

The flight home effect in multinational internal capital markets during the Great Recession

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Abstract

We investigate whether the Great Recession induced a “flight home” effect in internal capital markets of European multinational firms. Using a difference-in-difference approach, we find a significant reduction in group borrowings by subsidiaries of European multinationals in Italy since 2008, compared to a propensity score matched sample of subsidiaries of local business groups. While the reduction in group borrowings by multinational subsidiaries is partially counterbalanced by an increase in bank borrowings, multinational subsidiaries reduced their investments more than local group subsidiaries. These effects are significantly stronger for subsidiaries of multinationals headquartered in a European country that has been hit harder by the Great Recession. The reduction in group borrowings is larger when the foreign parent is located at a greater distance from subsidiary.

Key words: Internal capital markets; flight home effect; multinational firms; Great Recession; Italy.

JEL-classification code: F23; G01; G31; G32

1. Introduction

Studies have found evidence of a “flight home” effect in global banking: banks respond to a funding shock or to deteriorating funding conditions by reducing their lending to foreign borrowers, in favor of domestic borrowers (De Haas and Van Horen, 2013; Giannetti and Laeven, 2012a, 2012b; Peek and Rosengren, 2000). Internal capital markets facilitate this flight home: US global banks use their internal capital market to reallocate funds after funding shocks (Cetorelli and Goldberg, 2012a; 2012b). In this way, internal capital markets can reinforce the international propagation of a financial shock such as the financial crisis of 2008-2009.¹ In this paper, we investigate capital reallocation via internal capital markets in *non-financial* multinational firms. Foreign subsidiaries of multinationals often obtain a significant part of their funding via an internal capital market (Desai et al. 2004). This internal funding allows them to avoid financing constraints on local capital markets, but reliance on internal capital markets makes them dependent on the capital allocation decisions of headquarters.

We examine how the Great Recession affected financing and investments of subsidiaries located in Italy, using the AIDA database of Bureau Van Dijk. The information in this database allows us to investigate the effect of the crisis on bank borrowings, group borrowings and investments of subsidiaries, taking into account the location of headquarters. We consider the period 2004-2013, which includes a substantial number of years both before and after the 2008-2009 crisis. In this way, we can use a difference-in-difference approach to identify any flight home effect on internal capital markets after the crisis.

¹ Cetorelli and Goldberg (2012a) find that the 2008-2009 crisis led to substantial financial flows from the foreign offices to the headquarters of US global banks, in order to support the balance sheet of headquarters. Furthermore, these flows induced a significant contraction in external lending by the foreign offices that provided funds.

If there is a general flight home in multinational internal capital markets, we expect subsidiaries of non-Italian multinationals in Italy to receive less group loans after the crisis, compared to a propensity score matched sample of subsidiaries of Italian groups. We indeed find that subsidiaries of multinationals headquartered in another European country received significantly less group loans since 2008 than local group subsidiaries. We also find that the lower group borrowings by multinational subsidiaries are partially counterbalanced by a relative increase in bank borrowings. However, multinational subsidiaries reduce their investments significantly more after the crisis than local group subsidiaries. These findings suggest that the reduction in lending to foreign subsidiaries in Italy after the crisis does not simply reflect an organizational pecking order in which finance priority is given to the parent company, irrespective of geography (Cetorelli and Goldberg, 2012b). If this would be the case, there should be no differences between multinational subsidiaries and local group subsidiaries. Our findings suggest that location matters in the allocation of internal funds: multinational firms follow a *locational pecking order* in allocating funds on their internal capital market.

In a next step, we focus on the subsample of subsidiaries of European multinationals with headquarters outside Italy, and take into account the extent to which the parent's country of the multinational was affected by the Great Recession. Some countries within the European Union have been more affected by the crisis than others (Aizenman et al. 2013, Rose and Spiegel 2011). This could lead to different financing and investment policies of multinationals, depending on the country in which headquarters is located. We identify European countries which were hit hard by the crisis in three different ways: (1) countries that experienced an average decrease in GDP since 2008; (2) countries that were subject to at least two negative credit adjustments; and (3) four so-called PIGS countries, i.e., Portugal, Ireland,

Greece and Spain.² All subsidiaries with headquarters in these countries are matched with a subsidiary headquartered in another European country included in the sample (except Italy). We find that the subsidiaries of multinationals headquartered in a country hit hard by the crisis received significantly less group loans since 2008, compared to subsidiaries of multinationals from other European countries. Again, we find that the reduction in group borrowing is only partially compensated by an increase in bank borrowing, and is associated with significantly lower investments. These results hold for each of our three crisis measures. This suggests that the reallocation of funding on internal capital markets during the Great Recession does not simply reflect a “flight to quality”, i.e. multinationals investing more at home where there would be better investment opportunities. It is very unlikely that multinationals from countries that were strongly affected by the crisis would have better investment opportunities at home. Rather, our findings are consistent with the argument that multinationals reallocated funding from foreign subsidiaries to their home country because of financing problems at home. We also find that the reduction in group borrowings by multinational subsidiaries is larger when the geographical distance between parent and subsidiary is greater, which confirms that geography matters for financing decisions within multinational firms.

Our study contributes to several strands of the finance literature. First, to the best of our knowledge, we are the first to show that the flight home effect – which has been observed in banking markets – also exists in internal capital markets of non-financial multinational firms. This finding suggests that not only global banks, but also non-financial multinationals contribute to the international propagation of financial shocks. Second, our research contributes to a better understanding of the workings of internal capital markets. The internal capital markets literature focuses mostly on conglomerates in the United States (e.g., Rajan et

² Obviously, we do not include Italy since this our benchmark country.

al. 2000; Scharfstein and Stein 2000; Shin and Stulz 1998). Few studies investigate capital reallocation on internal capital markets of business groups, i.e. groups of legally independent firms under common ownership (Buchuk et al. 2014). In a recent study, Almeida et al. (2015) find that Korean *chaebol* groups reallocated funds across group members in response to the Asian crisis of 1997. The chaebol transferred cash from low-growth to high-growth group members, which allowed the high-growth group members to invest more than control firms after the crisis. In our study, we also find evidence of capital reallocation after a negative shock, but our results indicate that this reallocation is driven by a flight home effect, not by investment opportunities. Group members located in a foreign country receive less funding after the shock, and as a result invest less. Third, our study provides new insights into the financing of multinational firms. A number of studies have investigated the financing and investment decisions of multinationals (e.g., Desai et al. 2004, 2007; 2008; Fee et al. 2009; Huizinga et al. 2008), but none of these studies has investigated cross-border capital reallocations in response to a negative shock such as the Great Recession. An additional contribution is that most studies on multinational firms tends to focus on multinationals headquartered in the US, while our focus is on multinationals headquartered in Europe. Finally, our study is related to recent works investigating the real effects of financial crisis (e.g., Almeida et al. 2015; Campello et al. 2011; Chodorow-Reich, 2014; Duchin et al. 2010; Ivashina and Scharfstein, 2010; Lins et al. 2013; Puri et al. 2011; Schularick and Taylor, 2012). Like Almeida et al. (2015), our contribution to this literature is highlighting the role of internal capital markets in how firms react to a financial crisis. The paper proceeds as follows. Since our study is based on Italian data, we first describe the Italian context in the next section. In section 3, we describe our research design. The results are discussed in section 4 and section 5 concludes.

2. The Italian context

While the level of foreign direct investments in Italy is below the average for the European Union³ we focus on Italian subsidiaries of European multinational firms, for two reasons. The first is a practical reason. As all Italian companies, including legally independent group subsidiaries, are obliged to annually file their financial statement within the Italian Business Register, the focus on subsidiaries in Italy allows us to investigate the role of internal capital markets in multinational business groups. Importantly, Italian financial statements not only include information on investments and bank loans but also on group loans. This allows us to estimate the extent to which subsidiaries obtain funding on an internal capital market. Studies without access to this detailed information are forced to infer aspects of intrafirm transactions from observed outcomes. Studies investigating internal capital markets of U.S. firms (e.g., Kuppuswamy and Villalonga 2010, Matvos and Seru 2014, Ozbas and Scharfstein 2010, Rajan et al. 2000) have to rely on segment-level data, which are limited or simply not available. The second reason for choosing the Italian setting and focusing on European multinationals is related to the effects of the 2008-2009 crisis and its aftermath in Italy and Europe. This crisis led to banking and debt crises in several European countries, including Portugal, Ireland, Greece and Spain. These countries at some point became unable to bail out over-indebted banks and/or to refinance government debt, while other European countries were much less affected by the crisis. Europe therefore provides an environment in which there is a substantial variation in the extent to which the Great Recession affected the home country of multinationals.

The crisis had a large, significant negative impact on the Italian economy: Italian GDP decreased by 1.2% and 5.1%, in 2008 and 2009, whereas the 27 countries of the European Union had an average GDP increase of 0.5% in 2008 and a decrease of 4.3% in 2009. Italy's

³ See <http://www.oecd.org/corporate/mne/statistics.htm>.

recovery after the crisis was also smaller than that of other European Union countries, with a more negative evolution in industrial output and unemployment in Italy. This divergence has been modestly reversed in recent years, but despite narrowing interest rate differentials and significant reductions in lending rates, credit and investment are still hampered by high non-performing loans and corporate debt (OECD 2016). One cause of this downturn is the weak Italian financing system, which is characterized by the dominant role of a fragmented banking sector. This sector has been substantially weakened by the poor performance of the Italian economy, and the reliance of highly levered Italian firms on weakened banks has exacerbated the refinancing risks for these firms, leading to substantial capital rationings for Italian firms since the crisis (e.g., Albareto and Finaldi Russo, 2012).⁴ The problems in the Italian banking system and the lack of developed external capital markets suggest that internal capital markets provide an important alternative source of funding for Italian subsidiaries in Italy.

3. Research design

3.1. Data and sample

We use firm-specific data from the AIDA database of Bureau van Dijk which is the most complete database of company information in Italy and contains, among others, detailed information from financial statements and information on shareholders and subsidiaries for approximately one million firms in Italy. Additionally, we take information on GDP growth from the World Bank Database and the sovereign rating history from Fitch Ratings. We define a subsidiary as a legally distinct firm which has a controlling corporate ultimate owner, i.e. an independent company which holds directly or indirectly more than 50% of the company's

⁴ The refinancing risks inherent in the financial structure of the companies rapidly arose following the adoption of more selective lending policies by intermediaries.

stock. Following these criteria, we collect data for all Italian non-financial subsidiaries that are controlled by a parent company located in one of 29 European countries. This leads to an initial sample of 256,650 firms-years for the period 2004-2013. In a next step, we delete observations with missing information that is needed in the analysis, ending up with 146,488 firms-years for 23,689 unique subsidiaries, owned by 14,229 unique parent companies.

*** *Table 1 about here* ***

Table 1 reports the absolute and percentage frequency of subsidiary observations by parent country in the sample. Most subsidiaries have a parent which is headquartered in Italy (77.19%), followed by Luxembourg (4.81%) and Germany (4.58%). In line with e.g. Beuselinck et al. (2015), we keep countries with very few parent and/or subsidiary firm-year observations in our sample, in order to avoid a potential “domino effect” in the sample selection procedure, which could be induced by dropping countries with less than a defined threshold in terms of number of observations.

3.2. Empirical models

We investigate the flight home effect by analysing the determinants of group borrowings, bank borrowings and investments of subsidiaries. *Group borrowings* is measured as the ratio of loans obtained from the group to total liabilities.⁵ *Bank borrowings* is the ratio of bank loans to total liabilities. *Investments* is defined as the ratio of capital expenditures to total assets. In a first analysis, we investigate whether the Great Recession has led to a different trend in group borrowings, bank borrowings and investments for subsidiaries of

⁵ The information in the AIDA database does not allow us to distinguish between loans obtained from headquarters and loans obtained from other subsidiaries in the group. However, since *lending* by the subsidiaries in our sample to other group members is generally very limited, their borrowing from other subsidiaries is probably also very limited.

foreign parents, compared to subsidiaries of Italian parents. To do this, we estimate the following model:

$$Y = f(\textit{Foreign parent} \times \textit{crisis period}, \textit{Control variables}, \textit{Subsidiary fixed effects}, \textit{Time fixed effects}) \quad (1)$$

The dependent variable Y in this model is either group borrowings, bank borrowings or investments. *Foreign parent* is a dummy equal to one if the subsidiary has a foreign parent and zero if the subsidiary has a domestic parent. *Crisis period* is a dummy which is one for the after-crisis years (2008-2013) and zero for the pre-crisis years (2004-2007). We date the start of crisis period to 2008 since is a year marked by several major financial institution failures and bailouts, including Lehman Brothers and AIG that triggered a sharp escalation in the global credit crunch. Control variables in the model are *size*, which is equal to the natural logarithm of total assets; *tangibility*, which is the ratio of tangible assets to total assets; *growth opportunities*, which is the percentage change in sales from year $t-1$ to year t ; and *ROA*, which is the EBIT to total asset ratio. All variables are measured at the subsidiary-level. We winsorize the top and bottom percentile for each variable to avoid the impact of influential outliers.

The difference-in-differences approach we use guarantees that the estimates will not be biased by permanent differences between the treatment and the control groups or by common trends. More precisely, using the interaction term, the differences-in-differences technique compares group borrowings, bank borrowings and investments before and after the onset of the crisis. Mimicking a natural experiment (where “treatment” is the financial crisis), we compare subsidiaries with foreign parents (treated firms) to subsidiaries belonging to Italian groups (control firms). The coefficient of the interaction between foreign parent and

crisis period is a simple comparison of the outcome variables between subsidiaries of multinationals and those controlled to Italian parents, with respect to the advent of the crisis.

In a second analysis, we focus on the subsample of subsidiaries with foreign parents. For this subsample we compare group borrowings, bank borrowings and investments of subsidiaries with a parent located in a European country that was hit hard by the crisis (treated firms), to subsidiaries with a parent from a European country that was hit (relatively) weakly by the crisis. We estimate the following model:

$$Y = f(\textit{Strongly affected} \times \textit{Crisis period}, \textit{Control variables}, \textit{Subsidiary fixed effects}, \textit{Time fixed effects}) \quad (2)$$

Strongly affected is a dummy equal to one if the parent company of the corresponding subsidiary is located in a country strongly affected by the crisis, and zero otherwise. The interaction between strongly affected and crisis period estimates the effect of the crisis on financing and investment policies of subsidiaries with a parent located in a country that was strongly affected by the crisis, compared to other subsidiaries with a foreign parent.

Any reasonable methodology should take into account the fact that potentially serious measurement error is inherently present (Rose and Spiegel 2011). Therefore, we consider three different indicators for countries strongly affected by the crisis, to make sure that our conclusions are robust for the type of proxy chosen. *GDP decrease* is a dummy equal to one if the parent company of the observed subsidiary is located in a foreign country with a negative average GDP percentage change (i.e. with an average decrease) during crisis years, and zero otherwise. *Credit rating down* is a dummy set to one if the parent company of the observed subsidiary is located in a foreign country with two or more credit rating down during the crisis (according to Fitch Ratings), and zero otherwise. *PIGS* is equal to one if the parent company of the observed subsidiary is located in a country that belongs to the groups of the so-called

PIGS countries, excluding Italy (namely Portugal, Ireland, Greece and Spain), and zero otherwise.⁶ The identification of parent countries according to these proxies of the consequences/manifestations of the crisis is presented in Table 2. Our different proxies deliver broadly similar rankings. The PIGS countries are included in all three proxies. However, other countries have also been hit hard by the crisis, including those of Eastern Europe (such as Croatia, Hungary, etc.).

*** *Table 2 about here* ***

In Table 3 we present summary statistics on the full sample before matching. The average values of group borrowings, bank borrowings, and investments are 11.08%, 20.69% and 5.51% respectively. Subsidiaries from multinationals represent 22.81% of the full sample, and among them 18.41%, 7.71%, 6.61% can be categorized as a subsidiary of a parent located in a country strongly affected by the crisis, according to our three proxies GDP decrease, Credit rating down and PIGS, respectively.

*** Table 3 about here ***

3.3. Propensity score matching

The key identifying assumption for obtaining reliable difference-in-differences estimates is the parallel trend assumption, which states that, in the absence of treatment, the average outcomes for the treatment and control group would have followed parallel paths over time, which is hard to verify. In addition, one may be concerned that subsidiaries belonging to a particular category are dissimilar to that of the “antagonist” category in the differences-in-differences approach, with respect to a number of features that could drive the differences in

⁶ Large differences emerged during the crisis period between the highly sensitive PIGS group and other European country groupings. Credit rating changes were modest during the pre-crisis period and similar across the PIGS and other EU countries, but rose markedly during the crisis period, especially in the PIGS group, when the risk of sovereign default rises (Aizenman et al. 2013).

the outcome variables. To alleviate such concerns, we apply the propensity-score matching technique as developed by Rosenbaum and Rubin (1983) to select matching individual firm-year observations⁷ We perform a pre-crisis (2004-2007) matching process⁸ to form groups of “control” observations from the population of “non-treated” ones, by selecting the closest match to the “treated” observations in terms of selected firm characteristics (covariates). In particular, we consider a matching method that first defines a subset of potential “control” observations which are close to “treated” observations on the propensity score (i.e. within “calipers”, a pre-specified amount, according to Althausser and Rubin 1971) and then selects the “control” firms from this subset by using 1:1 matching with replacement⁹ (Rosenbaum 2002), which allows a given untreated observation to be included in more than one matched set, if it better “respects” than other observations the requirement of caliper distance. We match on the logit of the propensity score using calipers of width equal to 0.00001, excluding the observations that do not meet these criteria. Common support constraint is imposed to eliminate subsidiaries for which we cannot find a sufficient number of comparable firms, to avoid noise in the estimates. Following Heckman et al. (1997), and Smith and Todd (2005), we impose common support constraint by dropping treatment observations whose propensity score is higher than the maximum or less than the minimum propensity score of the controls.

⁷ Not using the propensity score matching, two groups of firms are simply compared by examining regressions with control variables included, to take care of differences in firm characteristics. However, if the control variables have a poor distributional overlap between the two groups of firms, the controlling strategy can become ineffective. The matching estimator minimizes this problem since it selects the closest covariate values when forming the control group.

⁸ In a study on the effects of the Asian Financial Crisis, Almeida et al. (2015) consider for the matching only the year before the crisis; conversely we consider all available years preceding the crisis (from 2004 to 2007), using a greater amount of information. From an econometric point of view, using more pre-treatment years could be also more accurate. In fact, Dehejia (2005) states that among the features of situations in which propensity score matching methods might work, using more than one year of pre-treatment information is important.

⁹ Smith and Todd (2005) indicate that this should improve the accuracy of the matching procedure.

We match in terms of both categorical and continuous variables. Similar to Almeida et al. (2015) and Schepens (2016), we use the pre-crisis level of the outcome variables¹⁰ and other firm characteristics for matching (Abadie 2003). As documented by Heckman and Navarro-Lozano (2004), and Smith and Todd (2005), variables that can simultaneously influence the “affiliation” to the treatment group decision and the outcome variables should be included in estimating the propensity score. We use all the explanatory variables in our regression models as well as some other variables which do not appear in the regression models because they are absorbed by subsidiary fixed effects. Industry dummy variables (based on 2 digit NACE industry codes) are equal to one if the firm belongs to the particular sector to which the dummy refers and zero otherwise. *Wholly owned* is an indicator variable set to one if the parent has a 100% stake in the respective subsidiary and zero otherwise. *Horizontal* is an indicator variable set to one if the parent and the respective subsidiary belong to the same industry group (based on 2 digit NACE industry codes), and zero otherwise. *Relative size* is an indicator variable set to one if the subsidiary has a size (measured using book value of total assets) larger than that of its parent firm and zero otherwise. Finally, we also consider year dummies for each year in the period 2004-2013. We use the Stata command “psmatch2” to test whether the balancing property of the propensity score is satisfied for the specifications in estimating the propensity score. The following logit models are finally used to estimate the propensity score, respectively for models (1) and (2):

$$\textit{Foreign parent} = f(\textit{Pre-crisis Y}, \textit{Size}, \textit{Tangibility}, \textit{Growth Opportunities}, \textit{ROA}, \textit{Industry Dummies}, \textit{Wholly Owned}, \textit{Horizontal}, \textit{Relative Size}, \textit{Year Dummies}) \quad (3)$$

$$\textit{Parent country strongly affected} = f(\textit{Pre-crisis Y}, \textit{Size}, \textit{Tangibility}, \textit{Growth Opportunities}, \textit{ROA}, \textit{Industry Dummies}, \textit{Wholly Owned}, \textit{Horizontal}, \textit{Relative Size}, \textit{Year Dummies}) \quad (4)$$

¹⁰ The parallel trend assumption also implies that the outcomes variables have a similar trend for both groups in the pre-treatment period (Angrist and Krueger 1999, Roberts and Whited 2012).

The impact of the matching procedure is illustrated in Table 4. Panel A of the table reports mean values for the pre-crisis period, separately for subsidiaries with foreign parents and subsidiaries with domestic parents, before and after the matching procedure. The table shows large, statistically significant differences between both groups before matching, but most differences disappear after matching. The exceptions are that after matching subsidiaries with a foreign parent still have more group borrowings, they are more likely to be wholly owned, they tend to be smaller and they have a lower tangibility. In Panel B of Table 4, we report the same information for foreign subsidiaries, distinguishing between subsidiaries having a parent from a country that experienced a GDP decrease and subsidiaries with a parent from a country that did not experience a GDP decrease. Here, all the differences disappear after the matching procedure.¹¹

*** *Table 4 about here* ***

Figure 1 shows the mean value of the outcome variables for each year after the matching, for subsidiaries whose parent is foreign and subsidiaries of an Italian business group. These values suggest a divergent evolution from 2008 onwards. While group borrowings increase for subsidiaries with an Italian parent, they decrease for subsidiaries with a foreign parent. In the case of bank borrowings and investments there is a more pronounced decline for subsidiaries with a foreign parent than for subsidiaries with an Italian parent.

*** *Figure 1 about here* ***

4. Regression results

4.1. Baseline results

All regressions in this paper include year and firm fixed effects, which control for unobserved individual subsidiary heterogeneity. A Hausman test indicates that the firm fixed

¹¹ We find similar results for our proxies credit rating down and PIGS (available from the authors).

effect model is the most appropriate one. First, we investigate whether group borrowings by multinational subsidiaries declined since 2008, compared to domestic group subsidiaries. We estimate model 1 for the matched sample of subsidiaries with a foreign parent and subsidiaries with a domestic parent. The results are reported in column 1 of Table 5. We find a statistically significant ($p < 0.01$) and negative coefficient for the foreign parent x crisis period interaction variable, which is consistent with a flight home effect on internal capital markets of multinationals during the Great Recession period 2008-2013. This result implies that multinational subsidiaries have significantly reduced group borrowings since 2008, compared to matched domestic group subsidiaries. A comparison of the coefficient of -0.037 to the overall average group borrowings ratio of 0.111 shows that the effect is also economically significant.

Columns 2 shows that the relative decline in group borrowings is partially compensated by a relative increase in bank borrowings ($\beta = 0.014^{***}$). Nevertheless, subsidiaries with a foreign parent reduce their investments compared to domestic subsidiaries (column 3, $\beta = -0.006^{***}$). Both the increase in bank borrowings and the reduction in investments are economically significant when compared to the mean and median bank borrowings (0.207 and 0.093) and investments (0.055 and 0.019) reported in Table 3. Taken as a whole, this first set of results is fully consistent with a flight home on multinational internal capital markets after the crisis. These results also suggest that the flight home effect has real consequences for the local economy, as the subsidiaries with a foreign parent reduce their investments compared to subsidiaries with a domestic parent. With respect to the control variables, the results are generally consistent with the finance literature.

*** *Table 5 about here* ***

Next, we investigate whether the financing of foreign subsidiaries of multinational firms is affected by the extent to which the Great Recession hit their parent country. First, we distinguish between subsidiaries with foreign parents from countries which are strongly affected by the crisis (panel A) and subsidiaries with foreign parents from countries which are weakly affected by the crisis (panel B). For both subsamples we compare group borrowings, bank borrowings and investments with domestic parent subsidiaries by estimating model 1. Table 6 reports the results for our three measures of the effect of the crisis: *GPD decrease* (column 1-3), *Credit rating down* (columns 4-6) and *PIGS* (columns 7-9). We find a significant reduction in group borrowings and investments compared to domestic parent subsidiaries for both subsamples. This suggests that there is not only a flight home effect in multinationals located in countries strongly affected by the crisis, but also in those located in countries that were weakly affected by the crisis. However, the higher coefficients for the subsample of subsidiaries with a parent in a strongly affected country indicate that these subsidiaries were more strongly affected by the flight home.

*** *Table 6 about here* ***

To further assess whether the financing of foreign subsidiaries of multinational firms is affected by the extent to which the Great Recession hit their parent country, we focus on the foreign subsidiaries and estimate model 2 for the matched sample of subsidiaries with a parent country that is or is not strongly affected by the crisis. Table 7 reports the results. We find that foreign subsidiaries reduced group borrowings in 2008-2013 significantly more if their parent is located in a country that was strongly affected by the crisis. This is consistent with the argument that financial problems in the home country leads multinational firms to repatriate financial resources from foreign subsidiaries to home. The reduction we find is to some extent compensated by bank borrowings, but subsidiaries significantly reduce their investments if their parent country is strongly affected by the crisis. These results are found for the three

proxies, and they suggest that the extent to which the Great Recession at home hits the parent country of multinational firms has negative consequences for both the financing and the investments of their foreign subsidiaries.

*** *Table 7 about here* ***

4.2. *Year-by-year effects*

To verify whether the effects persist during all years of the Great Recession or are limited to specific years of the 2008-2013 period, we interact the foreign parent dummy (model 1) and the strongly affected dummy (model 2) with each individual year of the 2008-2013 period. The results for foreign parents versus domestic parents (model 1) are reported in Table 8, and those for foreign parents located in a country strongly affected by the crisis or not (model 2) are reported in Table 9. These results show that the Great Recession effects we have found are remarkably consistent over the period 2008-2013. With few exceptions, the differences between foreign and domestic parents and those between foreign parents located in countries strongly affected by the crisis or not, are statistically significant in each year with similar coefficients. We do not only found this for group borrowings, but also for bank borrowings and investments by the subsidiaries. Only when we consider subsidiaries with foreign parents located in a country affected by a lower credit rating or located in a PIGS country does the effect on investments seem to disappear in 2012 and 2013.

*** *Tables 8 and 9 about here* ***

4.3. *Additional analyses*

The flight home effect might be affected by the geographical distance between the home country of the multinational and its subsidiary in Italy. Geographical distance still matters in finance, despite the abundance of alternative modern communication technologies

(e.g., Degryse and Ongena, 2005; Uysal et al., 2008). The extent to which a subsidiary is integrated within the multinational and shares its overall strategy, goals and values will be based on the extent of face-to-face communication, informal interaction and travel of managers between headquarters and the subsidiary (e.g., Ghoshal and Bartlett, 1988; Gupta and Govindarajan, 1994, 2000). Geographical distance between headquarters and the subsidiary will make this kind of interaction more difficult or more costly. In Table 12, we add the interaction term *Distant parent x crisis period*, where *Distant parent* is a dummy equal to one if the distance between the capital city of the parent's country and Rome is greater than the median sample value. The results, which are based on the sample of subsidiaries with foreign parents, indicate that the flight home effect is indeed stronger when the distance between parent and subsidiary is greater. Subsidiaries with a distant parent have a significantly larger reduction in group borrowings after the crisis, while their bank borrowings increase relative to subsidiaries with a parent closer to Italy. However, distance does not seem to significantly affect subsidiary investments. The "strongly affected" crisis effects remain after taking into account the distance between parent and subsidiary, although the positive effect on bank borrowings ceases to be significant.

*** *Table 10 about here* ***

Finally, it could be argued that the effects we find may vary according to the degree of dependence or integration of the subsidiaries to parent companies. In fact, the flight home effect may be amplified/mitigated, or subsidiaries may be more/less sensitive to the economic conditions of the parent country, according to the degree of dependence/integration of the subsidiary. To test this argument, we replicate our analyses for two "borderline" subsamples, to see if there are changes in the results: a subsample of horizontal subsidiaries, characterized

by a high degree of independence from the parent¹², and a subsample of wholly owned subsidiaries, where the parent influence is particularly prominent¹³. The results are reported in Table 11 (foreign parent versus domestic parent) and Table 12 (foreign parent strongly affected by the crisis or not). In both tables, Panel A reports results for the subsample of horizontal subsidiaries, and Panel B reports results for the subsample of wholly owned subsidiaries. The results fully reflect our previous findings.

*** *Tables 11 and 12 about here* ***

5. Conclusions

In this paper, we investigate capital reallocation via internal capital markets of non-financial multinational firms during the Great Recession. Our results, which are based on a large sample of Italian subsidiaries of European firms, are consistent with a “flight home” on multinational internal capital markets since the start of the Great Recession. Our firm-level analysis distinguishes between foreign-owned firms of different nationalities and domestic MNEs. Using a difference-in-difference approach, we find that European multinationals have reduced the provision of intra-group loans to Italian subsidiaries since 2008, relative to matched subsidiaries of domestic Italian firms. Furthermore, we find that this reduction is more pronounced for multinationals located in countries that have been strongly affected by the Great Recession. This finding suggests that the internal capital reallocations do not simply reflect a “flight to quality”, as it is very unlikely that multinationals from countries that were strongly affected by the crisis have better investment opportunities in their home country. Rather, our findings indicate that the reallocations towards the home country are caused by financing problems at home. Our results also suggest that this “flight home” has real negative

¹² Horizontal subsidiaries operate more independently from the headquarters compared to vertical subsidiaries, because of superior knowledge and lower interdependence (Alfaro and Charlton 2009).

¹³ Inherently, parents exert higher influence over wholly owned subsidiaries compared to subsidiaries with less than full ownership.

effects on foreign subsidiaries. While the reduction in group borrowings is partly counterbalanced by an increase in bank borrowings, foreign subsidiaries reduce their investments more than domestic subsidiaries. This effect is also stronger if the parent is located in a country that was hit harder by the crisis.

Our results confirm that a negative financial shock in the home country of multinational firms induces a flight home at the expense of their foreign subsidiaries. This effect has real negative consequences for the recipient country of foreign direct investments. While earlier studies have found that global banking contribute to the propagation of negative financial shocks across borders, we show that internal capital markets of multinational firms also play a significant role. This issue points to a cost of foreign direct investments for countries, which to the best of our knowledge had not yet been documented.

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Figure 1

Evolution of outcome variables (means) after matching

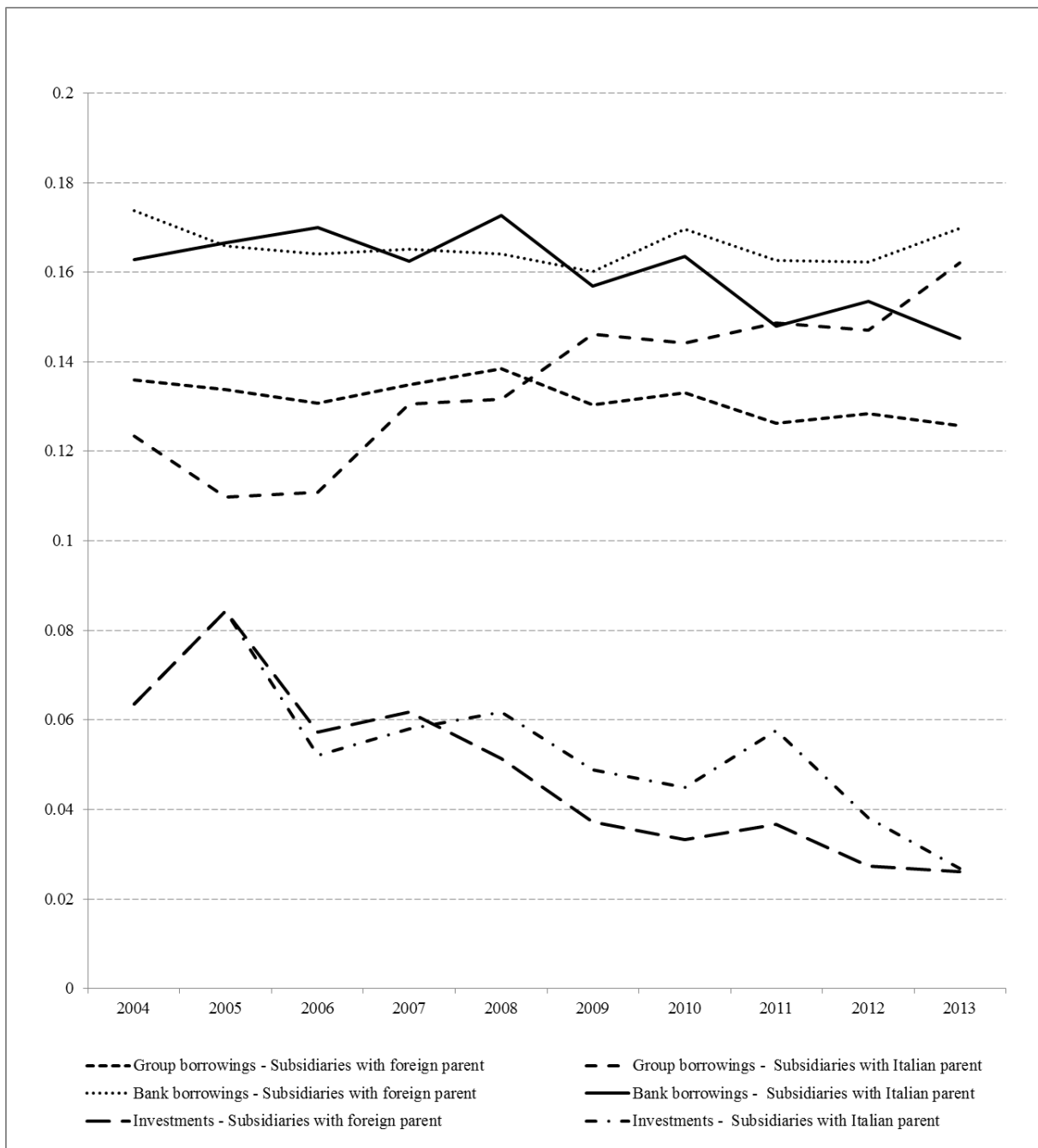


Table 1

Distribution of the full sample by parent country

Parent country	Obs.	%
Italy	113,070	77.19
Austria	931	0.64
Belgium	788	0.54
Bulgaria	25	0.02
Croatia	46	0.03
Czech Republic	52	0.04
Denmark	548	0.37
Estonia	31	0.02
Finland	454	0.31
France	5,225	3.57
Germany	6,705	4.58
Greece	109	0.07
Hungary	89	0.06
Ireland	303	0.21
Latvia	8	0.01
Lithuania	6	0.00
Luxembourg	7,053	4.81
Netherlands	2,805	1.91
Norway	33	0.02
Poland	73	0.05
Portugal	221	0.15
Romania	32	0.02
Russia	54	0.04
Slovakia	7	0.00
Slovenia	54	0.04
Spain	1,577	1.08
Sweden	900	0.61
Switzerland	1,120	0.76
United Kingdom	4,169	2.85
Total	146,488	100

Table 2

Treated and non-treated countries according to whether the country was strongly affected by the crisis

Strongly affected proxy	Treated countries	Non-treated countries
GDP decrease	Croatia, Denmark, Finland, Greece, Hungary, Ireland, Netherlands, Portugal, Spain	Austria, Belgium, Bulgaria, Czech Republic, Estonia, France, Germany, Latvia, Lithuania, Luxembourg, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Sweden, Switzerland, United Kingdom
Credit rating down	Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Portugal, Russia, Slovenia Spain	Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, Netherlands, Norway, Poland, Romania, Slovakia, Sweden, Switzerland, United Kingdom
PIGS	Greece, Ireland, Portugal, Spain	Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Sweden, Switzerland, United Kingdom

Table 3

This table reports summary statistics for the firm-level and affiliation-level characteristics of subsidiaries for the period 2004-2013. All firm characteristics are winsorized at the 1% level. For the continuous variables, we report the mean, the standard deviation and the median.

Variables	Obs.	Mean	St. Dev.	Median
Group borrowings	146,488	0.111	0.212	9.54e-06
Bank borrowings	146,488	0.207	0.247	0.093
Investments	146,488	0.055	0.074	0.019
Size	146,488	8.642	1.784	8.621
Growth opportunities	146,488	0.426	0.771	0.090
Tangibility	146,488	0.180	0.239	0.067
ROA	146,488	0.028	0.128	0.029

Variables	Obs.	%
Wholly owned	146,488	63.56
Horizontal	146,488	49.57
Relative size	146,488	13.61
Foreign parent	146,488	22.81
GDP decrease	33,418	18.41
Credit rating down	33,418	7.71
PIGS	33,418	6.61

Table 4

Pre-crisis (2004-2007) comparison before and after matching. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

	Group borrowings	Bank borrowings	Investments	Size	Growth opportunities	Tangibility	ROA	Wholly owned	Horizontal	Relative size
Panel A: Means for subsidiaries with foreign vs. domestic parent										
<i>Before matching (N = 146,488)</i>										
Foreign	0.164	0.143	0.063	9.177	0.661	0.153	0.045	0.879	0.555	0.040
Domestic	0.082	0.232	0.072	8.569	0.698	0.186	0.044	0.556	0.472	0.157
Diff.	0.082	-0.089	-0.009	0.608	-0.037	-0.033	0.001	0.323	0.084	-0.117
T-test	31.953***	-36.021***	-11.443***	30.637***	-4.203***	-13.771***	0.641	61.058***	15.282***	-31.800***
<i>After matching (N = 49,778)</i>										
Foreign	0.132	0.166	0.066	8.893	0.679	0.160	0.044	0.855	0.526	0.048
Domestic	0.119	0.164	0.065	8.849	0.677	0.167	0.043	0.825	0.533	0.062
Diff.	0.012	0.002	0.000	0.043	0.002	-0.007	0.001	0.030	-0.007	-0.014
T-test	3.562***	0.707	0.345	1.571	0.169	-1.919*	0.339	5.091***	-0.885	-4.010***
Panel B: Means for subsidiaries with a parent from a country with/without GDP decrease										
<i>Before matching (N = 33,418)</i>										
GDP decrease	0.154	0.124	0.064	9.213	0.660	0.148	0.041	0.873	0.348	0.038
No GDP decrease	0.166	0.148	0.063	9.169	0.661	0.154	0.046	0.881	0.600	0.040
Diff.	-0.012	-0.023	0.001	0.044	-0.001	-0.007	-0.004	-0.008	-0.253	-0.002
T-test	-1.956*	-4.596***	0.559	0.922	-0.042	-1.300	-1.115	-0.917	-20.220***	-0.320
<i>After matching (N = 9,720)</i>										
GDP decrease	0.152	0.125	0.059	9.283	0.686	0.145	0.048	0.888	0.382	0.034
No GDP decrease	0.166	0.129	0.062	9.237	0.689	0.156	0.042	0.895	0.408	0.033
Diff.	-0.013	-0.004	-0.003	0.047	-0.002	-0.011	0.006	-0.007	-0.026	0.001
T-test	-1.504	-0.506	-1.212	0.717	-0.092	-1.501	1.212	-0.611	-1.483	0.143

Table 5

Subsidiaries with a foreign parent vs. subsidiaries with a domestic parent. Regressions are based on matched subsamples (see Table 4). Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Dependent variable:	(1) Group borrowings	(2) Bank borrowings	(3) Investments
Foreign parent x crisis period	-0.037*** (0.003)	0.014*** (0.002)	-0.006*** (0.001)
Size	0.005*** (0.001)	0.010*** (0.001)	-0.005*** (0.000)
Tangibility	-0.002 (0.008)	0.053*** (0.004)	0.113*** (0.003)
Growth opportunities	-0.000 (0.001)	-0.003*** (0.001)	0.045*** (0.000)
ROA	-0.052*** (0.007)	-0.022*** (0.004)	-0.036*** (0.003)
Year fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
N	49,778	49,778	49,778

Table 6

Subsidiaries with a foreign parent from a country strongly affected by the crisis vs. subsidiaries with a domestic parent (panel A) and subsidiaries with a foreign parent from a country weakly affected by the crisis vs. subsidiaries with a domestic parent (panel B). Regressions are based on matched subsamples. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Panel A: Subsidiaries with foreign parent companies from countries strongly affected by the crisis vs. subsidiaries with domestic parent companies									
Strongly affected measure:	GDP Decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investments	(4) Group borrowings	(5) Bank borrowings	(6) Investments	(7) Group borrowings	(8) Bank borrowings	(9) Investments
Foreign parent x crisis period	-0.151*** (0.00)	0.013*** (0.004)	-0.014*** (0.002)	-0.125*** (0.007)	0.017*** (0.006)	-0.034*** (0.003)	-0.143*** (0.008)	0.016*** (0.007)	-0.037*** (0.003)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	27,066	27,066	27,066	24,075	24,075	24,075	23,750	23,750	23,750

Panel B: Subsidiaries with foreign parent companies from countries weakly affected by the crisis vs. subsidiaries with domestic parent companies									
Strongly affected measure:	GDP Decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investments	(4) Group borrowings	(5) Bank borrowings	(6) Investments	(7) Group borrowings	(8) Bank borrowings	(9) Investments
Foreign parent x crisis period	-0.007** (0.004)	0.011 (0.007)	-0.002* (0.001)	-0.027*** (0.003)	0.012*** (0.004)	-0.002* (0.001)	-0.026*** (0.003)	0.013*** (0.003)	-0.0022* (0.001)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	44,437	44,437	44,437	47,428	47,428	47,428	47,753	47,753	47,753

Table 7

Subsidiaries with a foreign parent from a country strongly vs. weakly affected by the crisis. Regressions are based on matched subsamples. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Strongly affected measure: Dependent variable:	GDP decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investment	(4) Group borrowings	(5) Bank borrowings	(6) Investment	(7) Group borrowings	(8) Bank borrowings	(9) Investment
Strongly affected x crisis period	-0.155*** (0.007)	0.058*** (0.004)	-0.011*** (0.003)	-0.105*** (0.015)	0.156*** (0.013)	-0.028*** (0.005)	-0.175*** (0.016)	0.158*** (0.015)	-0.020*** (0.005)
Size	0.006** (0.003)	-0.001 (0.002)	-0.004*** (0.001)	0.008* (0.005)	-0.000 (0.004)	-0.006*** (0.002)	0.008* (0.005)	-0.001 (0.004)	-0.003* (0.002)
Tangibility	-0.030 (0.020)	0.043*** (0.011)	0.088*** (0.007)	0.002 (0.029)	0.089*** (0.024)	0.051*** (0.010)	-0.050* (0.027)	0.098*** (0.026)	0.018* (0.009)
Growth opportunities	0.011*** (0.003)	-0.002 (0.002)	0.042*** (0.001)	0.001 (0.005)	-0.007 (0.004)	0.035*** (0.002)	0.002 (0.005)	-0.006 (0.005)	0.030*** (0.002)
ROA	-0.120*** (0.018)	0.007 (0.010)	-0.015** (0.006)	-0.064** (0.026)	0.006 (0.021)	-0.033*** (0.009)	-0.044* (0.025)	0.030 (0.024)	-0.026*** (0.009)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9,720	9,720	9,720	4,329	4,329	4,329	3,772	3,772	3,772

Table 8

Subsidiaries with a foreign parent vs. subsidiaries with a domestic parent year by year. The specifications are estimated using fixed effects regressions including time fixed effects. Regressions are based on a matched subsample. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

	(1) Group borrowings	(2) Bank borrowings	(3) Investments
Foreign parent x 2008	-0.033*** (0.006)	0.007** (0.003)	-0.013*** (0.002)
Foreign parent x 2009	-0.037*** (0.006)	0.012*** (0.003)	-0.005** (0.002)
Foreign parent x 2010	-0.038*** (0.005)	0.014*** (0.003)	-0.007*** (0.002)
Foreign parent x 2011	-0.040*** (0.005)	0.021*** (0.00269)	-0.003* (0.002)
Foreign parent x 2012	-0.037*** (0.005)	0.009*** (0.00269)	-0.005** (0.002)
Foreign parent x 2013	-0.040*** (0.005)	0.022*** (0.003)	-0.004** (0.002)
Control variables	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	49,778	49,778	49,778

Table 9

Subsidiaries with a foreign parent from a country strongly vs. weakly affected by the crisis year by year. Regressions are based on matched subsamples. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Strongly affected measure:	GDP Decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investment	(4) Group borrowings	(5) Bank borrowings	(6) Investment	(7) Group borrowings	(8) Bank borrowings	(9) Investment
Strongly affected x 2008	-0.140*** (0.013)	0.065*** (0.007)	-0.014*** (0.004)	-0.108*** (0.024)	0.171*** (0.020)	-0.060*** (0.008)	-0.148*** (0.026)	0.177*** (0.025)	-0.036*** (0.009)
Strongly affected x 2009	-0.146*** (0.012)	0.056*** (0.007)	-0.015*** (0.004)	-0.123*** (0.027)	0.155*** (0.022)	-0.031*** (0.009)	-0.169*** (0.025)	0.158*** (0.023)	-0.034*** (0.009)
Strongly affected x 2010	-0.171*** (0.012)	0.061*** (0.007)	-0.010** (0.004)	-0.116*** (0.024)	0.154*** (0.020)	-0.032*** (0.008)	-0.199*** (0.025)	0.151*** (0.023)	-0.029*** (0.008)
Strongly affected x 2011	-0.168*** (0.012)	0.060*** (0.006)	-0.014*** (0.004)	-0.096*** (0.022)	0.161*** (0.018)	-0.026*** (0.007)	-0.190*** (0.026)	0.168*** (0.024)	-0.022** (0.009)
Strongly affected x 2012	-0.148*** (0.012)	0.054*** (0.006)	-0.005 (0.004)	-0.108*** (0.023)	0.150*** (0.019)	-0.008 (0.008)	-0.177*** (0.024)	0.150*** (0.022)	-0.004 (0.008)
Strongly affected x 2013	-0.153*** (0.012)	0.050*** (0.007)	-0.009** (0.004)	-0.089*** (0.024)	0.144*** (0.020)	-0.012 (0.008)	-0.172*** (0.024)	0.146*** (0.023)	0.007 (0.008)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9,720	9,720	9,720	4,329	4,329	4,329	3,772	3,772	3,772

Table 10

Subsidiaries with a foreign parent from a country strongly vs. weakly affected by the crisis. Regressions are based on matched subsamples. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Strongly affected measure:	GDP Decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investments	(4) Group borrowings	(5) Bank borrowings	(6) Investments	(7) Group borrowings	(8) Bank borrowings	(9) Investments
Strongly affected x crisis period	-0.141*** (0.007)	0.007 (0.006)	-0.006** (0.003)	-0.075*** (0.010)	0.006 (0.008)	-0.028*** (0.004)	-0.088*** (0.010)	0.004 (0.009)	-0.030*** (0.004)
Distant parent x crisis period	-0.018*** (0.006)	0.020*** (0.005)	-0.001 (0.002)	-0.075*** (0.005)	0.018*** (0.004)	-0.002 (0.002)	-0.065*** (0.005)	0.018*** (0.004)	-0.001 (0.002)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9,720	9,720	9,720	4,329	4,329	4,329	3,772	3,772	3,772

Table 11

Subsidiaries with a foreign parent vs. subsidiaries with a domestic parent: horizontal subsidiaries (panel A) and wholly owned subsidiaries (panel B) only. Regressions are based on a matched subsample. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Panel A: Horizontal subsidiaries			
	(1) Group borrowings	(2) Bank borrowings	(3) Investments
Foreign parent x crisis period	-0.014*** (0.004)	0.012*** (0.00236)	-0.007*** (0.002)
Control variables	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	26,716	26,716	26,716

Panel B: Wholly owned subsidiaries			
	(1) Group borrowings	(2) Bank borrowings	(3) Investments
Foreign parent x crisis period	-0.039*** (0.004)	0.013*** (0.002)	-0.006*** (0.001)
Control variables	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	42,146	42,146	42,146

Table 12

Subsidiaries with a foreign parent from a country strongly vs. weakly affected by the crisis: horizontal subsidiaries (panel A) and wholly owned subsidiaries (panel B) only. Regressions are based on matched subsamples. Robust standard errors are reported between brackets. *** denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.

Panel A: Horizontal subsidiaries									
Strongly affected measure:	GDP Decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investments	(4) Group borrowings	(5) Bank borrowings	(6) Investments	(7) Group borrowings	(8) Bank borrowings	(9) Investments
Strongly affected x crisis period	-0.132*** (0.013)	0.088*** (0.009)	-0.015*** (0.005)	-0.111*** (0.024)	0.19*** (0.022)	-0.021** (0.0085)	-0.192*** (0.0255)	0.191*** (0.025)	-0.011 (0.008)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,899	3,899	3,899	2,135	2,135	2,135	1,817	1,817	1,817
Panel B: Wholly owned subsidiaries									
Strongly affected measure:	GDP Decrease			Credit rating down			PIGS		
	(1) Group borrowings	(2) Bank borrowings	(3) Investments	(4) Group borrowings	(5) Bank borrowings	(6) Investments	(7) Group borrowings	(8) Bank borrowings	(9) Investments
Strongly affected x crisis period	-0.163*** (0.008)	0.045*** (0.004)	-0.010*** (0.003)	-0.119*** (0.017)	0.144*** (0.014)	-0.029*** (0.006)	-0.202*** (0.018)	0.136*** (0.016)	-0.019*** (0.006)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8,775	8,775	8,775	3,702	3,702	3,702	3,201	3,201	3,201