

Stock Market Liberalizations and Export Dynamics

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WORLD BANK GROUP

Macroeconomics, Trade and Investment Global Practice

February 2023

Abstract

Foreign investors facilitate efficiency-enhancing structural change in the recipient countries. After countries liberalize their stock markets and allow foreign investors to acquire equity stakes in domestic firms, products that do not correspond to the liberalizing countries' comparative advantage disappear disproportionately faster from their

export portfolios. At the same time, the overall long-term export performance of the liberalizing countries improves. Domestic stock market development does not have the same disciplining effect in terminating inefficient exports. Foreign investors thus play a unique role in improving resource allocation in the real economy.

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Stock Market Liberalizations and Export Dynamics*

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JEL classification: G15, G34, F65, F11

Keywords: financial liberalization and structural change, disciplining role of foreign investors, export dynamics

*We would like to thank for very useful comments and discussions Sumit Agarwal, Nicolas Berman, Olivier Cadot, Caroline Freund, Nandini Gupta (session chair), Björn Hagströmer, Jean Imbs, Eva Liljebloom, Christian Lundblad (discussant), Taylan Mavruk (discussant), Lars Nordén, Lars Oxelheim, Daniel Paravisini, Kelly Shue, Mathias Thoenig, Neeltje van Horen, Andrei Zlate (discussant), and the seminar and conference participants at U of Glasgow, Toulouse BS, Aarhus U, Stockholm BS, U of Groningen, IESEG, Trinity BS, Lund U, CICF in Guangzhou, FMA Annual Meeting in San Diego, Econometric Society Meetings in Davis and Cologne, Gothenburg-Lund Workshop in Finance, Zeuthen Workshop on International Financial and Monetary Architecture, and Conference on Trade and Integration in a Time of Anti-Globalization. The paper is part of a World Bank program. Melise Jaud appreciates the financial support from Swiss National Science Foundation and Martin Strieborny appreciates the financial support from Handelsbanken Research Foundation. The authors also gratefully acknowledge research grant obtained from Webster University Geneva. The most recent version of this paper including an accompanying Online Appendix can be downloaded from www.martinstrieborny.com

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1 Introduction

Can foreign investors trigger an efficiency-enhancing structural change in the recipient countries? While financial openness seems to boost overall investment and economic activity (Henry 2000a; Bekaert, Harvey, and Lundblad 2005; Gupta and Yuan 2009; Levchenko, Rancière, and Thoenig 2009), things get more complicated when looking at the structural impact of foreign investors. Not only do foreign-owned firms affect the productivity and corporate governance of their immediate competitors and suppliers (Javorcik 2004; Albuquerque et al. 2019). The entry of foreign investors also brings economy-wide structural changes with ambiguous impact on economic efficiency. On the one hand, financial liberalization can trigger positive changes in corporate regulations and governance (Stulz 2005; Doidge, Karolyi, and Stulz 2007; Kaminsky and Schmukler 2008). On the other hand, it can decrease incentives for the government to pursue necessary economic reforms (Fernández-Villaverde, Garicano, and Santos 2013; Challe, Lopez and Mengus 2019) and discourage domestic banks from proper monitoring of their corporate borrowers (Alessandria and Qian 2005; Tressel and Verdier 2011). An inflow of foreign capital can improve market efficiency by relaxing financing constraints (Gupta and Yuan 2009), but it can also worsen capital misallocation by benefiting mostly unproductive firms (Reis 2013; Gopinath et al. 2017). Identifying the full structural impact of financial liberalization thus requires data that are both disaggregated and cover the whole economy.

This paper examines whether the entry of foreign investors aligns the export portfolio of the recipient country with its comparative advantage. The use of disaggregated data covering countries' entire export portfolios allows us to capture the full structural impact of foreign investors, including potential firm-to-firm spillovers and economy-wide externalities. Moreover, the product-level data on international trade are available and comparable across a large set of diverse countries. This makes them a valuable alternative to firm-level census data, which allow for an analysis of structural changes within one particular country (e.g., Varela 2018). Finally, the concept of comparative advantage in international trade provides a natural framework to examine allocative efficiency. After all, the idea that countries should specialize in exporting products where they possess

comparative advantage represents one of the basic tenets of economic thinking.

Our difference-in-differences estimation strategy examines disaggregated export flows from multiple countries that open up to foreign investors at different points of time. We compute alignment of countries' exports with their comparative advantage across more than a thousand different product categories. We combine these data with moments in time when governments of different countries for the first time allow foreign investors to acquire equity stakes in domestic firms. These stock market liberalization events allow for the estimation of a staggered treatment of financial integration and have often been used as quasi-natural experiments to explore the impact of foreign investors on the domestic economy (see the review by Henry 2007 as well as Bekaert and Harvey 2000; Henry 2000a, 2000b; Bekaert, Harvey, and Lundblad 2005; Manova 2008; Gupta and Yuan 2009; Defever and Suedekum 2014). As an additional test, we also develop a new continuous measure capturing the intensity of stock market liberalization at the industry-country level.

Using data covering 1,299 products exported by 81 countries, we find that financial liberalization events push countries' export portfolios closer to their comparative advantage. After foreign investors are allowed to invest in the domestic stock market, the products that do not correspond to the comparative advantage of the liberalizing country face significantly worse chances of remaining in the country's export portfolio. At the same time, the overall long-term export performance of the liberalizing country improves. These results are robust to controlling for other financial and non-financial transmission channels related to the strength of domestic banks and stock markets in the exporting countries, economic development, trade openness, and trade liberalization events.

The rest of the paper is organized as follows. Section 2 discusses the contribution of our paper in the context of existing literature. Section 3 describes the data, and Section 4 outlines our estimation strategy. Section 5 presents the empirical results. Section 6 provides evidence that the economic mechanism driving our results relates to the monitoring by foreign investors. Section 7 concludes and suggests directions for further research.

2 Contribution and Related Literature

This paper is related to three strands of literature. First and foremost, we contribute to the literature looking at the economic impact of opening the domestic economy to foreign investors. The existing research finds positive effects of such financial liberalization on aggregate economic outcomes including domestic investment (Henry 2000a), economic growth (Bekaert, Harvey, and Lundblad 2005; Gupta and Yuan 2009; Levchenko, Rancière, and Thoenig 2009), and international trade (Manova 2008; Defever and Suedekum 2014) while also raising concerns about potential adverse effects in terms of more volatile capital flows (Broner and Ventura 2016) and increased vulnerability to financial crises (Reinhart and Rogoff 2009).¹

More recently, the researchers started to look beyond the aggregate outcomes and explore the structural changes brought by foreign investors to recipient economies (e.g., Bekaert et al. 2007; Gopinath et al. 2017; Larrain and Stumpner 2017; Varela 2018).² One of the main challenges in this research is to capture the full structural impact of foreign investors relevant for a broad group of countries.

For one thing, the empirical work on allocative consequences of financial liberalization faces a trade-off between the cross-country coverage and comparability of the available data on the one side and their disaggregation level on the other side. Researchers thus often have to choose between utilizing disaggregated firm-level data and maximizing the number of countries across different stages of financial and economic development in their sample.³ The framework of international trade allows us to use highly disaggregated

¹ Papers examining the impact of financial liberalization on the outcomes in financial markets include, e.g., Bekaert and Harvey (2000), Henry (2000b), Kaminsky and Schmukler (2008).

² Related research examining the impact of domestic financial development on allocation of physical capital includes, e.g., Wurgler (2000), Beck and Levine (2002), Love (2003), and Fisman and Love (2004, 2007).

³ Bekaert et al. (2007) use country-time panel data covering 50 countries between 1980 and 2002 and show that financial openness is an important factor in aligning growth opportunities with actual growth. Larrain and Stumpner (2017) rely on firm-level data from 10 post-communist countries in Central and Eastern Europe and provide evidence that capital account liberalization helps financially constrained firms to demand more capital and produce at more efficient levels. Gopinath et al. (2017) explore capital misallocation using firm-level data from Spain and extend part of their analysis to five other countries in Western Europe. Both papers rely on databases provided by ORBIS-AMADEUS that cover most of the manufacturing firms in the respective countries. Varela (2018) looks at impact of lifting the restrictions on international borrowing by using firm-level census data covering all manufacturing firms in Hungary.

product-level data that are both internationally comparable and available for a broad cross-section of diverse countries.

More fundamentally, identifying the overall structural effect of financial liberalization is difficult because foreign investors do not affect only those firms where they acquire equity stakes. For example, foreign-owned firms often improve the productivity of their local suppliers (e.g., Javorcik 2004). And while foreign investors provide an additional source of financing for firms, the aggregate structural implications of better access to external finance are unclear.⁴ Financial liberalization can relax financial constraints for firms with good growth prospects (Gupta and Yuan 2009) but also for larger unproductive firms (Gopinath et al. 2017). The risk of an overall negative allocative impact is particularly high if the recipient country has an underdeveloped domestic financial system (Reis 2013, Gopinath et al. 2017).

Opening the economy to foreign investors also generates across-the-board structural changes in the recipient countries. On the positive side, financial liberalization can provide better incentives for domestic firms to improve corporate governance (Dojige, Karolyi, and Stulz 2007), put a stop to governments extracting rents from investors (Stulz 2005), and trigger positive institutional reforms in areas like law and order or prosecution of insider trading (Kaminsky and Schmukler 2008). On the negative side, increased capital inflows can lead to an abandonment of necessary economic reforms and a general deterioration of institutional quality in the recipient countries (Fernández-Villaverde, Garicano, and Santos 2013; Challe, Lopez and Mengus 2019), hinder the ability of domestic banks to effectively monitor the corporate borrowers (Alessandria and Qian 2005), and provide banks with incentives to collude with the borrowers and deliberately decrease the monitoring intensity (Tressel and Verdier 2011). The difficulties in capturing the full structural impact of foreign investors by comparing the performance of acquired and non-acquired domestic firms can be further exacerbated if some spillovers also affect the stock prices of the remaining domestic firms. This would make those firms cheaper or more expensive

⁴ Opening up to foreign capital usually leads to a lower real interest rate and cheaper access to external finance for domestic firms although in principle the real interest rate could also increase following the financial liberalization (see, e.g., Bekaert and Harvey 2000 or Henry 2000a).

and thus more or less likely to be also later acquired by foreign investors.⁵

The impact of these spillovers and externalities is presumably substantial, given that the measured effects of financial liberalization often differ depending on the aggregation level of the used data. For example, foreign investors seem to have strong impact on the productivity measured both at the firm level (Varela 2018) and at the country level (Bonfiglioli 2008; Bekaert, Harvey and Lundblad 2011; Chari, Henry and Sasson 2012), while at the industry level there might be no productivity effects at all (Levchenko, Rancière, and Thoenig 2009).⁶ The effects of financial liberalization on investment and economic activity also seem to be stronger when measured at a more disaggregated level (Henry 2007; Bekaert et al 2011). It is thus important to distinguish between the impact of financial liberalization on firms attracting foreign investors and the overall net effect on the recipient economy (Mitton 2006, p. 646).

In our paper, we sidestep the issue of economic externalities and examine the full structural impact of financial liberalization with the help of product-level data covering countries' complete export portfolios. Furthermore, the Heckscher-Ohlin framework of international trade allows us to look beyond the usual focus on the misallocation of physical capital and consider also other factors of production like labor, land, and human capital.

Second, we contribute to the literature examining the disciplining impact of foreign investors. Foreign investors might act more forcefully as external monitors because they lack business relations with local firms and thus do not feel loyal to the local management (e.g., Gillan and Starks 2003; Ferreira and Matos 2008; Aggarwal et al. 2011; Bena et al. 2017; Luong et al. 2017). This disciplining impact can also extend beyond the firms where foreign investors ultimately acquire equity stakes. For instance, foreign-owned firms can generate substantial spillovers in terms of improved corporate governance to

⁵ This so-called "feedback effect" has been so far analyzed mostly in the domestic context of US firms and investors (see, e.g., Bradley et al. 2010; Edmans, Goldstein, and Jiang 2012), but it could also affect an empirical analysis focusing on the structural impact of foreign investors.

⁶ These contradictory results could be reconciled if the increase in the aggregate productivity was driven mostly by reallocation of resources from less productive to more productive sectors (Bonfiglioli 2008, p. 353). However, recent evidence suggests that the increases in aggregate productivity following financial liberalization in India and Hungary have been driven by increasing productivity within firms rather than such reallocation effects (Bollard, Klenow and Sharma 2013; Varela 2018).

their domestic competitors (Albuquerque et al. 2019).⁷ Our results are consistent with these arguments. We show that allowing foreign investors to acquire equity in domestic firms pushes the export portfolio of the liberalized economy closer towards its comparative advantage. At the same time, we do not find any disciplining impact of domestic stock market development when it comes to termination of inefficient exports, with this latter result being also in accordance with previous research (Jaud, Kukenova, and Strieborny 2018).⁸ Section 6 provides further corroborative evidence linking our results to the unique ability of foreign investors to increase efficiency through their superior monitoring abilities.

Third, the paper is related to the literature examining the determinants of establishing a long-term successful presence in the foreign markets. Besedeš and Prusa (2006a) were the first to show how short-lived most of the exports are, with subsequent research confirming the importance of export survival for the overall export performance of countries (e.g., Besedeš and Prusa 2006b; Nitsch 2009; Brenton, Saborowski, and von Uexkull 2010; Cadot et al. 2013). Long-term export survival often seems to be the decisive export margin separating the successful exporting countries from the unsuccessful ones (see, e.g., Besedeš and Prusa 2011). And while there has been research on the role of the domestic financial sector in this regard (Jaud, Kukenova, and Strieborny 2015, 2018, 2021), we are not aware of a systematic analysis linking financial liberalization and export survival. More generally, our paper also relates to the literature examining the impact of finance on other margins of international trade like export entry or export volume (e.g., Beck 2002, 2003; Amiti and Weinstein 2011; Becker, Chen, and Greenberg 2013; Manova 2013; Paravisini et al. 2015).

⁷ In the domestic US context, Aslan and Kumar (2016) and Gantchev, Gredil, and Jotikasthira (2019) explore both corporate governance and productivity spillovers from firms targeted by the hedge fund activism to the non-targeted firms. The transmission channels they identify (product market competition, attempts by the management of the non-targeted firms to avoid hostile activism themselves) might also be relevant in the case of foreign investors.

⁸ Recent research about finance and relationship-specific investment (Strieborny and Kukenova 2016; Strieborny 2017) also indicates a special role for foreign investors that goes beyond the development of domestic stock markets in general.

3 Data

Our unit of observation is an export spell - continuous exporting of product k from country c to the world market. The term “time” refers in this paper to the year when an export spell started unless stated otherwise. The final sample contains data on 1,299 products exported from 81 countries and focuses on export spells that started between 1980 and 1997. Many financially closed countries opened up their domestic stock markets for the first time during this period, with different countries allowing foreign investors to acquire equity stakes in domestic firms in different years. This wave of staggered financial liberalization happened before the more controversial explosion of cross-border financial flows in the 2000s that preceded the global financial crisis.⁹

3.1 Financial variables

A stock market liberalization event occurs when the government of a country opens up its domestic stock market to the presence of foreign investors, allowing them to acquire equity stakes in domestic companies. Bekaert, Harvey, and Lundblad (2005) report the official years of these liberalization events, covering the period of extensive financial liberalization in many countries between 1980 and 1997.¹⁰ Based on these years, we construct a liberalization dummy that is equal to one if a given country allows in a given year foreign investors to acquire shares in the domestic firms and zero otherwise. The liberalization dummy thus always equals one for the countries that implemented stock market liberalization prior to 1980. By the same token, the dummy always equals zero for the countries that did not liberalize their stock market until 1997. For countries that opened up their stock market to foreign investors during the period 1980-1997, the liberalization dummy takes value one if a given export spell is exposed to the liberalization event, i.e.

⁹ In most specifications, we follow the export spells until 2006, the year before the global financial crisis began. In one of the robustness tests reported in Online Appendix F3, we stop following the export spells already in the year 1997 rather than 2006.

¹⁰ Online Appendix A1 provides a list of the countries. The original database of Bekaert, Harvey, and Lundblad (2005) covers 91 countries, including 41 countries that liberalized their stock market at some point during the 1980-1997 period, 16 countries that liberalized their stock market prior to 1980, and 34 countries that kept their stock market closed to foreign investors during the whole period under consideration. In our final sample, the number of all countries declines from 91 to 81 and the number of countries that liberalized their stock market during the 1980-1997 period declines from 41 to 36 due to the lack of data for some of the control variables.

if the stock market liberalization occurs before or during the lifetime of the spell.

In Subsection 5.3 and Online Appendix D, we also use alternative measures of stock market liberalization. First, we construct a dummy variable based on the dates related to the first signs of liberalization that can sometimes precede the official liberalization dates. The source of these alternative dates for stock market liberalization events is Bekaert, Harvey, and Lundblad (2005). Second, we introduce two versions of a continuous variable capturing the stock market liberalization intensity at the industry-country level. Both versions are based on the proportion of domestic equities the foreign investors can acquire. We compute them from the data on the market capitalization of firms included in the IFC Investable index and IFC Global index available in the Emerging Stock Market Factbooks of International Finance Corporation.

As for other financial variables, our proxies for the level of domestic banking and stock market development in the liberalizing countries are the ratio of private credit to GDP and the ratio of stock market capitalization to GDP, respectively. Both variables are from the database by Beck, Demirgüç-Kunt, and Levine (2000). The industry measure of dependence on external finance at the ISIC 3-digit level is from Braun (2003). This measure goes back to the seminal paper by Rajan and Zingales (1998) and captures the share of capital expenditures that cannot be financed by internally generated funds. It is computed as ratio of the capital expenditures minus cash flow from operations to the capital expenditures for the median publicly listed company in a given US industry, using the financial data on US firms from Compustat.¹¹

3.2 Distance to comparative advantage

Distance to comparative advantage captures how far is a given product from the comparative advantage of a given country. Building upon the notion of “product chain of comparative advantage” within the Heckscher-Ohlin theoretical framework (see Online Appendix A2 as well as Jones 1956-57; Bhagwati 1972; Deardorff 1979) and previous

¹¹ The idea of using data on publicly listed US companies to compute a generic industrial measure of dependence on external finance relies on the argument that these companies face relatively frictionless financial markets. Consequently, the need for external finance of a median US public company captures the true technologically determined need for external finance at the industry level that is unaffected by various financial and contractual frictions facing smaller firms or firms in less financially developed countries. See Rajan and Zingales (1998) and Braun (2003) for a more detailed discussion.

work by Cadot, Carrère, and Strauss-Kahn (2011) and Jaud, Kukenova, and Strieborny (2018), we measure this distance by the Euclidean distance between the vector of the exporting country’s relative factor endowments and the vector of the exported product’s relative factor intensities:

$$distance_{ck} = \sqrt{std(\kappa_c - \hat{\kappa}_k)^2 + std(h_c - \hat{h}_k)^2 + std(l_c - \hat{l}_k)^2} \quad (1)$$

The Heckscher-Ohlin theory maintains that exported products should intensively use those factors of production that are abundant and therefore cheap in the exporting country. Consequently, the relative factor intensity of the exported products should be as close as possible to the relative factor endowment of the country that exports them. In the above equation, κ_c , h_c and l_c are the exporting country’s endowments in physical capital, human capital and land, all relative to the fourth production factor - labour (e.g., κ_c represents the capital/labor ratio in a country c). $\hat{\kappa}_k$, \hat{h}_k and \hat{l}_k are the corresponding relative factor intensities of the exported product (e.g., $\hat{\kappa}_k$ represents capital/labor intensity for a product k). Since the production factors are measured in units that are not directly comparable, we standardize the differences between the product’s factor intensities and the country’s factor endowments to have zero mean and unit variance (“std” in Equation 1 stands for “standardized”).¹²

Our approach should be seen as complementary to the Ricardian theory that stresses technology as an alternative source of comparative advantage in international trade. Our focus on factor endowments is motivated both by data availability and existing evidence that Ricardian forces of technological differences do not bias tests of the Heckscher-Ohlin model. Online Appendix A2 discusses these issues in more detail.

The data on relative factor endowments and factor intensities is taken from Cadot, Tumurchudur, and Shirotori (2009). While finding proxies for factor endowments at the country level is relatively straightforward (physical capital constructed according to the perpetual inventory method, years of schooling, hectares of arable land, number of workers), factor intensities at the product level are not easily observable. Cadot,

¹² The resulting metrics $distance_{ck}$ is time-varying as countries’ relative factor endowments evolve over time, with the time subscript in Equation 1 omitted for simplicity.

Tumurchudur, and Shirotori (2009) therefore compute revealed factor intensities, using methodology introduced by Hausmann, Hwang, and Rodrik (2007). Building upon the concept of revealed comparative advantage developed by Balassa (1965), the idea is that a product exported mostly by countries well-endowed with a certain production factor is “revealed” to be intensive in that factor. Online Appendix A3 provides more detail.

3.3 Other variables

We use export data from the UN Comtrade database. The data is reported at the level of 4 or 5 digits of the SITC product classification and comprises 1,299 different product categories. We construct a survival database focusing on the information about the starting and ending year of a trade relationship. To correct for left-censored observations (i.e., export spells that are already in place at the beginning of the sample) and to match the survival database with the period covering the stock market liberalization events, we drop all export spells that started before 1980 and after 1997. We also construct several spell characteristics using the original export data: the number of suppliers (i.e., exporting countries) of a given product to the world market (measured at the product-time level), initial export value of a given product (country-product-time level), total value of country’s exports to the rest of the world (country-time level), and number of export spells during the sample period for a given country-product pair (country-product level).

The physical and human capital intensities at the level of ISIC 3-digits industrial sectors are taken from Braun (2003). The data identifying products as homogeneous, differentiated or price-referenced in trade publications (an intermediate category) is from Rauch (1999). The annual data for GDP per capita in the purchasing power parity terms (GDP pc in PPP terms) is taken from the World Development Indicator Report 2006, and is reported in constant 2000 US dollars. The data for real exchange rate is also taken from the World Development Indicators database. The trade openness variable (the sum of a country’s exports and imports divided by its GDP) is from the Penn World Tables. The IMF dummy capturing whether a given country was a subject to the IMF program (i.e., received an official IMF loan) in a given year is constructed based on data from the

International Monetary Fund. Trade liberalization dates come from Wacziarg and Welch (2008) who extended and refined the database of Sachs and Warner (1995).¹³

The data on Legal System and Property Rights used in Section 6 come from the Economic Freedom Database by Fraser Institute. The index captures the degree of protection of property rights in the countries for the year 1980. The index varies from 0 to 10, with the lower number corresponding to a lower level of investor protection. Gwartney, Lawson, and Norton (2008) provide more details. The alternative measures of legal environment used in Online Appendix E (Efficiency of Judicial System, Rule of Law, Risk of Expropriation, Repudiation of Contracts by Government, and Investor Protection - an average of the three previous measures) are based on La Porta et al. (1998). The original sources of data for these alternative measures are from Business International Corporation and International Country Risk Guide (see La Porta et al. 1998 for details).

3.4 Preliminary evidence and descriptive statistics

Figure 1 and Figure 2 show Kaplan-Meier survival functions capturing the probability of a new export spell to survive after year 1,2, etc. Given the annual frequency of the data, the survival probability in the first year is one by default. Both figures focus on the average export survival rate for products that are in the 25th and 75th percentile of distance to comparative advantage, i.e. products that are close versus far away from the comparative advantage of the exporting country. Only countries that did liberalize during the period 1980-1997 are included. For these countries, Figure 1 reports the survival rate before and Figure 2 the survival rate after the event of stock market liberalization.

The comparison of Figure 1 and Figure 2 reveals that the overall export performance of countries improves after they allow foreign investors to acquire equity stakes in domestic companies - both survival functions move upwards. However, this effect is not uniform across products. The exported products that do correspond to the comparative advantage of the liberalizing countries benefit disproportionately more from the entry of

¹³ Sachs and Warner (1995), define a country as open to trade if it meets *none* of the following criteria: Average tariff rates of 40 percent or more; Nontariff barriers covering 40 percent or more of trade; A black market exchange rate at least 20 percent lower than the official exchange rate; A state monopoly on major exports; A socialist economic system. Wacziarg and Welch (2008) rely on additional sources to identify the dates of abolishment of export marketing boards and the dates when multiparty governance systems replaced communist regimes.

foreign investors. The survival function for the products in the 25th percentile of distance to comparative advantage (blue line) moves upward more strongly and is much clearer above the survival function of products in the 75th percentile of distance to comparative advantage (red line) in [Figure 2](#) compared to [Figure 1](#).¹⁴

[Table 1](#) reports descriptive statistics regarding the export spells in our sample that support the preliminary evidence from [Figure 1](#) and [Figure 2](#). Similarly to these two figures, the upper half of [Table 1](#) focuses on the so-called “switchers” - countries that liberalized their stock market (switched from being financially closed to being financially open) during the 1980-1997 period. Comparing the numbers in the first and second rows of [Table 1](#) reveals that both average and median duration of export spells increase after a financially closed country allows foreign investors to acquire equity stakes in domestic firms.

The third and fourth rows of [Table 1](#) capture the situation in the liberalizing subsample before the event of stock market liberalization and can be thus seen as an analogue to [Figure 1](#). We can see that the export performance of products that correspond to comparative advantage of a given country (bottom 25th percentile of distance to comparative advantage - DCA) is practically indistinguishable from the export performance of products that are far away from the comparative advantage (top 25th percentile of DCA). In particular, the median duration of export spells for both product groups is one year, while the average duration is only marginally longer for the products closer to the exporting country’s comparative advantage (1.68 vs 1.66 years).

The fifth and sixth rows of [Table 1](#) (an analogue to [Figure 2](#)) reflect the situation after a country grants foreign investors access to its domestic stock market. The overall length of export spells increases for both categories of products, but the products corresponding to the comparative advantage benefit disproportionately more (average length increasing to 7.78 years and median length to 4 years) compared to products that are far away from the comparative advantage of the liberalizing country (average length increasing to 6.46

¹⁴ Note that the percentiles are defined on a country-by-country basis. Consequently, the graphs capturing the differential survival of products that are close versus far away from comparative advantage of liberalizing countries are not biased by differences across individual countries’ alignment of their overall export portfolio with their comparative advantage.

years and median length to 3 years).

The lower half of [Table 1](#) repeats the whole exercise for the full sample of countries including also countries whose stock markets remained continuously closed or continuously open to foreign investors during the whole 1980-1997 period.

The preliminary evidence in [Figure 1](#), [Figure 2](#), and [Table 1](#) suggests that allowing foreign investors to acquire equity stakes in domestic firms indeed helps countries to re-balance their export portfolios towards their comparative advantage, making better use of available resources. However, this evidence does not control for various alternative channels and other confounding factors at the country, industry, and product level. Before introducing our formal regression framework in the next section, [Table 2](#) reports the summary statistics for the variables included in the later empirical analysis.

4 Estimation Strategy

We apply a difference-in-differences identification strategy within the econometric framework of the survival analysis, focusing on the long-term structural impact of foreign investors. We estimate the widely used Cox Proportional Hazard Model (Cox 1972) that is described in more detail in Online Appendix B1. Our main specification writes:

$$h_{ck}(t) = h_{0,k}(t) \exp[\beta_1 StMLib_{c,t_0} + \beta_2 StMLib_{c,t_0} * distance_{ck,t_0} + \beta_3 * distance_{ck,t_0} + \mathbf{Y}_{cki,t_0} \phi + \delta_c + \delta_{t_0} + \varepsilon_{ck,t_0}], \quad (2)$$

where $h_{ck}(t)$ is the hazard rate of an export spell of product k from country c to the world market. The hazard rate is the probability of an export spell that started at time t_0 to fail at time t . It captures the probability of export failure rather than export success and can be thus seen as a mirror image of the Kaplan-Meier survival functions reported in [Figure 1](#) and [Figure 2](#).

$StMLib_{c,t_0}$ is the stock market liberalization dummy, $distance_{ck,t_0}$ is a distance of exported product k from the comparative advantage of exporting country c , δ_c are exporting-country fixed effects, δ_{t_0} are time fixed effects (with time referring to the year when the export spell started), and ε_{ck,t_0} is a stochastic error term. \mathbf{Y}_{cki,t_0} is a vector including various control variables at the level of exporting country c , product k and industry i .

All explanatory variables are measured at the beginning of the export spell (at time t_0), except for the stock market liberalization dummy, which takes value 1 if the liberalization event occurs before the initiation of a spell or during the life of a spell.¹⁵ Since the stock market liberalization variable varies across time and countries, we cluster the reported standard errors at the country-time level.

The main variable of interest in our difference-in-differences framework is the interaction between stock market liberalization and the product's distance to comparative advantage ($StMLib_{c,t_0} * distance_{ck,t_0}$). A positive coefficient β_2 would suggest a higher hazard rate when stock market liberalization dummy equals one and the exported product is far away from the exporting country's comparative advantage. In other words, products disproportionately relying on scarce factors disappear from the country's export portfolio at a faster rate after foreign investors are allowed to acquire equity stakes in domestic companies.

The liberalization dummy $StMLib_{c,t_0}$ is based either on the year of the official stock market liberalization or on the year of the first sign that stock market liberalization occurred. Alternatively, we also use two versions of a continuous variable capturing the intensity of stock market liberalization at the industry-country level. The stock market liberalization variable becomes in this case $StMLib_{ic,t_0}$ (i.e., it varies both across industries and across countries) and the corresponding specification writes:

$$h_{ck}(t) = h_{0,k}(t) \exp[\beta_1 StMLib_{ic,t_0} + \beta_2 StMLib_{ic,t_0} * distance_{ck,t_0} + \beta_3 * distance_{ck,t_0} + \mathbf{Y}_{cki,t_0} \phi + \delta_c + \delta_{t_0} + \varepsilon_{ck,t_0}] \quad (3)$$

A positive coefficient β_2 would suggest that an increasing intensity of stock market liberalization in a given country and industry accelerates the demise of exported products far away from the exported country's comparative advantage.

Depending on specification, the vector of control variables Y_{cki,t_0} contains various interaction terms controlling for alternative channels that could be correlated with the mechanism captured by the main interaction term. We interact the stock market lib-

¹⁵ We slightly abuse the notation and use subscript t_0 also in the case of stock market liberalization: $StMLib_{c,t_0}$

eralization with the dependence on external finance at the industry level to control for the possibility that stock market liberalizations disproportionately benefit industries that require a high level of external finance. We also control for the possible differential impact of domestic stock markets and banks by interacting distance to comparative advantage both with the ratio of stock market capitalization over GDP and with the ratio of bank credit to private sector over GDP. To control for non-financial alternative channels, we include into several specifications the interactions of distance to comparative advantage with GDP per capita in the PPP terms, with trade openness, and with the trade liberalization dummy. Furthermore, we include in most specifications the interaction terms of physical and human capital endowment at the country level with the intensity of usage of physical and human capital at the industry level.

Finally, we control in all regressions for various product-level variables that could affect the long-term export survival in the world market. The number of active suppliers (i.e., exporting countries) of a product to the world market represents the level of competition but also the potential market size for a given product. The initial export value at the beginning of the export spell reflects the degree of confidence between partners at the initiation of the trade relationship. The total value of a country's exports to the rest of the world accounts for the size and overall export performance of the country. The number of export spells during the sample period for a given country-product pair captures the possibility that repeated exits and re-entries into exporting of given product affect the chances of the long-term export survival in the world market.¹⁶

We allow the shape of the baseline hazard function $h_{0,k}(t)$ to vary across products, by fitting a stratified Cox Proportional Hazard Model with the SITC product code as a stratification variable. Stratification by products adds more flexibility to the model and can be viewed as a more general way (compared to simple product fixed effects) of accounting for time-invariant unobserved characteristics of the products that affect the probability of export exit. Online Appendix B2 provides more details.

¹⁶ Another standard way to control for the presence of repeated exits and re-entries into exporting within the survival framework consists in introducing a multiple spell dummy that is equal to one if there is more than one spell for a given product-country pair during the sample period. The approach chosen here is more general as it explicitly controls also for the number of these multiple spells.

The product strata effects absorb the direct effects of industry characteristics like dependence on external finance or intensity of usage of physical and human capital. By contrast, the control variables at the level of the exporting country are time-varying and therefore *not* absorbed by the exporting-country fixed effects. This applies both to the stock market liberalization variable and to other time-varying country-level variables including stock market development, bank development, GDP per capita, trade openness, trade liberalization dummy, and countries' endowments with physical capital, human capital and land.

5 Empirical Results

All estimations examine the differential impact of stock market liberalizations across exports with different levels of alignment with the comparative advantage. In Subsections 5.1-5.3, the odd-numbered columns report results for the full sample of countries including those countries where domestic stock market was closed or open to foreign investors during the whole period of 1980-1997. The even-numbered columns report results for the subsample of countries where the event of stock market liberalization occurred between 1980 and 1997. For space reasons, the robustness tests discussed in Subsection 5.4 and Online Appendix F report results only for this liberalizing subsample.

Regressions focusing on the liberalizing subsample provide arguably a cleaner estimate for the differential impact of the stock market liberalization. The identification comes in this case purely from within-countries changes after the liberalization events. The results are thus not potentially biased by structural differences between countries that allowed foreign investors to acquire equity stakes in domestic firms already before 1980 (so that liberalization dummy always equals one for a given country) and countries where stock markets were closed to foreign investors during the whole 1980-1997 period (so that the liberalization dummy always equals zero for a given country).

5.1 Baseline regressions

Table 3 provides first evidence about the impact of stock market liberalization on the long-term survival of exports from liberalizing countries to the rest of the world. Spec-

ifications in columns (1) and (2) of [Table 3](#) include a basic set of trade-related control variables that could affect exported product’s survival in the world market. Specifications in columns (3) and (4) include additional control variables at the country-time level as well as interactions of those variables with industry characteristics. The direct effects of industry characteristics are captured by the product strata variable.

In all four columns of [Table 3](#), both the stock market liberalization and its interaction with the distance to comparative advantage have the expected sign and are statistically significant. Stock market liberalization decreases the hazard rate of exports and thus improves the survival odds for products exported from the liberalizing country to the rest of the world. However, it helps disproportionately less when it comes to products that do not correspond to the comparative advantage of the exporting country. The positive and significant coefficient for the main interaction term ($StMLib_{c,t_0} * distance_{ck,t_0}$) suggests that the further away is the exported product from the comparative advantage of the exporting country, the higher hazard rate it faces after the stock market liberalization event.

Among the trade-related control variables, only initial export and number of spells maintain statistically significant coefficients in all four specifications. The initial export (the export value at the beginning of a given export spell) that serves as a proxy for the degree of confidence between partners at the beginning of a new trade relationship has the expected negative sign, decreasing the hazard rate of a given export spell. Repeated exits and re-entries into exporting worsen the long-term export survival (increase the hazard rate) in the world market, as demonstrated by the positive sign for the number of export spells within a given country-product pair during the sample period. Distance to comparative advantage has the expected positive sign, but it is not significant in the last specification reported in column (4). Number of suppliers that can capture both the level of competition and the potential market size also loses significance in the last column of [Table 3](#). The variable controlling for the size of exporting country (total exports) loses significance in the third column of [Table 3](#).

Regarding additional controls that enter the specifications in the last two columns of

Table 3, there is no consistent pattern in terms of significance level for GDP per capita, land endowment, and the interaction of physical capital endowment at the country level with the physical capital intensity at the product level. By contrast, the direct effect of physical capital and the effect of the human capital country-industry interaction have a consistent sign and are statistically significant at the 1 percent level in both column (3) and column (4). The negative coefficients for these two variables suggest that exporting countries' endowment in physical capital decreases the export hazard rate and that human capital endowment disproportionately promotes exports from industries whose production process is particularly intensive in the use of human capital.

Before considering various alternative channels and performing other robustness tests, let us briefly discuss the economic magnitude of the mechanism captured by our main interaction term ($StMLib_{c,t_0} * distance_{ck,t_0}$, with the estimated coefficient β_2). This term captures the differential impact of stock market liberalization on hazard rate of products that are far away versus products that are close to the comparative advantage of the liberalizing country. For any two products, this differential effect is $\beta_2 * \Delta StMLib_{c,t_0} * \Delta distance_{ck,t_0}$, which in case of liberalization zero-one dummy simplifies to $\beta_2 * (1 - 0) * \Delta distance_{ck,t_0} = \beta_2 * \Delta distance_{ck,t_0}$. Let us take as an example India, a country that granted foreign investors access to its domestic market in 1992. Five years before the liberalization event, one of the products from the 75th percentile of distance to comparative advantage (DCA) in the case of India was “hearing aids” (SITC code 89961, DCA value 1.471), and one of the products from the 25th percentile of distance to Indian comparative advantage was “refined copper included remelted” (SITC code 68212, DCA value 0.482). Using the above formula and taking the estimated coefficient for our main interaction term from column (4) of Table 3 implies that after India liberalized its stock market, the difference between the hazard rates of a product far away from its comparative advantage (hearing aids) relative to hazard rate of product close to its comparative advantage (refined copper) increased by approximately 15 percent.¹⁷ Online

¹⁷ $\beta_2 * \Delta distance_{ck,t_0} = 0.152 * (1.471 - 0.482) = 0.15$, which approximately equals 15 percent, when applying the Taylor expansion in the context of the exponential functional form in the Cox Proportional Hazard Model.

Appendix C performs this calculation for all countries that have liberalized their stock market between 1980 and 1997 and where data for computing distance to comparative advantage five years before the liberalization event are available. Due to different levels of DCA dispersion within countries' export portfolios, the computed effects capturing the economic magnitude differ across countries. As shown in the last column of Online Appendix C, these effects range from 15 per cent in case of India to 50 per cent in the case of Iceland, with the average effect being slightly above and the median effect being slightly below 30 percent.¹⁸

5.2 Alternative channels

Several alternative financial and non-financial channels could be correlated with the differential impact of stock market liberalization on export dynamics of products that are closer versus products that are further away from the comparative advantage of the exporting country. Table 4, Table 5, and Table 6 keep the extended set of explanatory variables from columns (3) and (4) of Table 3 and add additional controls capturing such alternative transmission channels.

Table 4 examines alternative financial channels. Columns (1) and (2) add an interaction between stock market liberalization and dependence on external finance into the set of control variables, with the direct effect of the industry-level dependence on external finance being absorbed by the product strata variable. The additional interaction term controls for the possibility that an improved access to finance benefits in particular those industries that require a high share of external financing for their operations (Rajan and Zingales 1998; Manova 2008). A negative coefficient for this interaction term would confirm that after the event of stock market liberalization the hazard rate in the world market is disproportionately lower for exports from industries dependent on external finance.

Columns (3) and (4) of Table 4 include the interaction term of bank credit to private credit over GDP (capturing the level of domestic banking development in the exporting country) with distance to comparative advantage. This variable controls for the possibility

¹⁸ The pattern is similar but number of countries with available data lower when we measure distance to comparative advantage ten years before the liberalization event instead of five years. The results are available upon request.

that a strong banking sector disproportionately increases the hazard rate for products that do not correspond to the comparative advantage of the exporting country, in accordance with theories about disciplining role of debt and superior monitoring abilities of banks (Jaud, Kukenova, and Strieborny 2018).

Columns (5) and (6) of [Table 4](#) include the interaction term of stock market capitalization over GDP (capturing the depth of stock markets in the exporting country) with the distance to comparative advantage. This allows for the possibility that the depth of stock markets interacts with the timing of the opening up of the stock market to foreign investors and/or that deep stock markets differentially affect export survival of products depending on their alignment with the comparative advantage of the exporting country.

The results for either the stock market liberalization or its interaction with distance to comparative advantage are not affected by controlling for additional finance channels in [Table 4](#). Both terms maintain their expected sign and statistical significance. As for the alternative channels, the interaction term of stock market liberalization and dependence on external finance is significant with the expected negative sign in columns (1) and (2), confirming the results of Manova (2008) on export volume also in the context of long-term export survival. The interaction term of distance to comparative advantage with the bank development has the expected positive sign and is statistically significant in columns (3) and (4) while the interaction of distance to comparative advantage with the stock market development in columns (5) and (6) is insignificant, confirming the results of Jaud, Kukenova, and Strieborny (2018) in a different dataset with a different set of exporting countries, a different sample period and a different destination market.¹⁹

[Table 5](#) focuses on alternative non-financial channels that could be correlated with the impact of stock market liberalization on the long-term export survival. Both stock market liberalization and its interaction with the distance to comparative advantage maintain their significant coefficients with the expected signs throughout [Table 5](#).

Columns (1)-(6) of [Table 5](#) look at the impact of economic development and trade

¹⁹ In this paper, we use SITC data that are slightly more aggregated than the data used by Jaud, Kukenova, and Strieborny (2018) but allow us to look at a longer time span. Additionally, we look at exports to the whole world market rather than focusing on the US destination market alone.

openness in the exporting countries. Firstly, these additional variables control for the possibility that timing of stock market liberalization is affected by the level of economic development, phases of business cycle or trade openness in the liberalizing countries. Secondly, the levels of economic development and trade openness could affect differently the survival chances of products that are close to the comparative advantage of the exporting country versus products that are far away from it. Columns (1)-(2) include the interaction term of GDP per capita with distance to comparative advantage and columns (3)-(4) control for the interaction term of trade openness with distance to comparative advantage. Columns (5)-(6) control for both channels simultaneously. While trade openness seems to decrease the hazard rate overall, there is no evidence for a differentiated effect across products with varying levels of conformity with the comparative advantage. The interaction term between trade openness and distance to comparative advantage is insignificant in columns (3)-(6) where it is included. As for the differentiated impact of countries' level of economic development, the results in [Table 5](#) highlight the importance of controlling for underlying structural differences between countries that opened up to foreign investors already before 1980 and countries that kept their stock market closed until 1997. In columns (1) and (5) that report the results for the whole sample, the interaction term of GDP per capita and distance to comparative advantage has a negative sign. In columns (2) and (4) that report results for the subsample of countries implementing stock market liberalization between 1980 and 1997, the estimated coefficient for the interaction term switches to the more intuitive positive sign, suggesting that products not well aligned with the comparative advantage exit the export portfolio disproportionately faster in countries with a higher level of GDP per capita.²⁰

Columns (7) and (8) of [Table 5](#) include the interaction between distance to comparative advantage and the trade liberalization dummy. This interaction term controls for the possibility that the timing of stock market liberalizations might coincide with trade liberalization events, which could then drive our result of a higher post-liberalization hazard rate of the products poorly aligned with the comparative advantage of the liberalizing

²⁰ The direct effect of GDP per capita (not reported) is included in the "Full set of controls" corresponding to column (4) of [Table 3](#).

countries. Trade liberalization events have a beneficial direct effect on long-term export performance, decreasing the hazard rate of exports. The differentiated effect across products is captured by the positive and significant coefficient for the interaction between trade liberalization and distance to comparative advantage in column (7) of [Table 5](#), suggesting that free-market trade policies lead to disproportionately higher hazard rates for products not well aligned with the comparative advantage. Although this interaction term becomes insignificant in column (8), one needs to stress a certain unfairness of this particular horse race between stock market liberalization and trade liberalization. Trade liberalization is politically less controversial and often precedes stock market liberalization by a significant period of time. Many countries in the subsample of financial liberalizers from column (8) of [Table 5](#) have thus liberalized their trade regime already before 1980 so that the trade liberalization dummy equals one for all export spells from these countries. This might leave insufficient variation to precisely estimate the differential impact of trade liberalization in this specification. In future research, we plan to look deeper into possible interactions between financial and trade liberalization when it comes to eliminating exports of products not corresponding to the comparative advantage of the liberalizing countries.

[Table 6](#) allows financial and non-financial channels to affect the long-term export survival simultaneously. In columns (1) and (2), we focus on channels that operate through liberalization events capturing sudden changes within countries over time. In particular, we control simultaneously for the differential impact of stock market liberalization on industries requiring a high level of external finance and for the differential effect of trade liberalization across products with varying levels of alignment with the comparative advantage. In columns (3)-(6), we focus on alternative channels that operate through the slowly-moving country characteristics varying mostly across rather than within countries. We thus control for domestic bank or stock market development together with economic development and trade openness, as well as for the differential impact of these variables across products with different levels of alignment with the comparative advantage.

Our main results remain robust throughout the whole [Table 6](#). Allowing foreign in-

vestors to acquire equity stakes in domestic firms decreases the hazard rate of existing export spells, but it does disproportionately less so for products that do not correspond to the comparative advantage of the liberalizing countries. As for alternative financial mechanisms, the results confirm the importance of stock market liberalizations for industries dependent on external finance (columns (1)-(2)) and the important role of domestic banks in aligning export portfolio of a given country with its comparative advantage (columns (3)-(4)). The domestic stock market development once again fails to exercise any disciplining effect (columns (5)-(6)), highlighting the unique role of foreign investors in this regard. The results for interaction terms of distance to comparative advantage with non-financial variables also remain qualitatively mostly the same as in previous estimations. One exception is the loss of significance for the interaction between GDP per capita and distance to comparative advantage once we simultaneously control for the alternative financial channels.

5.3 Alternative measures of stock market liberalization

This subsection discusses results based on three alternative measures of stock market liberalization - an alternative dummy variable and two versions of a continuous variable capturing the intensity of the liberalization process at the industry-country level.

In the first two columns of [Table 7](#), we replace the dummy based on the official year of the stock market liberalization with a dummy capturing the first sign of liberalization. The official year of stock market liberalization corresponds to the date of a formal legal change allowing foreign investors to acquire equity stakes in domestic firms. The first sign of liberalization corresponds to the earliest of the following three dates: the year of official liberalization, the year of issuing the first American Depository Receipt (ADR, a security allowing the shares of non-US companies to be traded in the US financial markets), and the year of launching the first country fund (a fund with portfolio containing only stocks of a given country). The first sign of liberalization can thus either precede or coincide with the formal legal change allowing foreign investors to directly acquire equity stakes in the domestic firms.²¹

²¹ First sign liberalization dummies based on these alternative dates have been also used in the previous literature (see, e.g., Bekaert, Harvey, and Lundbland 2005; Manova 2008; Moshirian et al. 2021).

In the last four columns of [Table 7](#), we use a continuous variable capturing the intensity of the stock market liberalization. The measure represents the proportion of domestic stocks available to foreign investors at the industry-country level.²² Based on data available in the Emerging Stock Market Factbooks of the International Finance Corporation, we compute the proportion of domestic stocks available to foreign investors by dividing the market capitalization of firms included in the IFC Investable index by the market capitalization of firms in the IFC Global index. These data are available at the level of 2-digit SIC industries while our international trade data are based on the SITC (Standard International Trade Classification) product classification. As there exists no direct concordance between those two classifications, we first apply the concordance tables from SIC industry classification to ISIC industry classification and subsequently apply the ISIC-SITC concordance tables. After this procedure, we are able to match the industry-country financial liberalization index to 632 out of our 1,299 product categories.²³

The purpose of the estimations in columns (3)-(6) of [Table 7](#) is allowing for different levels of liberalization intensity both across countries and across industries. Similarly to our main dummy, the intensity measure equals zero before the government officially allows foreign investors to acquire any equity stakes in domestic firms. After the official liberalization event, the value of the intensity measure can take any value between zero and one and it can also differ across industries within the same liberalizing country. In columns (3) and (4) of [Table 7](#), we use IFC indices available for a given industry-country pair in a year that is closest to the official year of the stock market liberalization. In columns (5) and (6) of [Table 7](#), we use the average value for a given industry-country pair.²⁴

Throughout [Table 7](#), our main interaction term remains positive and significant. In-

²² We are grateful to Christian Lundblad for suggesting this approach to us.

²³ Our approach builds upon previous literature that has used IFC data to construct liberalization intensity measures at the country level (see, e.g., Bekaert 1995; Edison and Warnock 2003; Bekaert, Harvey, and Lundblad 2005; De Jong and De Roon 2005; Bekaert et al. 2007).

²⁴ We thus abstract from the time variation in the liberalization intensity due to the limited availability of publicly available IFC data at the industry-country level across the time dimension. The focus on the cross-sectional variation is also in line with previous literature using a country-level measure of liberalization intensity in the context of international trade (Manova 2008; Defever and Suedekum 2014).

dependently of the particular measure used, the ability of foreign investors to acquire equity stakes in domestic firms pushes the export portfolio of the liberalizing countries closer to their comparative advantage.

We have also re-run [Table 4](#), [Table 5](#), and [Table 6](#), using the three alternative measures of the stock market liberalization. The results reported in Online Appendix D are sometimes even stronger than in the main text (e.g., comparing the significance level for our main interaction term in columns (5) and (6) of Table VII-IX in Online Appendix D with columns (5) and (6) of [Table 6](#) in the main text). This might be caused by two possible sources of bias against finding significant results in our difference-in-differences framework when using a stock market liberalization dummy based on the official liberalization dates. First, foreign investors might acquire equity stakes in domestic firms via ADR or equity funds even before the official dates of stock market liberalization. The official liberalization dummy thus underestimates the influence of foreign investors before the liberalization event. Second, even after the government in principle allows foreign investors to acquire equity stakes in domestic firms, it might still keep in place certain restrictions on maximum foreign ownership or foreign voting rights. The official liberalization dummy thus overestimates the influence of foreign investors after the liberalization event. Consequently, the real difference in the ability of foreign investors to affect the country's export portfolio in the time before versus the time after the stock market liberalization is smaller than a binary dummy based on the official liberalization date would suggest. The use of such dummy thus biases the coefficient for the interaction term of liberalization dummy with distance to comparative advantage towards zero. The dummy for the first sign of liberalization or a continuous variable capturing the liberalization intensity address these issues to a certain extent although a possible measurement error might still generate a bias towards zero.²⁵ In that sense, our results might represent only

²⁵ Different definitions of availability of domestic equity to foreign investors make it difficult to measure stock market liberalization intensity exactly and unequivocally (see also Bekaert, Harvey and Lundblad 2003). For instance, Bekaert, Harvey, and Lundblad (2005) also base their country-level measure of liberalization intensity on ratios of IFC Investable index and IFC Global index and report an average liberalization intensity for Finland during the 1980-1997 period that is equal to one, i.e. 100 percent. By contrast, Liljebloom and Löflund (2005) report that foreign ownership of companies in Finland was restricted to 40 percent of equity and 20 percent of voting rights prior to 1993.

a lower bound for the true impact of foreign investors on pushing the export portfolios of countries towards their comparative advantage.

5.4 Robustness tests

Online Appendix F reports results from a series of robustness tests to our main results, focusing on the subsample of countries that liberalized their stock markets between 1980 and 1997. The point of departure is the specification from column (4) of [Table 3](#).²⁶

In Online Appendix F1, we control for the strength of domestic currency, for the possibility that the entry of foreign investors affects exports of differentiated products differently from the exports of homogeneous products, and for the impact of receiving an official loan from the International Monetary Fund. We also control for the possibility that various global and country-specific structural changes unrelated to stock market liberalization affect the speed with which countries' export portfolios move closer towards their respective comparative advantage.

Online Appendix F2 provides a series of econometric robustness tests related to alternative methods for clustering the standard errors, stratification, and the use of fixed effects. We apply clustering at exporting-country level as well as the simultaneous clustering alongside both exporting-country and time dimensions. We apply various sets of stricter strata and fixed effects that control for observable and unobservable variables at the product*time, product*country, and country*time level. We also report results from a parsimonious specification refraining from the use of any strata and product effects.

In Online Appendix F3, we address several timing issues that can arise when examining stock market liberalization events in the survival econometric framework. We control for the possibility that the impact of foreign investors gets stronger or weaker over the export spells' lifetime, we unify the time spans for liberalization events and export spells, we address the issue of partial treatment when liberalization event occurs during the lifetime of export spell, and we use an alternative econometric method to handle the tied-spells termination events when several export spells end at the same time.

²⁶ Various papers mentioned in the Online Appendix provide more background for the performed robustness tests: Breslow (1974), Efron (1988), Rauch (1999), Bertrand, Duflo, and Mullainathan (2004), Cameron, Gelbach, and Miller (2006).

6 Monitoring by Foreign Investors

Based on results in Section 5, the entry of foreign investors into domestic stock market triggers an efficiency-enhancing structural change by re-balancing countries' export portfolios towards their comparative advantage. A possible cause behind these findings might lie in the monitoring effects of foreign investors in domestic firms. An influential strand of literature argues that foreign investors are more effective as external monitors compared to domestic investors who often feel loyal to the local management (e.g., Gillan and Starks 2003; Ferreira and Matos 2008; Aggarwal et al. 2011; Bena et al. 2017; Luong et al. 2017). If that is true, then stricter monitoring by foreign investors should push the exporting managers to abandon products that are far away from the comparative advantage of the domestic economy. This section provides some preliminary evidence in accordance with this interpretation.²⁷

If our findings are indeed driven by the superior monitoring skills of foreign investors, then the results should become stronger in a legal environment providing sufficient protection to the rights of investors in general and of foreign investors in particular. Arguably, foreign investors can fully employ their monitoring abilities only if they can rely on a robust legal framework protecting their rights vis-vis corporate insiders and local government. Table 8 examines this hypothesis, based on a composite index Legal System and Property Rights from the Economic Freedom Database. The index captures various legal dimensions relevant for investor protection like integrity of legal system, legal enforcement of contracts, protection of property rights, impartiality of courts, judicial independence, etc., with higher values of the index corresponding to higher levels of investor protection. The index varies both across countries and over time. Due to possible endogeneity concerns, we use the values measured in 1980, which is the first year of our sample.

Column (1) of Table 8 runs our preferred specification for all countries from column (3) of Table 3 on the subsample of countries for which we have data on the Legal System and

²⁷ Efficiency-maximizing managers would abandon of their own volition those exports that use the available resources suboptimally. However, exporting activities might generate substantial managerial perks that would induce self-interested managers to keep alive also those exports that they know to be inefficient. Jaud, Kukučnova and Strieborny (2018) present a formal model alongside these lines.

Property Rights variable. The number of observations thus drops by approximately 10 percent from 85,675 to 77,165. In columns (2) and (3), we split this sample into countries below and above median of our variable capturing the legal environment in exporting countries. Our main interaction term is only marginally significant in the subsample of countries with a below-average legal system reported in column (2). By contrast, the main interaction term is highly significant in the subsample of countries with an above-average legal system reported in column (3). The size of the coefficient for our main interaction term is also substantially higher in the third column compared to the second column of Table 8. In columns (4)-(6), we repeat the exercise on the subsample of liberalizing countries that allowed foreign investors to acquire equity stakes in domestic firms for the first time at some point during the 1980-1997 period. The point of departure is thus column (4) of Table 3, with column (4) of Table 8 re-running the estimation on those liberalizing countries for which we have data on the Legal System and Property Rights variable. The number of observations now drops by around 7 percent, from 45,699 to 42,376, suggesting that we have the legal data for the vast majority of the liberalizing countries. Columns (5) and (6) report the results for liberalizing countries below and above median of the Legal System and Property Rights variable.²⁸ The difference is even more pronounced than in the whole sample. In column (5), our main interaction term is insignificant. In column (6), the main interaction is highly significant with the size of its coefficient increasing more than tenfold compared to column (5). The results reported in the previous section thus seem to be driven solely by those liberalizing countries that had a sufficient level of investor protection in place already before allowing foreign investors to enter their domestic stock markets.²⁹

²⁸ Note that the threshold identifying countries as “above average” in terms of Legal System and Property Rights variable is different in the full sample and the subsample of countries that experienced stock market liberalization during the 1980-1997 period. We have also re-run the estimations in columns (5) and (6) of Table 8 based on the threshold used in columns (2) and (3) of Table 8. The results are available upon request.

²⁹ We obtain stronger evidence for a differential impact of stock market liberalization in countries with an above-average legal system (third and sixth columns of Table 8) despite a significantly lower number of observations in this subsample compared to the subsample of countries with a below-average legal system (second and fifth columns of Table 8). The difference in number of observations is due to the fact that our sample split is based on the country-level variable Legal System and Property Rights. For instance, countries with an above-average legal system might have fewer but longer export spells compared to countries with a below-average legal system.

In Online Appendix E, we provide a series of robustness tests by re-running Table 8 with sample splits based on alternative legal variables used by La Porta et al. (1998). These include Efficiency of Judicial System (an assessment of the “efficiency and integrity of the legal environment as it affects business, particularly foreign firms” produced by the country-risk rating agency Business International Corp.), Rule of Law (an assessment of the law and order tradition in the country produced by the country-risk rating agency International Country Risk - ICR), Risk of Expatriation (an ICR’s assessment of the risk of “outright confiscation” or “forced nationalization”), Repudiation of Contracts by Government (an ICR’s assessment of the “risk of modification in a contract taking the form of repudiation, postponement or scaling down” due to “budget cut-back, indigenization pressure, a change in government, or change in government economic and social priorities”), and Investor Protection (not used by La Porta et al. 1998, it is an average of the three ICR measures computed by us).

Some of these alternative variables might represent an even better proxy for protection of investors in general and of foreign investors in particular. We have decided to report the results based on the Legal System and Property Rights variable in the main text because it has the best country coverage yielding the highest number of observations, and because it is measured at the beginning of our sample (1980) rather than representing the averages over the years 1980-1983 or 1982-1995 (see la Porta et al. 1998 for more details). If anything, the results based on the alternative legal measures are even stronger than the results reported in Table 8. For example, when it comes to the specification reported in column (2) based on the subsample of countries with below-average values of legal variables, our main interaction term is not significant at even 10 percent level in the tables reported in Online Appendix E.

7 Conclusions

Allowing foreign investors to acquire equity stakes in domestic firms improves the chances of domestic products to establish a successful long-term presence in the world market. However, this beneficial effect is not uniform. The further away a product is from the comparative advantage of the liberalizing country, the sooner it exits this country’s export

portfolio after the stock market liberalization event occurs.

The entry of foreign investors thus triggers an efficiency-enhancing structural change, pushing the recipient countries' export portfolios towards the products that make optimal use of the available resources. While we find strong evidence for this disciplining effect following the opening of stock markets to foreign investors, we find no such effect when looking at stock market development in general. This uniqueness of foreign investors seems to be in accordance with the existing literature that makes the case for superior monitoring abilities of foreign investors (Gillan and Starks 2003; Ferreira and Matos 2008; Aggarwal et al. 2011; Bena et al. 2017; Luong et al. 2017).

Future research could further explore the possible transmission channels behind these results, providing new insights into the specific role of foreign investors. For instance, existing research focusing on US investors and firms has examined the "voice" (board memberships, voting or behind-the-scenes interventions) and "exit" (selling of equity stakes) as two alternative mechanisms through which investors shape the actions of firms (see, e.g. the survey by Edmans and Holderness 2017). Foreign investors might make different choices between these two strategies, depending among other things on the different legal and regulatory frameworks they are facing. The entry of foreign investors could also increase the liquidity of a hitherto closed domestic stock market. This would improve the effectiveness of the exit strategy for the existing domestic shareholders as well, along the lines of Edmans and Manso (2011). By contrast, the impact of increased liquidity on the voice strategy of existing shareholders could be either positive (e.g., Maug 1998) or negative (e.g., Bhide 1993; McCahery, Sautner, and Starks 2016).

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Figure 1: Kaplan-Meier Survival Functions for Liberalizing Countries I

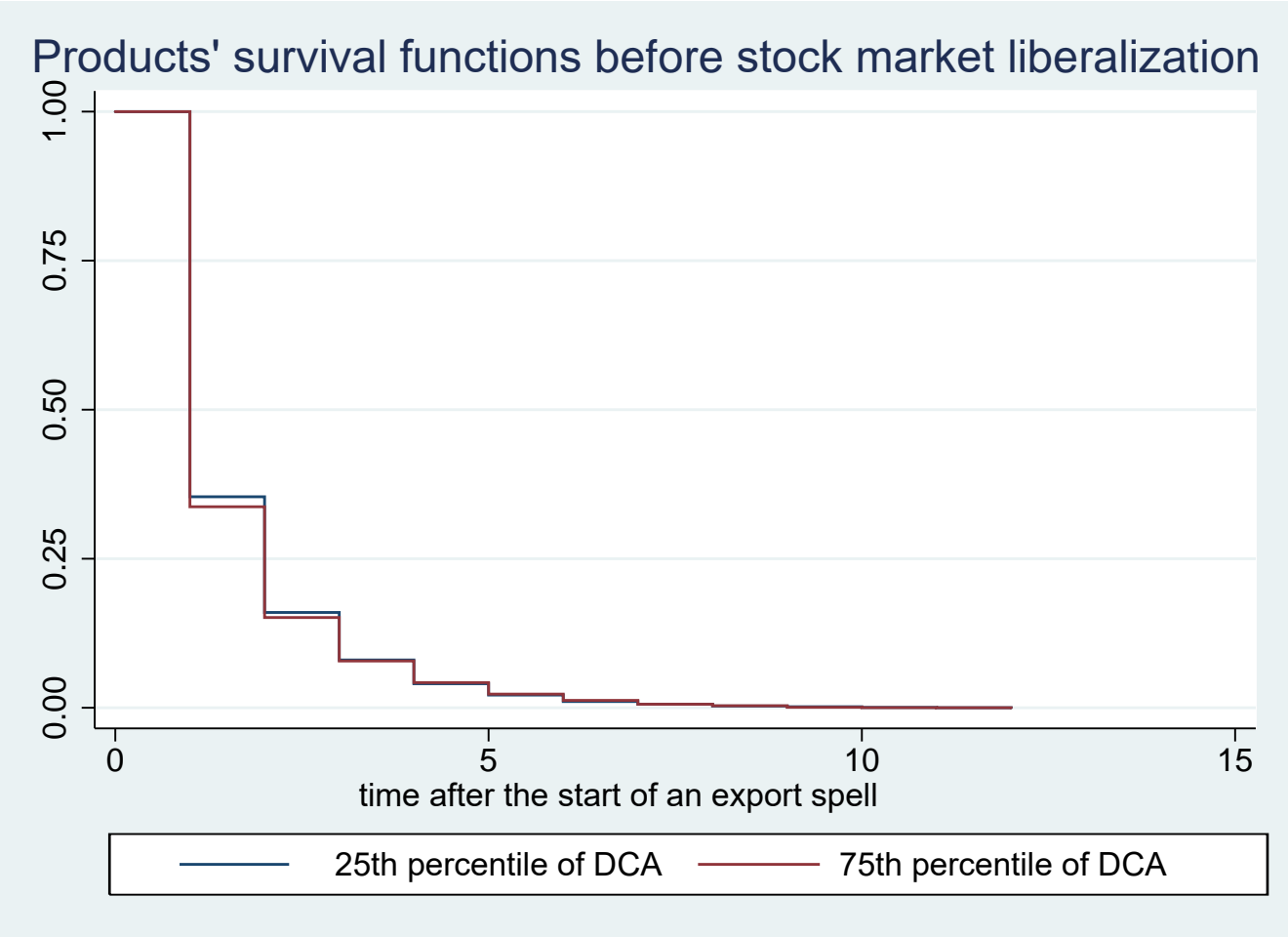


Figure (1) compares Kaplan-Meier survival functions of products belonging to the 25th and 75th percentiles (i.e, to the bottom and the top 25th percentile) of the distance to comparative advantage **before** the liberalization episodes. The more steeply these functions decrease after the initial year 0, the lower is the average survival probability of the related product groups.

Figure 2: Kaplan-Meier Survival Functions for Liberalizing Countries II

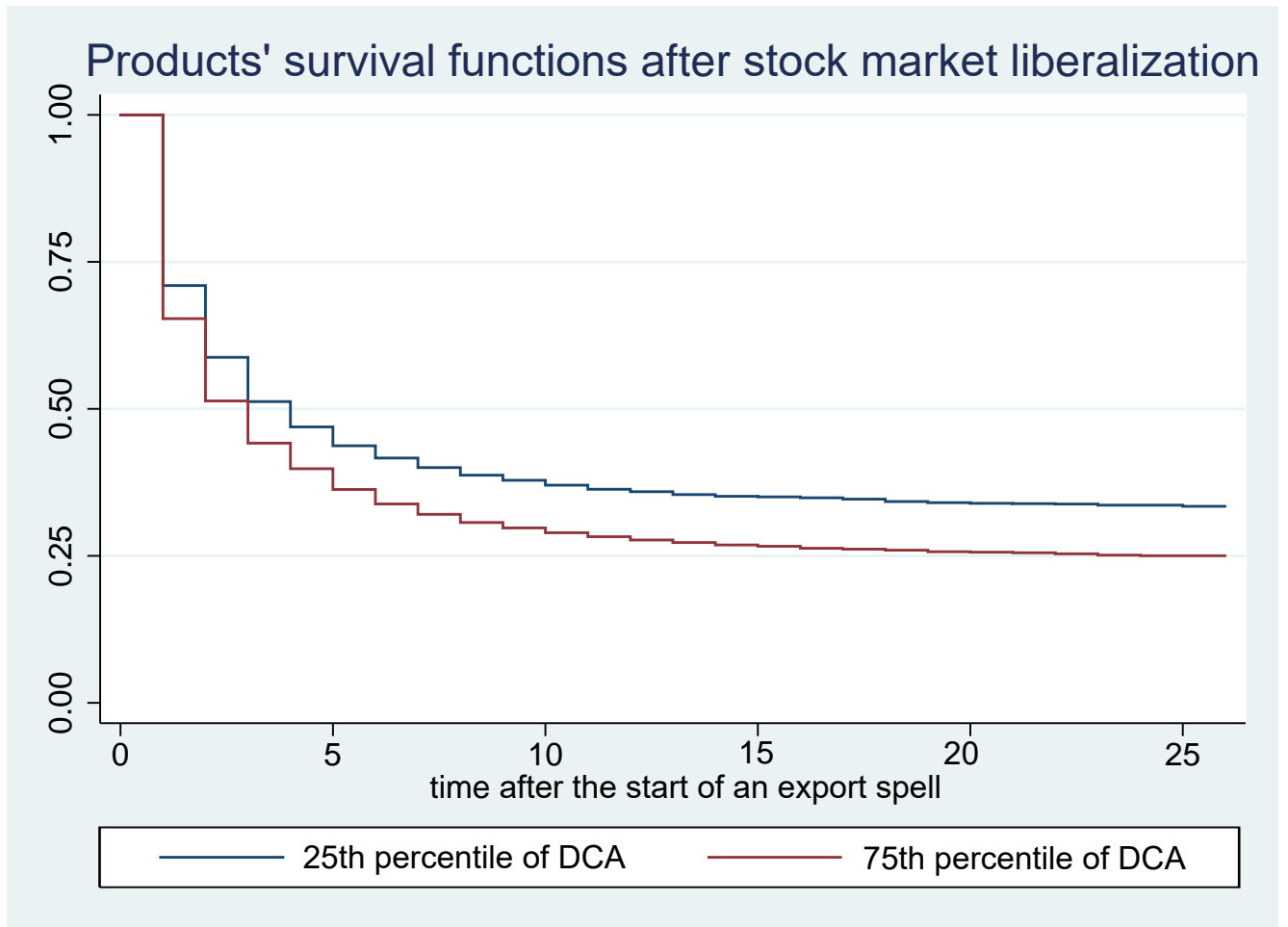


Figure (2) compares Kaplan-Meier survival functions of products belonging to the 25th and 75th percentiles (i.e, to the bottom and the top 25th percentile) of the distance to comparative advantage **after** the liberalization episodes. The more steeply these functions decrease after the initial year 0, the lower is the average survival probability of the related product groups.

Table 1: Descriptive Statistics - Export Spells

The table provides descriptive statistics for the export spells (continuous exporting of product k from country c to the world market) both for the full sample including also countries where the stock market was closed or open to foreign investors during the whole period of 1980-1997 and for the liberalizing subsample including only countries where the event of stock market liberalization occurred between 1980 and 1997, i.e. only countries that “switched” from being financially closed to being financially open. DCA refers to our measure of “distance to comparative advantage”, with lower values (e.g., bottom 25th percentile) corresponding to products well aligned with the comparative advantage of the exporting country and higher values (e.g., top 25th percentile) corresponding to products far away from the comparative advantage of the exporting country.

	(1)	(2)
LIBERALIZING SUBSAMPLE	average length of the spell	median length of the spell
Switchers, non-liberalized	1.68	1.00
Switchers, liberalized	7.44	3.00
Switchers, non-liberalized, bottom 25th percentile of DCA	1.68	1.00
Switchers, non-liberalized, top 25th percentile of DCA	1.66	1.00
Switchers, liberalized, bottom 25th percentile of DCA	7.78	4.00
Switchers, liberalized, top 25th percentile of DCA	6.46	3.00
FULL SAMPLE	(1)	(2)
	average length of the spell	median length of the spell
All countries, non-liberalized	3.21	1.00
All countries, liberalized	5.33	2.00
All countries, non-liberalized, bottom 25th percentile of DCA	3.35	1.00
All countries, non-liberalized, top 25th percentile of DCA	2.87	1.00
All countries, liberalized, bottom 25th percentile of DCA	5.40	2.00
All countries, liberalized, top 25th percentile of DCA	4.94	2.00

Table 2: Summary Statistics

The table provides information on number of observations, mean value, standard deviation, and minimum and maximum values for all variables in our sample.

Variable	Obs	Mean	Std. Dev.	Min	Max
StM liberalization	118,542	0.334	0.472	0	1.000
Distance to comparative advantage	118,542	1.388	0.816	0.019	6.577
StM Liberalization x Distance to comparative advantage	118,542	0.473	0.836	0	6.577
Banks x Distance to comparative advantage	107,852	0.442	0.600	0.002	8.187
GDP pc x Distance to comparative advantage	116,375	11.504	7.430	0.160	64.479
Stock Markets x Distance to comparative advantage	50,828	0.292	0.642	0.000	12.424
Banks	107,852	0.290	0.228	0.014	2.179
log GDP pc of exporter in constant PPP dollars	116,375	8.236	0.954	6.166	10.384
Stock Markets	50,828	0.205	0.274	0.001	2.824
StM liberalization x External Finance Dependence	87,338	0.085	0.179	-0.451	1.140
External Finance Dependence x Banks	79,533	0.075	0.092	-0.695	1.734
External Finance Dependence	87,338	0.284	0.243	-0.451	1.140
Trade liberalization x Distance to comparative advantage	118,542	0.661	0.879	0	6.577
Trade liberalization	118,542	0.497	0.500	0	1.000
Trade openness x Distance to comparative advantage	118,542	0.948	1.367	0.004	24.563
Trade openness	118,542	0.646	0.374	0.063	4.253
GDP pc	116,375	8.236	0.954	6.166	10.384
Physical capital x Phys. cap. intensity	87,338	0.700	0.307	0.108	2.345
Human capital x Hum. cap. intensity	87,338	4.699	2.753	0.196	19.581
Physical capital	118,542	9.448	1.315	5.974	12.073
Human capital	118,542	4.599	2.389	0.366	12.206
Land endowment	118,542	0.652	0.650	0.001	6.550
Number of suppliers	118,542	4.654	0.409	0.693	5.361
Total exports	118,542	14.566	1.658	10.137	20.359
Initial exports	118,542	2.215	1.886	-0.691	13.723
Number of spells	118,542	5.202	2.061	1.000	13.000

Table 3: Stock Market Liberalization and Long-Term Export Survival - Baseline

The dependent variable is the hazard rate for an export spell of product k from country c to the world market that started at time t_0 . All regressions are estimated using the Cox Proportional Hazard Model (Cox, 1972) and control for exporting-country and time fixed effects. Estimations also allow for different baseline hazard rate across products by defining product k as strata variable. Our main variable of interest is the interaction between the stock market liberalization dummy and the distance of exported product from the comparative advantage of the exporting country. The control variables include also the direct effects of stock market liberalization dummy (which equals one if and only if a given country allowed foreign investors to acquire equity stakes in domestic firms before or during the life of a given export spell) and distance to comparative advantage (defined as Euclidean distance of the revealed factor intensity of exported product k to the factor endowment of exporting country c). Product-level control variables include number of suppliers (i.e., number of countries exporting a given product to the world market), total value of country's exports to the rest of the world, initial value of the export of a given product, and number of export spells during the sample period for a given country-product pair. The remaining control variables are GDP per capita of exporting country, interactions of physical and human capital at the country level with the corresponding capital intensities at the industry level, and the direct effects of exporting countries' endowments of physical capital, human capital and land. All time-varying explanatory variables are measured in the initial year of the export spell t_0 . We report coefficients and not hazard ratios. Robust standard errors clustered at (exporting country)*time ($c * t_0$) level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) All	(2) Lib	(3) All	(4) Lib
StM liberalization x Distance to comparative advantage	0.143*** (0.018)	0.152*** (0.021)	0.161*** (0.024)	0.152*** (0.026)
StM liberalization	-1.116*** (0.041)	-1.655*** (0.050)	-1.184*** (0.047)	-1.697*** (0.054)
Distance to comparative advantage	0.115*** (0.009)	0.031** (0.014)	0.082*** (0.011)	0.004 (0.016)
Number of suppliers	-0.372*** (0.019)	-0.340*** (0.024)	-0.076* (0.045)	-0.015 (0.059)
Total exports	0.109*** (0.019)	0.126*** (0.037)	0.008 (0.027)	0.233*** (0.040)
Initial export	-0.073*** (0.002)	-0.069*** (0.002)	-0.073*** (0.002)	-0.068*** (0.003)
Number of spells	0.112*** (0.002)	0.108*** (0.003)	0.115*** (0.002)	0.112*** (0.004)
GDP pc			0.450*** (0.076)	-0.010 (0.120)
Physical capital x Phys. cap. intensity			-0.080 (0.103)	-0.450** (0.179)
Human capital x Hum. cap. intensity			-0.030*** (0.007)	-0.031*** (0.010)
Physical capital			-0.147*** (0.054)	-0.303*** (0.096)
Human capital			0.003 (0.028)	-0.063* (0.037)
Land endowment			0.135* (0.071)	0.448*** (0.134)
Exporting-country and time FE; Product stratification	Yes	Yes	Yes	Yes
Observations	118,542	60,903	85,675	45,699

Table 4: Stock Market Liberalization and Long-Term Export Survival - Alternative Financial Channels

The dependent variable is the hazard rate for an export spell of product k from country c to the world market that started at time t_0 . All regressions are estimated using the Cox Proportional Hazard Model (Cox, 1972) and control for exporting-country and time fixed effects. Estimations also allow for different baseline hazard rate across products by defining product k as strata variable. External finance dependence at the industry level is defined as capital expenditures minus cash flow from operations, divided by capital expenditures, for the median firm in a given industry. Banks is a proxy for the domestic banking development in the exporting country, measured as the ratio of the bank credit to private sector over the country's GDP. Stock markets is a proxy for the depth of domestic stock market in the exporting country, measured as the ratio of the stock market capitalization over the country's GDP. Other variables are defined in Table 3. Full set of controls corresponds to column (4) of Table 3. We report coefficients and not hazard ratios. Robust standard errors clustered at (exporting country)*time ($c * t_0$) level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Lib	All	Lib	All	Lib
StM liberalization x Distance to comparative advantage	0.158*** (0.024)	0.149*** (0.026)	0.130*** (0.025)	0.133*** (0.028)	0.062** (0.027)	0.060** (0.030)
StM liberalization	-1.118*** (0.048)	-1.643*** (0.054)	-1.167*** (0.049)	-1.635*** (0.058)	-1.499*** (0.058)	-1.538*** (0.062)
Distance to comparative advantage	0.079*** (0.011)	0.005 (0.016)	0.039*** (0.015)	-0.060*** (0.023)	0.050** (0.020)	0.040* (0.021)
StM liberalization x External Finance Dependence	-0.229*** (0.036)	-0.187*** (0.042)				
Banks x Distance to comparative advantage			0.121*** (0.037)	0.180*** (0.054)		
Banks			0.195* (0.111)	-0.101 (0.144)		
Stock Markets x Distance to comparative advantage					0.020 (0.043)	0.040 (0.057)
Stock Markets					0.179* (0.102)	0.128 (0.114)
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes
Exporting country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Product stratification	Yes	Yes	Yes	Yes	Yes	Yes
Observations	85,675	45,699	77,986	41,271	37,056	32,892

Table 5: Stock Market Liberalization and Long-Term Export Survival - Alternative Non-Financial Channels

The dependent variable is the hazard rate for an export spell of product k from country c to the world market that started at time t_0 . All regressions are estimated using the Cox Proportional Hazard Model (Cox, 1972) and control for exporting-country and time fixed effects. Estimations also allow for different baseline hazard rate across products by defining product k as strata variable. Trade openness is defined as the sum of country's exports and imports divided by its GDP. Trade liberalization is a dummy variable based on trade liberalization dates from Wacziarg and Welch (2008), who updated the previous database by Sachs and Warner (1995). Other variables are defined in Table 3. Full set of controls corresponds to column (4) of Table 3. We report coefficients and not hazard ratios. Robust standard errors clustered at (exporting country)*time ($c * t_0$) level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All	Lib	All	Lib	All	Lib	All	Lib
StM liberalization x Distance to comp. adv.	0.172*** (0.027)	0.145*** (0.026)	0.157*** (0.024)	0.146*** (0.026)	0.168*** (0.027)	0.140*** (0.026)	0.127*** (0.025)	0.140*** (0.029)
StM liberalization	-1.197*** (0.051)	-1.689*** (0.054)	-1.179*** (0.047)	-1.692*** (0.054)	-1.192*** (0.050)	-1.685*** (0.054)	-1.033*** (0.051)	-1.584*** (0.056)
Distance to comparative advantage	0.241*** (0.093)	-0.327** (0.130)	0.098*** (0.019)	-0.021 (0.025)	0.252*** (0.093)	-0.287** (0.129)	0.061*** (0.013)	0.015 (0.019)
GDP pc x Distance to comp. adv.	-0.020* (0.012)	0.040** (0.016)			-0.020* (0.012)	0.033** (0.016)		
Trade openness x Distance to comp. adv.			-0.022 (0.026)	0.048 (0.037)	-0.014 (0.027)	0.038 (0.037)		
Trade openness			-0.145* (0.078)	-0.288** (0.120)	-0.155* (0.080)	-0.270** (0.120)		
Trade liberalization x Distance to comp. adv.							0.038** (0.019)	-0.041 (0.030)
Trade liberalization							-0.634*** (0.043)	-0.552*** (0.054)
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporting country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Product stratification	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	85,675	45,699	85,675	45,699	85,675	45,699	85,675	45,699

Table 6: Stock Market Liberalization and Long-Term Export Survival - Alternative Channels Combined

The dependent variable is the hazard rate for an export spell of product k from country c to the world market that started at time t_0 . All regressions are estimated using the Cox Proportional Hazard Model (Cox, 1972) and control for exporting-country and time fixed effects. Estimations also allow for different baseline hazard rate across products by defining product k as strata variable. Variables are defined in Table 3, Table 4, and Table 5. Full set of controls corresponds to column (4) of Table 3. We report coefficients and not hazard ratios. Robust standard errors clustered at (exporting country)*time ($c * t_0$) level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) All	(2) Lib	(3) All	(4) Lib	(5) All	(6) Lib
StM liberalization x Distance to comparative advantage	0.125*** (0.025)	0.137*** (0.029)	0.132*** (0.027)	0.124*** (0.028)	0.052* (0.028)	0.050* (0.030)
StM liberalization	-0.971*** (0.051)	-1.531*** (0.057)	-1.169*** (0.051)	-1.625*** (0.058)	-1.486*** (0.059)	-1.524*** (0.062)
Distance to comparative advantage	0.059*** (0.013)	0.015 (0.019)	0.172* (0.094)	-0.334** (0.140)	-0.115 (0.143)	-0.087 (0.164)
StM liberalization x External Finance Dependence	-0.218*** (0.036)	-0.180*** (0.042)				
Trade liberalization x Distance to comparative advantage	0.038** (0.019)	-0.039 (0.030)				
Trade liberalization	-0.634*** (0.043)	-0.553*** (0.054)				
Banks x Distance to comparative advantage			0.143*** (0.040)	0.137** (0.064)		
Banks			0.163 (0.118)	0.009 (0.157)		
Stock Markets x Distance to comparative advantage					-0.002 (0.047)	0.054 (0.060)
Stock Markets					0.300** (0.122)	0.205 (0.131)
GDP pc x Distance to comparative advantage			-0.014 (0.012)	0.034** (0.017)	0.020 (0.017)	0.018 (0.020)
Trade openness x Distance to comparative advantage			-0.035 (0.029)	0.005 (0.042)	0.007 (0.041)	-0.040 (0.048)
Trade openness			-0.076 (0.081)	-0.170 (0.133)	-0.311* (0.163)	-0.232 (0.166)
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes
Exporting country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Product stratification	Yes	Yes	Yes	Yes	Yes	Yes
Observations	85,675	45,699	77,986	41,271	37,056	32,892

Table 7: Alternative Measures of Stock Market Liberalization

The dependent variable is the hazard rate for an export spell of product k from country c to the world market that started at time t_0 . All regressions are estimated using the Cox Proportional Hazard Model (Cox, 1972) and control for exporting-country and time fixed effects. Estimations also allow for different baseline hazard rate across products by defining product k as strata variable. In columns (1)-(2), the stock market liberalization measure is a dummy based on the year of the first sign of the stock market liberalization (the earliest among the following three dates: the year of official liberalization, the year of issuing the first ADR, the year of the first country fund launch). In columns (3)-(6), the stock market liberalization measure is a continuous variable capturing the liberalization intensity at the industry-country level. Both versions of the liberalization intensity are computed from IFC Investable index and IFC Global index. In columns (3) and (4), we use IFC indices available for a given industry-country pair in a year that is closest to the official year of the stock market liberalization. In columns (5) and (6), we use the average value for a given industry-country pair. Other variables are defined in Table 3. Full set of controls corresponds to column (4) of Table 3. We report coefficients and not hazard ratios. Robust standard errors clustered at (exporting country)*time ($c * t_0$) level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All	Lib	All	Lib	All	Lib
StM liberalization first sign x Distance to comparative advantage	0.126*** (0.017)	0.152*** (0.024)				
StM liberalization first sign	-1.063*** (0.040)	-1.498*** (0.051)				
StM liberalization intensity (closest year) x Distance to comparative advantage			0.269*** (0.048)	0.217*** (0.047)		
StM liberalization intensity (closest year)			-1.515*** (0.095)	-1.740*** (0.098)		
StM liberalization intensity (average) x Distance to comparative advantage					0.222*** (0.046)	0.173*** (0.045)
StM liberalization intensity (average)					-1.516*** (0.088)	-1.846*** (0.090)
Distance to comparative advantage	0.078*** (0.011)	-0.004 (0.016)	0.079*** (0.010)	0.018 (0.015)	0.079*** (0.010)	0.012 (0.014)
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes
Exporting country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Product stratification	Yes	Yes	Yes	Yes	Yes	Yes
Observations	85,675	45,699	65,266	28,739	65,266	28,739

Table 8: Stock Market Liberalization and Long-Term Export Survival, Below and Above of the Median of Legal System

The dependent variable is the hazard rate for an export spell of product k from country c to the world market that started at time t_0 . All regressions are estimated using the Cox Proportional Hazard Model (Cox, 1972) and control for exporting-country and time fixed effects. Estimations also allow for different baseline hazard rate across products by defining product k as strata variable. Variables are defined in Table 3. Columns (1)-(3) show results for the whole sample and columns (4)-(6) for the subsample of countries that experienced stock market liberalization during the 1980-1997 period. Columns (1) and (4) report results for all countries with available data on the legal index "Legal System and Property Rights". Columns (2) and (5) report results for countries with below-median value for this legal index. Columns (3) and (6) report results for countries with above-median value for this legal index. Full set of controls corresponds to column (4) of Table 3. We report coefficients and not hazard ratios. Robust standard errors clustered at (exporting country)*time ($c * t_0$) level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) All		(2) All		(3) All		(4) Lib		(5) Lib		(6) Lib	
	legal index available	legal index below median	legal index below median	legal index below median	legal index above median	legal index above median	legal index available	legal index below median	legal index below median	legal index below median	legal index above median	legal index above median
StM liberalization x Distance to comparative advantage	0.149*** (0.025)	0.070* (0.036)	0.070* (0.036)	0.070* (0.036)	0.246*** (0.035)	0.246*** (0.035)	0.138*** (0.027)	0.138*** (0.027)	0.022 (0.039)	0.022 (0.039)	0.275*** (0.033)	0.275*** (0.033)
StM liberalization	-1.187*** (0.049)	-1.058*** (0.064)	-1.058*** (0.064)	-1.058*** (0.064)	-1.446*** (0.072)	-1.446*** (0.072)	-1.694*** (0.055)	-1.694*** (0.055)	-1.602*** (0.071)	-1.602*** (0.071)	-1.847*** (0.080)	-1.847*** (0.080)
Distance to comparative advantage	0.074*** (0.013)	0.095*** (0.015)	0.095*** (0.015)	0.095*** (0.015)	-0.028 (0.028)	-0.028 (0.028)	0.007 (0.016)	0.007 (0.016)	0.065*** (0.021)	0.065*** (0.021)	-0.162*** (0.032)	-0.162*** (0.032)
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporting country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Product stratification	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	77,165	54,154	54,154	54,154	23,011	23,011	42,376	42,376	26,126	26,126	16,250	16,250