0.15	0.84	0.79
p50	1.53	1.31	1.69	1.80	1.69	1.80	0.25	0.24	1.40	1.29
p75	2.20	1.80	1.87	2.02	1.87	2.02	0.37	0.33	1.71	1.68
p95	3.60	2.87	2.24	2.39	2.24	2.39	0.55	0.50	2.37	2.22
DCFD x Perce. FV_i										
p25	0.323*	0.620**	0.335	0.553***	0.309	0.619***	0.306*	0.630***	0.391**	0.719***
	(0.186)	(0.245)	(0.209)	(0.195)	(0.192)	(0.234)	(0.181)	(0.212)	(0.198	(0.241)
p50	0.331*	0.595***	0.341*	0.578***	0.352	0.587***	0.328*	0.603***	0.316	0.553**
	(0.187)	(0.229)	(0.196)	(0.214)	(0.198)	(0.224)	(0.186)	(0.211)	(0.199)	(0.221)
p75	0.349*	0.554***	0.347*	0.604**	0.411*	0.545**	0.360*	0.573**	0.274	0.427*
	(0.202)	(0.209)	(0.191)	(0.253)	(0.211)	(0.231)	(0.218)	(0.239)	(0.213)	(0.231)
p95	0.385	0.464**	0.359*	0.650*	0.514	0.462**	0.410	0.520	0.185	0.251
	(0.271)	(0.204)	(0.206)	(0.348)	(0.248)	(0.304)	(0.300)	(0.337)	(0.266)	(0.276)
Control variables	GDPpc, population, distance, common language, trade openness, capital input, property rights protection.									
Observations	85,125		85,125		85,125		85,125		85,125	
Invest. Markets	9,525		9,525		9,525		9,525		9,525	
RESET test p-values	0.949		0.946		0.975		0.944		0.965	

Notes: (i) *p<0.1, **p<0.05, ***p<0.01. (ii) Constant term, time and activity fixed effects included in all regressions. (iii) Standard errors using the delta method. in parentheses. (iv) All right-hand variables lagged one period. (v) IRLS optimization algorithm used in all regressions. (vi) Investment market is a country-activity pair (c, i). (vii) DCFD. Time-varying measure of destination countries financial development. (viii) Time-varying measures of parent activities financial vulnerability: a) Debt. debt-to-equity ratio; b) Solv. solvency ratio; c) IntCov. interest coverage ratio; d) Tang. asset tangibility ratio; e) AsTur. asset turnover ratio.

When analyzing the interactions of DCFD with the FV percentile levels comparing the different periods, we can see that, during the period of lower FV and financial stress in Spain, the dynamics of the creditworthiness measures (debt and solvency) follow the same trend as in Table 1. However, the evolution of the FV (lower percentile values) could help to explain the increase of the predicted means and statistical significance of financing in the destination countries. On the other hand, the greater amplitude between the coefficients could indicate that, during this period, risk analysis at the corporate level would carry more weight than during the previous one. The opposite happens during the period of higher financial stress, as the debt and solvency measures show less variation between coefficients, which could indicate the existence of other important risk factors besides the corporate level (e.g., higher country risk).

4.3 Effects of DCFD on Spanish OFDI by representative values of FV at the parent activity level across activities

In this subsection we carried out this exercise using our preferred measure of FV, the debt-to-equity ratio, and the interest coverage ratio, given the proliferation of results that would entail performing the analysis with all FV measures. In Table 3, although the two measures are presented side by side for each group of activities, the analysis has been performed separately over the total dataset to see the impact of each measure at the sectoral level.

The first thing to note is that the average marginal effect of the DCFD on Spanish OFDI varies by group of activities, indicating the association between financial development in the destination countries and the investments of each group. The predicted mean of DCFD ranges from being negative and statistically significant at 5% level for agriculture, forestry and fishing activities, columns (1) and (2), which would indicate that this group of activities tends to invest in those countries with lower DCFD, to positive and statistically non-significant for example in those activities linked to construction, columns (7) and (8), which would indicate that DCFD does not have a significant effect on their foreign investments. These results would lead us to support Hypothesis 4, since the effects of DCFD on Spanish OFDI differed across groups of activities.

When examining the coefficients of the interaction terms when fixing the parent activity debt-to-equity ratio at the 25th, 50th, 75th and 95th percentile levels, we can see, except for agriculture, forestry and fishing activities, how the evolution in each group follows the same trend as in Table 1. (i.e., decreasing the effects of DCFD at higher levels of indebtedness.), albeit with different statistical significance and width between coefficients. On the other hand, when considering the interest coverage ratio, certain groups of activities vary from the general trend

shown in Table 1, mainly the group of electricity, water and waste activities.

When comparing the two measures of FV at the activity group level, the differences in electricity, water and waste, and wholesale are noteworthy. With respect to wholesale activities, the importance of operational efficiency and cash management could be thought when considering showing how at higher percentile levels, the coefficients of the effects of DCFD increase progressively.

Table 3
Effects of DCFD on Spanish OFDI by representative values of FV at the parent activity level across activities

Dependent Variable $K\ OFDI$ stock position												
	Agricul., fore. & fish.		Manufacturing		Electr., water & waste		Construction		Wholesale		Services	
	Debt	IntCov	Debt	IntCov	Debt	IntCov	Debt	IntCov	Debt	IntCov	Debt	IntCov
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ln(DCFD)	-0.630**	-0.634**	0.192	0.228	0.814*	0.717**	0.237	0.202	0.432*	0.468*	0.544*	0.555*
	(0.261)	(0.266)	(0.177)	(0.181)	(0.419)	(0.329)	(0.198)	(0.203)	(0.266)	(0.256)	(0.325)	(0.331)
Percentile FVi												
p25	0.91	1.23	1.05	1.20	0.85	1.53	1.93	0.51	1.62	1.25	1.09	1.03
p50	1.04	1.51	1.33	1.55	1.42	1.87	2.83	1.11	1.79	1.41	1.50	1.43
p75	1.25	2.10	1.71	2.38	2.59	2.45	3.04	1.69	1.93	1.94	2.07	2.11
p95	2.27	4.10	4.08	5.31	3.97	4.31	3.46	2.72	2.03	3.23	3.40	3.92
DCFD x Perce. FVi												
p25	-0.727**	-0.649**	0.178	0.105	1.018*	0.805**	0.323	0.264	0.628**	0.371	0.574*	0.596*
	(0.307)	(0.278)	(0.180)	(0.168)	(0.553)	(0.393)	(0.215)	(0.218)	(0.244)	(0.268)	(0.318)	(0.347)
p50	-0.676**	-0.641**	0.185	0.156	0.887*	0.752**	0.219	0.207	0.423	0.412	0.554*	0.569*
	(0.277)	(0.271)	(0.176)	(0.171)	(0.457)	(0.352)	(0.200)	(0.203)	(0.267)	(0.262)	(0.322)	(0.335)
p75	-0.600**	-0.625**	0.195	0.279	0.619	0.661**	0.194	0.152	0.255	0.546**	0.526	0.522
	(0.258)	(0.264)	(0.179)	(0.193)	(0.391)	(0.301)	(0.206)	(0.217)	(0.296)	(0.251)	(0.332)	(0.329)
p95	-0.225	-0.570*	0.254	0.712*	0.306	0.369	0.145	0.053	0.139	0.872***	0.460	0.399
	(0.538)	(0.341)	(0.333)	(0.370)	(0.573)	(0.376)	(0.228)	(0.296)	(0.320)	(0.270)	(0.377)	(0.405)
Control variables	GDPpc, population, distance, common language, trade openness, capital input, property rights protection.											
Observations (x)	3,405	3,405	27,240	27,240	5,675	5,675	3,405	3,405	3,405	3,405	41,995	41,995
Invest. Markets (xi)	381	381	3,048	3,048	635	635	381	381	381	381	4,699	4,699

Notes: (i) *p<0.1, **p<0.05, ***p<0.01. (ii) Constant term, time and activity fixed effects included in all regressions. (iii) Standard errors using the delta method. in parentheses. (iv) All right-hand variables lagged one period. (v) IRLS optimization algorithm used in all regressions. (vi) Investment market is a country-activity pair (c, i). (vii) DCFD. Time-varying measure of destination countries financial development. (viii) Time-varying measures of parent activities financial vulnerability. (ix) Sectors: 1- agriculture, forestry and fishing; 3- manufacturing; 4- Electricity, gas, steam and air conditioning, and water supply; sewerage, waste and remediation activities; 5- construction, 6- wholesale, 7-services (broad sense). (x) Total number of observations in each analysis 85,125. (xi) Total number of investment markets in each analysis 9,525. (xii) RESET test p-values: Debt-to-equity ratio (0.867); Interest coverage ratio (0.843).

4.4 Robustness checks

These results and the fit of the models are robust to several tests. First, to the introduction of additional control variables, which we took from Donaubauer et al. (2019), section 4.3 (i.e., regional trade agreements, bilateral investment treaties, double taxation treaties, all of them between Spain and each of the destination countries, and natural resources rents normalized by GDP). Second, dropping those years in which the amount of the OFDI stock position had negative values in the original data. Lastly, we tested the impact of outliers by replacing them calculating average values between adjacent data, obtaining similar results.

5. CONCLUSIONS

We explored the effects of variations in country-specific financial development on Spanish OFDI, considering time-varying measures of financial vulnerability at the parent level in both normal and crisis periods. By not providing a single value of the interaction terms, we were able to analyze how the distinct financial developments and financial vulnerabilities may have contributed to distinct dynamics of Spanish OFDI by different groups of activities.

To perform our analysis, we used Spanish OFDI stock positions in 127 destination countries considering 75 different activities over the period 2008-2017. Overall, foreign affiliates tend to be located in countries with higher financial development, especially after the period with higher financial stress in Spain which, to some extent, could be provoked by the improvement of the financial vulnerability at the parent level. This might have enabled Spanish affiliates to obtain bank financing in the host countries, since they could provide more collateral by using the parent company as guarantor, which would be consistent with the importance of the collateral channel.

However, when disaggregating Spanish OFDI across different activities, the effects of the financial development vary significatively, for example, being negative and statistically significant for agriculture, forestry and fishing activities or positive and statistically non-significant for example in those activities linked to construction.

It should be noted that our work suffers from several limitations. We could not examine the magnitude of the effects caused by the different sources of funding, especially after the period of higher financial stress in Spain. Therefore, the lack of information may lead to an over-generalization of the findings. Another limitation to consider is the aggregation at the sectoral level. Although the activities are at the two-digit level, treating, for instance, the service sector in an aggregated manner may equally provide general results. A thorough study of the effects of the financing in the destination countries could be analyzed through loan applications, either accepted, not formalized, or rejected, which would also provide information on the importance of bank-firm relationships. This may open an avenue for future research.

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APPENDIX

Table A
List of Destination Countries

East Asia and Pacific	Australia, Brunei Darussalam, China, Hong Kong SAR, China, Indonesia, Japan, Korea, Rep., Macao SAR, China, Malaysia, Mongolia, Myanmar, New Zealand, Philippines, Singapore, Thailand, Vietnam
Europe and North America	Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States
Latin America and the Caribbean	Argentina, Bahamas, The, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panamá, Paraguay, Peru, Trinidad and Tobago, Uruguay
Middle East and North Africa	Algeria, Egypt, Iran, Islamic Rep., Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, United Arab Emirates
Central and South Asia	Bangladesh, India, Kazakhstan, Kyrgyz Republic, Pakistan, Sri Lanka, Tajikistan
Sub-Saharan Africa	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Gabon, Kenya, Lesotho, Madagascar, Malawi, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Togo, Uganda, Zambia, Zimbabwe

Note: Split by regions for a better identification.

Table B

List of Activities. Division level NACE 2009

Division	Title	Division	Title
A - AGRICULTURE, FORESTRY AND FISHING		50	Water transport
01	Crop and animal production, hunting &	51	Air transport
02	Forestry and logging	52	Warehousing and support activities for
03	Fishing and aquaculture	53	Postal and courier activities
C – MANUFACTURING		I - ACCOMMODATION AND FOOD SERVICE ACTIVITIES	
10	Manufacture of food products	55	Accommodation services
11	Manufacture of beverages	56	Food and beverage service activities
12	Manufacture of tobacco products	J - INFORMATION AND COMMUNICATION	
13	Manufacture of textiles	58	Publishing activities
14	Manufacture of wearing apparel	59	Motion picture, video and television
15	Manufacture of leather and related	60	Programming and broadcasting activities
16	Manufacture of wood and of products of	61	Telecommunications
17	Manufacture of paper and paper products	62	Computer programming, consultancy and
18	Printing and reproduction of recorded	63	Information service activities
19	Manufacture of coke & refined petroleum	L - REAL ESTATE ACTIVITIES	
20	Manufacture of chemicals and chemical	68	Real estate activities
21	Manufacture of basic pharmaceutical	M - PROFESSIONAL, SCIENTIFIC AND TECHNICAL	
22	Manufacture of rubber and plastic products	69	Legal and accounting activities
23	Manufacture of other non-metallic mineral	70	Activities of head offices; management
24	Manufacture of basic metals	71	Architectural and engineering activities;
25	Manufacture of fabricated metal products,	72	Scientific research and development
26	Manufacture of computer, electronic and	73	Advertising and market research
27	Manufacture of electrical equipment	74	Other professional, scientific and technical
28	Manufacture of machinery & equip. n.e.c.	75	Veterinary activities
29	Manufacture of motor vehicles, trailers &	N - ADMINISTRATIVE AND SUPPORT SERVICE	
30	Manufacture of other transport equipment	77	Rental and leasing activities
31	Manufacture of furniture	78	Employment activities
32	Other manufacturing	79	Travel agency, tour operator reservation
33	Repair & installation of machinery & equip.	80	Security and investigation activities
D - ELECTRICITY, GAS, STEAM AND AIR		81	Services to buildings and landscape
35	Electricity, gas, steam and air conditioning	82	Office administrative, office support and
E - WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES		P – EDUCATION	
		85	Education
36	Water collection, treatment and supply	Q - HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	
37	Sewerage	86	Human health activities
38	Waste collection, treatment and disposal	87	Residential care activities
39	Remediation activities and other waste	88	Social work activities without
F – CONSTRUCTION		R - ARTS, ENTERTAINMENT AND RECREATION	
41	Construction of buildings	90	Creative, arts and entertainment activities
42	Civil engineering	91	Libraries, archives, museums and other
43	Specialized construction activities	92	Gambling and betting activities
G – WHOLESALE		93	Sports activities and amusement and
45	Wholesale & retail trade & repair of m.v. &	S - OTHER SERVICE ACTIVITIES	
46	Wholesale trade, except of m. v. & m.	95	Repair of computers & personal & house
47	Retail trade, except of m. v. & m.	96	Other personal service activities
H - TRANSPORTATION AND STORAGE			
49	Land transport & transport via pipelines		

Table C

Countries' financial development. (Average whole period)

Country	Avg	SD	Country	Avg	SD	Country	Avg	SD
Albania	38.3	2.1	Honduras	52.6	3.6	Nigeria	15.5	3.5
Algeria	17.6	4.2	Hong Kong SAR	197.9	29.7	Norway	130.8	9.1
Angola	19.8	3.5	Hungary	48.2	11.3	Oman	51.5	15.1
Argentina	14.0	1.3	Iceland	124.5	39.6	Pakistan	18.9	4.2
Armenia	38.5	11.1	India	50.6	1.5	Panamá	81.9	5.7
Australia	128.6	8.0	Indonesia	33.5	5.2	Paraguay	32.4	8.6
Austria	91.6	5.8	Iran, Islamic Rep.	54.5	7.2	Peru	34.6	7.9
Azerbaijan	23.9	7.7	Iraq	6.5	2.4	Philippines	36.2	6.8
Bahamas, The	60.0	5.4	Ireland	102.6	45.8	Poland	50.8	2.5
Bangladesh	41.9	4.1	Israel	67.2	1.8	Portugal	138.3	20.7
Barbados	82.5	2.7	Italy	88.9	4.6	Qatar	52.8	16.6
Belarus	29.2	6.9	Jamaica	29.9	2.8	Romania	33.9	4.7
Belgium	59.3	4.0	Japan	162.7	3.4	Russia	50.7	11.2
Benin	21.9	1.8	Jordan	74.0	3.2	Rwanda	17.5	3.7
Botswana	30.1	2.6	Kazakhstan	37.9	6.8	Saudi Arabia	44.5	8.7
Brazil	58.6	7.5	Kenya	30.1	3.4	Senegal	24.5	3.8
Brunei Darussalam	36.2	6.2	Korea, Rep.	140.5	4.5	Serbia	41.9	3.2
Bulgaria	62.1	6.9	Kuwait	75.8	19.0	Sierra Leone	6.1	1.3
Burkina Faso	22.9	5.8	Kyrgyz Republic	16.7	4.1	Singapore	112.9	13.1
Burundi	17.6	2.6	Latvia	67.6	22.0	Slovakia	49.2	5.9
Cameroon	13.0	2.0	Lebanon	91.1	11.5	Slovenia	66.9	16.4
Canada	124.4		Lesotho	15.4	3.0	South Africa	146.1	3.7
Central African Rep.	10.3	2.3	Libya	19.7	11.0	Sri Lanka	35.6	7.5
Chile	105.4	4.7	Lithuania	49.6	10.3	Sudan	10.0	1.8
China	134.8	17.7	Luxembourg	96.4	8.1	Sweden	127.8	4.3
Colombia	46.2	4.5	Macao SAR, China	75.9	26.1	Switzerland	165.0	8.3
Costa Rica	51.9	5.9	Madagascar	12.8	1.3	Tajikistan	19.0	4.4
Croatia	65.9	4.4	Malawi	11.9	1.8	Thailand	132.6	16.6
Cyprus	233.9	18.4	Malaysia	114.6	8.8	Togo	31.4	8.9
Czech Republic	48.8	2.8	Malta	105.0	16.7	Trinidad & Tobago	32.9	5.3
Denmark	180.5	12.5	Mauritania	19.1	1.6	Tunisia	74.6	8.4
Dominican Republic	24.3	2.8	Mauritius	94.2	9.4	Turkey	54.9	13.5
Ecuador	26.3	2.9	Mexico	27.7	5.0	Uganda	14.8	1.6
Egypt	31.1	5.5	Moldova	31.0	4.6	Ukraine	68.9	16.9
El Salvador	48.6	2.4	Mongolia	48.5	9.2	UAE	72.5	10.4
Estonia	77.6	12.7	Morocco	84.4	12.2	United Kingdom	159.8	25.4
Finland	90.9	4.7	Mozambique	26.5	6.0	United States	189.6	5.9
France	96.1	2.4	Myanmar	12.0	7.7	Uruguay	25.4	3.0
Gabon	11.6	2.6	Namibia	53.1	7.4	Vietnam	106.1	14.3
Georgia	44.5	11.7	Netherlands	114.1	2.3	Zambia	14.0	3.4
Germany	84.3	7.7	New Zealand	146.5	6.1	Zimbabwe	17.0	3.9
Greece	107.6	11.5	Nicaragua	32.5	5.4			
Guatemala	29.9	4.4	Niger	13.7	1.6			

Table D
Variables Description and Sources of Data

Variable	Description	Source
Response variables:		
S_FDI_{cit}	Spanish OFDI stock position in investment market$_{ci}$ at year t, in thousand euros	Spanish MoITT[2]
Independent variables:		
Dom. credit private sector$_{ct}$	Financial resources provided to the private sector by financial corporations, in country c, at year t (% of GDP)	WB-GFD
Measures of FV (ratios)		
Debt-to-equity (Debt)	We used the debt-to-equity ratio, measured as total liabilities divided by total equity.	CBSDO. BoS[3]
Solvency (Solv)	Measured as total assets divided by total liabilities.	CBSDO. BoS[3]
Interest coverage (IntCov)	Measured as profits (before interests and taxes) divided by interest payments.	SABI-BvD
Asset tangibility (Tang)	Measured as plant, property, and equipment divided by total assets.	CBSDO. BoS[3]
Asset turnover (AsTur)	Measured as total revenues divided by average total assets.	SABI-BvD
Control variables:		
GDPpc$_{ct}$ *(ln)*	GDP per capita of country c, at year t in euros.	WB-WDI
Population$_{ct}$ *(ln)*	Total population of country c, at year t.	WB-WDI
Distance$_c$ *(ln)*	Weighted distance between the biggest cities of Spain and country c.	CEPII Database
Common language$_c$	Dummy variable being 1 if country c has the same official language (Spanish) as Spain, 0 otherwise.	CEPII Database
Trade openness$_{ct}$	Sum of exports and imports of goods and services in country c, at year t (% of GDP).	UNCTAD
Capital input_1$_{ct}$	Capital input considered as gross fixed capital formation (% of GDP).	UNCTAD
Capital input_2$_{ct}$ [1]	Capital input using the user cost of capital, the implicit rental price of capital & the level of capital services.	PWT 9.1
Property rights protection$_{ct}$	Proxied using Rule of Law. Perceptions of quality of contract enforcement, property rights, and courts, among others.	WB-WGI
Regional trade agreement$_{ct}$	Dummy variable being 1 if country c has a regional trade agreement (in force) with Spain at year t, 0 otherwise.	Mario Larch DB
Bilateral investment treaty$_{ct}$	Dummy variable being 1 if country c has a bilateral investment agreement (in force) with Spain at year t, 0 otherwise.	UNCTAD
Double taxation treaty$_{ct}$	Dummy variable being 1 if country c has a double taxation treaty (in force) with Spain at year t, 0 otherwise.	Spanish MoF[4]
Natural resources rents$_{ct}$	Weighted Average of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents (% of GDP).	WB-WDI

Notes: All FV measures are time-varying NACE 2009 at two-digits (division level). [1] Which uses 9 different sectors. [2] Spanish Ministry of Industry, Trade and Tourism. [3] Central Balance Sheet Data Office. Bank of Spain [4] Spanish Ministry of Finance.

Table E

Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Response variables:					
$Stock\_FDI_{cit}$ (*k euros*)	85,125	25,620	338,335	0	23,071[1]
Independent variables:					
Dom. credit private sector$_{ct}$	85,125	3.81	0.84	0.99	5.53
Debt to equity (Debt)	85,125	1.70	0.97	0.43	9.42
Solvency (Solv)	85,125	1.77	0.33	1.16	3.46
Asset tangibility (Tang)	85,125	0.27	0.15	0.01	0.77
Interest coverage (IntCov)	85,125	1.78	1.31	-2.57	8.72
Asset turnover (AsTur)	85,125	1.32	0.64	0.02	3.33
Control variables:					
GDPpc$_{ct}$ *(euros)*	85,125	13,303	16,714	136	94,303
Population$_{ct}$ *(million)*	85,125	50.5	167	0.28	1,380
Distance$_c$ *(km)*	85,125	5,613	3,542	680	19,517
Common language$_c$	85,125	0.12	0.32	0	1
Trade openness$_{ct}$	85,125	0.92	0.60	0.16	4.43
Capital input_1$_{ct}$	85,125	0.23	0.06	0.03	0.52
Capital input_2$_{ct}$	75,675	1.04	0.17	0.55	2.74
Property rights protection$_{ct}$	85,125	0.53	0.28	0.01	1
Regional trade agreement$_{ct}$ *(0,1)*	85,125	0.44	0.50	0	1
Bilateral investment treaty$_{ct}$ *(0,1)*	85,125	0.48	0.50	0	1
Double taxation treaty$_{ct}$ *(0,1)*	85,125	0.59	0.49	0	1
Natural resources rents$_{ct}$	85,125	7.18	11.10	0	64.50

Notes: [1] M euros.

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