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Credit constraints, equity market liberalizations and international trade ☆

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ABSTRACT

This paper provides evidence that credit constraints are an important determinant of international trade flows. I exploit shocks to the availability of external finance and examine the impact of equity market liberalizations on the export behavior of 91 countries in the 1980–1997 period. I show that liberalizations increase exports disproportionately more in financially vulnerable sectors that require more outside finance or employ fewer collateralizable assets. This result is not driven by cross-country differences in factor endowments and is independent of simultaneous trade policy reforms. Moreover, it obtains with equal strength in the full panel of countries as well as in both panel and event-study analyses of countries which removed capital controls during the sample period. Finally, the effects of liberalizations are more pronounced in economies with initially less active stock markets, indicating that foreign equity flows may substitute for an underdeveloped domestic financial system. Similarly, opening equity markets has a greater impact in the presence of higher trade costs caused by restrictive trade policies.

1. Introduction

The standard Heckscher–Ohlin model predicts that a country rich in labor, natural resources, or physical or human capital has a comparative advantage in goods intensive in the abundant input factors. This view abstracts from market frictions that may arise from agency problems, and presumes that entrepreneurs can enter any industry regardless of its need for outside finance or endowment of collateralizable assets. In the presence of financial frictions, however, borrowing constraints will vary across industries and affect the sectoral composition of a country's exports by limiting the investment opportunities open to producers with insufficient private capital.

This paper provides evidence that credit constraints are an important determinant of international trade flows. I exploit shocks to the availability of external finance and examine the impact of equity market liberalizations on the export behavior of 91 countries in the 1980–1997 period. I show that liberalizations increase exports disproportionately more in sectors intensive in external finance and softer assets, suggesting that pre-liberalization trade was restricted by financial constraints. This result is not driven by cross-country differences in factor endowments and is independent of simultaneous trade policy reforms. Moreover, it obtains with equal strength in the full panel of countries as well as in both panel and event-study analyses of countries which removed capital controls during the sample period. Finally, the effects of liberalizations are more pronounced in economies with initially less active stock markets, indicating that foreign equity flows may substitute for an underdeveloped domestic financial system. Similarly, opening equity markets has a greater impact in the presence of higher trade costs due to restrictive trade policies.

These findings add to a small but growing literature on the role of domestic financial institutions in determining trade flows. Financially developed countries have been shown to export relatively more in sectors that require more outside finance or are

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intensive in fixed upfront costs (Beck, 2003; Becker and Greenberg, 2005; Svaleryd and Vlachos, 2005; Hur et al., 2006). The cross-sectional approach in these studies,[1] however, has made it difficult to establish a causal link from finance to trade. The problem arises because in the absence of credit constraints, higher foreign demand for sectors intensive in external funds would lead to both higher exports from these industries and to more borrowing in the economy. With credit extended to the private sector the most common measure of financial development, this mechanism could generate the result that financially developed countries export relatively more in external capital dependent sectors even under perfect credit markets. More broadly, the concern is that countries specialized in industries intensive in external finance are more likely to develop stronger financial institutions. Recent evidence also suggests that trade openness may stimulate domestic financial development (Braun and Raddatz, 2004; Huang and Temple, 2005; Do and Levchenko, 2007).[2]

I exploit shocks to the availability of outside finance and study equity market liberalizations to circumvent these concerns. In principle, allowing foreign portfolio investments should result in resources flowing from capital-abundant developed countries, where expected returns are low, to capital-scarce emerging countries, where expected returns are high. This should reduce the cost of capital in liberalizing economies, increase investment, and raise output and exports. Moreover, the exact timing of a liberalization event is the product of complex political processes and thus arguably exogenous from the perspective of individual producers and exporters.

Equity market liberalizations have indeed been shown to reduce the cost of capital (Bekaert and Harvey, 2000; Henry, 2000a; Martell and Stulz, 2003), trigger aggregate investment booms (Henry, 2000b), improve firm-level investment and performance, and promote an efficient resource allocation (Chari and Henry, in press; Mitton, 2006).[3] While there has been some controversy about the consequences of liberalizing capital flows for aggregate growth (Prasad et al., 2006), the latest reading of the literature finds strong support for liberalizations' predicted temporary growth-enhancing and permanent output level effects (Bekaert et al., 2005; Gupta and Yuan, 2004; Henry, 2007). These findings suggest that, if credit constraints restrict firms' ability to produce and grow, equity market liberalizations should also stimulate aggregate exports by allowing more firms to become exporters and/or by increasing firm-level exports.

I follow the literature and exploit the variation in the impact of increased availability of external finance across sectors. In industries in which all necessary investments can be funded with internal cash flows, access to external funds matters little since firms do not need to borrow. As a sector's dependence on external finance increases, however, the availability of outside capital becomes more important (Rajan and Zingales, 1998). In addition, entrepreneurs find it easier to raise outside capital in industries which, for technological reasons, employ more tangible assets that can serve as collateral, such as real estate, plants and machinery (Claessens and Laeven, 2003; Braun, 2003).[4] Equity market liberalizations should therefore increase exports disproportionately more in financially vulnerable sectors that require more outside finance or use fewer collateralizable assets.[5] Moreover, exploiting the cross-sector variation in asset tangibility further helps establish the causal effect of credit constraints on trade (see Section 7).

I find strong support for these predictions in a panel of 91 countries and 27 industries over the 1980–1997 period. I use an indicator variable that equals 1 after an equity market liberalization and interact it with industry-level measures of asset tangibility and external finance dependence. As in Rajan and Zingales (1998), external finance dependence is calculated as the share of capital expenditures not funded by cash flow from operations for the median U.S. firm in each industry. Asset tangibility is similarly defined as the share of net plant, property, and equipment in total assets for the median U.S. firm in a sector, as in Braun (2003). I obtain data on liberalization events from Bekaert et al. (2005) and present robust results with measures of the comprehensiveness of each reform.

I first establish the impact of liberalizations on worldwide exports by sector for all countries in the sample. I find that open equity markets are associated with greater exports, especially in sectors intensive in external capital or soft assets. These results obtain with country, year and industry fixed effects, which account for systematic differences across countries and sectors and capture general time trends. These effects are also independent of comparative advantage arising from cross-country differences in factor endowments. I then show consistent evidence for the sample of 39 economies which liberalized foreign portfolio flows during the sample period. This further suggests that the results are not driven by cross-sectional differences between countries with open and closed stock markets, but can be attributed to the financial reform. Finally, I perform an event study and examine the change in exports around liberalization events. First-differencing trade flows allows me to remove the variation arising from factors specific to a country–industry pair and exploit purely the time-series variation. I continue to observe that exports grow disproportionately faster in financially vulnerable sectors in the immediate aftermath of an equity market reform.

My results are highly statistically and economically significant. Within three years after an equity market liberalization, a country's textile exports (highly dependent on external finance, 75th percentile) increase by 13 percentage points more than its

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[1] A notable exception is Becker and Greenberg (2005), who examine a panel of bilateral exports and document that financially developed countries respond more to real exchange rate fluctuations.

[2] Legal origin has been proposed as an instrument for private credit. However, legal origin has been shown to impact institution formation and the economy more broadly (La Porta et al., 1997, 1998), which in turn are likely to affect sectors differentially. It is thus not obvious that this instrument meets the exclusion restriction.

[3] There is also evidence that equity market liberalizations are associated with increased entrepreneurial activity (Alfaro and Charleton, 2006) and a greater share of capital goods in imports (Alfaro and Hammel, 2007).

[4] In contrast, it is more difficult to transfer control over a firm's human and organizational capital, research and development, and even accounts receivable, cash and inventories. Grossman and Hart (1986), Hart and Moore (1988, 1990, 1994), Hart (1995), and Shleifer and Vishny (1992) model these effects theoretically.

[5] A number of theoretical models have formalized the intuition that financially developed countries will specialize in sectors that require more outside funds (Kletzer and Bardhan, 1987; Beck, 2002; Matsuyama, 2005; Chaney, 2005; Manova, 2006) or have fewer collateralizable assets (Manova, 2006).