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cavalry or locusts?

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FOREIGN INVESTORS AND TARGET FIRMS' FINANCIAL STRUCTURE: CAVALRY OR LUCUSTS?

by Lorenzo Bencivelli* and Beniamino Pisicoli**

Abstract

We study how FDI affects the financial structure of targeted firms, by looking at a sample of foreign acquisitions that occurred in Italy between 1998 and 2016. We show that the entry of foreign investors promotes the diversification of financing sources. Moreover, foreign acquisitions lower investment sensitivity to the availability of bank credit and the cash flow sensitivity of cash, allowing targeted firms to rely more on non-bank external financing channels. Importantly, these effects are stronger for investment in intangible assets. These findings suggest that the positive productivity effects of FDI emphasized in the literature are, at least in part, traceable to enhanced investment in capital that is harder to finance through the banking sector.

JEL Classification: F15, F21, F23, F61.

Keywords: FDIs, firms' financial structure, non-bank financing, investment.

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*Bank of Italy, Directorate General for Economics, Statistics and Research.

**University of Rome Tor Vergata.

1 Introduction¹

Foreign Direct Investments (FDIs) represent a relevant factor in the globalized economy. According to the UNCTAD, in 2017 the global stock of FDI was more than USD 31.5 trillion, or about 39% of global GDP, 8 percentage points more than 5 years before. Among advanced economies, the stock of inward FDI is 44% of GDP but the picture is rather heterogeneous, with the US performing broadly in line with the average (40% of GDP) and the major European countries well below: France, Italy and Germany with stocks of, respectively, 34, 27 and 25% of GDP.

Through FDIs, investing firms access distant foreign markets, leverage effectively the diffusion of the global value chains, and foster productivity gains. For the recipient firms, FDIs represent not only a channel for the acquisition of technology and managerial practices, but also an important financing source. In the European Union, the free movement of capital is enshrined in the treaty regulating the functioning of the single market, thus making it one of the most open spaces to FDIs. Institutions and members countries acknowledge the relevance of FDIs in enhancing overall competitiveness and productivity, favoring firms' internationalization, accessing new markets, and sustaining employment.

In this paper, we analyze how a foreign acquisition affects the target firms' financing structure and how this reflects in its investment plans. There are several good reasons why this can happen. The first and most obvious is the availability of fresh funds, which the receiving firms can use to finance new investment or to complete pre-existing projects. Foreign investors could also provide the recipient firm with more and better assets to be used as collateral in bank financing operation. The foreign acquisition may be followed by the appointment of a new management team eager to diversify the firm's financial structure. All these measure have the potential to loosen the target firm's financing constraint and, as a result, reducing investment's sensitivity to bank debt or to cash holdings. Our goal is to investigate the shape of this process, to see if and how target firms may benefit from it and how this compares with a domestic acquisition.

For the purpose of this study, we will define FDI as a cross border acquisition, namely an operation where a foreign subject buys a relevant stake in an existing group, subsidiary or branch not previously invested in from abroad.² To properly account for the non-random selection of the target firms, we will rely on a statistical procedure designed to address the selection bias problem, called propensity score matching (PSM henceforth) approach (Rosenbaum and Rubin, 1983). Our sample includes acquisitions involving a target based in Italy

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²In the literature, these investments are often called brownfield, as opposed to greenfield, which is when the investor sets up a new entity. The reason to exclude greenfield investments from our study is twofold: (i) the predominance of acquisitions in the total FDI flows, and (ii) most importantly, the need to identify a clear break in the life of the firms in our sample.

over the period 1997 – 2016.

We find that, in the years following the foreign acquisition, acquired firms experience a rotation in their financing structure toward non-bank sources, thus increasing the diversification of their financing structure. In a context characterized by thin capital markets (about 70% of Italy’s total financial assets are held by banks) and firms’ heavy reliance on bank credit, this result seems particularly relevant also from a policy standpoint. According to Bugamelli et al. (2018), “the underdevelopment of the non-banking segment has limited and is limiting the growth enhancing contribution that could come from startups and innovation more in general”. Bank credit is less suitable to finance riskier activities characterized by asymmetric information. In addition, over-reliance on bank borrowing increases investment’s sensitivity to exogenous bank supply shocks (Amiti and Weinstein, 2018). Small bank-dependent firms are found to reduce inventory demand, investment, and employment in times of tight monetary policy more than firms able to diversify their debt composition (Kashyap et al., 1994; Gertler and Gilchrist, 1994; Kashyap and Stein, 2000). Following the global financial crisis, the prominence of bank credit as an external financing source has played a key role in curbing investment as a result of the financial shock that hit the Italian banking sector (see Cingano et al., 2016), a pattern in line with the experiences of Japan (Kang and Stulz, 1997) and the US (Slovnik et al, 1993) during past crisis episodes. In general, excessively bank-based financial systems are believed to show more exacerbated firms’ hold-up, entry deterrence via lobbying, and credit supply volatility problems (ESRB, 2014). Finally, Langfield and Pagano (2016) show that bank-centered financial sectors are highly pro-cyclical, overleveraging the economic system during asset price booms and overtightening during asset price drops, increasing the economy’s exposure to a large systemic risk.³ However, as capital markets in Italy are relatively modest and corporate bond issuance is rather limited, we expect that a relevant role in non-bank financing is played by components including leasing and factoring, debt toward the parent company and other instruments.

We investigate the extent to which a foreign acquisition fosters target firms’ investment activity as compared to not-acquired firms with similar characteristics. We scrutinize this matter from a financing channel point of view. On aggregate, we find that the FDI has a positive impact on total investment by magnifying the positive effect of non-bank financing on accumulation. Looking separately at investment in tangible and intangible assets, we find diversified effects; tangibles benefit from the occurrence of a foreign acquisition as it reduces the dependence of the investment on internal sources, showing that the financing constraint is less binding than before the FDI. On the contrary, FDIs stimulate intangible assets investment because they induce a greater exposure toward non-bank finance.

The remainder of the paper is structured as follows: in the next section we

³The launch of a Capital Markets Union is meant to enhance the contribution of alternatives to bank lending (equity and bond markets, securitization, lending from insurance companies and asset managers, venture capital and crowdfunding) within a single large European capital market (Veron and Wolff, 2016).

briefly review the literature on FDIs and the impact of the latter on firms' financial structure; Section 3 describes our data and variables of interest; Section 4 addresses the selection bias problem and presents our econometric strategy; Section 5 provides our main results on target firms' financial structure and scrutinize the impact of foreign acquisitions on their investment process; robustness checks and additional results are reported in Section 6. Section 7 concludes.

2 Literature review

The literature analyzing the impact of FDIs on the origin and destination economies is ample and spans across several dimensions. The traditional line of research has focused on the effect of foreign investment on the target firm's performance. Braguinsky et al. (2015) find evidence that the acquisition improves both the target firm's profitability and its productivity. Similarly, Bircan (2019) documents that production plants experience an increase in productivity upon the acquisition by multinational corporations. Importantly, the positive effects brought about by the foreign investor spill over into the entire sector of destination by increasing competition, lowering prices, and pushing less productive firms to exit the market. This corroborates the findings provided by Javorcik (2004) who shows the existence of "backward vertical spillovers" positively affecting the productivity of the sector targeted by the foreign investor. In other words, "vertical" relationships with downstream multinational affiliates enhances industry's productivity. On the contrary, domestic sectors do not seem to benefit from "horizontal" contacts with foreign firms. As for the Italian context, Bentivogli and Miranda (2017) find that the performance of domestic firms, measured in terms of sales, return on equity, cash flow and indebtedness, improves after a foreign acquisition.

Foreign investors may also affect the innovation activity carried out by the target firm. Guadalupe et al. (2012) find empirical evidence that FDI recipient firms increase their innovation intensity with respect to not acquired firms. Stiebale (2016) shows that cross-border M&As lead to a higher level of innovation by the merged entity. However, the increase of innovation intensity seems to be linked to the characteristics of the parent company; in particular, R&D activities and technology are relocated toward the more suitable environment for innovation following the acquisition. The latter in turn is usually the country of origin of the acquiring company.

A growing strand of literature is investigating the link between FDIs and finance. Some studies have related the outcome of the foreign M&A on the individual firm to the surrounding financial environment. For instance, Alfaro et al. (2004) find that FDIs need well-developed financial markets in the destination country in order to trigger their positive effects. Desai et al. (2004) argue that internal and local external financing are substitutes for the subsidiaries of multinational firms. Subsidiaries operating in jurisdictions with underdeveloped financial markets and weaker creditors' rights are more prone to borrow from the parent company than tapping local markets.

Foreign investment also impacts the recipient firm’s and sector’s financial structure. Anwar and Sun (2015) investigate the impact on the capital structure of domestic firms in relation to the presence of other foreign firms in the same industry. They document that in sectors with greater foreign participation, domestic firms exhibit a lower financial debt and increase investments. Erel et al. (2015), though not emphasizing the investor’s origin (whether foreign or domestic), find that acquisitions tend to relax the financial constraints on the target firms, confirming the idea that financial synergies between the investor and the target can be a determinant underlying the investment decision. Stiebale and Wößner (2019) work along a similar line, controlling for the selection bias induced by the investment process. They show that upon takeover, acquired firms tend to have a better access to external finance, higher tangible and intangible assets, and lower cash holdings. The reduction in cash holdings is linked to the relaxation of the financing constraint faced by the target firm following the acquisition. Khatami et al. (2015) show that in the presence of a financial constraint, both firms, the acquired and the acquirer, benefit significantly from the acquisition. Through the takeover, indeed, the former gains access to investment opportunities otherwise unavailable to it and enjoys a greater acquisition premium, while the latter benefits from unexploited growth opportunities through the relaxation of the target firm’s financial constraint.

3 Data and descriptive statistics

Following UNCTAD, an FDI is defined as “an investment reflecting a lasting interest and control by a foreign direct investor, resident in one economy, in an enterprise resident in another economy (foreign affiliate)”. In practical terms, all investments leading to the ownership by the foreign entity of a stake equal or greater than 10% of the target entity lie within this definition. The 10% cutoff is consistent with the level currently assumed by the IMF, OECD, UNCTAD and World Bank to exclude foreign portfolio investments that do not ensure managerial control over the target company. However, we acknowledge that such a definition has its own limits. On the one hand it excludes the possibility that a controlling stake may come with a smaller share, as it is the case of very large companies with extremely fragmented shareholders base. On the other, not all the investments above 10% of the capital lead to a significant influence in the firm’s management, as it happens when the ownership is concentrated in the hands of very few shareholders.

FDI micro data pose the problems of dealing with false positives and false negatives. The first occur when a multinational group moves the controlling company to a different jurisdiction while remaining de-facto a domestic company. Following these operations, corporate ownership information will display a change in the nationality of owners, thus suggesting that an FDI may have taken place. On the other hand, a foreign entity may choose to operate its investment in a country by first setting up a special purpose financial vehicle

within the same jurisdiction.⁴ In this case, corporate ownership data would not show a foreign investment, while in fact the controlling entity is now a foreign one, thus representing a foreign investment.

Zephyr is a database provided by the Bureau Van Dijk,⁵ collecting a variety of information about every single operation on record and, in particular, it gives the identity of the ultimate investor in the form of Global Ultimate Owner (GUO) of the acquiring company. This information allows us to discriminate between domestic and foreign acquisitions reducing considerably the risk of false positives and false negatives.⁶

To our purpose, we retrieved data related to any non-Italian GUO company acquiring a stake leading to a capital share above 10% of an Italian firm. According to these criteria, we classify about 1600 operations as FDI within the period 1997 – 2016. From now on, we will refer only to investments fulfilling the 10% requirement as FDI. The 10% threshold excludes about 90 operations, 20 of which related to firms with total assets greater than € 1 billion for which also a stake smaller than 10% might be significant and could be reflected into a certain degree of management power exerted by the stakeholder.

We complement this information with that available from CERVED, which collects balance sheet data from all limited liability companies in Italy (Calligaris, 2015).⁷ Using ownership information from ORBIS (Bureau Van Dijk), we remove from our dataset all firms which already had a foreign shareholder owning at least 10% of the capital before the start of our estimation sample. Those firms can be considered to have already experienced the break coming from a foreign acquisition, and we would not be able to disentangle the FDI effect from their individual characteristics. Finally, to have more reliable information on employment, we pool these sets of data with those sourced from the INPS (the Italian national pension system) enabling us to match the exact number of employees per month for each firm displayed in both datasets. We exclude from the dataset firms operating in the financial sector, as their financing and investment strategies follow specific patterns whose analysis is out of the scope of this paper.

⁴In this case, the financial vehicle would be a newly installed company, *green field* which lies beyond the scope of this paper.

⁵The database has been extensively used in the FDI literature, e.g. see Hattari and Rajan (2011), Stiebale (2016), Rasciute and Downward (2017). Bollaert and Delanghe (2015) consider Zephyr as a reliable data source on M&As, in particular because of its advantage in reporting sellers' details and when information on multiple-targets and multiple-acquirers deals is needed, a particularly important issue in the context of cross-border deals. Moreover, the database benefits from its broad coverage of European deals.

⁶This is one of the differences between our work and Bentivogli and Mirenda (2017) which employ Unioncamere database. The latter reports with a greater precision the timeline of the corporate ownership events but does not present detailed information on the foreign acquirer.

⁷CERVED collects information from the official data available at the Italian Registry of Companies and records the official financial statements filed at the Italian Chambers of Commerce. Limited companies (so-called *società di capitali*) furnish data to the latter entities by law, so that all joint stock, partnership limited by shares companies and limited liability (S.p.a., S.a.p.a. and S.r.l.) Italian companies are reported in the database (Calligaris, 2015). The number of firms per year whose balance sheet is reported in CERVED increases from little less than 300,000 in 1993 to about 750,000 in 2016.

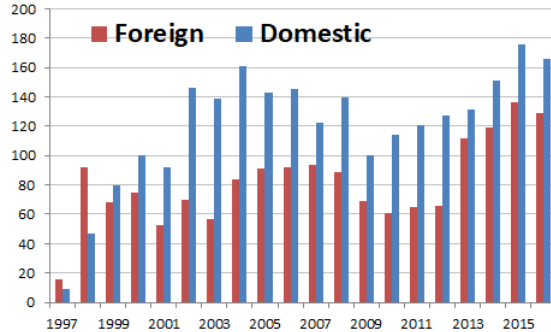


Figure 1: Number of acquisition in Italy in 1997-2016

	Avg. number of acquisitions		Avg acquired stake (*)		Acquisition with recapitalization (*)	
	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic
1998-2002	68	94	73	55	49	54
2003-2008	76	140	85	71	61	62
2009-2012	64	116	86	84	65	59
2013-2016	121	155	87	91	64	60

(*) Percentage points.

Table 1: Frequency of the acquisition in Italy by origin of the acquiring company.

In our data, foreign and domestic investments share a similar pattern through time though, since 2000, domestic operations have been steadily more numerous than foreign ones (Figure 1). As the number of operations surveyed before is negligible, our estimation sample starts in 1998. In the period immediately before the global financial crisis (until 2008) and in the one immediately after the sovereign debt crisis (since 2013), Italy experienced a sizeable relative increase of foreign acquisitions, while the number of domestic operations is somewhat stable at around 140 per year. Both are affected by the outbreak of the first wave of the double dip crisis but start recovering at different moment: domestic acquisitions just after 2009 while foreign ones only after the fading out of the effects of the second dip (see Table 1). We don't have reliable information on the value of the deals in our sample, but we show that both domestic and foreign investors tend to buy a majority stake of target firms. In about 60% of the operations in our sample, the acquirer has injected new capital by, presumably, acquiring newly issued shares.

The largest part of foreign investments accrues to Italy from the US and other large European countries (Figure 2). As Italy is primarily a manufacturing economy, there is little surprise that foreign investments concentrate in the manufacturing sector, roughly one-half of the total (Figure 3). Breaking down such category, we find that mechanics, electrical and electronics, and chemicals

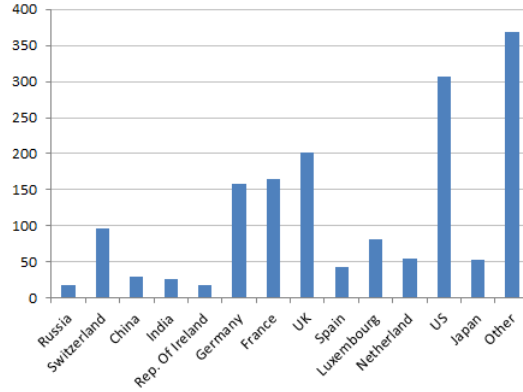


Figure 2: Country of origin of foreign acquisition

are the manufacturing subsectors which attracts most foreign investors (Figure 4).

We take a snapshot of our sample of the firms targeted by a foreign and a domestic acquisition in 2007 and 2015 (the peaks in foreign acquisitions before and after the crisis period, respectively) one year prior to the acquisition to get some insights on the characteristics of the average recipient firm. In 2007, 95 foreign acquisitions and 125 domestic ones took place, while 2015 witnessed the maximum number of both foreign and domestic deals over our sample (132 and 174 operations, respectively); see Table 2.

Variable	Foreign acquisition			Domestic acquisition		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Year 2007						
Total assets (€ thousands)	85	157,668	786,418	115	60,999	192,485
Bank debt on assets	62	23.0	18.8	76	27.1	47.5
Ebitda on assets	21	0.1	0.1	48	0.1	0.1
Unit labor cost	80	0.8	1.2	104	0.7	0.8
Year 2015						
Total assets (€ thousands)	127	51,603	123,109	150	82,468	605,701
Bank debt on assets	84	24.6	26.6	87	19.7	17.8
Ebitda on assets	24	0.1	0.2	63	0.1	0.2
Unit labor cost	117	0.6	1.2	129	0.5	0.9

Table 2: Characteristics of the firms targeted by an acquisition in 2007 and 2015

Many of the relevant variables show a fat tailed distribution, with extremely high standard deviations. Compared to domestically acquired and to not-acquired firms, in both years FDI recipients tend to be larger (in terms of total assets) and to exhibit a lower level of bank debt. On the other hand, unit labor cost shows a blurrier picture. In addition, firms targeted by a domestic acqui-

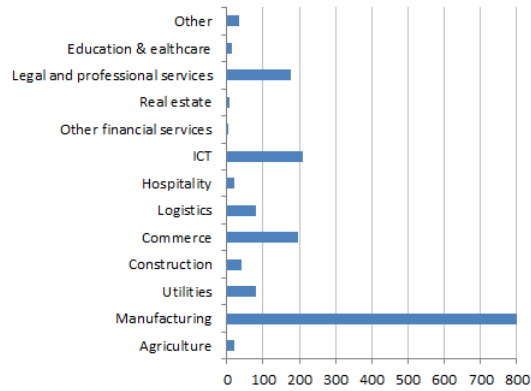


Figure 3: Sector of destination of foreign acquisition (authors elaboration on Nace Rev. 2 Sections)

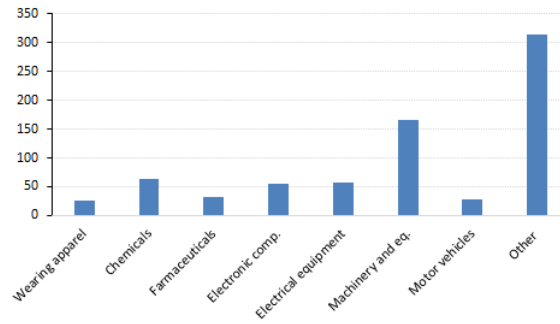


Figure 4: Sectors of destination of acquisitions in Italy (manufacturing subsectors)

sition are systematically larger than those who did not receive an investment (though the difference between the two groups is smaller), and less indebted. As the mean of the total assets of the foreign-acquired firms has considerably decreased over time, it is fair to assume that foreign investors have broadened their interest to include also smaller firms. Overall, the evidence provided above clearly points to the presence of a significant ex ante selection issue. This in turn would bias results if we were to compare directly FDI targets and not-acquired firms. We address such a concern by pruning our sample with a PSM procedure before implementing our estimation strategy (see section 4 for details).

Though the process of financial deepening in Italy has not been particularly swift, since the beginning of our sample Italian firms have slowly but progressively reduced their reliance on the banking sector in favor of other financial institutions (such as factoring and leasing companies), capital markets and, in some cases, a greater use of self-financing. These developments were particularly pronounced among foreign invested firms. To show this, we plot in Figure 5 the ratio of non-bank debt on total financial debt for the domestic controlled firms and for those who have received a significant foreign investment.⁸ For the purpose of this paper, we will consider as financial debt the following items: (i) short and long-term bank debt, (ii) debt securities; (iii) short and long term financial debt to other creditors. The latter may include, among the others, non-bank financial institutions and parent or affiliated companies. In the period 1998–2015, non-bank debt increased from 33 to 41% among domestically controlled companies whereas it went up from 45 to 62% among those foreign invested. This process is uneven across sectors: in the manufacturing sector, firms did not change much their financing structure between 1998 and 2015, whereas in public utilities was more pronounced (Table 3).

Clearly, the non-bank financing ratio is defined in the $[0,1]$ interval. Another relevant feature of this variable is that it accumulates on the boundaries of its domain. About one fifth of the firms in our sample has only bank debt and about the same has no bank debt at all; all the remaining follow a hump shaped distribution. This pattern is recurrent over time and across different firms' categories. In the proceedings of our analysis, we will have to consider this feature as traditional estimators may fail to account for the boundedness of the distribution.

4 Econometric strategy

The first aim of this paper is to examine whether target firms are more prone to tapping non-bank sources in order to meet their financing needs after a foreign acquisition. In particular, fixing at t the year of the investment, we focus on the evolution of financial debt's composition from $t + 1$ to $t + 5$. This in turn seems a reasonable time span to base our analysis on because: (i) it is broad enough

⁸We deem significant any foreign investment taking the share controlled by a foreign entity above 10%.

	Non Bank financing by sector	
	NB fin. (1998)	Var. 2015-1998
Agriculture	0.47	0.08
Manufacturing	0.28	0.02
Utilities	0.40	0.14
Construction	0.37	0.07
Commerce	0.32	0.08
Logistics	0.34	0.06
Lodging and hospitality	0.40	0.06
ICT	0.39	0.08
Financial services	0.47	0.00
Real estate	0.42	0.07
Professional services	0.39	0.08
Education and healthcare	0.38	0.06
Other	0.42	0.05

Table 3: Average non-bank financing by sector

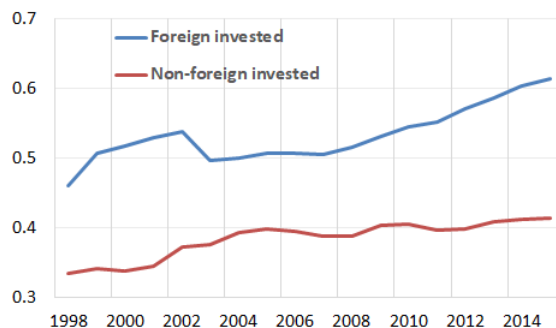


Figure 5: Average non-bank financing ratio

to capture the investor's influence on strategic decisions by firms, and (ii) it limits the interference of extreme events in a firm's life (e.g. default, successive M&As).

When testing the above hypothesis, we need to tackle two main econometric issues. First, as discussed in Section 3, results might be severely affected by ex ante selection. Foreign investors might be more oriented toward more productive firms (cherry-picking) or distressed targets to restructure them (lemon-grabbing). In either case, disregarding such motivations would lead to biased results. Second, our variable of interest, non-bank financial debt on total financial debt, ranges in the interval $[0,1]$ by definition and it accumulates on the boundaries, thus biasing the estimates of standard errors in most of the traditional techniques.⁹

⁹About one fifth of the firms in our sample satisfies its external financing need only through bank borrowing and a similar number has virtually no banks' funding; the distribution of

4.1 The FDI impact on the financial structure

To address the selection bias, we implement a matching procedure that provides us with the robust counterfactual needed to describe the performance of the foreign-acquired firms had they not been acquired. In the literature, one of the most popular choices is the Propensity Score Matching (PSM henceforth) (Rosenbaum and Rubin, 1983) as matching procedure.¹⁰ This technique aims at summarizing a set of observable variables into a single score via a binary regression through which one can select those observations in the control group that are ex ante similar to the ones in the treated group. In our case, first, we define the treatment as the FDI received by a target firm. Second, for each treated firm, we pin down a set of untreated observations - i.e. firms which have never been a target of a M&A operation (neither foreign nor domestic) - that are sufficiently close to the foreign acquired ones on the basis of the covariates summarized by the PSM. Finally, using the obtained match, we compare the ex post performance of the two groups.

We proceed with a logit model in which the dependent variable $FDI_{i,t}$ is a dummy that takes value 1 if firm i has gone through a foreign acquisition in the year t , and 0 otherwise. Our baseline specification is the following in equation (1):

$$FDI_{i,t} = f(\alpha + \beta CONTROLS_{i,t-1} + \epsilon_{i,t}) \quad (1)$$

where $f(\cdot)$ is a logit transformation function, $\epsilon_{i,t}$ is a well-behaved error term and $CONTROLS$ consists of a set of firm's lagged characteristics that influence the probability of being acquired from a foreign investor. The latter term includes total assets in logs ($Total\ asset_{i,t-1}$), and average annual employment ($Total\ employment_{i,t-1}$) in log to account for firm size and recognition (see Dahlquist and Robertsson, 2001); intangible assets in logs ($Intangible\ asset_{i,t-1}$) and intangible over total assets ($Intangible\ asset\ ratio_{i,t-1}$) since foreign players may pursue reverse-internalization strategies (Eun et al., 1996); non-bank over total financial debt ($Non-bank\ financing_{i,t-1}$), cash holdings as a percentage of assets ($Cash\ asset\ ratio_{i,t-1}$), leverage ratio ($Leverage\ ratio_{i,t-1}$) and short term debts over total assets ($Short\ term\ total\ debt_{i,t-1}$) to control for firms' ex ante financial condition (Alquist et al., 2019); finally the age of the firm ($Age_{i,t-1}$) enters the specification in its quadratic form.¹¹

the remaining firms is still bimodal with a half of them displaying less than 10% non-bank financing. These characteristics vary little across time and sectors.

¹⁰See for instance Barba Navaretti and Castellani (2004) and Borin and Mancini (2016).

¹¹Previous works remark the existence of a U-shaped relation between the probability of being acquired from a foreign investor and firm's age. In particular, younger firms tend to be desirable targets for foreign investors because of their greater efficiency in assimilating international knowledge (Naldi and Davidsson, 2014). However, as the firm ages, the probability of being acquired decreases until thresholds of sufficient maturity and reputation are reached by the target (Luo and Tung, 2007; Huberman, 2001).

A variety of matching algorithms is available. Major differences among them lie in the definition of the similarity neighborhoods for the treated units and in the weighting of the control observations. In general, broadening the neighborhoods implies a reduced variance but a higher bias that results from associating less similar firms, and vice versa (Caliendo and Kopeinig, 2008). All in all, we opt for a nearest-neighbor algorithm with replacement. To each FDI-firm (conditional on data availability), the scheme associates the k closest units in the control group. Since we implement a PSM with replacement, a single observation can be used multiple times as a match. For consistency of results, we perform exact matching by sector of activity,¹² year and target’s origin defined as the macro-region of residence.¹³ In other words, we match target firms with wholly domestic (and not-acquired) firms operating in the same sector and comparable to the former on the basis of the set of covariates illustrated above as observed on the year of the acquisition.¹⁴ We ask the matching procedure to provide us with one to one and one to ten matching.

To assess if the foreign acquisition influences the amount of debt, apart from its composition, we compute the Average Treatment Effects 1 to 5 years after the investment took place finding no significant evidence. To test the impact of the acquisition on the firm’s financing structure, we turn our sight on the ratio of non-bank financial debt to total financial debt ($NBF_VS_BANK_{i,t+k}$), 1 to 5 years after the acquisition. We regress our dependent variable on a dummy taking value 1 for those units who received a foreign direct investment and the value of the dependent at the time of the acquisition (to account for the sluggishness of financial strategies). Our variable of interest is defined in the interval $[0,1]$ (and clustered on the boundaries of that interval) thus biasing any inference based on OLS estimator. To correct for this characteristic, we consider a fractional regression approach (Papke and Woolridge, 1996) (equation 2):¹⁵

$$NBF_VS_BANK_{i,t+k} = \alpha + \beta_1 FDI_{i,t} + \beta_2 NBF_VS_BANK_{i,t} + \epsilon_{i,t+k} \quad (2)$$

In our context, a greater diversification in the financing structure of the firm after the FDI would reflect in a positive and significant value for β_1 . Foreign

¹²Sectors are defined by NACE-rev 2 sections. For a sake of simplicity some sections scarcely populated were aggregated, in particular: (i) agriculture and mining, (ii) public administration, education and healthcare and (iii) all residual sections.

¹³We aggregated Italian regions in four macro-region representing homogeneous areas of the country from an economic standpoint: (i) north-west, (ii) north-east, (iii) center and (iv) south and islands.

¹⁴We require the algorithm not to match FDI firms with domestic companies that in our period of interest have gone through a domestic acquisition. Moreover, we exclude from the control group firms that received an FDI before 1997. The Zephyr database collects information on cross-border deals from 1997 on. The inclusion of firms that went through an FDI before such date would bias our results as we would not be able to assign them a correct value for the dummy FDI. We retrieve information on the ownership structure of Italian firms from the Orbis database, cross such information with the Zephyr one and exclude firms with a foreign ultimate owner holding at least 10 % of the company’s stakes that are not tracked from Zephyr (meaning that the deal occurred before 1997).

¹⁵The idea is to model the $E(y|\mathbf{X})$ as a logistic function: $E(y|\mathbf{X})=exp(\mathbf{X}\beta)/[1 + exp(\mathbf{X}\beta)]$ and to estimate the relevant parameter using quasi-maximum likelihood estimator.

investors may be more open to capital and private debt markets than their Italian counterparts thanks to the experience gained in their country of origin, when the latter are less bank-oriented. In addition, their ties with the Italian banking sector might be looser due to the increased functional distance between the two entities (Alessandrini et al., 2009) and they might exploit their greater access to global sources (Fatemi, 1988). Moreover, as a result of the improved creditworthiness and reputation brought about by the foreign deal (Hardin and Holmes, 2002), target firms might be able to overcome some of the market incentives pushing firms to an excessive reliance on the banking system.¹⁶ Finally, the preference for intra-company sources in MNEs financing (Desai et al., 2004) may be another channel to explain the increase of non-bank financial debts. As any effect on our dependent variable may be merely due to a change in bank debt, the denominator of the ratio, and not to an increase of non-bank financing, we replicate the above specification by replacing $NBF_VS_BANK_{i,t+k}$ with the amount of non-bank financial debt over total assets ($NBF_{i,t+k}$) as dependent variable.¹⁷

4.2 The FDI impact on investment

Going further, we study how investment decisions are affected by the occurrence of a foreign acquisition and, over time, by the rotation in the financing structure. There are several channels through which an acquisition may boost the investment activity of the target firm. The first is the direct impact: as the new ownership structure reflects in the strategies and in the management of the target firm, this will likely affect also the investment plans, though this may happen in either direction. The same may also affect recourse to non-bank financing (as we discussed in the previous section) through management sophistication or other non-tangible characteristics. Tapping a rather under-exploited source may result in an increased investment capacity, and the change in financing preferences may in turn shift investment towards different directions. Moreover, the new ownership will likely bring new resources (in the form of cash or fresh capital means) thus relieving the target firm’s financing constraint

¹⁶For instance, Cantillo and Wright (2000) find that more financially distressed firms opt for bank funding over market sources because they seek for the bank superiority in tight monitoring and reorganizational skills.

¹⁷A second econometric issue that arises when performing a matching procedure relates to the Conditional Independence Assumption (CIA). The PSM alleviates ex ante selection on the observables included as regressors in the binary model but it does not control for unobservable firm characteristics. When comparing financing decisions of the two groups we may capture systematic differences due to unobservables and hence draw mistaken conclusions. As a further robustness exercise, we exploit the panel nature of our dataset and replicate our main specification by combining PSM with a difference-in-differences estimation as a robustness exercise. To this end we implement different specifications. Among the others we estimate a pooled and a fixed effects model. Apart from the treatment dummy, the latter includes year and time dummies and a set of firm-specific controls. In both models we omit $NBF_VS_BANK_{i,t}$ (or $NBF_{i,t}$), i.e. the value of the dependent variable in the year of the acquisition, in order to: (i) avoid the bias of estimators in the frame of dynamic panel models (see Kiviet (1995) for details); and (ii) check consistency of our results and fit of the models to the exclusion of the variable. Results are not reported here for brevity.

and starting new investment plans. Finally, the presence of the new owners will likely be accompanied by new physical assets that can be used to collateralize bank's financing, reducing the sensitiveness of investment to bank debt.

To understand what happens in the aftermath of a foreign acquisition we exploit the panel dimension of our dataset and estimate investment sensitivity to cash flow, bank debt and non-bank financing (Fazzari et al., 1988; Almeida and Campello, 2007; Erel et al., 2015; Stiebale and Wößner, 2019). We also add a term ($Recap_{i,t}$) representing the occurrence of a recapitalization, i.e. a dummy variable taking value 1 in the years when the shareholders' capital has increased by at least 50%. We therefore estimate the model in equation (3) with firms' specific fixed effects and time dummies. The idea underlying the equation is that it embodies all the investment financing channels: capital, internal sources, bank borrowing and non-bank financing.

$$\begin{aligned}
\frac{INVESTMENT}{ASSETS}_{i,t} &= \alpha + \beta_1 FDI_after_{i,t} + \\
&\beta_2 Recap_{i,t} + \beta_3 (FDI_after_{i,t} * Recap_{i,t}) + \\
&\beta_4 Cashflow_{i,t} + \beta_5 (FDI_after_{i,t} * Cashflow_{i,t}) + \\
&\beta_6 NBF_{i,t} + \beta_7 (FDI_after_{i,t} * NBF_{i,t}) + \\
&\beta_8 \Delta BD_{i,t} + \beta_9 (FDI_after_{i,t} * \Delta BD_{i,t}) + \\
&\beta_{10} BD_{i,t-1} + \beta_{11} (FDI_after_{i,t} * BD_{i,t-1}) + \\
&\Gamma X_{i,t} + c_i + \epsilon_{i,t}
\end{aligned} \tag{3}$$

The dependent variable is the net investment at time t of firm i scaled by the average total assets reported by the firm over the period 1998-2016. Using the average level of total assets responds to the need to reflect the cross-sectional dimension of the panel using a time invariant variable; it also avoids possible feedback effects from investments to total assets. Information on the numerator is retrieved from firms' income statements. $FDI_after_{i,t}$ is a dummy variable that takes value 1 starting from the year t in which the firm i has received a foreign investment, and 0 if it refers to: (i) a control firm (never acquired firm), or (ii) a target firm before the investment takes place.¹⁸ $NBF_{i,t}$ represents the amount of non-bank financing. Bank debt is included as percentage variation over the previous year ($\Delta BD_{i,t}$) and in stock lagged one period ($BD_{i,t-1}$) accounts for the possibility that excessive debt stockpiling may pose a drag on the investment process; finally $\Gamma X_{i,t}$ consists in a set of firm characteristics such as current and lagged total assets (in log) and the annual variation of value added (that controls for future growth opportunities) and c_i is the firm i fixed effects term. We first run specifications in which one interaction at time is included, then we move to the full model. All variables in level are scaled by firm i 's

¹⁸Practically speaking, the variable is the interaction between a treatment dummy (1 for FDI firms, 0 for control firms) and a time of the treatment dummy (1 after the treatment, 0 before).

average level of total asset in the sample period.¹⁹

The parameter β_1 captures the direct impact of the acquisition, i.e. the one deriving from the presence of the new entity in the corporate ownership. As we have disentangled the financial determinants of investment, this direct impact has more to do with soft factors (change in strategies, in management, in corporate culture, etc.). The parameters β_4 , β_6 , β_8 and β_{10} are the investments' sensitivities to, respectively, cash flow, non-bank financing, bank debt growth at time t , and bank debt stock at time $t - 1$. The parameters β_5 , β_7 , β_9 and β_{11} taking statistically significant values and opposite sign with respect to the former would suggest that the occurrence of the acquisition has reduced the sensitivity of investments to these factors.

Several papers point out that foreign investors alleviate the target firm's financial constraint by allowing it to tap internal resources (namely borrowing from the parent company) and increasing the firm's capacity to access external financial markets. This effect is broadly recognized in the frame of emerging economies (Rutkowski, 2006; Chen et al., 2017); Erel et al. (2015) and Stiebale and Wößner (2019) address the issue using a sample of European firms.²⁰ In our model, we try to gauge the extent to which the investment decisions are constrained by financial debt (bank and non-bank) and depend upon cash flow.

Not all investments are alike. Tangible investments, for example, tend to be easier to finance through bank credit because of the presence of a physical asset available as collateral. Conversely, intangible investments, are characterized by a more pronounced uncertainty over the underlying asset's value and duration, and are thus less suitable for bank lending (Dell'Araccia et al., 2017; Cecchetti and Schoenholtz, 2018). Furthermore, intangible assets serve poorly as collateral because they are difficult to re-sell in case of the firm's default. This in turn increases the cost of bank debt for intangible intensive firms. At the same time, banks may be reluctant to provide credit aimed at investment in intangibles and, considering the recent upward trend of the latter, shift their portfolio allocation away from commercial loans (Dell'Araccia et al., 2017). Indeed, several studies have found that intangible investment is mainly driven by internal sources of financing (Borisova and Brown, 2013; Sun and Xiaolan, 2019) and equity issuance (Brown et al., 2009). Most of these alternatives require an injection of fresh capital, either to fund directly the new investment or to provide new collateral for new financing.

To address the role of foreign acquisition in financing all types of investment, thus, we re-estimate equation (3) for both tangible (net of divestment) and in-

¹⁹We scale all variables by the firm-specific average total assets instead of current total assets to avoid feedback effects from investment to the independent variables.

²⁰For instance, focusing on Europe Stiebale and Wößner (2019) find that M&A operations relieve target firm's financial constraint, but results are mainly driven by domestic deals rather than cross-border acquisitions.

tangible investments scaled by firm-specific average total assets. If our intuition is correct, we expect target firms' intangible investments to display a certain degree of sensitivity to the flag variable $Recap_{i,t}$, when interacted with the FDI variable (namely, a positive and statistically significant value for β_3).

The entire econometric procedure is replicated using domestically sourced acquisitions to check if the effects we find are related to the foreign nature of the acquirer. The underlying assumption in this case is that foreign investors bring with them better international capital market access and, therefore, are more able to improve the financing of the target firms.

5 Main findings

5.1 Propensity score results

Through propensity score matching, we prune our population in order to feed the main regressions with a sample of firms displaying similar observable characteristics to those treated. Model covariates are chosen after a data-mining process which attempts to maximize, in addition to the fit of the model, the number of treated observations matched, conditional on the data availability and sample unbalance. The treatment is the occurrence of the FDI, and we implement the procedure matching exactly the target's sector, year of occurrence of the FDI and the target's geographic origin.²¹ All control variables in the model are lagged one period.

Logit regression in PSM is reported in Table (4). The dependent variable is the occurrence of FDI at the moment the investment is carried over, the time period spans from 1998 to 2016.²² All variables are significant at least at the 5% level, except for employment (which is significant at 90% level, though) and age squared, thus excluding non linear effects in the target firm's age.

To check for the reliability of the specification, we have to compare the sample moments before and after the pruning procedure. Ideally, if we properly address the selection bias, the distribution of selected control individuals should be equal to that of the treated individuals. The outcome of the balancing property is reported in Table (5). For all variables, t-tests reject the null hypothesis of equal mean between the treated and the untreated samples at conventional significance level before the matching procedure. However, when we compare the treated and the matched sample, the t-test fails to reject the null hypothesis of equal means for all variable, except for the ratio of non-bank financing, although the respective values get closer.

²¹Italy is divided in 4 macro regions: North-west, North-east, Center, South and islands. Four dummy variables were created accordingly.

²²The specification includes dummy variables for the year, sector of activity and geographic area of origin of the target company.

	Coef.	Std. Err.	t-test	P-value
Total asset (log)	0.48	0.08	5.97	0.00
Intangible asset (log)	0.17	0.03	6.66	0.00
Intangible asset ratio	1.34	0.32	4.17	0.00
Cash asset ratio	0.38	0.07	5.62	0.00
Total employment (log)	0.06	0.03	1.74	0.08
Age	0.02	0.01	-2.47	0.01
Age squared	0.00	0.00	1.02	0.31
Leverage ratio	0.03	0.01	-5.49	0.00
Short term total debt (on asset)	0.46	0.08	5.72	0.00
Non-bank financing (on total debt)	0.25	0.10	-2.59	0.01
Constant	-14.29	0.49	-29.35	0.00
Nobs	2,641,703			
Pseudo R^2	0.17			
Likelihood ratio	-6536.23			

Table 4: Logit model statistics; dependent variable FDI

	Unbalanced sample			Balanced sample		
	Treated	Untreated	t-test	Treated	Untreated	t-test
TTot. ass.	9.56	7.08	***	9.74	9.73	
Int. ass.	5.92	2.95	***	6.26	6.10	
Int. ass. ratio	0.10	0.06	***	0.09	0.09	
Cash ass. ratio	-5.06	-2.74	***	6.17	6.61	
Tot. emp.	4.00	1.98	***	214	201	
Age	16.39	12.14	***	18.54	18.87	
Age squared	441.39	271.11	***	505	507	
Leverage ratio	5.84	9.25	***	4.90	5.24	
ST tot. debt	8.82	6.45	***	39461	36820	
Non-bank fin.	0.41	0.30	***	0.37	0.29	***

Table 5: Comparison between the sample moments of the treated and control individuals in the whole sample and the matched sample

5.2 Regression results – foreign vs domestic acquisition

In this section, we analyze the evolution of the financial structure of the target firms in reaction to a foreign acquisition at different time horizons after the investment (1 to 5 years). For our purpose, we take the non-bank financing ratio as the dependent variable in a fractional regression approach, to cope with the fact that the variable is defined between 0 and 1 and clustered on the boundaries of this interval. To check the consistency of our results, we feed the regression equation with the sample pruned with the propensity score matching procedure in two different ways: first, we use a sample composed of “twin pairs” which includes the best match for each treated firm, then we use the ten closest observations for each treated firm. Finally, we apply the entire procedure to domestic acquisitions to check whether results are to a large extent due to the nationality of the investors or to the investment itself. The equation takes the

following form:

$$Y_{i,t+k} = \alpha + \beta_1 FDI_{i,t} + \beta_2 Y_{i,t} + \epsilon_{i,t+k} \quad (4)$$

where $Y_{i,t+k}$ represents the value of the ratio of the non-bank financing k period after the acquisition took place, $FDI_{i,t}$ is a dummy variable taking value 1 for those firms who received an FDI. Regression results are reported in Table (6).

K	Nobs	Pseudo R ²	FDI	t_0	Margin effect
1 to 1 matching					
1	2,111	0.311	0.154*	4.023***	0.021*
2	1,829	0.242	0.241***	3.447***	0.036***
3	1,607	0.169	0.197**	2.767***	0.034**
4	1,411	0.144	0.230**	2.509***	0.041**
5	1,242	0.122	0.205**	2.333***	0.038**
10 to 1 matching					
1	10,428	0.3916	0.181*	4.709***	0.021*
2	9,176	0.312	0.1443	4.004***	0.0197
3	8,068	0.257	0.171	3.528***	0.026
4	7,167	0.221	0.094	3.205***	0.015
5	6,275	0.185	-0.041	2.891***	-0.007

Table 6: Fractional regression results for foreign acquisition

All coefficients related to the treatment variable after the 1-to-1 matching procedure are statistically significant, and so are the marginal effects; the share of explained variance spans between 12 and 31%. The results are less significant in case of the 10-to-10 matching procedure, the less accurate one, probably due to difficulties in identifying higher numbers of comparable firms. According to these results, foreign acquisitions impact significantly on the financial structure of the target firms, increasing the share of non-bank financing on total financial debt. The cumulative effect is increasing over time, though not monotonically, and varies between 2 and 4 percentage points. These results are in favor of the hypothesis that receiving an FDI contributes to a greater diversification in the financing sources, which may include the funding from the parent company.²³ To see if our results depend on the foreign nature of the investor, we run the same procedure using domestic acquisition as treatment variable (*DOMESTIC*).

²³As our variable of interest is the ratio of non-bank financial debt to bank debt, the increase in the variable we document might depend on a mere decrease of bank debt. To rule out such possibility we replicate the above procedure by replacing the dependent variable with the ratio of non-bank financial indebtedness to total assets. Results are confirmed. In addition, as a robustness exercise we adopt a difference in differences approach. In particular, we combine PSM with a panel diff-in-diff and estimate several pooled and fixed effects models. We first scrutinize the impact of a foreign direct investment from $t - 1$ to $t + 1$, $t + 2$ and $t + 5$. Then we investigate the spans $t - 1$ to $t + 1$, $t - 2$ to $t + 2$ and $t - 5$ to $t + 5$. Our findings are fully corroborated for both *NBF_VS_BANK* and *NBF*. Target firms significantly increase their exposure to non-bank financial sources after a foreign acquisition. We do not report results here for brevity.

Results are in Table (7), while propensity score matching results are not reported for brevity.

K	Nobs	Pseudo R ²	DOMESTIC	t_0	Margin effect
1 to 1 matching					
1	2,099	0.288	0.073	3.820***	0.01
2	1,821	0.217	0.190**	3.228***	0.030**
3	1,592	0.158	0.146	2.682***	0.026
4	1,423	0.139	0.198**	2.483***	0.036**
5	1,235	0.119	0.16	2.305***	0.03
10 to 1 matching					
1	10,376	0.389	0.106*	4.639***	0.022*
2	9,081	0.304	0.174	3.913***	0.0241
3	7,990	0.245	0.173	3.418***	0.027
4	7,087	0.205	0.071	3.058***	0.012
5	6,184	0.181	-0.059	2.863***	-0.01

Table 7: Fractional regression results for domestic acquisition

Compared to the case of foreign acquisition the magnitude of the increase in non-bank financing is considerably smaller, and significant only in few cases distributed non monotonically throughout the projection horizon ($k = 1 \dots 5$).

Combining these results together, it appears that foreign investors are able to operate a more profound rotation in the financing structure of the target firms as compared with domestic ones. This might be possibly due to the fact that having the backing of firms operating already at a multinational level with greater managerial complexity, they push Italian companies to source financing via a more diversified range of instruments. Moreover, the acquisition by a foreign investor has two effects on the domestic firm from an informational point of view which go in the same direction though having different impacts on the access to financing. On the one hand, it increases the firms' reputation and creditworthiness, allowing the firm a greater access direct borrowing in the form of public bonds or commercial papers (Diamond, 1991; Hale and Santos, 2008). On the other hand, it reduces the amount of soft information banks are able to extract from the firm, which is crucial in relationship lending by banks, a widespread phenomenon in Italy, pushing the firm away from this financing channel (but not necessarily from bank lending, as long as it is not on a relationship basis). Bolton et al. (2016) document that more than half of the 173,879 Italian bank-firm credit relationship considered in their analysis involve a relationship-bank. Several studies show that the ability of banks to build a stable relationship with firms is a function of the physical distance between the two entities (Hauswald and Marquez, 2006, Agarwal and Hauswald 2010). In general, the closer the bank and firm, the easier is for the bank to gather soft information; this, in turn, leads to the development of stable credit relationships. As after the entry of a foreign investor domestic firms may delegate relevant decision power to the former, banks may have a harder time collecting soft information and hence may be reluctant to accommodate the

firm’s financing needs. This implies that FDI firms may find it easier to rely on non-bank financial debt than to bank indebtedness. In section 6, we provide tentative evidence that show that both the greater financial sophistication of the investor and the distance hypothesis might be plausible explanations of the increased reliance on non-bank financing by target firms.

The next step is to clarify how the shift in the composition of the firm’s debt showed up, especially because throughout the time period spanned by our sample, the Italian corporate bond market was particularly underdeveloped, with an extremely low level of issuance from non-financial corporation. In this context, firms may have switched from bank credit to debt vis-à-vis the parent company or may have broadened the set of financing instruments through leasing, factoring and other non-standard measures. In Figure (6), we represent the evolution of the composition of the firms’ financial debt in the 1-to-1 matched sample up to 5 years after the investment. For acquired firms, the dynamics appear to be driven mainly by other non-bank financing means (increasing from 29 to 43% as share of total debt), whereas obligations and debt versus stakeholders appear to cover broadly a constant share of the financial burden. Conversely, firms who did not receive a foreign investment display a less pronounced dynamic in the debt composition.

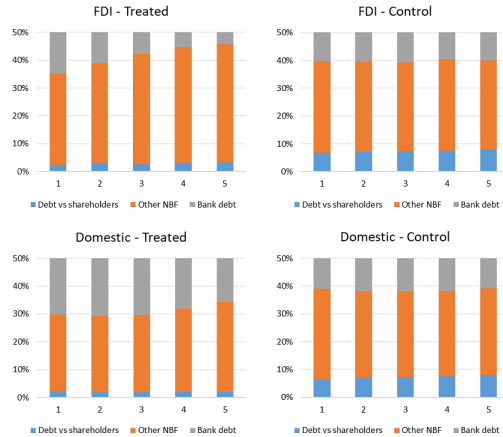


Figure 6: The evolution of the firms’ financial structure after a foreign (upper panels) and domestic acquisition (lower panels)

5.3 Sensitivity of investments to foreign acquisition

In this section we analyze the impact of foreign acquisitions on investment by adopting a financing channel perspective. The occurrence of a new investor in the corporate ownership can impact on the different sources of funding in different ways, for example by providing new resources to collateralize bank borrowing or by loosening a possible liquidity constraint faced by the firm, thus

reducing the reliance on internal resources such as cash flow. We therefore run the regression in Equation (3) using total investment as dependent variable. The sample is defined by all the matched firms throughout the time period spanning between 1998 and 2016. Results are reported in Table (8).

FDI	-0.008 (0.007)	-0.003 (0.004)	0.011** (0.004)	0.016*** (0.004)	0.015*** (0.005)	-0.036*** (0.008)
Recap	-0.002 (0.004)	0.003 (0.004)	0.002 (0.004)	0.002 (0.004)	0.002 (0.004)	-0.001 (0.004)
Cash flow	0.001*** (0.000)	-0.000 (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.000 (0.000)
Non-bank financing	0.078*** (0.007)	0.078*** (0.007)	0.054*** (0.010)	0.078*** (0.007)	0.078*** (0.007)	0.051*** (0.010)
Bank debt (growth)	8.76e-06*** (2.68e-06)	8.69e-06*** (2.67e-06)	8.68e-06*** (2.68e-06)	3.94e-06 (7.60e-06)	8.84e-06*** (2.68e-06)	4.09e-06 (7.58e-06)
Bank debt (on asset, lag)	-0.009 (0.006)	-0.008 (0.006)	-0.008 (0.006)	-0.008 (0.006)	-0.009 (0.006)	-0.010 (0.006)
FDI#Recap	0.031*** (0.007)					0.033*** (0.007)
FDI#Cash flow		0.002*** (0.000)				0.002*** (0.000)
FDI#Non-bank fin.			0.046*** (0.013)			0.049*** (0.013)
FDI#Bank debt growth				5.57e-06 (8.12e-06)		5.05e-06 (8.10e-06)
FDI#Bank debt (on asset,lag)					0.003 (0.011)	0.005 (0.011)
Observations	20,659	20,659	20,659	20,659	20,659	20,659
Number of firms	1,730	1,730	1,730	1,730	1,730	1,730
Constant	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Additional firm-level controls	yes	yes	yes	yes	yes	yes
R ² within	0.156	0.159	0.155	0.155	0.155	0.161
R ² overall	0.061	0.058	0.060	0.060	0.060	0.060
F-test	108.9	111.9	108.7	108.3	108.3	100.6
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000	0.000

NOTES: Period 1998-2016. Additional firm-level controls: current and lagged total assets (in log), annual variation of value added. Standard errors in parentheses. *** p0.01, ** p0.05, * p0.10

Table 8: Panel regression results. Dependent variable: Total Investments.

Although the coefficient on the direct effect is not always positive, the FDI variable turning 1 (from 0) has a positive marginal impact on total investment, especially when FDI is combined with an increase in shareholder capital. However, we fail to replicate the results by Stiebale and Wößner (2019): total investment is sensitive to cash flow, indicating the possible presence of a financing constraint (though the coefficient is very small in size), but the occurrence of a foreign acquisition appears to amplify such sensitivity. Non-bank financing is also positively related to total investment, and the event of a foreign acquisition increases by 25% the investment sensitiveness to this form of financing. This suggests that the target firms rely even more heavily on alternative sources of funding than they used to do prior to the acquisition, as new resources became available through this channel. Total investment responds positively to the growth in bank debt, but such reliance is no more relevant after the entry of a new investor in the firm's ownership structure. This fact may reflect the shift in investment financing from bank borrowing to alternative sources. Past bank debt dose not represent a significant impediment to investment.

Next, we distinguish between tangible and intangible investment. Tangible investment behavior in response to a foreign acquisition is reported in Table (9).

Recapitalization along with the foreign acquisition remains relevant in boosting target firms' investment activity. Tangible investments are insensitive to cash flow; this result can be attributed to the fact that the presence of a collateral loosens the need to tap internal resources. In addition, the foreign investor increases the already positive relevance of non-bank financing as a source of investment in tangible assets, though understandably this happens to a lower extent compared to immaterial assets. In the case of material investments, forms of financing such as leasing may play a significant role. The occurrence of a foreign investment increases the relevance of this channel. Past bank debt drags on the amount of tangible investments.

FDI	-0.015*** (0.005)	-0.003 (0.003)	-0.008*** (0.003)	-0.004* (0.003)	-0.001 (0.003)	-0.013** (0.005)
Recap	-0.001 (0.003)	0.000 (0.003)	0.000 (0.003)	0.001 (0.003)	0.000 (0.003)	-0.001 (0.003)
Cash flow	-7.30e-05 (8.94e-05)	-4.89e-06 (0.000110)	-7.97e-05 (8.94e-05)	-7.97e-05 (8.94e-05)	-8.22e-05 (8.94e-05)	-9.70e-06 (0.000110)
Non-bank financing	0.024*** (0.005)	0.024*** (0.005)	0.008 (0.007)	0.024*** (0.005)	0.025*** (0.005)	0.009 (0.007)
Bank debt (growth)	-1.66e-06 (1.81e-06)	-1.63e-06 (1.81e-06)	-1.73e-06 (1.81e-06)	-1.22e-06 (5.15e-06)	-1.73e-06 (1.81e-06)	-1.22e-06 (5.15e-06)
Bank debt (on asset, lag)	-0.018*** (0.004)	-0.018*** (0.004)	-0.018*** (0.004)	-0.018*** (0.004)	-0.015*** (0.004)	-0.015*** (0.004)
FDI#Recap	0.014*** (0.005)					0.014*** (0.005)
FDI#Cash flow		-0.000 (0.000)				-0.000 (0.000)
FDI#Non-bank fin.			0.030*** (0.00892)			0.029*** (0.00893)
FDI#Bank debt growth				-4.76e-07 (5.49e-06)		-7.05e-07 (5.50e-06)
FDI#Bank debt (on asset,lag)					-0.013* (0.007)	-0.015** (0.007)
Observations	20,659	20,659	20,659	20,659	20,659	20,659
Number of firms	1,730	1,730	1,730	1,730	1,730	1,730
Constant	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Additional firm-level controls	yes	yes	yes	yes	yes	yes
R ² within	0.103	0.102	0.103	0.102	0.102	0.103
R ² overall	0.039	0.040	0.040	0.039	0.039	0.041
F-test	67.52	67.30	67.65	67.26	67.36	60.49
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000	0.000

NOTES: Period 1998-2016. Additional firm-level controls: current and lagged total assets (in log), annual variation of value added. Standard errors in parentheses. *** p0.01, ** p0.05, * p0.10

Table 9: Panel regression results. Dependent variable: Tangible investments

Results related to intangible investments are presented in Table (10). Intuitively, intangible asset investments rely predominantly on non bank financing, while the effect of cash flow and bank financing are much smaller, though statistically significant. The occurrence of a foreign acquisition influences the intangible investments mainly through internal resources, namely through the recapitalization and by doubling the relevance of cash flow as financing mean. Combining this result with those the first part of the paper related to the shift in sources of financing suggests that the arrival of a foreign investor is positive for intangible investment, usually harder to finance through bank borrowing, also in a context, like the Italian one, strongly centered on the banking sector for the financing of the real economy.

In Figure (7) we have reported the marginal effects of turning the variable

FDI	0.007 (0.005)	0.000 (0.003)	0.019*** (0.003)	0.020*** (0.003)	0.016*** (0.004)	-0.030*** (0.006)
Recap	-0.001 (0.003)	0.003 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
Cash flow	8.84e-04*** (1.01e-04)	-1.47e-04 (1.23e-04)	8.76e-04*** (1.00e-04)	8.75e-04*** (1.00e-04)	8.79e-04*** (1.01e-04)	1.58e-04 (1.23e-04)
Non-bank financing	0.053*** (0.005)	0.053*** (0.005)	0.046*** (0.008)	0.054*** (0.005)	0.054*** (0.005)	0.042*** (0.007)
Bank debt (growth)	1.04e-05*** (2.04e-06)	1.03e-05*** (2.03e-06)	1.04e-05*** (2.04e-06)	5.16e-06 (5.79e-06)	1.06e-05*** (2.04e-06)	5.31e-06 (5.75e-06)
Bank debt (on asset, lag)	0.009** (0.004)	0.010** (0.004)	0.010** (0.004)	0.010** (0.004)	0.006 (0.005)	0.004 (0.005)
FDI#Recap	0.017*** (0.006)					0.019*** (0.006)
FDI#Cash flow		0.003*** (0.000)				0.003*** (0.000)
FDI#Non-bank fin.			0.016 (0.010)			0.020** (0.010)
FDI#Bank debt growth				6.04e-06 (6.18e-06)		5.75e-06 (6.15e-06)
FDI#Bank debt (on asset,lag)					0.016* (0.009)	0.019** (0.008)
Observations	20,659	20,659	20,659	20,659	20,659	20,659
Number of firms	1,730	1,730	1,730	1,730	1,730	1,730
Constant	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Additional firm-level controls	yes	yes	yes	yes	yes	yes
R^2 within	0.080	0.089	0.079	0.079	0.079	0.090
R^2 overall	0.033	0.033	0.032	0.032	0.032	0.034
F-test	67.52	67.30	67.65	67.26	67.36	60.49
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000	0.000

NOTES: Period 1998-2016. Additional firm-level controls: current and lagged total assets (in log), annual variation of value added. Standard errors in parentheses. *** p0.01, ** p0.05, * p0.10

Table 10: Panel regression results. Dependent variable: Intangible investments

$FDI_{after} = 1$ (all other variables are at their respective mean). The foreign acquisition has a positive impact at the margin for total and intangible investments. In Figure (8) we reported the adjusted marginal predictions on investments as a function of non bank financing conditional on the interaction between FDI_{after} and $Recap$. All types of investment respond positively to an increase of non bank financing. The occurrence of a foreign acquisition increases the responsiveness of investments to an increase in non-bank financing. The coincidence of a foreign acquisition with a recapitalization magnifies this responsiveness.

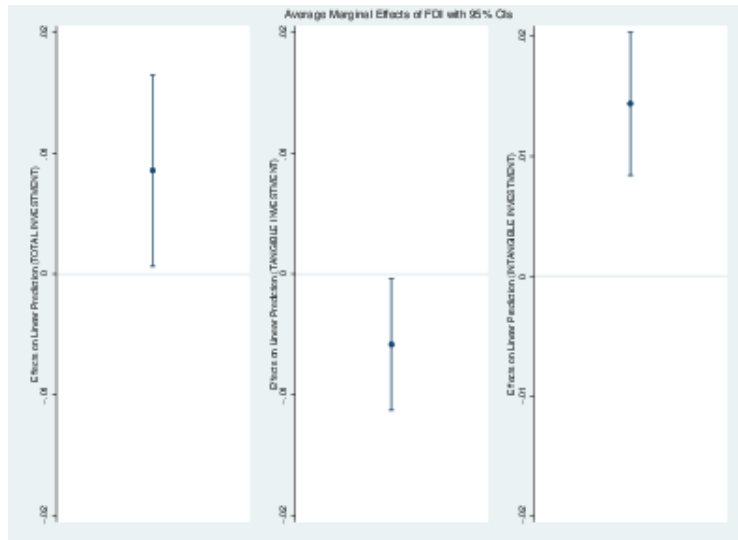


Figure 7: Marginal effects of FDI on total (left panel), tangible (middle panel) and intangible investments (right panel).

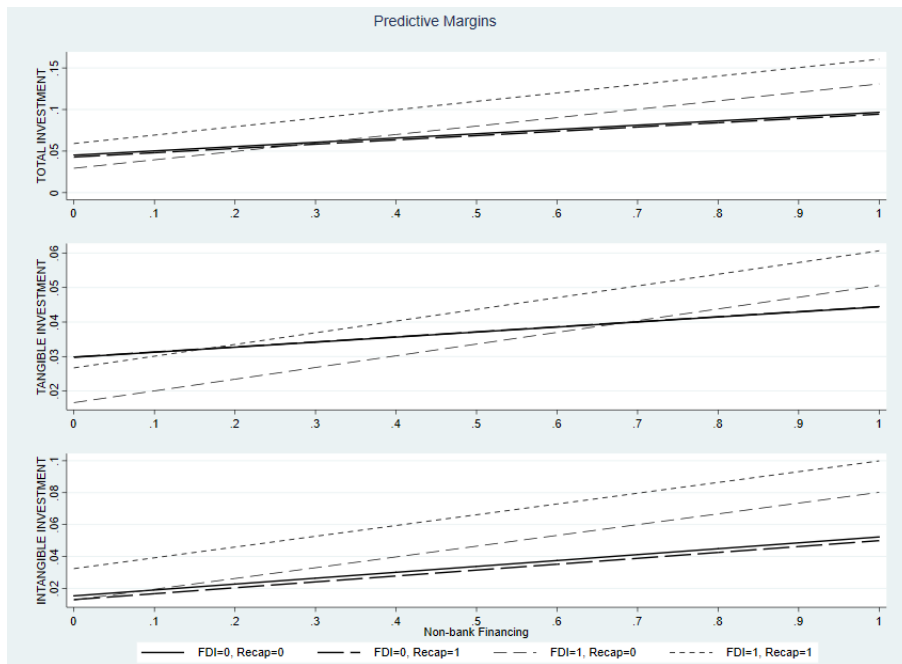


Figure 8: Adjusted predictions. Effect of non-bank financing interacted with FDI and Recap on total (top panel), tangible (middle panel) and intangible investments (bottom panel).

6 Some considerations on the transmission channels

The literature provides a number of reasons why firms shift their preferences progressively away from bank financing. First, foreign investors may be willing to diversify their financing sources drawing on their own experience, either as a multinational firm or as a firm coming from a more sophisticated country in terms of financial development. We refer to such hypothesis as to a *sophistication* hypothesis. Another possibility is that the arrival of a foreign entity increases the physical and the functional distance between the firm and its reference bank. In the context characterized by relationship lending (Bolton et al., 2016) where firm-bank distance matters (Hauswald and Marquez, 2006, Alessandrini et al., 2009, Agarwal and Hauswald 2010), the arrival of the foreign investor loosens the ties between the two entities and this requires to increase the funding from other sources. We call this the *distance* hypothesis.²⁴

To explore these hypotheses, we take a closer look to FDI recipient firms in our panel regressions. To test the *sophistication* hypothesis we regress non-bank financing on a set of variables including: (i) a dummy taking value 1 if the acquirer's country of origin is a developed one,²⁵ (ii) the value of stocks traded in the capital market of the acquirer country as share of GDP.²⁶ Here we assume that investors coming from high income economies are more familiar with a diversified set of financial instruments. In the same vein, stock market depth serves as a proxy for market-oriented economies, opposed to bank-based ones. To the purpose of our analysis, we expect both variables to be positively related to the *NBF_VS_BANK* showed by the target firm after the investment, i.e. the more financially sophisticated the country of origin of the acquirer, the greater the reliance on non-bank financing of the target firm.

As for the second hypothesis, we interpret distance in three ways: (i) functional (operational), (ii) cultural, and (iii) physical distance. The first has to do with the amount of capital the investor acquires and how this reflects in the governance power, making the target firm more or less distant from the bank of reference. To this purposes, we will use the size of the share bought by the acquiring firm, call it (*Stake*). To capture cultural distance, that regards the differences in habits, values and the legal system between the Italian context and foreign ones, we will use the binary variable *Common Law* from La Porta et al. (1999). It takes value 1 if the country of origin of the investment adopts a common law legal system, as opposed to the civil law system set up

²⁴Other hypotheses draw on the firms improved capacity to tap capital markets. Fatemi (1988) suggests that FDI recipient firms are able to diversify their financial structure because of the increased access to global financial markets. Moreover, the foreign investor might increase target firms' reputation, hence gaining a greater access to direct borrowing in the form of public bonds or commercial papers (Diamond, 1991; Hale and Santos, 2008).

²⁵We employ the list of high-income economies based on 2019 data as defined in the frame of the World Bank Country and Lending Groups. Data retrieved from <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>

²⁶Data come from the World Bank World Development Indicators. The variable is an average in the period 1998-2016.

in Italy. Finally, we use a number of variables from Mayer and Zignano (2011) to measure physical distance between the country of origin of the investor and Italy. In particular, we retrieve information on the distance between capital cities, main cities, and two indexes of distance between the biggest Italian and foreign city, differently weighted by the share of the city in the overall country's population (see Mayer and Zignano (2011) for further details). We also build a dummy (*ExtraEU*) that takes value 1 if the investor comes from an extra European Union country, 0 otherwise. This variable in a sense rests in the middle between physical and cultural distance (since European Union countries share to a certain degree values and legal frameworks). Even if the three concepts of distance we employ might be imperfect and prone to interrelations, in general we expect them to be positively related to the usage of non-bank sources. This might relate to the effect that a greater distance between the investor and the banking sector produces on the informational profile of the target firm. With the increased distance, the bank's capacity to collect soft information from the firm deteriorates and hence they become more reluctant to accommodate the firm's financing needs. This might produce the shift of FDI firms towards non-bank financial debt.

Table 11 reports the coefficient estimates of the projection of the non-bank financing (as ratio of total financial debt) on functional and physical proxies of distance, and financial sophistication variables of the country of origin of the investor. We limit our attention to observations related to the year in which the investment takes place. Results are positive and strongly significant for *Stake*. The greater the acquired stake, the more the target relies on non-bank financing, in line with our *distance* hypothesis. The impact of *ExtraEU* is statistically non-significant, indicating that the cultural distance may be less relevant than the functional distance. Both *Developed* and the orientation towards capital markets of the country of origin of the investor show a positive and stable coefficient, suggesting that the *sophistication* may have some ground in explaining the predominance of alternatives to bank credit as funding source.²⁷

In Table 12 we extend the analysis to our core cultural and physical distance measures. *Stake* and *Developed* present again robust positive coefficients. The *Common Law* dummy has a positive though not statistically significant effect on the non-bank financing. This might be possibly due to interrelations with the developed dummy. Moreover, results seem to suggest that the greater the physical distance between the investing firm and Italy, the more the target firms recurs to non-bank financing, as expected.

Finally, in Table 13 we consider not only observations referred to the year of the investment, but also the following history of the target firm. The effect of *Stake* is always positive and strongly significant, in line with the *distance* hypothesis in the functional sense. However, cultural variables provide a fuzzy picture while the impact of physical distance proxies vanishes, also when we limit observations from the year of the acquisition to five years after. Hence,

²⁷Results are similar when we impose a different lag structure of *NBF_VS_BANK* and we define different time windows, e.g. one year after the FDI for the dependent variable and *NBF_VS_BANK* in the year before the FDI as regressor.

Stake	0.007***	0.006***	0.006***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)
Developed		0.620***		0.771***
		(0.223)		(0.246)
ExtraEU			-0.100	0.226
			(0.135)	(0.147)
NBF_VS_BANK (lag)	2.675***	2.669***	2.650***	2.520***
	(0.169)	(0.183)	(0.183)	(0.207)
Mark.Cap./(%GDP)	0.002**	0.002**	0.002	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Observations	1,010	894	894	718
Constant	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Pseudo R2	0.162	0.166	0.169	0.167
F-test	5.886	20.23	26.90	20.41
Prob(F-test)>F	0.005	0.000	0.000	0.000

NOTES: Dependent variable: NBF_VS_BANK. The sample consists of the FDI recipient firms used in the panel regressions. Mark.Cap. stands for the average between 1998 and 2016 of the value of stocks traded in capital markets over GDP in the country of origin of the investor. Standard errors in parantheses.

*** p<0.01, ** p<0.05, * p<0.10

Table 11: The impact of distance and financial sophistication on non-bank indebtedness. Fractional regressions. Dependent variable: *NBF_VS_BANK*

only functional distance seems to matter in the longer term. A possible explanation of this result is that when the foreign investor has the time to settle in the new Italian environment, its cultural and physical distance with the latter decreases, so that such considerations do not matter anymore for the ability to build relationships with the banking sector.²⁸ Our findings suggest that also the financial sophistication of the country of origin matters. If the investor comes from a country in which firms do not excessively rely on bank lending, as denoted by a higher trading activity of stocks, the orientation to non-bank financing of the target firm is more marked. At the same time, this is valid also for the *Developed* dummy. Both variables are positive and strongly significant, corroborating our *sophistication* hypothesis.

To sum up, our econometric exercises point to the potential validity of both the *sophistication* and *distance* hypotheses. As for the latter, it seems that it is distance in functional terms that matters the most, while cultural and physical distance play a minor role in determining the target firm's financial structure over time. Reputational effects might be at work too. However, our data do not enable us to investigate such issue, so that we delegate this to future extensions.

²⁸The exercises on distance rest on two assumptions. Since we are interested on the distance between the *firm* and the Italian banking sector, we need *effective* measures of distance between the firm and Italy. While the acquired stake can be easily interpreted as an effective measure of distance of the firm, we need to assume that measures of distance between the *investor* and Italy will reflect the distance between the *firm* and Italy. This can be assumed to be true in the year of the investment. However, it is not clear whether this holds completely also in the years after the acquisition. The second assumption is that the majority of bank debt reported by the firm comes from Italian institutions. While this might not be the case, with our data we are not able to distinguish between Italian and foreign sources of debt.

NBF_VS_BANK (lag)	2.649*** (0.184)	2.657*** (0.183)	2.657*** (0.183)	2.658*** (0.184)	2.658*** (0.184)
Stake	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)
Developed	0.683*** (0.217)	0.765*** (0.221)	0.769*** (0.222)	0.765*** (0.221)	0.766*** (0.221)
Common Law	0.145 (0.119)				
Distance (capital)		3.19e-05* (1.84e-05)			
Distance (main city)			3.25e-05* (1.88e-05)		
Distance (weighted)				2.98e-05* (1.67e-05)	
Distance (weighted, Ces)					2.98e-05* (1.68e-05)
Observations	895	895	895	895	895
Constant	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes
Pseudo R2	0.169	0.170	0.170	0.170	0.170
F-test	27.16	29.01	28.98	29.14	29.13
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000

NOTES: Dependent variable: NBF_VS_BANK. The sample consists of the FDI recipient firms used in the panel regressions. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.10

Table 12: The impact of distance and financial sophistication on non-bank indebtedness. Fractional regressions. Dependent variable: *NBF_VS_BANK*

	Full panel	Max 5 years after FDI	Full panel	Max 5 years after FDI	Full panel	Max 5 years after FDI	Full panel	Max 5 years after FDI
<i>NBF_VS_BANK</i> (lag)	3.779*** (0.0853)	3.441*** (0.1102)	3.808*** (0.0852)	3.472*** (0.102)	3.776*** (0.0854)	3.440*** (0.102)	3.779*** (0.0853)	3.440*** (0.102)
Stake	0.00449*** (0.000782)	0.00567*** (0.00102)	0.00463*** (0.000788)	0.00590*** (0.00103)	0.00454*** (0.000781)	0.00574*** (0.00102)	0.00454*** (0.000784)	0.00574*** (0.00102)
Developed	0.536*** (0.107)	0.560*** (0.129)			0.505*** (0.0983)	0.505*** (0.120)	0.496*** (0.0981)	0.500*** (0.120)
ExtraEU	0.0398 (0.0628)	0.0669 (0.0742)	-0.147** (0.0647)	-0.144* (0.0771)				
Mark.Cap./(%GDP)			0.00119** (0.000479)	0.00135** (0.000572)				
Common Law					-0.0963* (0.0582)	-0.0508 (0.0693)		
Distance (capital)							-6.12e-06 (8.98e-06)	-3.32e-06 (1.04e-05)
Observations	4,300	2,880	4,275	2,868	4,294	2,874	4,294	2,874
Constant	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Pseudo R2	0.320	0.276	0.319	0.275	0.320	0.276	0.320	0.276
F-test	59.92	52.77	41.34	40.10	59.66	50.70	58.22	50.44
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NOTES: Dependent variable: *NBF_VS_BANK*. The sample consists of the FDI recipient firms used in the panel regressions. Mark.Cap. stands for the average between 1998 and 2016 of the value of stocks traded in capital markets over GDP in the country of origin of the investor. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Table 13: The impact of distance and financial sophistication on non-bank indebtedness. Extended panel. Fractional regressions. Dependent variable: *NBF_VS_BANK*

7 Additional results and robustness analysis

In this section we provide further evidence on the effects of the foreign investment on the financial profile of target firms. Moreover, to check the robustness of our results, we focus on two aspects of our analysis, namely the extent to which the entry of a foreign investor relaxes the target firm’s financing constraint, and whether the effects on the investment process differ in the case of a domestic acquisition as opposed to a foreign one.

7.1 FDIs, financial structure and borrowing costs

In the previous sections we have shown that FDI recipient firms rotate their financial structure, favoring non-bank financial sources. This is reflected by a significant increase in the non-bank financing over total financing ratio that consolidates over time. Thanks to the increased orientation towards such alternative sources, among the other reasons, FDI targets show an extended investment capacity also with regards to intangible assets.

In this section we investigate whether, apart from the increased investment effect, the greater orientation towards non-bank financing entails also a reduction of borrowing costs for FDI target firms. In Table (14) we present results coming from fixed effects specifications that include time dummies. The dependent variable is the natural logarithm of financial expenditures, as reported in firms’ income statements. Studies on borrowing costs usually employ loan spreads as a dependent variable (Lin et al., 2011; Ertugrul et al., 2017). However, since we have detailed information on balance sheet data, we recur to financial expenditures as defined by the IAS-23 item “Borrowing costs”. Using such variable in an analysis on borrowing costs is not novel (see Zou and Adams, 2008; Luo et al., 2019). Moreover, it has the advantage to consider not only interest expenses, but also all different fees that financial intermediaries charge on borrowers, a relevant component of borrowing costs (Berg et al., 2016).

Results from Table (14) point to the positive role of foreign investors in reducing target firms’ financial expenditures. In the first column we only include the *FDI_after* dummy and control variables as regressors. The arrival of the foreign investor is associated to a drop in financial expenditures of about 19 % on impact. We then include the ratio of non-bank financial debt over total financial debt (*NBF_VS_BANK*) as an additional covariate. Both the regressors of interest show a negative and significant coefficient, indicating that ceteris paribus foreign investors are able to reduce target firm’s financial expenditures of 10 %, and that an increase of *NBF_VS_BANK*, for instance, from 30 to 31 per cent is associated to a reduction of financial expenditures of 0.4%.²⁹ Results

²⁹According to our estimates, hence, a unit increase in non-bank financing over total financial debt would be associated to a decrease of financial expenditures of 40%. This comes from the usual interpretation of log-linear models, where a unit increase of the independent variable is associated to an increase/reduction of the dependent of $100 \cdot \beta\%$. Since *NBF_VS_BANK* is a ratio that varies between 0 and 1 we prefer to interpret the result in terms of an increase of one percent, so that the coefficient associated to the variable must not be multiplied by 100 to interpret its impact on the dependent variable, i.e. a one percent increase of *NBF_VS_BANK*

Table 14: Panel regression results. Dependent variable: Borrowing costs (log)

	k=0	k=0	k=1	k=2	k=3
FDI_{t-k}	-0.189*** (0.022)	-0.100*** (0.021)	-0.160*** (0.022)	-0.151*** (0.024)	-0.133*** (0.026)
$NBF_VS_BANK_{t-k}$		-0.389*** (0.020)	-0.394*** (0.021)	-0.323*** (0.022)	-0.327*** (0.023)
$Cashflow_t$	-0.016*** (0.001)	-0.015*** (0.001)	-0.014*** (0.001)	-0.015*** (0.001)	-0.015*** (0.001)
$Totalasset(log)_t$	0.806*** (0.019)	0.802*** (0.019)	0.765*** (0.021)	0.749*** (0.023)	0.732*** (0.027)
$Totalasset(log)_{t-1}$	0.378*** (0.016)	0.363*** (0.016)	0.394*** (0.019)	0.440*** (0.021)	0.485*** (0.025)
$Valueadded(growth)_t$	5.0e-04** (2.0e-05)	5.0e-04** (2.0e-05)	9.0e-04*** (2.0e-05)	-7.0e-04*** (1.0e-04)	3.0e-04*** (2.0e-04)
Observations	25,984	23,457	23,260	21,502	20,033
Number of firms	1,832	1,826	1,821	1,802	1,787
Constant	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes
R^2 within	0.338	0.340	0.337	0.327	0.321
R^2 overall	0.673	0.710	0.704	0.690	0.677
F-test	329.7	285.7	278.6	251.9	232.4
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000

NOTES: Period 1998-2016. Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.10

are stable when we impose different lag structures to the main regressors in order to capture the dynamics of such finding (column 3 to 5).

In Table (15) we dig deeper and estimate fixed effects specifications similar to equation (3). The dependent variable is again the natural log of financial expenditures, while the main regressors are the amount of non-bank financing and the amount of bank debt, both divided by the average total assets at firm-level, and the FDI_after dummy. The aim of the models is to better understand the previous finding, i.e. the reduction of financial expenditures deriving from an increase of NBF_VS_BANK . Column 1 shows that FDI target firms witness a reduction of financial expenditures of about 13% with respect to control firms. Moreover, while an increase of one percent in the amount non-bank financing over the average total assets of the firm is associated to an increase of about 0.95% of financial expenses, bank debt is more expensive, producing an increase of financial expenses of about 1.46%. Results are even sharper when we include interactive terms (column 2 to 4). In this case, the FDI_after dummy is still associated to a negative and significant coefficient. In addition, the effect of non-bank financing is still positive and lower than that of bank debt, but it is attenuated further by the presence of the foreign investor. Conversely, it appears that when recurring to bank debt, that is already more expensive, FDI investors incur in additional costs. Again, such results point to a positive role played by foreign investors in reducing the cost of borrowing of target firms, in

produces an increase/reduction of borrowing costs of $\beta\%$

Table 15: Panel regression results. Dependent variable: Borrowing costs (log)

FDI	-0.133*** (0.0189)	-0.116*** (0.0205)	-0.173*** (0.0241)	-0.155*** (0.0258)
Non-bank financing	0.954*** (0.0356)	1.025*** (0.0489)	0.954*** (0.0356)	1.019*** (0.0489)
Bank debt (on asset)	1.462*** (0.0296)	1.462*** (0.0296)	1.419*** (0.0338)	1.421*** (0.0338)
Bank debt (growth)	-3.58e-06 (1.22e-05)	-3.11e-06 (1.22e-05)	-3.48e-06 (1.22e-05)	-3.06e-06 (1.22e-05)
Cash flow	-0.00827*** (0.000664)	-0.00829*** (0.000664)	-0.00824*** (0.000664)	-0.00826*** (0.000664)
Total asset (log)	0.224*** (0.0224)	0.222*** (0.0224)	0.226*** (0.0224)	0.225*** (0.0225)
Total asset (log, lag)	0.520*** (0.0198)	0.520*** (0.0198)	0.520*** (0.0198)	0.520*** (0.0198)
Value added (growth)	1.80e-08 (1.32e-07)	2.10e-08 (1.32e-07)	1.88e-08 (1.32e-07)	2.14e-08 (1.32e-07)
FDI#Non-bank financing		-0.167** (0.0647)		-0.154** (0.0649)
FDI#Bank debt (on asset)			0.139*** (0.0523)	0.131** (0.0525)
Observations	20,850	20,850	20,850	20,850
Number of firms	1,775	1,775	1,775	1,775
Constant	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
R^2 within	0.436	0.436	0.436	0.436
R^2 overall	0.782	0.782	0.782	0.782
F-test	170.2	158.2	157.7	157.7
Prob(F-test)>F	0.000	0.000	0.000	0.000

NOTES: Period 1998-2016. Standard errors in parentheses. *** p0.01, ** p0.05, * p0.10

line with Wu et al. (2019), and the relevance of non-bank instruments in such context.

7.2 More on the target firm's financial constraint

In section 5 we have shown that target firms seem to be less financially constrained in the aftermath of a foreign acquisition by looking at how they finance their investments, with a particular attention to those that are easier to finance through bank borrowing, namely those in tangible assets. In that context, investment shows little sensitivity to cash flow when the firm is invested in from abroad. To gauge the extent of the firms' financing constraint unrelated to their investment decision, we follow Almeida et al. (2004) and Erel et al. (2015) and estimate the cash flow sensitivity of cash for FDI targets and control firms. The authors argue that it is possible to infer whether firms are financially constrained by analyzing their response to an incremental cash flow in terms of cash holding. In detail, while constrained firms react to supplementary cash flow by saving

more cash to weather potential future storms, this pattern is not observed for unconstrained firms. The latter can indeed finance investment by accessing financial markets, so that they do not need to modify their saving schemes as a result of an increase in cash flow. What is relevant for the purpose of our study is “the change in the cash flow sensitivity of cash around the time of the acquisition” (Erel et al. (2015), p. 305), as this would reflect any effect of the foreign operation on the financial constraint faced by target firm. Conversely, we estimate different specifications based on the following equation:

$$\begin{aligned} \Delta CashHolding_{i,t} = & \alpha + \beta_1 FDI_after_{i,t} + \beta_2 CashFlow_{i,t} + \\ & \beta_3 (FDI_after_{i,t} \times CashFlow_{i,t}) + \Gamma X_{i,t} + c_i + \epsilon_{i,t} \end{aligned} \quad (5)$$

where $\Delta CashHolding_{i,t}$ is the annual change in (log) cash (and related assets) over average total assets. The equation includes firm-specific controls, year dummies, and firm-fixed effects. All the covariates entering the equation are scaled by average total assets to avoid feedback effects. Our parameters of interest here are β_2 and β_3 , representing the cash flow sensitivity of cash before the acquisition and the effect of the foreign investor on the latter, respectively. We expect a positive β_2 and a negative β_3 , implying that target firms are financially constrained before the acquisitions and that the foreign investor relaxes (and possibly offsets) the constraint. Results are presented in Table (16).

In column 1 we report our benchmark specification, including the FDI dummy, cash flow and the interaction between the two. Current and lagged total assets (in log), annual variation in value added, time dummies, and firm fixed effects complete the specification. We then progressively add from column 2 to column 4 non-bank financing, the annual percentage variation of bank debt, the lagged stock of bank debt, the dummy Recap and their interactions with FDI, all sources of funding directly linked to possible financing constraint. In column 5 we follow Almeida et al. (2004) and estimate a specification that considers the change of the firm’s cash holding as a function of a number of sources and (competing) uses of liquid funds. The latter comprises the annual variation in working capital, the annual variation in short term financial debt (bank and non-bank debt) and current expenditures that in our case include both capital expenditures and acquisitions. Almeida et al. (2004) recognize that endogeneity may affect the last specification, hence they adopt an instrumental variable (IV) approach and instrument the variation of working capital and of short term debt, and the variables reflecting investment decisions. Similarly, in the last column we employ such a technique and instrument the additional variables with lagged fixed assets, lagged expenditures, lagged investment, lagged short term debt and lagged net income.

Results are not particularly sensitive to different specifications, suggesting that before the foreign acquisition target firms used to hold as cash a positive fraction of the incremental cash flow. This is captured by the positive and significant coefficient associated to cash flow. On the other hand, the arrival of the FDI provides fresh capital, a greater financial diversification and improved

Table 16: Panel regression results. Dependent variable: Δ CASH_HOLDING

	OLS	OLS	OLS	OLS	OLS	IV
FDI	0.0423*** (0.0119)	0.0570*** (0.0129)	0.0492*** (0.0162)	0.0350 (0.0224)	0.0394*** (0.0115)	0.122 (0.136)
Cash flow	0.00520*** (0.000444)	0.00514*** (0.000447)	0.00568*** (0.000465)	0.00570*** (0.000465)	0.00423*** (0.000425)	0.0120* (0.00647)
FDI#Cash flow	-0.00270*** (0.000658)	-0.00278*** (0.000659)	-0.00321*** (0.000674)	-0.00312*** (0.000675)	-0.00264*** (0.000610)	-0.00302* (0.00161)
Non-bank financing		0.00378 (0.0244)	-0.0182 (0.0277)	-0.0170 (0.0277)		
FDI#Non-bank financing		-0.0889*** (0.0339)	-0.0442 (0.0373)	-0.0442 (0.0373)		
Bank debt (growth)			-4.18e-06 (1.38e-05)	-4.37e-06 (1.38e-05)		
FDI#Bank debt (growth)			7.20e-06 (1.60e-05)	7.29e-06 (1.60e-05)		
Bank debt (on asset,lag)			0.0626*** (0.0200)	0.0643*** (0.0201)		
FDI#Bank debt (on asset,lag)			0.00515 (0.0317)	0.00388 (0.0318)		
Recap				0.0300*** (0.0112)		
FDI#Recap				0.0155 (0.0214)		
Working capital (growth)					0.415*** (0.0152)	-2.437 (2.141)
Short term debt (growth)					-0.801*** (0.0133)	0.501 (1.123)
Expenditures					-0.00633 (0.00848)	-0.506 (0.947)
Observations	26,938	26,938	21,130	21,130	23,042	19,276
Number of firms	1,839	1,839	1,781	1,781	1,836	1,803
Constant	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Additional firm-level controls	yes	yes	yes	yes	yes	yes
R^2 within	0.018	0.019	0.016	0.017	0.182	na-
R^2 overall	0.002	0.002	0.002	0.002	0.079	0.022
F-test	12.10	11.80	7.089	6.985	120.4	142.72
Prob(F-test)>F	0.000	0.000	0.000	0.000	0.000	0.000

NOTES: Period 1998-2016. Additional firm-level controls: current and lagged total assets (in log), annual variation of value added. Standard errors in parentheses. *** p0.01, ** p0.05, * p0.10

access to financial markets, as we have documented in the previous sections. This, in turn, results in a negative and significant coefficient for the interaction term β_3 in Table (16), i.e. the cash flow sensitivity of cash for target firms is reduced after the acquisition. All in all, the above findings corroborate the hypothesis that foreign investors relax the target firm's financial constraint after the operation.

7.3 What if the investor is domestic?

We have seen in the previous sections that domestic M&A operations do not show a relevant rotation in the firm's financial structure, in this part of the paper we will see what happens to investment. Regression results are reported in Table (17). Unlike in the context of the foreign acquisition, the increase in shareholders' capital is positively linked to total and intangible investments, but

its effect is magnified if this happens in connection with a domestic acquisition. Apparently, a firm's recapitalization and cash flow are important sources used to finance investment prior to the arrival of a new investor in the ownership structure. As for the relevance of bank debt, results are ambiguous. However, in any case the occurrence of a domestic acquisition does not mitigate the role of such source. On the contrary, non-bank channels appear to be the main tool to finance investments; the arrival of the new investors partially offsets such reliance, in particular for financing of tangibles. This marks the main difference with the foreign acquisition, where regression results suggested that the new ownership may have brought new resources, new key people in the firm's management or both and this may have been reflected also in a shift in the financing of the firm and its investments in favor of alternative financing sources. In the case of domestic acquisition, however, this effect does not materialize extensively.

Table 17: Panel regression results. Domestic acquisitions

	Total	Tangible	Intangible
DOMESTIC	0.0152** (0.00592)	0.00546 (0.00451)	0.00969** (0.00409)
Recap	0.00778** (0.00321)	0.00269 (0.00244)	0.00508** (0.00222)
Cash flow	0.000257** (0.000130)	-0.000207** (9.91e-05)	0.000464*** (9.01e-05)
Non-bank financing	0.0166** (0.00786)	0.00997* (0.00598)	0.00667 (0.00543)
Bank debt (growth)	2.58e-06* (1.33e-06)	2.06e-06** (1.02e-06)	5.19e-07 (9.22e-07)
Bank debt (on asset, lag)	-0.0336*** (0.00567)	-0.0351*** (0.00432)	0.00158 (0.00392)
DOMESTIC#Recap	0.0142** (0.00579)	0.00381 (0.00440)	0.0104*** (0.00400)
DOMESTIC#Cash flow	0.00107*** (0.000190)	-0.000317** (0.000144)	0.00139*** (0.000131)
DOMESTIC#Non-bank fin.	0.00537 (0.0108)	-0.0207** (0.00823)	0.0261*** (0.00748)
DOMESTIC#Bank debt growth	0.000199*** (9.22e-06)	-1.38e-05** (7.01e-06)	0.000213*** (6.37e-06)
DOMESTIC#Bank debt (on asset,lag)	-0.0474*** (0.00828)	-0.0176*** (0.00629)	-0.0298*** (0.00572)
Observations	30,543	30,543	30,543
Number of firms	2,661	2,661	2,661
Constant	yes	yes	yes
Year dummies	yes	yes	yes
Additional firm-level controls	yes	yes	yes
R 2 within	0.190	0.109	0.133
R 2 overall	0.0480	0.0250	0.0440
F-test	135.7	70.65	89.11
Prob(F-test)>F	0.000	0.000	0.000

NOTES: Period 1998-2016. Additional firm-level controls: current and lagged total assets (in log), annual variation of value added. Standard errors in parentheses. *** p0.01, ** p0.05, * p0.10

8 Concluding remarks

In this paper, we have investigated the impact of foreign acquisition from a corporate finance point of view on a large sample of Italian firms. As foreign investors arrive, the firms' financial structure rotates in favor of non-bank financing even in a context, like the Italian one, of not fully developed capital markets. This result suggests that after a takeover from abroad, the target company shows a greater willingness to use non-traditional funding means. In our opinion, this fact may reflect a higher level of managerial sophistication stemming from being part of a larger, more internationalized group. This hypothesis gains traction from two facts. First, the time profile of the rotation effect, that is amplified over time, suggesting that a gradual process of managerial overhaul is at play after the foreign acquisition. Second, the same process occurs to a lower extent if the acquirer company is a domestic one, which probably shares with the target many features in the corporate culture, including a lower willingness to diversify the financing structure.

Is this relevant for investment? In our paper, we answer positively to this question, although our findings also point to a more nuanced figure. Indeed, the amount of non-bank financing relates positively to total investment and, to a lesser extent, to its "tangible" component. Furthermore, the investment process appears to benefit from a foreign acquisition due to the availability of new resources. This, in turn, reduces the sensitivity of total investment to bank debt and of tangible investment to cash flow (and to bank debt). Finally, we detect that also the accumulation of intangible asset may benefit from the arrival of the cavalry. The latter greatly benefits from the increased propensity to tap non-bank financing that comes with the presence of a foreign investor.

The impact of foreign direct investment is a widely debated issue. In this paper, we contribute to the comprehension of this process. Possible follow up may touch upon the managerial structure of the firms, to see if the results we found in our paper relate more to a greater availability of resources or are underpinned by a deeper restructuring of the acquired firm's managerial practices and culture. While in both cases foreign investors would be "good" for the economy on this specific ground, for a policy maker depending on which of the two channels is dominant a different policy answer may be preferable. While in the first case, the optimal response goes in the direction of encouraging firms to access capital markets, in the second the policymaker should push firms to go through a much deeper restructuring by adopting different and more sophisticated managerial standards.

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