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The impact of banking deregulation on inbound foreign direct investment: Transaction-level evidence from the United States☆

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ABSTRACT

We evaluate the effects of state-level banking deregulation that resulted in improved access to cheaper local finance on foreign firms investing in the U.S. We provide direct, micro-level evidence from U.S. inbound foreign direct investment transactions showing that interstate banking, but not intrastate branching, deregulation increased the number of transactions, reduced the average transaction value, and boosted overall investment by foreign multinationals. We also show that lower cost of local credit and greater local bank competition in each state, following the interstate banking deregulation, are potential mechanisms that stimulated FDI activity. Finally, we demonstrate that after the adoption of the interstate banking deregulation, both the number and the average value of transactions increased in industries that are more dependent on external finance relative to industries that are less dependent.

1. Introduction

Until the early 1970s most U.S. states either prohibited or severely restricted both interstate banking and intrastate bank branching. In the late 1970s, many states began lifting restrictions on intrastate bank branching and interstate bank expansions. These two types of deregulation led to higher competition, greater efficiency, and reduction in monopoly power in the banking sector, thereby facilitating access to cheaper local credit (Jayaratne and Strahan, 1996, 1998; Cetorelli and Strahan, 2006).[1] A number of studies have examined the subsequent effects on domestic U.S. firms in the financial and manufacturing sectors. However, no work has been done to date to evaluate the impact of the two banking deregulations and the accompanying reduction in the cost of credit on foreign firms entering the U.S. market. This study attempts to fill this gap by providing direct, micro-level evidence from U.S. inbound foreign direct investment (FDI) transactions.[2]

Our main hypothesis is that the banking deregulations had a positive impact on FDI activity. We know from the existing literature that multinational firms utilize significant amounts of host country debt financing in their affiliates' capital structure.[3] Such financing is used both for

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[1] Strahan (2003) argues that banking deregulation has resulted in larger banks operating across broader geographic areas, but has not brought about higher concentrations at the local level. Banks also became more efficient: for instance, Jayaratne and Strahan (1998) find that in the long run, costs to borrowers decrease by 0.3%, loan losses decrease by 0.5%, and operating costs decline by 8%.

[2] Throughout this paper, we will use the term FDI to refer to *inbound* FDI into the U.S. *Outbound* FDI, originating from the U.S. and flowing to other countries is outside the scope of our study.

[3] Host country borrowing by multinationals was prevalent throughout our sample period (1977–1994). Horst (1977) estimates that of the $21 billion of foreign investment made by U.S. multinationals in 1974, some $18.3 billion was financed through host country debt as well as retained earnings. Examining data from the end of our sample period, Feldstein (1995) reports that U.S. investment in non-bank controlled foreign corporations in 1989 totaled $1237 billion, of which $567 billion was financed through non-U.S. debt. Using a comprehensive dataset of all foreign affiliates of U.S. multinationals, Desai et al. (2004) estimate that foreign affiliates had an external borrowing to assets ratio of over 44%. The same pattern holds true for the U.S. affiliates of foreign multinationals. Laster and McCauley (1994) document that between 1979 and 1992 the leverage ratio, excluding intercompany debt (i.e. excluding debt from parent firms) for foreign firms operating in the U.S. averages 44%, the majority of which is financed in the U.S. Once intercompany debt is included, the leverage ratio of foreign affiliates rises to 57%, suggesting that external host country borrowing is a more important source of debt financing than intrafirm borrowing. Similarly, Marin and Schnitzer (2011) provide evidence that Eastern European affiliates of German and Austrian firms source 30 to 40% of their external financing needs from local sources.

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cross-border transactions as well as for the ongoing operations of foreign affiliates.[4] Therefore, variation in the cost of external local debt finance could play a significant role for the incidence and the intensity of cross-border transactions.

To assess the importance of cheaper local credit on inbound FDI, we estimate the impact of U.S. interstate banking and intrastate branching deregulations on the number and the size of inbound FDI transactions. We show that the interstate banking deregulation was associated with a higher entry rate of foreign multinationals, a larger number of FDI transactions, and a smaller average transaction value while the deregulation of intrastate branching did not have any significant effect on FDI inflows along the extensive or the intensive margin.[5] We also find that as the fraction of states that allow interstate banking grew, the overall volume of inbound FDI undertaken by foreign multinationals increased. In particular, our empirical evidence suggests that on average a state, which adopted the interstate banking deregulation experienced a 19% increase in the number of inbound FDI transactions, translating to 1.28 new transactions per year, and an increase in the entry rate of foreign multinationals of about 42%.

Investigating the impact of banking deregulation along the intensive margin, we find that the average value of foreign transactions decreased by approximately 27.4% following the adoption of the interstate banking deregulation. The result is robust to including a comprehensive list of state-level, time-varying controls and trends, as well as source country and mode of entry fixed effects. Our results indicate that with cheaper external finance, foreign firms were able to undertake projects of smaller value, which became more profitable when borrowing costs declined. Further, we demonstrate that when the share of states, which allow interstate banking, rose, overall investment in the U.S. undertaken by foreign multinationals grew. Our estimates suggest that as the share increased by 10% (equivalent to 5 additional states adopting the interstate banking deregulation), foreign firms' overall investment in the U.S. rose by 14.4%, which corresponds to an increase in total FDI inflows into the U.S. manufacturing sector of 1.9 billion (1983 U.S. $), or 8.2% of the total FDI inflows.

To illuminate the mechanisms behind the effect of banking deregulation on the incidence and the intensity of FDI, we extend our work in two directions. First, we consider how FDI responded to changes in the cost of credit and bank industry structure resulting from the banking deregulations. We show that lower cost of credit and greater bank competition stimulated FDI activity.[6] Second, we provide direct evidence of the importance of the local finance channel for FDI by comparing the impact of banking deregulation on foreign transactions taking place in sectors that rely on external finance more heavily versus those in sectors that are less reliant on external finance (Rajan and Zingales, 1998; Cetorelli and Strahan, 2006). If access to cheaper, local finance were important for inbound FDI activity, one would anticipate the effects of banking deregulation to be more pronounced in industries that are more reliant on external finance.

Consistent with prior studies, we confirm that interstate banking deregulation significantly lowered the cost of credit as measured by the loan yield, greatly enhanced competition in the banking industry as measured by the Herfindahl–Hirschmann Index (HHI) while at the same time increasing the share of assets held by large banks in deregulated states. We find that these structural changes in the banking industry have a sizeable effect on FDI activity. Using the interstate banking deregulation as an instrument for changes in the state banking environment, we find that lower loan yields are associated with greater foreign entry and lower transaction values. Similarly, greater bank competition, measured by a lower HHI, leads to greater foreign entry and lower transaction values. Finally, higher share of large bank assets is also associated with greater foreign entry and lower average transaction values. This evidence identifies the cost of credit and the banking industry structure as direct mechanisms behind the effect of banking deregulation on inbound FDI across U.S. states.

Turning to the effect of the interstate banking deregulation on FDI activity in sectors that are *more* dependent on external finance, we find that following the adoption of the deregulation, the increase in the entry rate of foreign multinationals was far more pronounced in industries that are *more* dependent on external finance. Hence, by facilitating access to credit, interstate banking deregulation allowed a larger number of foreign firms that rely on external finance more heavily to invest in the U.S. Along the intensive margin we find that while the average transaction value declined following the interstate banking deregulation, transaction values in sectors *more* dependent on external finance increased vis-à-vis transaction values in *less* external finance dependent sectors.

While we find that interstate banking deregulation has had an effect on the entry rate, the number of cross-border transactions, and the overall volume of multinationals' FDI, our analysis suggests that the intrastate bank branching deregulation had no significant impact on cross-border investment. These findings are consistent with Kerr and Nanda's (2009) work on the effects of the two banking deregulations on entrepreneurial activity and are suggestive of the importance of national banks versus single-state banks for FDI activity. Amore et al. (2013) find that interstate banking deregulation led to geographic diversification in the banking sector, which was beneficial for firms engaged in innovation.[7]

To study the impact of state-level banking deregulations on inbound FDI in the U.S. manufacturing sector, we employ transaction-level data collected by the International Trade Administration (ITA) of the U.S. Department of Commerce. The ITA gathers data primarily from public

[4] Faccio and Masulis (2005) show that cross-border merger and acquisition deals are more likely to be financed with cash as opposed to stock, and cash transactions in turn are likely to involve external borrowing. Beyond the initial transaction, debt is also extensively used to finance the continued operations of foreign affiliates, which typically use a mix of internal and external host country debt financing. The use of host country financing as a means to manage tax liabilities has been discussed at length in the international tax context (see, for example, Gresik, 2001; Graham, 2003). Chowdhry and Nanda (1994) present a theoretical model in which parent firms finance their foreign affiliates with a combination of internal and external debt, taking advantage of the tax advantaged nature of debt. In their model, external local debt serves as a benchmark for setting the rate for internal borrowing. Host country financing is also an effective means of hedging against currency risk (Graham and Harvey, 2001). External local debt financing is more widely used in countries with lower political risk (Desai et al., 2008). Desai et al. (2004) show that external local debt financing is particularly popular in countries with well-developed capital markets and strong creditor rights, such as the U.S., because the cost of borrowing is lower.

[5] We define the entry rate as the ratio of new FDI transactions to the total number of existing multinationals in a given state and year, i.e. as the share of new transactions. The extensive margin refers to the incidence of FDI or the number of transactions and the entry rate. It captures the *gross* entry rate, as the ITA data provides information only on the new FDI transactions undertaken by foreign multinationals, and it does not report the multinational firms that exit. The intensive margin, on the other hand, refers to the intensity of FDI activity or transaction values.

[6] While it is impossible to provide direct evidence, it may also be the case that large national banks have a comparative advantage in evaluating and financing FDI projects and hence interstate banking deregulation, which led to the advent of national banks, would encourage greater FDI activity through this channel. We find some suggestive evidence showing that the impact of interstate banking deregulation on multi-state foreign investors is stronger. This could be because economies of scale can emerge from the opportunity for a foreign investor to exploit a relationship with a single, large, national bank after interstate banking deregulation (as opposed to multiple, smaller, local financial institutions). Further, multi-state investors may be more likely to avail themselves of local bank finance since they have prior exposure to the U.S. market (and a higher likelihood of local collateral), which one-time, single-state investors lack.

[7] Similarly, national banks may have a comparative advantage in evaluating foreign investment projects and multi-state banks may have better technology to serve multinational firms investing in the U.S. relative to single-state banks.