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FINANCIAL DEVELOPMENT AND TRADE OPENNESS: A SURVEY.

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Abstract

This paper provides a survey of the theoretical and empirical literature on financial development and its impact on the level of openness and the pattern of international trade. Financial development may be more important in promoting certain industries that requires large amounts of external finance, and therefore stimulates the economic growth. Despite the widespread view that financial development will increase the level of trade, that effect is ambiguous and there is no total consensus on either the direction or the size of the financial development – openness relationship.

JEL classification: F1, G1.

Keywords: trade openness, financial development.

Resumen

Este trabajo ofrece una revisión de la literatura teórica y empírica que estudia la relación entre el grado de desarrollo del sistema financiero y la apertura comercial y el patrón de comercio internacional de los países. El desarrollo financiero en una economía puede desempeñar un rol clave incentivando el crecimiento de ciertas industrias que requieren grandes montos de financiamiento externo, estimulando de esta manera el crecimiento económico. Si bien la hipótesis más aceptada es que el desarrollo financiero incrementa el nivel de apertura, los efectos son ambiguos y no hay consenso respecto a la dirección y magnitud de dicha relación.

Clasificación JEL: F1, G1

Palabras claves: apertura comercial, desarrollo del sistema financiero.

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1. Introduction

As a rule, the international trade theory has focused on factor endowments, technology and scale economies as sources of comparative advantage and therefore determinants of trade flows between countries. The standard Heckscher-Ohlin model predicts that a country rich in labour, natural resources, 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, among others, and presumes that entrepreneurs can enter any industry regardless of its need for outside finance or endowment of collaterizable assets.

Nevertheless, a more recent literature also suggests that the level of financial development may importantly influence the level of openness and the pattern of international trade. Moreover, this literature sums up that the positive effect of financial development on export performance is a potential mechanism through which financial development may affect overall income and growth rates.

This literature has highlighted that the main link between these two variables is that financial development may be more important in promoting certain industries that requires large amounts of external finance. Naturally, for technological reasons some industries rely more on external finance than others. Scale economies, gestation period or intermediate product intensity might constitute some of these technological reasons. Exports require significant up-front investments that are difficult to finance, and that the higher the up-front costs, the more important it becomes to have a well-developed financial system to finance them. Furthermore, although traditional factors like size, age or productivity might be relevant to explain firms' export decisions, their access to financial markets is likely to constrain or allow export activity. Consequently, the access to financial markets can be thought as a comparative advantage in industries that rely more on external finance.

The notion of financial comparative advantage has been firstly formalized theoretically by Kletzer and Bardhan (1987) and Baldwin (1989). Indeed, there is some recent empirical evidence that financial comparative advantage is relevant to trade patterns, such as Beck (2002, 2003), Becker and Greenberg (2003), Svaleryd and Vlachos (2004), Hur et al. (2006) and Manova (2006).

Therefore, exploring the link between financial development and trade pattern is interesting for several reasons concerning economic growth and development. For instance, if the level of financial development has an effect on the structure of the trade balance, the priority that financial sector reforms should have on policy makers' agendas must increase.

Although most authors show that financial system affects openness, there is some literature that suggests the opposite direction of the link. However, if the level of openness influences the development of the financial market, the impact on economic growth continues being important although the sources could change.

There are many authors who deal with these issues. In this paper, I explore the theoretical literature and some empirical evidence related with this topic. The paper is organized as follows. In Section 2, I start by discussing different aspects of the financial sector. Section 3 describes the exporting fixed costs. Section 4 sums up the theoretical models concerning with the link between financial development and openness. Section 5 includes a debate over causality. Section 6 points out the results of the empirical evidence of this relationship. Finally, section 7 concludes.

2. Financial system development

There are some aspects of the financial system that affect international trade by determining the export firms´ decision. In this section, I sum up the main economic features that have influence on the level of development of the financial system in this framework.

On the one hand, the ability of the financial sector to channel savings to the private sector helps overcome liquidity constraints. This enables the economy to specialize and exploit economies of scale. Therefore, economies with a better developed financial system and a higher level of external finance should have a comparative advantage in sectors that exhibit high scale economies.

To give a specific example, Beck (2002, 2003) develops a model focused on the role of the financial sector's function to channel funds from savers to firms and facilitating large-scale and high-return projects. Market frictions in the form of asymmetric information will give rise to financial intermediaries, who incur search costs when channelling savings to entrepreneurs. Svaleryd y Vlachos (2002) argue that two of the most important factors of financial intermediation are the degree of project uncertainty and the share of investments in intangible assets. Financial development is modelled as lowering the search costs and thus increasing the level of external finance in the economy. The underline assumption is that financial intermediaries and markets arise to overcome the problems of moral hazard and adverse selection that drive a wedge between the price of external and internal finance by economizing on the costs of acquiring and processing information about firms and monitoring managers. By decreasing the cost of external finance, financial intermediaries allow a higher return on capital and thus more investment opportunities realized.

In the same manner, Levine et al. (2000) argue that financial development enables a better allocation of capital and a reduction of information asymmetries, and thus leads to a reduction in the cost of external finance. Specifically, in a two sector economy, one with constant and the other with increasing return to scale, where investment in physical assets is financed by external funds, the better the access to financial markets the higher the amount of resources that will be allocated in the increasing return sector. Since a higher level of external finance allows these industries to exploit scale economies, they should profit more than proportionally from a higher level of financial development and have a lower cost of external finance. This results in a higher production and capital investment in these sectors.

Similarly, Rajan and Zingales (1998) state that capital markets reallocate capital to the highest value use without substantial risk of loss through moral hazard, adverse selection or transaction costs. This implies that the lack of financial development should disproportionately hinder firms who are typically dependent on external finance. They find that widespread financial services have a significant effect on the quantity of establishments, more than on the size of existing producers. Therefore, financial development would have a rather extensive effect on the quantity of new firms producing on the one side, and on their capacity of boosting new products, new processes and/or new markets.

Do and Levchenko (2004) argue that the quality of the financial system is a function of its size. A larger financial sector leads to the greater ease with which entrepreneurs are able to fulfill the need for external finance. This is because when entrepreneurs start financially intensive projects and engage the country's financial system, they add liquidity. A deeper financial system makes projects less risky by reducing the number of states in which liquidity is lacking. Entrepreneurs that enter the financially dependent sector thus exert a positive externality on the other entrepreneurs. They find plausible the positive feedback from the size of the financial system to its quality.

Finally, Taylor (2008) explains that if credit constraints are less restrictive then effective borrowing costs are lower and intermediate prices are reduced. The extent of the borrowing constraints may differ with a creditor's nationality due to different legal systems or different informational and transaction costs. The degree of borrowing constraints may also vary with the type of pledgeable output, namely output for domestic or export markets. This might reflect the differential ability of lenders to recover export output or to monitor exporting activities relative to domestic output or activities respectively.

3. Up-front investments (fixed costs) of exports

There is an increasing set of evidence that an important part of trade barriers take the form of fixed costs. Several authors such as Rogers and Tybout (1997), Bernard and Wagner (2001), Bernard and Jensen (2004), Chaney (2005), Greenaway, Guariglia and Kneller (2005) and Becker and Greenberg (2003, 2007) find that exporting firms face large fixed costs. The fact of becoming an exporter implies large expenditures in the previous period, not only to finance the sunk costs to enter but also, even before, to identify potential target markets, to learn to deal with new bureaucratic procedures, to develop distribution networks and to invest in physical and human capital, and in R&D in order to improve the productivity performance and adapt products to match foreign regulations and tastes. Moreover, part of the fixed cost associated with international trade corresponds to the cost of acquiring information on a foreign market, which is hard and expensive to get. Naturally, exports vary in the amount of fixed costs they entail. The relative importance of up-front costs varies across sectors for technological reasons specific to the nature of each industry. For example, exporting highly differentiated products that are intensive in R&D and advertising, or that must be tailored to a distant foreign market, requires more up-front investment than exporting a commodity good to a nearby country.

All these costs are difficult to finance for several reasons. Export activities are essentially riskier than domestic ones. Existing financial hedging products such as swaps and options may not be available, or available at a prohibitive cost for most potential exporters. In addition, the contracting environment for international transactions is relatively weak, if existing at all.

Furthermore, this kind of investments is made long before any export revenue is collected and their return may be difficult to pledge. Such fixed costs may be intangible and difficult to observe, have long gestation periods, be firm- or even person-specific and provide limited collateral compared to machine or real estate investments.

Additionally, a higher cost of external capital generates a higher fixed entry cost, especially in industries with a high level of external dependence and a large actual fixed entry cost. Investments in export projects can therefore enable a lower risk diversification, because borrowing from external lenders can be very costly. In countries where the cost of external capital is initially high, investors may therefore prefer to finance projects with a lower entry cost.

For all of the above reasons, it may be very difficult to secure outside financing for export investment. Greenaway, Guariglia and Kneller (2005) focus on whether financial constraints might limit firms' ability to overcome sunk costs, and consequently their entry into export markets, even when other characteristics might predict profitable entry. Only the most productive and largest firms enter export markets, as it is only for these firms that the expected profits from exporting will be sufficiently high to cover the sunk entry costs. Similarly, Melitz (2003) suggests that only the most productive firms are able to overcome

fixed costs associated with exporting. A sophisticated financial system makes it easier to finance these intangible investments since lenders have access to more information, contracts are enforced more reliably, and financial intermediaries are more capable of assessing potential risks and rewards.

This evidence suggests that export performance may depend on financial development, as I explain in the following section.

4. Financial system development and international trade

There are many papers which explore the relationship between financial development and openness. They develop models in which financial markets are a source of comparative advantage. In this section, I make a revision of the theoretical literature dealing with this topic.

One of the most important and first papers in this field is the work of Kletzer and Bardhan (1987). Most of the theoretical literature which stresses the role of external finance is built on this work. They present an international trade model in the Heckscher-Ohlin tradition with two countries, two sectors and two factors. While both sectors depend on land and labour, one sector also depends on external finance for working capital. They show that the country with a lower level of credit market restrictions (it does not face either a higher price of external finance or credit rationing) specializes in the sector that uses external finance.

Beck (2002, 2003) extends this work by allowing both sectors to use external finance. The sector with increasing returns to scale (manufacturing) is more credit intensive than the sector with constant returns to scale (food). While firms in the food sector produce with an inherited technology, manufacturing firms need working capital to purchase the technology every period before the production process. The available external funds for the working capital thus determine the quality of technology and therefore the price. Since financial development shifts incentives of the producers towards the good with increasing returns to scale, the intersectoral specialization and structure of the trade flows is determined by the relative level of financial intermediation. All else equal, economies with a better developed financial system are net exporters of the good with increasing returns to scale.

Similarly, Chaney (2005) argues that when firms get easier access to external finance, or when more firms get access to cheap external finance, they become able to overcome barriers associated with international trade. Consequently, more firms export and total exports increase.

Rajan and Zingales (1998) argue that the cost of external finance is especially high in countries characterized by a very low level of financial development. Firms using a higher proportion of external finance for their operations should also bear a higher borrowing cost in those countries. Instead, countries with a higher level of financial development should have a comparative advantage in industries relying more on external finance and therefore higher exports shares and higher trade balances in these industries.

In addition, Svaleryd y Vlachos (2002) view the financial sector as a factor of production. A country relatively well endowed with well-functioning financial institutions should tend to specialize in sectors relatively intensive in the use of the financial services. As a result, countries with well-functioning financial systems tend to specialize in industries highly dependent on external financing.

Otherwise, Baldwin (1989) develops a two-country, two-sector and one-factor model, in which the demand for one of the goods is subject to demand shocks, while the other is not. He shows that in economies with better developed financial markets and therefore better possibilities to diversify risk stemming from the demand shocks, firms producing the risky good face lower risk premia and lower marginal costs. Consequently, this kind of countries specializes in the risky good.

One of the key elements that allow a firm to enter to the export market to be taken into account is the access to the financial system in order to invest, innovate and be able to incur sunk costs. As a result, one of the most important links between financial development and international trade is the finance of the export fixed costs. As it was detailed in the previous section, exporters must incur important costs to enter foreign markets and therefore countries with a well developed financial system will enjoy some comparative advantage for several export activities. Namely, Chaney (2005) also proposes that if there are fixed costs associated with exporting and liquidity constraints at the firm level, only those firms that are productive enough and generate sufficient cash flows from their domestic sales are able to export. The model predicts that a deepening or a widening of the financial markets will increase total exports.

Taylor (2008) argues that if entrepreneurs face less restrictive credit constraints as a result of financial sector reforms then investment can increase more in response to a lowering of variable export costs. The positive effects of trade liberalisation on average productivity and producer size are enhanced if domestic financial sector reforms are more advanced.

Following Melitz (2003), depending on her productivity an entrepreneur may choose to produce output for the domestic market or to pay additional costs to access export markets. A rise in trade openness leads to a fall in the exporting cutoff and a rise in the propensity of producers to export. Domestic financial sector development, in facilitating greater investment, can enhance the marginal effects of trade liberalisation in increasing average productivity and firm size.

Moreover, the initial conditions of the countries and industrial sectors and firms are very important. Acemoglu and Zilibotti (1997) show that in countries where capital is scarce, risk-averse investors will prefer to invest in projects with a low return, but that require a lower start-up cost, in order to achieve a better risk diversification. The marginal effect of financial development on exports may therefore be reduced in countries having a low initial development of their financial market. On the other hand, in countries having a high initial development of their financial market, the marginal effect of finance may also be reduced as a consequence of a reduction in the number of new potential projects. They find that the influence of finance on the value of exports between trade partners, and that on the probability that two countries are trade partners, may be reduced in countries having a low or high initial development of their financial market, especially in external dependent industries.

Manova (2005, 2006) develops a multi-sector model with credit-constrained heterogeneous firms, countries at different levels of financial development and sectors of varying financial vulnerability. Firms face credit constraints in the financing of the fixed export costs, which affect them in different countries and sectors differentially. In particular, for technological reasons, firms in some sectors need to finance a greater share of their export costs externally. In addition, sectors differ in their endowment of tangible assets that can serve as collateral. Thus, entrepreneurs find it easier to start exporting in some sectors because they need less external finance or because potential investors expect a higher return. Since more productive firms raise higher revenues, they can offer creditors a greater return in case of repayment and are hence more likely to secure the outside capital necessary for exporting. Therefore, there are firms who could profitably export in the

absence of credit constraints but are not productive enough to obtain sufficient outside finance. This model predicts that the productivity cut-off for exporting varies systematically across countries and sectors. It is higher in financially vulnerable industries which require a lot of outside finance, have few collateralizable assets or are in financially undeveloped countries. Liberalizations increase exports disproportionately more in sectors intensive in external finance and with softer assets. Additionally, this effect is more pronounced in countries with initially less active stock markets, suggesting that foreign equity flows may substitute for an underdeveloped domestic financial system.

As a result, the financial development affects not only the level of openness but also the international trade pattern and exporting firms´ features. Moreover, Manova (2005, 2006) also suggests that the lower the productivity cut-off for exporting, the greater the number of firms which export and the richer the variety of products countries export. In financially vulnerable sectors more firms become exporters and export greater volumes when located in more financially developed countries. It follows that financially developed countries export a wider variety of products and relatively higher volumes in financially vulnerable sectors. As expected, financially advanced countries export a wider range of products in industries intensive in outside finance and sectors with few collateralizable assets.

Likewise, Becker and Greenberg (2003, 2007) argue that if differentiated products are more difficult to finance than undifferentiated products, countries with better finance should export a larger fraction of differentiated goods. Exports of differentiated product categories are more sensitive to financial development than undifferentiated exports. They also consider that financial development should have a positive impact on the overall level of exports because more firms can find outside financing.

Furthermore, Fanelli and Keifman (2002) underline that in countries with a weak financial system exports are highly concentrated in big and well established companies. As pointed out by Rajan and Zingales (1998) aggregate trade flows are more sensitive to the number of exporting firms than to the volume exported by each firm.

In the same manner, Bernard and Jensen (2004) and Bernard and Wagner (1998) suggest that being part of a conglomerate and/or belonging to foreign capital are commonly view as an asset to participate in foreign markets.

In addition to enhance openness financial development also affects the international trade partners. Manova (2005, 2006) also suggests that market entry depends on not only the exporter´s level of financial development but also the importer´s market size. Because firms´ revenues increase with the size of the destination country, the productivity cut-off for exporting is lower for larger target markets. Thus, while most countries can export to large destinations, financially advanced countries have more trade partners and also export to smaller import markets, especially in financially vulnerable sectors. With credit constraints, however, the decision to export to a country is not independent from the decision to export to other one. This occurs because firms have limited collateral with which to raise external capital and finance the costs of trading with multiple destinations. The more financially developed a country is, the greater the number of countries it exports to. This effect is more pronounced in financially vulnerable sectors.

Further, Helpman, Melitz and Rubinstein (2006) argue that symmetric trade costs between a pair of countries may result in asymmetric trade outcomes. This paper consider a one-sector economy and show that the combination of fixed costs of exporting and firm heterogeneity can explain the selection of countries into exporting, as well as the volumes that countries export.

Otherwise, Berthou (2007) proposes that financial development has a better ability to increase the value of exports between trade partners through an increase in the number of incumbent firms, rather than to generate new bilateral trade relationships. He assumes that firms are initially endowed with an exogenous wealth and borrow the share of the fixed cost that cannot be self-financed. The model suggests that a reduction in the cost of external capital has a positive influence on firm's profit and probability of entry, especially if it is more dependent on the use of external funds.

On the other hand, Feeney and Hillman (2001) propose a different macroeconomic viewpoint. They observe that internationally open financial markets eliminate or reduce the interest in strategic trade policy. They argue that if risk can not be fully diversified and asset market is incomplete, special interest groups of owners of specific capital sectors have incentive to lobby for protection and free trade will not prevail. These authors suppose that ex post the import competing sector can choose to lobby for protection and policy makers respond by implementing a tariff. Before the uncertainty regarding productivity is revealed and specific factor owners can trade in the asset markets. Agents can only trade with a subset of capital. The extent of lobbying and consequently tariffs will be determined by the difference between the income gain and the consumption distortion that are introduced by tariffs. Compared to the model without any trade in sector-specific capital, even limited access to capital markets reduces the payoff from protectionist policies.

Finally, there is other link between international trade and financial development. Several authors study the effect of exchange rate on trade taking into account the level of financial development. For instance, Becker and Greenberg (2003, 2007) argue that exports are less responsive to changes in the exchange rate in countries with less developed financial systems. Also, the allocation across importers responds more to relative exchange rates for countries with high financial development. This effect is particularly strong for differentiated products.

Additionally, in some cases the exchange rate fluctuations may have the opposite effect as predicted by traditional theories. Chaney (2005) argues that exchange rate fluctuations will cause larger movements of the volume of exports if financial markets are perfectly developed. When the exchange rate appreciates, some existing exporters lose competitiveness in the foreign market and stop exporting. But at the same time, the value of domestic assets denominated in foreign currency increases, so that liquidity constrained firms start exporting. The net effect on the extensive margin is mild. Under some circumstances, despite the loss in competitiveness, a real exchange rate appreciation may actually lead to an increase in aggregate exports. If competitiveness does not have too large an impact on the size of market shares, that is if goods are very differentiated, then the entry of liquidity constrained exporters following an appreciation of the exchange rate will dominate.

5. Causality

Establishing causality has typically been difficult in the finance and trade literature. Although most authors conclude that financial development enhances international trade, many economists have argued that the development of the financial sector follows rather than leads the development of the real sector. If openness affects financial development, it could be one of the channels through which international trade influences economic growth.

For instance, Beck (2003) documents that the specialization of a country in specific industries creates the demand for a well-developed financial sector. Furthermore, Manova

(2006) argues that reverse causality may arise because an increase in relative foreign demand for sectors intensive in external funds may lead to both higher exports from these industries and to more borrowing in the economy.

Svaleryd and Vlachos (2000, 2001), using as measure for size of financial sector the ratio of liquid liabilities to GDP, find that the direction of causality seems to run from trade liberalization to financial development. This indicates that the demand for the services provided by the financial sector increases after trade liberalization.

Feeney and Hillman (1998, 2001) suggest that the demand for financial services increases when the volatility of income goes up because of the higher level of openness. In this case, causality would run from openness to financial development. Another possibility is that the demand for insurance increases after liberalization, thus promoting the development of the financial sector.

Similarly, both Agell (1999) and Rodrik (1997) warn that the current trend towards globalization of economic activity leads to a greater exposure to risk, and thus greater demand for risk-reducing reforms, while simultaneously reducing the scope for government interventions especially through taxation and labour-market regulations.

Further, Taylor (2008) highlights the role of exports as collateral as channels through which domestic financial sector reforms may be transmitted to trading partners.

Another issue regarding causality is concerned with the timing of liberalization events. Trade liberalization seems to precede or be simultaneous with international financial liberalization. In practice, it is difficult to separate trade and financial liberalization from each other. Braun and Raddatz (2004, 2006) document that trade and financial liberalization do not necessarily come separately but rather may be part of a reform process that includes both. Countries may be more likely to liberalize trade and the financial system when the external conditions are most favourable.

As shown by Tamirisa (1999), capital controls can effectively work as an impediment to trade. Thus, measures of financial openness, rather than explaining trade policy, may be part of what authors wish to explain. Since trade and financial liberalization can be part of the same policy, questions concerning the timing between the two types of events are hard to sort out.

Likewise, Baldwin y Seghezza (1996) argue that if banks are imperfectly competitive and financial services are traded, the wedge between the rate savers receive and investors pay is endogenous and affected by trade policy. In particular, reciprocal liberalization of trade in financial services leads to a procompetitive effect that reduces this wedge and thereby boosts the steady-state capital stock.

On the other hand, according to authors such as Do and Levchenko (2004), the causality is concerned with the level of economic development of the countries. They argue that opening to trade will affect the demand for external finance, and thus the financial depth in the trading countries. In particular, when a wealthy country starts trading with a poor one, it will naturally increase production of the financially dependent good, and its financial system will deepen. In the poor country, instead, the financially dependent sector will shrink, leading to a deterioration in the size of the country's financial system, as well as its quality. When a poor country no longer needs to produce the financially dependent good, demand for external finance will decrease as a result of trade, and the domestic financial system will suffer. Consequently, this could induce losses from trade to the poor country.

Finally, as Newbery and Stiglitz (1984) suggest, other effect of trade opening on financial development is that trade can increase uncertainty and income variability of agents within the economy. Financial system could then be expected to grow after trade opening, as agents' demand for insurance increases. The model predicts that in wealthy countries, trade should be associated with faster financial development. By contrast, in poor countries, more trade should lead to slower financial development, as these countries import financially intensive goods rather than develop their own financial system.

6. Empirical evidence

There is an increasing empirical literature testing the effects of financial development on international trade. For example, studies by Bowen, Leamer and Sveikauskas (1987) and Trefler (1993, 1995) indicate that countries with higher levels of financial sector development are net exporters of goods that are produced by industries with higher reliance on external financing. In this section, I present the main results of the principal empirical works.

Stulz and Williamson (2001), using a panel of 157 countries observed since 1960, find that being open to trade is associated with a level of private credit 28 points of GDP higher, implying that private credit duplicates its share in GDP when comparing open and closed economies. As countries become richer they open up for trade and develop their financial systems.

Likewise, Svalery y Vlachos (2001) study a panel of 80 countries for the years 1960-1994 and use different measures of openness, finding that there exists an economically significant relationship between domestic financial development and openness to trade. In addition, the degree of integration on international financial markets has an independent, positive effect on openness to trade. Despite the efforts to establish causality the results are inconclusive. Evidence of simultaneity between trade and financial development is found, and the direction of causality seems to be running both from financial development to the volume of trade and in the opposite direction.

Beck (2002, 2003) developed an empirical test builds on the assumption that the production of manufactured goods exhibits higher scale economies than the production of agricultural goods or the provision of services. He uses a sample of 65 countries over the period 1966-95, using both cross-country and panel estimations and different measures of financial development. The results are that countries with a better developed financial system have a higher export share and trade balance in manufactured goods and therefore a comparative advantage in industries that use more external finance.

Similarly, Becker and Greenberg (2003, 2007) use a gravity equation for international trade for 100 countries in the 1970-1998 period. They find that a country with better developed finance will export more and finance has a larger positive effect on exports in industries that tend to use more advertising and R&D. For instance, a one standard deviation increase in the measure of financial development, accounting standards, corresponds to a 57% increase in exports. Financial development has a stronger positive influence on trade volume where fixed costs are high. Countries with better financial systems respond more to changes in export opportunities, as captured by exchange movements.

Manova (2005, 2006) evaluates a panel of bilateral exports for 107 exporting countries in 27 manufacturing sectors in the 1985-1995 period and finds that credit constraints affect international trade patterns in three important ways. First, financially developed countries are more likely to export bilaterally and ship greater volumes when they become exporters. This

effect is more pronounced in sectors with a greater need for outside finance or fewer collateralizable assets. Second, credit constraints limit product variety and increase product churning in bilateral exports. Financially developed countries export a wider array of goods in financially vulnerable sectors. In addition, products originating in financially developed exporters are more likely to survive over time, and especially so in financially vulnerable sectors. His results confirm the hypothesis of the theoretical model described in the previous section.

Another example is the paper of Berthou (2007). He uses bilateral trade flow data for 50 exporting and 85 importing countries, for the period 1990-2000. His results confirm that financial development has a positive influence on the probability that two countries are trade partners, especially in those industries where firms highly depend on external funds. This effect, as well as that on the value of exports between trade partners, is much reduced in countries having a low or high initial development of their financial market. In the same manner, Rajan and Zingales (2003) show that the degree of world openness to trade and bank and stock market development both exhibit a U-shaped form in the 20th century.

Finally, Do and Levchenko (2004) use data on financial development for a sample of 77 countries from 1965 to 1995 and find that while for developed countries, higher trade openness is associated with faster growth of the financial system, developing countries that traded more experienced slower growth in their financial systems.

7. Final remarks

These studies show that financial development is highly correlated with exports, particularly, in industries which rely more heavily on external finance, with fewer tangible assets that can serve as collateral and in sectors that face higher entry external market costs. Further, these papers present evidence of financial development as a source of comparative advantage. Borrowing constraints affect the composition of a country's exports by limiting the investment opportunities open to producers with insufficient private capital.

Those results add to the current debate on the impact of market liberalizations on growth, and therefore have important policy implications for financially underdeveloped countries. Consequently, the development of better financial institutions may be complementary with other trade-promoting policies (e.g. subsidies, reduced tariffs, etc.) or in several cases, a more effective way of promoting exports.

In particular, a country with a low level of financial development might undertake financial sector reforms that raise the level of external finance available to private enterprises. These reforms might include strengthening creditor rights and contract enforcement through judiciary and judicial reforms.

Moreover, policies ensuring that there is efficient intermediation of funds might help financially constrained firms which are less likely to enter export markets because of difficulties in meeting entry costs. Such policies therefore have the potential to promote growth.

On the other hand, there are several promising directions for future research about the relationship between financial development and international trade. Namely, foreign direct investment (FDI) and exports are sometimes substitutes. Helpman, Melitz and Yeaple (2003) analyze the choice between exports and local production for servicing a foreign market. Other FDI is more likely to complement exports and could be related to fixed costs. One such

type of FDI consists of subsidiaries for local distribution in a foreign country. Setting up such subsidiaries involves incurring initial costs. This type of FDI is more likely in cases where fixed costs are generally high (e.g. complex products, language differences and regulatory dissimilarities). A second kind of FDI is undertaken by foreign firms investing for local production and export to third countries. Such FDI is more prevalent in local markets that are financially underdeveloped. In markets where local firms are constrained, more export opportunities remain unexploited unless foreign firms can fill the gap.

Another interesting extension would be to analyze the potential effects of financial markets on the choice of technology. For instance, Svaleryd and Vlachos (2002) argue that since financial markets are supposed to solve information problems in the market place, they are likely to affect the choice of technology. Carlin and Mayer (1999) show that the financial system affects R&D. R&D activities are very expensive and firms producing in the innovation sector must face additional cost in order to invent new goods. The financing of this sector is important in order to a country could export more added-valued goods.

In addition, to get a better understanding of financial market´s effect on technology, it is needed a better grasp of why some industries are more dependent on external financing than others. Incorporating other institutional factors would be another extension along the same lines.

Finally, this literature is focused on the link between financial development and exports rather than imports. However, it would be very interesting study how financial markets affect the imports. In particular, the more available finance to import firms, the more capital and R&D intensive goods they could import. Importing capital and R&D intensive goods is important to developing countries due to this kind of goods are not produce domestically.

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