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Finance, Comparative Advantage, and Resource Allocation

Melise Jaud[1], Madina Kukenova[2], Martin Strieborny[3]

Abstract

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JEL: F11, G21, G30, O16
Keywords: resource misallocation, finance, comparative advantage, export survival

Authors

[1] Paris School of Economics and World Bank; E-Mail: mjaud@worldbank.org
[2] University of Lausanne; E-Mail: mkukenov@gmail.com
[3] Department of Economics and Knut Wicksell Centre for Financial Studies, Lund University, P.O. Box 7082, S-220 07 Lund, Sweden. E-Mail: Martin.Strieborny@nek.lu.se

Finance, Comparative Advantage, and Resource Allocation*

Melise Jaud[†] Madina Kukenova[‡] Martin Strieborny[§]

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[†]Paris School of Economics and World Bank; E-Mail: mjaud@worldbank.org

[‡]University of Lausanne; E-Mail: mkukenov@gmail.com

[§]Department of Economics and Knut Wicksell Centre for Financial Studies, Lund University, P.O. Box 7082, S-220 07 Lund, Sweden. E-Mail: Martin.Strieborny@nek.lu.se

1 Introduction

One of the most distinguishing features of economies or economic systems is their differing ability to allocate the available resources in an efficient way. Maybe surprisingly, the sources and consequences of resource misallocation have only recently come to the fore of the macroeconomic and development literature (Banerjee and Duflo 2005, Restuccia and Rogerson 2008, Hsieh and Klenow 2009).[1] This new line of research usually focuses on the significant heterogeneity of marginal products or rates of returns to production factors within economies. Another important aspect of resource misallocation has so far not caught much attention: export patterns not congruent with the comparative advantage of a given country. Our paper tries to fill this gap. It also examines the role of finance in attenuating this kind of factor misallocation.

According to Heckscher-Ohlin theory, exporters should specialize in products whose factor intensity coincides with the factor endowment of their country. However, producers sometimes try to export products that violate the notion of comparative advantage. This could be due to government interventions (export subsidies), information asymmetries (lack of knowledge about foreign markets), agency problems (managers pursuing their own agendas), and other market or government failures. In the long run, factor and product markets will eventually force out the inefficient exporters, but this can be a lengthy process and in the meantime social costs occur. We provide evidence for disciplining effects of competitive foreign markets, but our main focus is on the role of domestic banks as an additional check on inefficient exporting.[2]

Econometrically, we investigate the export survival of different products from different countries on the US market. The empirical results confirm that the larger is the distance between exported product's revealed factor intensity and exporting

[1] See also Bernard et al. (2010) and the references therein for a more microeconomic perspective on resource allocation.

[2] According to the alternative Ricardian theory, countries should export the products in which they possess relative advantage in total factor productivity. Our focus on the factor endowments as the main source of comparative advantage is motivated both by data availability and some recent results in trade literature. Morrow (forthcoming) finds some evidence that ignoring Heckscher-Ohlin forces can lead to biased tests of the Ricardian model. At the same time, Morrow documents that omitting Ricardian forces does not bias tests of Heckscher-Ohlin model, at least in his data.

country's factor endowment, the sooner the product exits the US market. Highly competitive product markets in the United States thus force out exporters who fail to optimally use capital and labour endowments in their country. Crucially, the products whose factor intensity puts them at comparative disadvantage exit the US market even faster if the exporting country has a high share of bank credits to the GDP. Our evidence therefore suggests that a strong banking sector can prevent a sub-optimal use of resources by enforcing an efficient export composition before a competitive foreign market does so. Interestingly, well-developed domestic stock markets do not have this disciplining impact. Our results imply a particular role for banks, rather than for a well-developed domestic financial system in general, in pushing the country's exports towards products congruent with its comparative advantage.

The paper makes three main contributions. First, it introduces a new channel through which finance improves resource allocation in the real economy, extending the existing work of developmental and financial scholars. Research on misallocation suffers from the lack of internationally comparable production data at the level of highly disaggregated goods. Existing empirical studies using domestic measures of factor misallocation have thus mostly compared only a few countries.[3] In contrast, the richness of available trade data permits a detailed and thorough empirical analysis of resource misallocation in a broad sample of countries. Additionally, exports violating the notion of comparative advantage represent in itself an important and rather under-researched facet of resource misallocation. As for the finance literature, it has traditionally focused on capital misallocation and its consequences for economic growth (Lang et al. 1996, Wurgler 2000). The Heckscher-Ohlin theory compares the overall factor intensity of a product with factor endowment of the exporting country. This framework therefore allows us to examine the role of finance in the wider context of resource allocation.[4]

Second, the paper contributes to the literature on the effects of financial factors

[3] For instance, the seminal paper by Hsieh and Klenow 2009 uses microdata on manufacturing establishments to measure potential factor misallocation in China and India versus the United States.

[4] Bernard et al. (2006, 2007) investigate the resource reallocation alongside the lines of comparative advantage following a trade liberalization. However, they do not examine the role of financial factors in their work.

on trade (Beck 2002, 2003; Ju and Wei 2005, Greenaway et al. 2007, Muûls 2008, Manova 2008, Manova et al. 2009). This recently growing line of research shows that financial development improves the export performance of a given country. Finance especially bolsters exports of firms that come from financially vulnerable industries or face credit constraints. These are important results, but their implications for overall allocative efficiency might yet prove elusive. What if financially constrained firms specialized in products whose factor intensities match poorly with the endowment of a given country? Financial development could in this case reinforce inefficient exporting patterns with adverse allocative consequences. In contrast, our results imply that banks help the firms on the "right side" of the comparative advantage.

Third, the paper brings a new perspective to the existing work on the survival of trade relationships. Besedes and Prusa (2006a) were the first to apply the analytical tools of survival analysis in the context of international trade and discovered that most of the exports to the United States are surprisingly short-lived. Subsequent research examined whether the patterns of export survival systematically vary across products and countries. Besedes and Prusa (2006b) show that probability of exports exiting the US market is higher for the homogenous goods than for the differentiated products. Besedes and Prusa (2011) look at bilateral trade relationships in a broad sample of countries and document that export survival is shorter for developing countries than for developed ones. There has been less work about specific driving forces of the export survival. Jaud et al. (2009) focus on the role of financial factors, introducing the difference-in-difference estimation approach into the trade survival framework. They show that, in terms of products' export survival, industries dependent on external finance disproportionately benefit from being located in financially developed countries. All of the above results can be explained by introduction of uncertainty and various shocks into the seminal framework of Melitz (2003). The angle of this paper is quite different. Here, exiting a highly competitive US market is not due to an unfortunate aftermath of adverse circumstances, but it is rather the structural consequence of efficiency-enhancing decline in factor misallocation.

The rest of this paper is structured as follows. In the next section, we introduce our empirical strategy. Section 3 describes the data and Section 4 reports our empirical results. Section 5 suggest a possible explanation for the disciplining effect of domestic banks and the lack of it in the case of domestic stock markets. Section 6 briefly discusses some policy implications and concludes.

2 Empirical Strategy

We believe that a formal survival analysis provides the most appropriate tools to investigate the disciplining forces of domestic banks and foreign product markets with regard to the long-term misallocation of resources. Product markets impose the ultimate constraint on exporters who use available resources in an inefficient way. However, competitive pressures on product markets represent a rather slow disciplining tool. Significant social costs associated with the inefficient use of resources occur in the meantime (Jensen 1993). Showing that financial factors can complement this standard disciplining device would therefore be an important result from the allocative point of view.

Answering the question whether domestic banks improve upon the ultimate but slow-acting discipline of product markets requires an export proxy shaped by these forces in the first place. Long-lasting competitive pressures will arguably have a significant impact on the long-term survival of products on foreign markets. In contrast, a mere product entry to foreign markets can be the consequence of government interventions in exporting countries. Volpe Martincus and Carballo (2008) show that export promotion works mostly via extensive margin. This is also in accordance with the stated objective of export agencies.[5] However, most countries do not have enough resources to subsidize exports of non-competitive products indefinitely. At some point the competition on foreign markets will set in, making the products' export survival the most appropriate proxy in this context. This line of argument also dictates the choice of the United States as the destination market. The product market in the USA is arguably the freest and the most competitive among the rich large economies.

Econometrically, we rely on the Cox Proportional Hazard Model and examine the determinants of the hazard rate $h(t)$ - probability that product k exported

[5] Görg et al. (2008) provide some evidence that general government subsidies like R&D grants promote also the intensive margin of exports.

from country c exits the US market at time t, conditional on its survival until that time (Appendix A provides further technical details). A higher hazard rate indicates a lower long-term export survival and vice versa. The empirical model writes:

$$\begin{aligned} h(t|X_{ckt_0}, \eta_k &= j) = h_j(t) \exp[\beta_1 distance_{ckt_0} + \beta_2 BC_{ct_0} * distance_{ckt_0} + \\ &+ \gamma Controls_{ckt_0} + \delta_c + \delta_{t_0} + \varepsilon_{ckt_0}], \end{aligned} \tag{1}$$

where BC_{ct_0} is the ratio of bank credit over the GDP in country c, and $distance_{ckt_0}$ measures how far is the revealed factor intensity of product k from factor endowment of exporting country c. In other words, it measures the distance of a given product from comparative advantage of the country that exports it to the US market. $Controls_{ckt_0}$ represents a vector of control variables, including the direct effect of bank credit (BC_{ct_0}), and ε_{ckt_0} is the error term. All time-varying explanatory variables are measured in the initial year of the trade relationship t_0. Because our measure of bank credit (BC_{ct_0}) varies at the country-time level[6], we report in all tables robust standard errors clustered at the country-time level as well, in order to avoid biasing the standard errors downwards.[7] The coefficients can be interpreted as semi-elasticities because they measure the effect of a change in the right-hand side variables on the log of the hazard rate.

The product's successful survival on foreign markets (i.e., low hazard rate of exports) is a natural measure of export sustainability. Our focus on the long-term optimality of resource allocation leads to a departure from the previous scholarly work on finance and trade. The bulk of this literature usually does not address the issue of export survival. When it does, the focus is on the short-term year-to-

[6] Time being the year of the initiation of the export spell.

[7] Failure to account for clustering may lead to massive underestimation of standard errors and consequent over-rejection of null hypothesis. In our case, the possibility of clustered standard errors may remain even after controlling for fixed effects (Bertrand et al. 2004). We have also experimented with the two-way clustering, following the procedure by Cameron et al. (2006). The idea there is based on three variance matrices: the first one is computed using clustering according to country, the second one is based on clustering according to time, and the third one uses clustering alongside country-time dimension. The final variance matrix is the sum of first and second matrix, minus the third one. In our case the resulting matrix is negative, suggesting that there might actually be no need to cluster in more than one dimension (Cameron et al. 2006, p. 9).

year changes in the export status of products or firms (Manova 2008, Berman and Héricourt forthcoming).[8]

A positive estimated coefficient β_1 would indicate that products not congruent with the comparative advantage of the exporting country face a higher hazard rate in the competitive US market. A positive coefficient β_2 would suggest that strong financial intermediaries reinforce this pattern, effectively pushing the export composition towards the comparative advantage of a given country even before the competition in the US market sets in. Our focus is thus on the allocative and selective roles of external debtholders: Do they mitigate the resource misallocation by pushing the manufacturing sector towards exports congruent with the comparative advantage of a given country? We do not primarily ask whether finance promotes exports in general or whether it promotes export of firms in credit-constrained sectors. The former is captured by the direct effect of BC_{ct_0} and the latter can be measured by bank credit interacted with dependence on external finance at the sectoral level ($BC_{ct_0} * ExF_j$). These variables, representing traditional channels from finance to export performance, are part of our control set $Controls_{ckt_0}$.

Besides finance-related and other control variables described in the data section, we also address the omitted variable bias by the use of the fixed effects. In the Cox PH model, the inclusion of fixed effects results in a shift of the baseline hazard function. The country fixed effects (δ_c) control for a wide array of observable and unobservable characteristics of the exporting countries that might affect the chances of their products to survive in the US market. These include factors like physical and cultural proximity to the USA, common border, common language etc. The time fixed effects (δ_{t_0}) control for the possibility that the initial conditions in the first year of exports might influence the products' chances for subsequent survival in the US market.

Additionally to standard fixed effects, we also allow the shape of the baseline hazard function, $h_j(t)$, to vary across industries, or even products, by fitting a stratified Cox PH model. Stratification according to an indicator variable η_k adds more flexibility to the model and allows for differential effect of the regressors across product groups. In equation (1), the strata variable is industry indicator j, allowing the baseline hazard function, $h_j(t)$, to vary across 118 industries according

[8] Two exceptions, known to us, are Jaud et al. (2009) and Besedes et al. (2011).

to the ISIC 4-digit classification.

We also stratify the Cox PH model according to the product indicator variable k:

$$\begin{aligned} h(t|X_{ckt_0},\eta_k &= k) = h_k(t)\exp[\beta_1 distance_{ckt_0} + \beta_2 BC_{ct_0} * distance_{ckt_0} + \\ &+ \gamma Controls_{ckt_0} + \delta_c + \delta_{t_0} + \varepsilon_{ckt_0}]. \end{aligned} \tag{2}$$

This stringent specification allows for a different baseline hazard function, $h_k(t)$, for every of the 4562 analyzed products from the HS 6-digit classification.

An important benefit of our focus on disaggregated product level relates to endogeneity prevalent in the relationship between financial factors and export performance. Greenaway et al. (2007) find no evidence that firms with a better ex-ante financial health are more likely to enter foreign markets. They do, however, find strong evidence that firms' financial health improves once they start exporting. This result poses serious challenge for studies examining whether financial development promotes exports of financially vulnerable firms. Berman and Héricourt (forthcoming) also examine the selection role of finance with respect to exporting and offer a partial solution to the endogeneity problem. They look at firm's productivity rather than just its financial health and show that this productivity is an important determinant of export decision only after some threshold of financial development is reached. However, subsidies or political connections could still affect both productivity and export performance of a firm. By contrast, the product's congruence with the comparative advantage of the exporting country ($distance_{ckt_0}$) is a technological characteristic. It measures the extent to which the product's manufacturing process uses up factors corresponding to the endowment of a given economy. Presumably, neither the various political factors affecting export performance nor the export performance itself will alter the capital or labour intensity of individual products. Using the ratio of bank credit over the GDP as a proxy for financial development could also introduce a endogeneity bias if available credit in the economy expands in anticipation of future export booms. However, this bias is less of an issue in our survival framework where the dependent variable is the hazard rate of highly disaggregated trade relationships and not the annual volume of export. Additionally, we take all explanatory variables, including the bank credit (BC_{ct_0}), at the initiation of the trade relationship.

Finally, if a product k exported by country c appears more than once in the dataset, it exhibits what is referred to as multiple spells of service. These multiple spells within a given country-product pair represent 52% of our observations and may not be independent. The first exit can make the second one more likely to occur. Inversely, an exporter might learn from the initial failure and manage to survive longer in a subsequent trade relationship. We therefore include a dummy variable to account for higher order spells.

Appendix E provides some summary statistics about the number and the length of the export spells. The last two columns suggest a higher survival rate for the products that are closer to the comparative advantage of the exporting countries (a small value of $distance_{ckt_0}$). A strong domestic banking sector in the exporting country (a high value of BC_{ct_0}) also seems to improve products' survival chances on the US market.

3 Data

In our analysis, the unit of observation is the export spell. This is a period during which country c exports product k into the US without interruption. There can be multiple observations per country-product pair if a country starts and then ceases exporting a given product to the US, before re-entering the US market with the same product later on. Most of our variables of interest are time-varying. Their values can thus potentially change during the duration of those export spells that last longer than one year. We measure these variables at the time of initiation of the export spell t_0. This allows us to capture how the initial conditions on product and financial markets shape the subsequent survival of exports.

3.1 Distance to Comparative Advantage

Among the regressors, the main challenge is to identify products that do not correspond to the comparative advantage of the exporting country. Our proxy for the extent to which a product makes a suboptimal use of available resources is the distance to comparative advantage ($distance_{ckt}$), computed at the 6-digit level of the HS classification. Following Cadot et al. (2011), this index compares, for a given year t, the revealed factor intensity of a given product k with the factor endowment of a given country c. Like with other time-varying variables, we will measure the distance to comparative advantage in the year of the initiation of export spell t_0.

Cadot et al. (2011) cite the recent literature on diversification cones (Schott 2003, 2004; Xiang 2007) as a conceptual basis for their measure. However, the theoretical foundations for measuring distance between exported product's factor intensity and exporting country's factor endowment were laid down much earlier. According to a long-standing idea called chain of comparative advantage, ranking the products in order of their factor intensities can explain international trade in multiple commodities. In a two-country model, the relative factor endowments determine which end of this product chain comprises exports of a given country. Deardorff (1979) extends the idea to a more realistic world of multiple products *and* multiple countries. In this higher-dimension case, the chain of comparative advantage effectively breaks into several segments, one for each country. Countries are arranged along the chain in accordance with their relative factor endowments, with each country exporting the products within its own segment and importing all the others.[9]

The formula for the Euclidean distance of product k to the comparative advantage of country c, in the initial year of export spell t_0, writes:

$$distance_{ckt_0} = \sqrt{std(\kappa_{ct_0} - \hat{\kappa}_{kt_0})^2 + std(h_{ct_0} - \hat{h}_{kt_0})^2},$$

where κ_{ct_0} and h_{ct_0} are endowments of physical and human capital of country c, and $\hat{\kappa}_{kt_0}$ and $\hat{h}_{kt_0}$ are the corresponding revealed factor intensities of product k, all in log terms.

We differ from Cadot et al. (2011) in using the normalized differences between the product factor intensities and the country factor endowments, with mean 0 and standard deviation 1. This assures equal weights of physical and human capital in

[9]This reasoning is valid only if factor price equalization does not hold and the world is thus divided into multiple diversification cones. In Heckscher-Ohlin framework with multiple countries and products, equalization of factor prices would namely lead to indeterminacy of both production and trade.

the overall distance, as κ and h are measured in different units.

The data on national factor endowments are from Cadot et al. (2009). The stock of physical capital per capita (κ_{ct_0}) is constructed according to the perpetual inventory method. Human capital per worker (h_{ct_0}) is calculated from the average years of schooling in a country, using attainment data.

The product revealed factor intensities of product k are from Cadot et al. (2009). They are calculated as weighted averages of the factor endowments of the countries exporting that product, following the methodology introduced by Hausmann et al. (2007). For instance, the revealed physical capital intensity of product k is calculated as:

$$\hat{\kappa}_{kt_0} = \sum\nolimits_c \omega_{ckt_0} \kappa_{ct_0},$$

where κ_{ct_0} is country c's endowment of physical capital, and the weights are given by $\omega_{ckt_0} = \frac{X_{ckt_0}/X_{ct_0}}{\sum_c X_{ckt_0}/X_{ct_0}}$, with X denoting exports. These weights correspond to the revealed comparative advantage of country c in product k. The numerator, X_{ckt_0}/X_{ct_0}, measures the importance of product k in the overall exports of country c ($\sum_k X_{ckt_0} = X_{ct_0}$). The denominator, $\sum_c X_{ckt_0}/X_{ct_0}$, aggregates the export shares of product k across all countries. Weighting countries' factor endowments by revealed comparative advantage instead of simple export shares prevents distortions due to different size of countries (Hausmann et al. 2007 and Cadot et al. 2009 provide numerical examples).[10] The revealed human capital intensity of product k is calculated in a similar way, with h_{ct_0} being the endowment of country c with human capital:

$$\hat{h}_{kt_0} = \sum\nolimits_c \omega_{ckt_0} h_{ct_0}.$$

3.2 Other variables

We adopt two measures capturing the level of financial development. First, we use the ratio of the overall bank credit extended to the private sector over country's

[10] The formulation of ω_{ckt_0} used by Hausmann et al. (2007) and Cadot et al. (2009) slightly differs from the original index of revealed comparative advantage by Balassa (1965). This modified formulation ensures that weights add up to one: $\sum_c \omega_{ckt_0} = \sum_c \frac{X_{ckt_0}/X_{ct_0}}{\sum_c X_{ckt_0}/X_{ct_0}} = \frac{\sum_c X_{ckt_0}/X_{ct_0}}{\sum_c X_{ckt_0}/X_{ct_0}} = 1$

GDP (BC_{ct_0}) as a proxy for the strength of the banking sector. Second, we take the ratio of stock market capitalization over the GDP (StM_{ct_0}) to capture the depth and liquidity of stock markets in a given country. The data for both our measures are from the widely used database by Beck et al. (2000), which contains various indicators of financial development across countries and over time. The annual data for the GDP per capita (GDP_{ct_0}) are taken from the World Development Indicator report 2006 and are reported in constant 2000 US dollars.

Bank credit may also facilitate export survival by reducing the costs of external finance to exporters. We control for this alternative channel by deploying an interaction term between countries' overall bank credit and industries' dependence on external finance ($BC_{ct_0} * ExF_j$). We construct an analogous interaction term for stock markets ($StM_{ct_0} * ExF_j$). Industry-level measure of external finance dependence for ISIC 4-digit sectors comes from Raddatz (2006) and is based on financial data about US firms from Compustat. In particular, dependence on external finance (ExF_j) is defined as capital expenditures minus cash flow from operations, divided by capital expenditures, for the median firm in each industry.

Similarly, we interact exporting countries' endowments of physical and human capital with corresponding factor intensities at industry level ($\kappa_{ct_0} * CapInt_j$, $h_{ct_0} * HumInt_j$). The factor intensities for ISIC 4-digit sectors come from Romalis (2004). Human capital intensity ($HumInt_j$) is computed as the ratio of non-production workers to the total employment in each industry. Physical capital intensity ($CapInt_j$) is measured as 1 minus the share of total compensation in value added. Both factor intensities are then adjusted to reflect the share of raw materials.

All industry characteristics (ExF_j, $CapInt_j$, $HumInt_j$) are computed solely from the US data and thus do not vary across the exporting countries. The US market is large, diversified, well-functioning, and comparably frictionless. Industry characteristics based on the US data can thus be interpreted as exogenous technological characteristics that are not driven by various imperfections prevalent in many countries. This idea comes back to the seminal paper of Rajan and Zingales (1998).

We compute the export survival in the US market and the remaining product-related variables from the BACI[11] dataset developed by the CEPII and described in Gaulier and Zignago (2009). The dataset provides harmonized bilateral trade flows for more than 5,000 HS 6-digit products and 143 countries, over the 1988-2005 period. In the following, we focus on the 1995-2005 period due to the high number of missing values before 1994, and we consider only exports of manufactured products and tobacco to the USA.[12] Export flows are reported annually in values (US dollars) and quantities. This highly detailed level of information is particularly suitable for survival analysis. Aggregation could introduce a considerable bias, essentially hiding individual export failures at the product level.

The product-related variables include the value of export to the US market in the initial year of the trade relationship t_0 ($initial\_export_{ckt_0}$), in log terms. This reflects the level of confidence US importers have in the reliability of their trading partner. Additionally, we include the total export value of product k from country c to all countries in the initial year of the trade relationship ($total\_export_{ckt_0}$), in log terms. This variable captures the experience the exporting country has in supplying the world market with product k. We also control for the degree of competition for a given product on the US market, incorporating the number of countries exporting product k to the USA in the initial year of the trade relationship ($NSuppliers_{kt_0}$). Finally we account for trade relationships with multiple spells, including a multiple spell dummy that takes value one if the spell is a higher order spell ($multiple\_spell_{ck}$). This last regressor does not vary according to the initial year of the trade relationship t_0, similarly to our industry characteristics (ExF_j, $CapInt_j$, $HumInt_j$).

The final database contains 71 countries exporting to the USA (see Appendix B). When controlling for all the variables of interest, our sample includes 191,078 observations (see Appendix D for the summary statistics).

[11] BACI is the French acronym for "Base pour l'Analyse du Commerce International": Database for International Trade Analysis. See http://www.cepii.fr/anglaisgraph/bdd/baci.htm.

[12] We are using BACI in HS from 1992 that covers the period 1994-2005. As the survival analysis relies on the length of export spells, we cannot use the data from the initial year. This leaves us with the data for 1995-2005 available for survival analysis.

4 Empirical Results

In Table 1, we take a first look at the interplay between disciplinary pressures from product markets and external debtholders towards exporting patterns congruent with the idea of comparative advantage. The dependent variable is the probability of exiting the US market (hazard rate, in the terminology of survival analysis) for product k exported from country c. All regressions control for country and time fixed effects. The estimations in Table 1 allow for different baseline hazard across industries by defining industry as strata variable (Equation 1).

[Table 1 about here]

The first column focuses on the disciplining impact of product markets. Here the variable of interest is the distance of exported product from the comparative advantage of the country of origin ($distance_{ckt_0}$). The positive and significant impact of this variable on the hazard rate confirms the importance of a competitive foreign market in enforcing an optimal allocation of resources. Products with factor intensity far away from endowment of the exporting country face a significantly higher probability of failure in the US market. Moving to our control variables, the value of export to the US in the initial year of export spell ($initial\_export_{ckt_0}$) and the total value of exports to all destination markets ($total\_export_{ckt_0}$) both decrease the hazard rate. Intuitively, products survive longer on the US market when the importers are willing to accept a higher initial shipment and when the exporting country has experience with placing the products in other markets as well. The coefficient for the multiple spell dummy ($multiple\_spell_{ck}$) is positive and significant, suggesting a higher risk of failure for products that repeatedly exit and re-enter the US market. The last product-related variable ($NSuppliers_{kt_0}$) has a negative impact on the hazard rate. This result is rather counter-intuitive, as the number of exporting countries serving the US market with a given product should proxy for the strength of foreign competition. The effect of the GDP per capita of the exporting country (GDP_{ct_0}) has no significant effect in this specification.

The second column of Table 1 is our baseline specification. It examines whether domestic financial intermediaries provide an additional check on inefficient exporting. The regressors now also include the ratio of bank credit over the GDP in the exporting country (BC_{ct_0}) and an interaction term between this measure and the distance of exported product to the exporting country's comparative advantage ($BC_{ct_0} * distance_{ckt_0}$). Strong financial intermediaries should in general help the exporters to survive on foreign markets. Domestic bank credit (BC_{ct_0}) indeed somewhat lowers the hazard rate, but this direct effect is not statistically significant. By contrast, the interaction term between bank credit and distance to comparative advantage ($BC_{ct_0} * distance_{ckt_0}$) has a positive and statistically significant impact on the hazard rate. The same applies for the direct effect of distance to comparative advantage ($distance_{ckt_0}$). Interpreting both coefficients together, banks push the exporters to abandon products that are facing an uphill battle on a foreign market due to suboptimal use of the domestic factor endowment. With regard to our control variables, the GDP per capita of the exporting country (GDP_{ct_0}) now has a positive and significant effect on the hazard rate. This result might appear counter-intuitive at first sight. However, two features of our estimations strategy provide an explanation. First, we control for country fixed effects in all regressions. The effect of GDP_{ct_0} is thus identified solely from variations within countries over time. These variations emerge both from growth trend and from business cycle fluctuations. Second, we measure all time-varying regressors in the first year of an export spell. Economically, the positive estimated coefficient for GDP_{ct_0} would then imply that exports initiated at the peak of a business cycle face higher risk of failure. Possible reasons for this effect include over-confidence of exporters during a boom or difficulties to maintain the costly presence in foreign markets once the business climate at home deteriorates. The next three columns control for additional channels affecting the survival on foreign markets that could be correlated with our mechanism.

In the third column, we add interaction terms between exporting countries' factor endowments and the sectors' corresponding factor intensities ($\kappa_{ct_0} * CapInt_j$, $h_{ct_0} * HumInt_j$). This controls for the possibility that products from industries extensively using physical or human capital survive longer on foreign markets if the exporting country is abundant in such a capital. When adding these interaction terms, we also control for direct effect of countries' factor endowments (κ_{ct_0}, h_{ct_0}) while the direct effect of factor intensities ($CapInt_j$, $HumInt_j$) is captured by the industry strata effects.[13] Our main interaction term capturing the disciplining effects of external debtholders ($BC_{ct_0} * distance_{ckt_0}$) maintains a positive and statistically significant coefficient. Similarly, the direct effect of distance to comparative advantage ($distance_{ckt_0}$) still translates into a higher hazard rate of exports, confirming the disciplining impact of a competitive foreign market. The human capital interaction term ($h_{ct_0} * HumInt_j$) has the expected negative sign while the direct effects of factor endowments are insignificant. The physical capital interaction ($\kappa_{ct_0} * CapInt_j$) has a positive sign, suggesting that products of capital-intensive industries coming from capital-abundant countries face a higher risk of exit from a foreign market. This rather counter-intuitive result is similar to Manova (2008), who finds a negative effect of this interaction term on export volume.

In the fourth column, we control for an alternative channel from finance to export survival. The seminal paper of Rajan and Zingales (1998) emphasizes the beneficial implications of a well-developed financial system for industries dependent on external finance. Jaud et al. (2009) confirm the relevance of this mechanism in the context of export survival. We therefore include the interaction between country's strength of the banking sector and industry's dependence on external finance ($BC_{ct_0} * ExF_j$) into our set of regressors. The significant disciplining effects of foreign product markets and domestic debtholders on products not congruent with the comparative advantage of exporting country ($distance_{ckt_0}$, $BC_{ct_0} * distance_{ckt_0}$) are not affected by this additional variable. The estimated coefficient for the control itself ($BC_{ct_0} * ExF_j$) is negative and significant. This confirms the findings of Jaud et al. (2009) who show that a well-developed banking sector promotes export survival for financially vulnerable industries requiring a higher external financing to maintain their operations. The direct effect of banks on export survival remains insignificant while the direct effect of industry's dependence on external finance (ExF_j) is captured by the industry strata effects.

Another bias might arise due to high correlation between countries' financial and overall economic development. Rather than the disciplining effects of external

[13] Countries' factor endowments are time-varying variables measured in the initial year of a trade relationship. Direct impact of the physical nad human capital (κ_{ct_0}, h_{ct_0}) is therefore *not* absorbed by the country fixed effects. The same logic applies to other country variables like the bank credit over the GDP (BC_{ct_0}) or the GDP per capita (GDP_{ct_0}).

debtholders, our main interaction term ($BC_{ct_0} * distance_{ckt_0}$) can simply represent the impact of some unobservable feature of rich countries that prevents inefficient resource use for unpromising exports. In the fifth column of Table 1, we therefore control for the interaction term of product's distance to comparative advantage with exporting country's GDP per capita ($GDP_{ct_0} * distance_{ckt_0}$). This new variable turns out to be not significant. However, our two main variables capturing the disciplining effects of product markets and external debtholders ($distance_{ckt_0}$, $BC_{ct_0} * distance_{ckt_0}$) lose their significance as well. Our controls in Table 1 are thus not sufficient to enable a clear-cut identification of various disciplining forces affecting the export survival while controlling for the highly correlated levels of financial and economic development.[14] To address this problem we are going to examine the disciplining effects of foreign product markets and domestic debtholders within a more stringent econometric specification.

Table 2 presents the results of such a rigorous specification. The strata variable is not any more the industry corresponding to exported product but the product itself. This allows for a different baseline hazard function for every of the 4,562 products included in the estimation (Equation 2). In other respects, the five columns correspond to estimations from Table 1.

[Table 2 about here]

Concerning our main focus on the interplay between disciplining forces of foreign product markets and domestic banks, the first four columns confirm in qualitative terms the results from Table 1. Both distance to the comparative advantage ($distance_{ckt_0}$) and the interaction of this variable with the strength of banking system in the country of origin ($BC_{ct_0} * distance_{ckt_0}$) maintain positive and significant impact on the hazard rate of products exported to the USA. Quantitatively, the point estimate and the level of significance for the main interaction term increase after controlling for product strata effects.

The main qualitative difference occurs in the fifth column that controls for the interaction between distance to comparative advantage and economic development

[14] The strength of banking sector (BC_{ct_0}) and the GDP per capita (GDP_{ct_0}) are correlated at 61% in our sample.

in the exporting country ($GDP_{ct_0} * distance_{ckt_0}$). In contrast to Table 1, the main interaction term capturing the disciplining impact of external debtholders ($BC_{ct_0} * distance_{ckt_0}$) now has a positive and significant effect on products' probability of exit from the US market. However, the distance to comparative advantage ($distance_{ckt_0}$) still fails to affect the hazard rate in a significant way. Between a competitive foreign market and external debtholders, the latter seem to be the more robust force behind pushing the exporting sector towards an efficient use of available factors of production. The interaction of distance to comparative advantage with the GDP per capita ($GDP_{ct_0} * distance_{ckt_0}$) is also insignificant. It is the disciplining impact of a well-developed banking system rather than some general feature of rich countries that prevents resource misallocation in form of exports not matching the factor endowment of the domestic economy.

The stringent econometric specification underlying Table 2 also yields two changes regarding our control variables. First, the proxy for the strength of foreign competition on the US market ($NSuppliers_{kt_0}$) now has the expected positive sign, increasing the products' hazard rate. Second, bank credit (BC_{ct_0}) now has a significantly negative direct effect on the hazard rate in the second and third columns. However, this significance disappears once we control for the interaction between development of countries' bank systems and industries' dependence on external finance ($BC_{ct_0} * ExF_j$) in the last two columns. This could suggest that the disciplining influence of banks ($BC_{ct_0} * distance_{ckt_0}$) and their support for financially vulnerable industries ($BC_{ct_0} * ExF_j$) already account for the greater part of financial forces affecting products' survival on foreign markets.

So far, we have used the ratio of bank credit over the GDP as our measure of financial development. Now we examine the possibility that deep stock markets can fulfill a similar role as strong banks when it comes to aligning the export patterns with the notion of comparative advantage. In Table 3, we repeat the estimations of columns (2) to (4) of Table 2, but in the main interaction term we replace the private credit over the GDP with the ratio of stockmarket capitalization over the GDP. A positive coefficient for the resulting variable ($StM_{ct_0} * distance_{ckt_0}$) would suggest that shareholders are also able to exert disciplining influence on exports violating the principle of comparative advantage. The results in Table 3 do not support this hypothesis. The interaction term between stock market capitalization and distance to comparative advantage is never significant and sometimes even enters the regression with the wrong sign. We have also re-run the estimations of columns (2) to (4) from Table 1 with the stock market interaction ($StM_{ct_0}*distance_{ckt_0}$). The results (not reported) are qualitative the same. The variable never enters the regression significantly. These results are not likely to stem from a measurement problem. Similarly to the banking development, also in the case of stock markets development we rely on the standard empirical proxy from the literature. Moreover, the traditional channel of financial development promoting exports via easing the liquidity constraints does work in the case of stock markets. The coefficient for the interaction term of stock markets and dependence on external finance ($StM_{ct_0} * ExF_j$) is negative and significant in last two columns where it is included. As predicted by theory and previous empirical work, deep stock markets do improve the export performance (decrease the hazard rate of exports) especially for those industries that heavily depend on external finance. The comparison between Tables 2 and 3 therefore does not imply that stock markets are not important for export performance in general. It is only the case of the disciplining channel examined in this paper where banks play a pivotal role.

[Table 3 about here]

Table 4 provides a series of robustness checks to our main results. As stock markets ($StM_{ct_0} * distance_{ckt_0}$) do not exert a significant disciplining effect already in the main specifications, we focus on the robustness of the banks channel ($BC_{ct_0} * distance_{ckt_0}$). The point of departure is the fifth column of Table 2 that has so far represented our most stringent specification. In the first column of Table 4, we drop all observations from islands often specializing in exports of only a few products (see Appendix C for details). The reported results are qualitatively the same as in the last column of Table 2. In particular, the debtholders ($BC_{ct_0} * distance_{ckt_0}$) still seem to be the dominant disciplining factor preventing long-term resource misallocation in form of inefficient export patterns. The impacts of both competition on the US product market ($distance_{ckt_0}$) and economic development in the exporting country ($GDP_{ct_0} * distance_{ckt_0}$) are not significant. Our results are thus not driven by small countries in the sample.

Columns (2) to (4) of Table 4 examine the robustness of our results to alternative ways of computing the proxy for distance of product k from comparative advantage of exporting country c. In the second column, we replace the Euclidean distance with the absolute distance.[15] The results remain qualitatively the same. In the third and fourth column, we add arable land per worker as a third production factor when computing the distance to comparative advantage. We use Euclidean distance in column (3) and absolute distance in column (4). Adding the third production factor further increases the significance for our main interaction term ($BC_{ct_0} * distance_{ckt_0}$). At the same time, the direct effect of distance to comparative advantage on hazard rate of exports ($distance_{ckt_0}$) remains insignificant.

In the fifth column of Table 4, we strengthen our control of omitted variables. Specifically, we stratify the Cox PH model according to product-time indicator variable ($\eta_k = k * t_0$). The baseline hazard function $h_{kt_0}(t)$ can now differ even for the same product k if the export spells started at different time t_0. This controls for the possibility that the initial conditions in the US product market vary both across products and time. These initial conditions can affect the products' chances for subsequent survival. A typical example is the degree of competition on the US market in the initial year of trade relationships, proxied by $NSuppliers_{kt_0}$. The product-time strata effects capture the effect of this variable as well as of all other possibly unobservable product-specific initial conditions on the US product market. The results for our two main variables ($BC_{ct_0} * distance_{ckt_0}$, $distance_{ckt_0}$) remain unchanged by this additional stringency of the estimation. The significance for our main interaction term ($BC_{ct_0} * distance_{ckt_0}$) is now even higher compared to the last column of Table 2.

[Table 4 about here]

[15] The formula for distance of product k from comparative advantage of exporting country c thus writes: $distance_{ckt_0} = \left|std(\kappa_{ct_0} - \hat{\kappa}_{kt_0})\right| + \left|std(h_{ct_0} - \hat{h}_{kt_0})\right|$

5 "Free Cash Flow" Problem and International Trade

Our empirical results suggest that there is something special about external debtholders like banks that enables them to exert an disciplining effect on exporters. This section provides a possible theoretical explanation why banks could be more effective than stock markets in pushing the manufacturing sector toward exports corresponding to the comparative advantage of a given country.

The perquisites of many managers increase with the level of investment undertaken by their firm or organizational unit. This gives them incentive to invest even in projects with negative net present value projects if the firm has cash flow exceeding funding needs of positive net present value projects. Jensen (1986) stresses the disciplining role of outside debt in counteracting the internal pressures to divert this “free cash flow” into unprofitable investments. Basically, the threat of possible failure to satisfy debt service payments pushes the managers toward efficient use of available resources. The ultimate insiders like managers can lose both their reputation and the control of "their" firm if the unpaid external debt triggers a bankruptcy procedure. Shareholders not happy with the dividend payments usually do not pose such a severe and immediate threat to the entrenched managers.

From a broader perspective, the free cash flow theory is a prominent example of the agency approach in finance literature. Agency theories view managers as rational agents pursuing their own objectives. Consequently, managers' actions can contradict the interests of the owners or society as a whole. Stulz (1990) and Hart and Moore (1995) build upon the insights from Jensen (1986) and develop formal models about the disciplining role of external debt. Lang et al. (1996) and Wurgler (2000) focus on the detrimental impact of capital misallocation on economic growth and provide empirical evidence along the lines of Jensen's theory. Here we apply the agency approach to look at another important aspect of resource misallocation: exporting not congruent with the comparative advantage of the domestic economy.

Exporting activities can be particularly prone to the free-cash problem of managerial discretion. Business related to foreign markets involves both high level of additional spending and strong incentives for managers to overinvest. A long-term success in exporting requires considerable investment. It is not enough to build and maintain distribution channels in a foreign country. A firm often needs to adapt its whole production routine and marketing strategy to a different market, regulatory and cultural environment. These investments will be efficiency-enhancing if they lead to more trade and international division of labour in compliance with the principle of comparative advantage. However, rational managers might have an incentive to push also for inefficient exports that do not match with their country's factor endowment.

A product manager can surely expect some additional perks if the firm sells "his" product also on foreign markets. Similarly, export status of a firm would be certainly not harmful for the status and benefits enjoyed by the firm's top management. The export-driven perquisites for managers can range from travelling abroad and spending time at luxury hotels to gaining a better access to domestic politicians who are eager to create national export champions. Managers might even retain rewards from exporting activities after a switch to another employer. Mion and Opromolla (2011) find a 15% wage premium for managers who have previously worked for an exporting firm. Interestingly, they do not find such a premium for export experience in the case of non-managerial employees.

Export subsidies might further skew the incentives towards inefficient exporting. These subsidies could be (and often are) justified by the adverse effects of financial frictions on potential exporters. In the presence of capital market imperfections, even promising firms might fail to secure up-front financing necessary for successful expansion into foreign markets. However, looking at the export promotion through the lenses of agency approach highlights the possible costs of government intervention. Export subsidies represent additional funds at managers' disposal that can worsen the problem of free cash flow. For example, management can spend the government's funds for broad export promotion like establishing distribution networks or various marketing and public relations activities. Once the firm has set up this general export infrastructure, managers can use it to promote also products that match poorly with the factor endowment of the country. In a different context, Blanchard et al. (1994) already showed that additional cash coming from won or settled lawsuits often leads to inefficient investment in accordance with agency models from finance literature. In the case of export promotion, the free cash flow problem might be even more severe. Here the subsidies are earmarked for exporting activities and cannot be used otherwise even if alternative domestic projects would promise a higher investment return.

Admittedly, the original paper of Jensen describes the US reality and focuses therefore on the disciplining effects coming from the holders of corporate bonds. However, the argument goes through for all debtholders. The main source of debt financing in the most countries are financial intermediaries like banks. This is especially true for firms in developing countries where the risk of resource misallocation is the most severe. The disciplining role of financial intermediaries might be especially important in numerous developing countries that suffer from insufficient judicial quality. Banks rely in pursuing their rights on comparatively simple legal interventions that can be implemented even by mediocre courts. In contrast, minority investors usually put much heavier burden on the legal system when trying to enforce their rights (Shleifer and Vishny 1997).

6 Conclusion

This paper provides evidence for the allocative and disciplining role of finance. Banks do not promote export in a sweeping non-discriminate way. They rather push the exporters towards the optimal use of countries' factor endowments, in compliance with the idea of comparative advantage. A well-developed banking system can thus enforce an efficient export composition before a competitive foreign market does so. In this way, finance prevents inefficient export patterns with positive impact on national and international allocation of available resources.

These results entail some interesting policy implications. According to the conventional wisdom, export promotion serves as a remedy for the prevailing financial frictions. In the absence of government interventions, the argument goes, capital market imperfections might prevent firms from exploiting potentially good export opportunities. If the aim is to improve the short-run export performance of credit-constrained firms, then government export promotion might indeed be a good substitute for bank lending. It is less clear whether government can replace the role that banks play in pushing the country's export composition toward its comparative advantage. If the financially vulnerable firms disproportionately use inappropriate factors of production, export promotion might even reinforce inefficient export patterns and worsen the resource allocation.

Governments eager to promote exports might therefore consider supporting financial development first. A strong domestic banking system would then provide the right incentives for the manufacturing sector to focus on exports that are sustainable in the long-run. This approach could dominate both the across-the-board export promotion and the trials to pick up the winners on foreign markets directly by the government.

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Appendix A: The Cox Proportional Hazard Model

Ordinary Least Squares (OLS) estimation is not suitable for duration data as the survival times are restricted to be positive and thus have a skewed distribution. Survival analysis allows an examination of the relationship between the distribution of survival times and some covariates of interest. The survival function gives the probability that a trade relationship will survive past time t. Conversely, the hazard rate function, $h(t)$, assesses the instantaneous risk of demise at time t, conditional on survival till that time. Formally, let $T \geq 0$, denote the survival time (length) of a trade relationship, with covariates X. The hazard rate, $h(t)$, is thus given by:

$$h(t|X) = \lim_{\Delta t \to 0} \frac{\Pr[(t \leq T < t + \Delta t)|T \geq t, X]}{\Delta t}.$$

Alternatively, in discrete time:

$$h(t|X) = \Pr(T = t|T \geq t, X), t = 1, 2, ...$$

We estimate the hazard rate for our trade relationships data using a Cox Proportional Hazard (PH) model (Cox 1972). The Cox PH model is broadly applicable and represents the most widely used method for survival analysis. The hazard function for a given product k exported from country c with covariates $X = \{x_1, x_2, ...x_j, ..x_n\}$,

$$h(t \mid X) = h_0(t) \exp(X.\beta),$$

is defined as the product of a baseline hazard function $h_0(t)$, common to all observations, and a parametrized function $\exp(X.\beta)$ with a vector of parameters β. The form of the baseline hazard function characterizes how the hazard changes as a function of time. The covariates X affect the hazard rate independently of time. The model offers some convenient features. It makes no assumptions about the form of the underlying baseline function. Additionally, the relationship between the covariates and the hazard rate is log-linear, allowing for a straightforward interpretation of the parameters. Increasing x_j by 1, all other covariates held constant, affects the hazard function by a factor of $\exp(\beta_j)$ at all points in time. Thus, it shifts all points of the baseline hazard function by the same factor. Parameter estimates in the Cox PH model are obtained by maximizing the partial likelihood as opposed to the likelihood for an entirely specified parametric hazard model (Cox 1972). The resulting estimates are less efficient than maximum-likelihood estimates. However, the model makes no arbitrary, and possibly incorrect, assumptions about the form of the baseline hazard function.

Appendix B: Full sample of countries exporting to the USA

Argentina; Australia; Austria; Bangladesh; Benin; Bolivia; Brazil; Cameroon; Canada; Chile; China; Colombia; Congo; Costa Rica; Denmark; Dominican Republic; Ecuador; Egypt; El Salvador; Finland; France; Gambia; Germany; Ghana; Greece; Guatemala; Haiti; Honduras; India; Indonesia; Ireland; Italy; Jamaica; Japan; Jordan; Kenya; Korea; Malawi; Malaysia; Mali; Mauritius; Mexico; Mozambique; Nepal; Netherlands; New Zealand; Nicaragua; Niger; Norway; Pakistan; Panama; Paraguay; Peru; Philippines; Portugal; Rwanda; Senegal; Spain; Sri Lanka; Sweden; Switzerland; Thailand; Togo; Trinidad and Tobago; Tunisia; Turkey; United Kingdom; Uruguay; Venezuela; Zambia; Zimbabwe

Appendix C: Microstate islands dropped in the column (1) of Table 4

Dominican Republic; Haiti; Jamaica; Mauritius; Trinidad and Tobago

Appendix D: Summary statistics - Data

Variable	Observations	Mean	Std. Dev.	Min	Max
$\text{distance}_{\text{ckt}_0}$	191078	2.223	1.215	0.017	10.322
BC_{ct_0}*$\text{distance}_{\text{ckt}_0}$	191078	1.293	1.369	0.004	17.760
GDP_{ct_0}*$\text{distance}_{\text{ckt}_0}$	191078	19.900	10.192	0.157	101.465
BC_{ct_0}*ExF_{j}	191078	0.150	0.249	-1.187	2.745
κ_{ct_0}*CapInt_{j}	191078	0.667	0.271	0.117	2.365
h_{ct_0}*HumInt_{j}	191078	6.901	3.100	0.345	19.666
ExF_{j}	191078	0.247	0.289	-0.545	1.260
κ_{ct_0}	191078	10.498	1.166	6.354	12.095
h_{ct_0}	191078	7.242	2.556	0.687	11.886
BC_{ct_0}	191078	0.612	0.462	0.033	2.179
GDP_{ct_0}	191078	9.164	0.938	6.294	10.472
$\text{initial\_export}_{\text{ckt}_0}$	191078	10.117	2.641	0	23.723
$\text{total\_export}_{\text{ckt}_0}$	191078	13.004	2.830	0	24.075
$\text{NSuppliers}_{\text{kt}_0}$	191078	37.068	19.095	1	136
$\text{multiple\_spell}_{\text{ck}}$	191078	0.576	0.494	0	1

Appendix E: Summary statistics - Export spells

	Number of country-products pairs	Number of spells	Spells within country-product pair		Spell length	
			Mean	Median	Mean	Median
Full Sample	155433	220041	1.42	1	4.78	3
$\text{distance}_{\text{ckt}_0}$ < 25th percentile	42248	55010	1.30	1	5.38	3
$\text{distance}_{\text{ckt}_0}$ > 75th percentile	8262	10457	1.27	1	3.02	1
BC_{ct_0} < 25th percentile	6360	8508	1.34	1	2.82	1
BC_{ct_0} > 75th percentile	80388	106818	1.33	1	5.61	4

Table 1: Banks and Comparative Advantage I

The dependent variable is the hazard rate on the US market for a export relationship of product k from country c that started at time t_0. All regressions are estimated using the Cox Proportional Hazard model (Cox 1972) and control for country and time fixed effects. Estimations also allow for different baseline hazard across industries by defining industry j as strata variable. Our two main variables of interest are ($distance_{ckt_0}$): distance of product k from comparative advantage of exporting country c, and (BC_{ct_0}*$distance_{ckt_0}$): interaction between $distance_{ckt_0}$ and financial development in country c proxied by bank credit over GDP (BC_{ct_0}). The control variables include direct and interacted effects of GDP per capita of country c (GDP_{ct_0}), dependence of industry j on external finance (ExF_j), countries´s endowments of physical (κ_{ct_0}) and human capital (h_{ct_0}), corresponding factor intensities at industry level ($CapInt_j$, $HumInt_j$), initial export value to the USA ($initial\_export_{ckt_0}$), total export value to the world market ($total\_export_{ckt_0}$), number of countries exporting product k to the USA ($NSuppliers_{kt_0}$), and a dummy variable taking value one if the spell is a higher order spell ($multiple\_spell_{ck}$). All time-varying explanatory variables are measured in the initial year of the trade relationship t_0. Robust standard errors clustered at 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)
$distance_{ckt_0}$	0.126***	0.102***	0.077***	0.080***	0.062
	(0.007)	(0.013)	(0.012)	(0.012)	(0.071)
BC_{ct_0}*$distance_{ckt_0}$		0.041**	0.042**	0.035**	0.032
		(0.016)	(0.017)	(0.016)	(0.022)
GDP_{ct_0}*$distance_{ckt_0}$					0.002
					(0.009)
BC_{ct_0}*ExF_j				-0.184***	-0.184***
				(0.035)	(0.034)
κ_{ct_0}*$CapInt_j$			0.794***	0.706***	0.705***
			(0.139)	(0.141)	(0.140)
h_{ct_0}*$HumInt_j$			-0.084***	-0.076***	-0.076***
			(0.009)	(0.009)	(0.009)
κ_{ct_0}			-0.040	-0.034	-0.034
			(0.111)	(0.111)	(0.111)
h_{ct_0}			0.078	0.069	0.069
			(0.065)	(0.065)	(0.065)
BC_{ct_0}		-0.035	-0.038	0.014	0.017
		(0.036)	(0.040)	(0.039)	(0.043)
GDP_{ct_0}	0.141	0.235**	0.289**	0.292**	0.289**
	(0.099)	(0.103)	(0.115)	(0.115)	(0.115)
$initial\_export_{ckt_0}$	-0.084***	-0.084***	-0.085***	-0.085***	-0.085***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$total\_export_{ckt_0}$	-0.104***	-0.105***	-0.104***	-0.104***	-0.104***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$NSuppliers_{kt_0}$	-0.020***	-0.020***	-0.020***	-0.020***	-0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$multiple\_spell_{ck}$	1.024***	1.013***	1.045***	1.045***	1.044***
	(0.090)	(0.091)	(0.094)	(0.094)	(0.094)
Observations	220041	211643	191078	191078	191078

Table 2: Banks and Comparative Advantage II

The dependent variable is the hazard rate on the US market for a export relationship of product k from country c that started at time t_0. All regressions are estimated using the Cox Proportional Hazard model (Cox 1972) and control for country and time fixed effects. Estimations also allow for different baseline hazard across products by defining product k as strata variable. The variables are defined in Table 1. Robust standard errors clustered at 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)
distance_{ckt_0}	0.145***	0.109***	0.080***	0.084***	0.048
	(0.008)	(0.014)	(0.013)	(0.013)	(0.081)
BC_{ct_0}*distance_{ckt_0}		0.068***	0.064***	0.052***	0.049**
		(0.018)	(0.019)	(0.018)	(0.022)
GDP_{ct_0}*distance_{ckt_0}					0.004
					(0.010)
BC_{ct_0}*ExF_j				-0.226***	-0.227***
				(0.036)	(0.036)
κ_{ct_0}*$CapInt_j$			1.011***	0.887***	0.882***
			(0.167)	(0.170)	(0.170)
h_{ct_0}*$HumInt_j$			-0.098***	-0.089***	-0.089***
			(0.010)	(0.011)	(0.010)
κ_{ct_0}			0.035	0.043	0.041
			(0.107)	(0.107)	(0.107)
h_{ct_0}			0.105	0.096	0.095
			(0.066)	(0.066)	(0.066)
BC_{ct_0}		-0.081**	-0.082*	-0.015	-0.010
		(0.039)	(0.043)	(0.042)	(0.045)
GDP_{ct_0}	0.207**	0.312***	0.332***	0.335***	0.331***
	(0.096)	(0.100)	(0.112)	(0.112)	(0.113)
$\text{initial\_export}_{ckt_0}$	-0.091***	-0.091***	-0.093***	-0.093***	-0.093***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$\text{total\_export}_{ckt_0}$	-0.121***	-0.121***	-0.120***	-0.120***	-0.120***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
NSuppliers_{kt_0}	0.007***	0.006***	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$\text{multiple\_spell}_{ck}$	1.026***	1.014***	1.033***	1.033***	1.033***
	(0.083)	(0.084)	(0.084)	(0.084)	(0.084)
Observations	220041	211643	191078	191078	191078

Table 3: Stock Markets and Comparative Advantage

The dependent variable is the hazard rate on the US market for a export relationship of product k from country c that started at time t_0. All regressions are estimated using the Cox Proportional Hazard model (Cox 1972) and control for country and time fixed effects. Estimations also allow for different baseline hazard across products by defining product k as strata variable. Financial development of country c is represented by the ratio of stock market capitalization over GDP (StM_{ct_0}) rather than bank credit over GDP. Other variables are defined in Table 1. Robust standard errors clustered at 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)
$distance_{ckt_0}$	0.147***	0.108***	0.113***	0.035
	(0.012)	(0.011)	(0.011)	(0.081)
$StM_{ct_0}*distance_{ckt_0}$	0.005	0.006	-0.008	-0.012
	(0.014)	(0.013)	(0.013)	(0.013)
$GDP_{ct_0}*distance_{ckt_0}$				0.009
				(0.009)
$StM_{ct_0}*ExF_j$			-0.209***	-0.212***
			(0.031)	(0.031)
$\kappa_{ct_0}*CapInt_j$		0.851***	0.737***	0.728***
		(0.195)	(0.194)	(0.194)
$h_{ct_0}*HumInt_j$		-0.118***	-0.108***	-0.108***
		(0.011)	(0.011)	(0.011)
κ_{ct_0}		-0.051	-0.036	-0.039
		(0.119)	(0.119)	(0.119)
h_{ct_0}		0.076	0.068	0.066
		(0.066)	(0.066)	(0.066)
StM_{ct_0}	0.026	0.024	0.088***	0.093***
	(0.028)	(0.030)	(0.032)	(0.032)
GDP_{ct_0}	0.193*	0.271**	0.271**	0.262**
	(0.112)	(0.132)	(0.133)	(0.133)
$initial\_export_{ckt_0}$	-0.093***	-0.096***	-0.096***	-0.096***
	(0.005)	(0.005)	(0.005)	(0.005)
$total\_export_{ckt_0}$	-0.126***	-0.124***	-0.124***	-0.124***
	(0.003)	(0.004)	(0.004)	(0.004)
$NSuppliers_{kt_0}$	0.008***	0.006***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
$multiple\_spell_{ck}$	1.076***	1.101***	1.101***	1.101***
	(0.091)	(0.092)	(0.092)	(0.092)
Observations	203649	182592	182592	182592

Table 4: Robustness Checks

The dependent variable is the hazard rate on the US market for a export relationship of product k from country c that started at time t_0. All regressions are estimated using the Cox Proportional Hazard model (Cox 1972). Estimations in columns (1) to (4) control for country and time fixed effects and allow for different baseline hazard across products by defining product k as strata variable. Estimation in column (5) controls for country fixed effects and defines product*time (k^*t_0) as strata variable. Column (1) drops observations from islands specializing in export of only few products, columns (2) to (4) examine robustness to alternative ways of computing ($distance_{ck}$): distance of product k from comparative advantage of exporting country c. The variables are defined in Table 1. Robust standard errors clustered at 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)
$distance_{ckt_0}$	0.028	0.021	0.080	0.025	-0.072
	(0.083)	(0.057)	(0.085)	(0.052)	(0.097)
BC_{ct_0}*$distance_{ckt_0}$	0.044**	0.034**	0.070***	0.045***	0.067***
	(0.022)	(0.016)	(0.023)	(0.014)	(0.021)
GDP_{ct_0}*$distance_{ckt_0}$	0.007	0.004	-0.001	0.002	0.019
	(0.010)	(0.007)	(0.010)	(0.006)	(0.012)
BC_{ct_0}*ExF_j	-0.218***	-0.227***	-0.229***	-0.225***	-0.220***
	(0.036)	(0.036)	(0.035)	(0.035)	(0.039)
κ_{ct_0}*$CapInt_j$	0.901***	0.885***	0.923***	0.915***	0.830***
	(0.170)	(0.170)	(0.172)	(0.171)	(0.181)
h_{ct_0}*$HumInt_j$	-0.092***	-0.090***	-0.099***	-0.097***	-0.096***
	(0.011)	(0.010)	(0.011)	(0.011)	(0.011)
κ_{ct_0}	-0.032	0.037	0.049	0.046	0.022
	(0.107)	(0.107)	(0.108)	(0.108)	(0.113)
h_{ct_0}	0.085	0.100	0.100	0.100	0.123*
	(0.065)	(0.066)	(0.068)	(0.067)	(0.067)
BC_{ct_0}	-0.010	-0.007	-0.065	-0.066	-0.023
	(0.046)	(0.045)	(0.053)	(0.052)	(0.053)
GDP_{ct_0}	0.427***	0.331***	0.333***	0.327***	0.360***
	(0.111)	(0.113)	(0.112)	(0.112)	(0.100)
$initial\_export_{ckt_0}$	-0.095***	-0.093***	-0.093***	-0.093***	-0.104***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$total\_export_{ckt_0}$	-0.124***	-0.120***	-0.120***	-0.120***	-0.130***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
$NSuppliers_{kt_0}$	0.005***	0.005***	0.005***	0.005***	
	(0.001)	(0.001)	(0.001)	(0.001)	
$multiple\_spell_{ck}$	1.082***	1.032***	1.032***	1.032***	1.166***
	(0.089)	(0.084)	(0.084)	(0.084)	(0.093)
Observations	181612	191078	191078	191078	191078