Grin and Bear It: Producer-Financed Exports from an Emerging Market

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Abstract

This study uses a unique dataset to provide the first comprehensive empirical test of the theory of financing terms in international trade. The dataset covers the universe of Turkey's exports disaggregated by product, destination, and financing terms for the period 2004-2012. The results conform with the main prediction of the theory: the prevalence of exporter-financed exports (relative to importer or bank-financed exports) increases with the institutional quality in the importing country. The data also support a simple theoretical extension predicting that product differentiation reinforces the positive effect of the institutional quality on exporter-financed exports. A one-standard-deviation increase in the importer's institutional quality is associated with a 14 percent increase in exporter-financed trade for non-differentiated products, and a 21 percent increase for differentiated goods. Finally, the results suggest that importer and bank-financed exports fell relative to exporter-financed exports during the Great Recession, with the gap widening with the severity of the crisis in the destination country.

In this paper, we study theoretically and empirically the choice of payment method in international trade, focusing particularly on the role of product differentiation. We consider three broad payment methods (financing terms): open account (OA), cash in advance (CIA), and letter of credit (LC). In transactions financed with OA, the importer pays after the arrival of the goods in the destination. In CIA-financed transactions, the importer pays before the exporter ships the goods to the destination. In LC-financed transactions, the importer's bank promises to pay for the goods on behalf of the importer provided the exporter meets all requirements specified in the contract.

To explain why product differentiation may affect the choice of financing terms in international trade, we present a simple model in the spirit of Antràs and Foley (2013) and Schmidt-Eisenlohr (2013). The model predicts that attractiveness of exporter finacing (OA) relative to other financing terms increases with the institutional quality in the importing country, and the magnitude of the effect rises as the degree of product differentiation increases. The intuition behind this results is simple. The more differentiated the product the more tailored its specifications are to the buyer's needs, and hence the lower the price it commands outside the relationship. Therefore, for highly differentiated products, an improvement in the quality of institutions in the importing country exerts a greater marginal positive effect on the exporter's expected profits in exporter-financed (OA) transactions.

In the empirical analysis, we use a unique dataset that provides a break-down of Turkey's exports by three main financing terms (OA, CIA, and LC), destination country and the 10-digit Harmonized System (HS) product level for the period 2004-2012. Our empirical results confirm the predictions of the model. They suggest that a one-standard-deviation increase in the importer's institutional quality is associated with a 20 percent increase in exporter-financed (OA) trade relative to importer-financed (CIA) or bank-fiananced (LC) trade. The effect differs between differentiated and non-differentiated goods: the estimate is about 8 percentage points larger for differentiated products. Our results are robust to using several measures of institutional quality, alternative specifications and various robustness checks.

Another robust empirical finding we obtain is that exporter-financing is less likely when the importer is located further away from Turkey: exports on OA terms are about 30 percent lower than exports on other financing terms when goods are shipped a distance of one standard deviation above the mean. This finding is intuitive as a larger distance is likely to lead to a higher loss in the case of default. Larger distances make interventions in the partner's country more costly due to higher transport and communications costs as well as greater cultural differences. Larger distances also increase the transit time and hence the length of the period for which finacing is needed.

Finally, we examine how the patterns of export financing were affected by the Great Recession. Our results suggest that importer and bank-financed exports fell relative to

exporter-financed exports during the Great Recession, with the gap widening with the severity of the crisis in the destination country. This finding is not surprising as the Turkish banking sector managed to weather the crisis times unscathed.

The contribution of our study is threefold. First, it is the first comprehensive empirical test of the theory of financing terms in international trade. In contrast to the earlier work, which relied either on aggregate data (Schmidt-Eisenlohr 2013) or on information on exports of a single firm (Antràs and Foley 2013), we rely on the universe of Turkish exports from a large emerging market. Second, we examine the role of product differentiation in the choice of export finacing, a question that has not been explored in the existing literature. We also document the importance of distance for the financing decision, an issue that has not been examined thoroughly before. Finally, the focus on an emerging market is an interesting question in itself due to its less developed financial sector. It also allows us to shed light on how credit squeeze in crisis-affected countries impacted exporters in emerging markets.

Breaking into foreign markets is difficult and costly, even more so for firms wishing to supply differentiated products where greater trust is needed between trading partners (Rauch and Trindade 2002, Ranjan and Lee 2007). Our results suggest producers of differentiated products may face an additional obstacle in the form of more limited access to importer or bank financing. This may be one of the reasons why export diversification may be difficult in countries with underdeveloped financial markets.

Our paper is related to several strands of the existing literature. First, we contribute to the work on the role of institutional quality in international trade (Antràs and Foley 2013, Schmidt-Eisenlohr 2013, Glady and Potin 2011). Second, we add to the broader literature on trade finance which documents a link between access to credit and exporting (Chaney (2013), Greenaway et al. (2007); Manova (2013), Amiti and Weinstein (2011)).

The rest of the paper is organized as follows. The next section presents the model and its main predictions. Section 2 discusses the data and presents some stylized facts. Section 3 reports the empirical results, and Section 4 concludes.

I Theoretical Framework

We present a simple static version of the model of Antràs and Foley (2013) who extend the model developed by Schmidt-Eisenlohr (2013) to a dynamic setting. In the model, a Turkish exporter of product p is matched with an importer in destination country c. Both firms are risk-neutral, and they play a one-shot game. The exporter incurs a constant marginal cost that is normalized to one and an iceberg-type cost $\tau_c > 1$ to export goods to destination country c. R denotes the importer's revenues.

In the model the exporter makes a take-it-or-leave-it offer to the importer. In the case where both parties fulfill their contractual obligations the timing of the game under

different payment terms is as follows. Under CIA terms the importer makes the payment before the exporter produces and ships the goods which arrive at the destination after one period. Under OA terms the exporter first produces and ships the goods, and the importer makes the payment upon their arrival. Under LC terms the importer's bank guarantees payment to the exporter after the arrival of goods at the destination.

We assume limited commitment. For transactions on open account terms, a contract is enforced with probability $\lambda_c \in (0,1)$, which depends positively on the quality of institutions in country c. If the contract is not enforced, and the importer does not pay, then the exporter can sell the goods to a third party. If the goods are tailored to the importer's requirements, then the exporter would not be able to re-sell them easily. We assume that the payment that the exporter would receive from selling the goods to a third party is decreasing in the degree of product differentiation: the new price will be a fraction $(1-e)$ of the price set in the initial contract, where $e \in [0,1]$ denotes the degree of product differentiation, with $e=1$ implying the highest degree of differentiation.[1]

Given limited commitment the exporter expects the following payment at time $t=1$:

$$C^{OA} = \left[\lambda_c + (1-\lambda_c)(1-e)\right] R(x).$$

where x denotes the volume of the transaction. The exporter finances the transaction at a cost r, which denotes the interest rate in Turkey. So the volume of transaction is chosen to maximize

$$\Pi_E^{OA} = \max_x \left\{ \frac{\lambda_c + (1-\lambda_c)(1-e)}{1+r} R(x) - \tau_c x \right\}$$

When the transaction is on cash in advance terms the exporter may have an incentive to deviate from the specifications set in the contract. Similarly to the OA case, we assume limited commitment such that contracts in Turkey are enforced with probability λ. So, with probability $(1-\lambda)$ the contract is not enforced, and the exporter avoids a small effort cost. Thus the value of the transaction falls to a fraction $\delta(e) \in (0,1)$ of the initial value. The fraction is an increasing function of product differentiation as buyer-specific features and quality considerations should exist for differentiated rather than homogeneous products. The exporter maximizes expected own profits subject to

[1] Nunn (2007) relies on a similar idea when classifying inputs according to their contract intensity. He argues that for inputs that are sold on organized exchange (low differentiation), there are potential buyers outside of the buyer-seller relationship, therefore the value of such inputs outside of the relationship is close to the value specified in the initial contract. This is not the case for differentiated products.

the participation constraint of the importer:

$$\max_x \Pi_E^{CIA} = C^{CIA} - \tau_c x$$
$$s.t.\ \frac{\lambda + (1-\lambda)(1-\delta(e))}{1+r_c} R(x) - C^{CIA} \geq 0.$$

As the exporter makes a take-it-or-leave-it offer the optimal contract would imply that the participation constraint for the importer binds. So expected profits of the exporter are given by:

$$\Pi_E^{CIA} = \max_x \left\{ \frac{\lambda + (1-\lambda)(1-\delta(e))}{1+r_c} R(x) - \tau_c x \right\}.$$

Under LC terms, it is assumed that the exporter receives payment with certainty, and the exporter's incentive not to comply with the contract terms is negligible. While bank financing (almost) eliminates the moral hazard problem on both sides, it is costly. The importer's bank charges a processing fee $f^{LC} > 1$, which is assumed to increase the cost of financing. The optimal contract under LC terms will solve the following problem:

$$\Pi_E^{LC} = \max_x \left\{ \frac{1}{f^{LC}(1+r_c)} R(x) - \tau_c x \right\}.$$

Introducing product differentiation to the model changes the solution under OA and CIA terms, and the optimal contract under LC terms is unaffected. If we ignore the effect of product differentiation, the simple model we present above retains the main predictions of the existing models. The following result is a slightly modified version of Result 1 in Antràs and Foley (2013), assuming exogenous financing costs.

Result 1 *The choice between different financing contracts depends on the following inequalities:*

$$\textit{OA is chosen against CIA iff } \frac{\lambda_c + (1-\lambda_c)(1-e)}{1+r} > \frac{\lambda + (1-\lambda)(1-\delta(e))}{1+r_c}$$
$$\textit{OA is chosen against LC iff } \frac{\lambda_c + (1-\lambda_c)(1-e)}{1+r} > \frac{1}{f^{LC}(1+r_c)}$$
$$\textit{CIA is chosen against LC iff } \lambda + (1-\lambda)(1-\delta(e)) > \frac{1}{f^{LC}}$$

Result 1 reiterates the predictions of the payment methods models of Schmidt-Eisenlohr (2013) and Antràs and Foley (2013). Contractul enforcement in the importing country has an unambiguous effect on the use of OA against both CIA and LC terms. Let the attractiveness of OA relative to CIA is denoted by $G_{OAvsCIA}$, and against LC by G_{OAvsLC}. We obtain

$$\frac{\partial G_{OAvsCIA}}{\partial \lambda_c} = \frac{\partial G_{OAvsLC}}{\partial \lambda_c} = \frac{e}{1+r} > 0.$$

Result 2 *The use of OA terms increases relative to both CIA and LC terms with the quality of institutions in the importing country.*

We are particularly interested in the effect of product differentiation on the choice of financing terms. The degree of product differentiation has an ambiguous effect on $G_{OAvsCIA}$:

$$\begin{aligned} G_{OAvsCIA} &= \frac{\lambda_c + (1-\lambda_c)(1-e)}{1+r} - \frac{\lambda + (1-\lambda)(1-\delta(e))}{1+r_c} \\ \Longrightarrow \quad \frac{\partial G_{OAvsCIA}}{\partial e} &= -\frac{1-\lambda_c}{1+r} + \frac{1-\lambda}{1+r_c}\delta_e \lesseqgtr 0. \end{aligned}$$

Product differentiation increases the expected loss of both parties. If the product is highly differentiated the exporter is less likely to find another buyer to sell the product as the product is tailored to the initial buyer's requirements. Thus expected loss of the exporter is increasing in the degree of product differentiation. Product differentiation also increases the loss in the value of the product in case the exporter deviates from the specifications set in the contract. Therefore the final effect of product differentiation on the choice between OA and CIA terms remains ambiguous. But it unambiguously increases the relative attractiveness of LC relative to CIA and OA:

$$\begin{aligned} \frac{\partial G_{CIAvsLC}}{\partial e} &= -(1-\lambda)\delta_e < 0, \\ \frac{\partial G_{OAvsLC}}{\partial e} &= -\frac{1-\lambda_c}{1+r} < 0. \end{aligned}$$

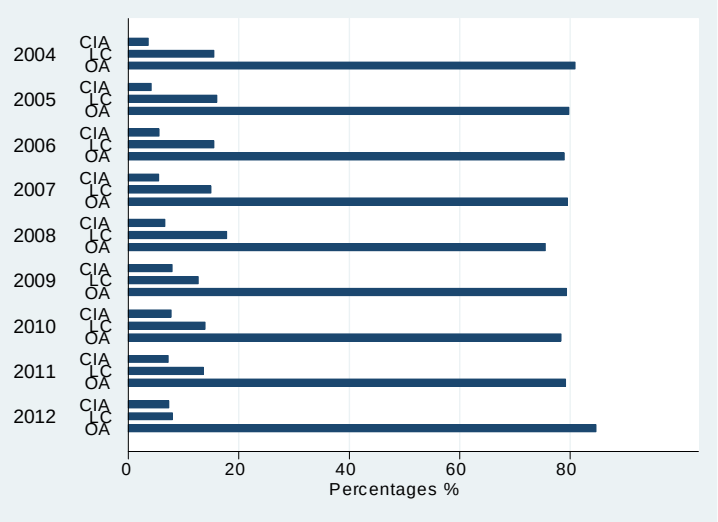
Product differentiation also affects the dependence of the choice between OA and CIA on contract enforcement in the importer's country. As the degree of product differentiation increases the attractiveness of OA relative to both CIA and LC terms becomes more sensitive to the institutional quality in the importing country. More formally;

$$\frac{\partial G_{OAvsCIA}}{\partial \lambda_c \partial e} = \frac{\partial G_{OAvsLC}}{\partial \lambda_c \partial e} = \frac{1}{1+r} > 0.$$

Result 3 *Product differentiation reinforces the positive effect of the quality of institutions in the importing country on the use of OA relative to other financing terms (CIA and LC).*

Product differentiation increases the expected loss of the exporter under OA terms. If the importer does not make the payment, the exporter would be able to resell the product only with a discount that increases with the degree of product differentiation. So, when the product is highly differentiated, an improvement in contract enforcement in the importing country exerts a greater marginal effect on the expected profits of the exporter under OA terms. In short, product differentiation increases the sensitivity of

Figure 1: Share of exports by financing terms (2004-2012)



the choice between OA and other financing terms on the quality of institutions in the importing country.

II Data and Stylized Facts

Turkey is a fast-growing economy, a member of OECD, ranking among the top twenty largest economies in the world. Over the past ten years, Turkey has become increasingly integrated into global markets; exports increased by threefold since 2003 to reach USD152.6 billion in 2012. In 1996, Turkey has signed a customs union for manufactured goods with the EU. Exports to the EU, on average, accounted for 43 percent of total exports during 2004-2012. The country is the 5^{th} largest exporter to the region.

Lack of data has hindered extensive empirical validation of the theory of financing terms. An ideal dataset should provide a break-down of trade flows by financing terms and contain information on destination and origin countries. So far such information has been avaible only for a single exporter (see Antràs and Foley 2013). Our unique dataset, provided by the Turkish Statistical Institute, contains all such information for the universe of Turkish manufacturing exports during the period 2004-2012.[2] The information is breaken down manufacturing exports by three main financing terms (OA, CIA, and LC), the destination country and the 10-digit HS product code. We have information on both value (free-on-board) and quantity of exports. During the period under consideration, a total of $12,480$ manufacturing products were exported to 249 destination countries.[3]

Figure 1 shows the share of each financing term in total exports over the period 2004-2012. Exporter-financed exports (OA) account for about 80 percent of the total.

[2] Manufacturing exports account for about 94% of total exports. Data are based on customs declarations and cover transactions of at least USD100.

[3] Aggregating the data to 6-digit HS codes leaves us with $4,822$ products.

This pattern is in line with the theoretical prediction: OA becomes attractive when institutional quality is better in the importing than in the exporting country. In the Turkish context, the extensive use of OA can be justified by the fact that OECD countries, which tend to have better institutions than Turkey, receive more than half of Turkey's exports.

Figure 2 presents further evidence that supports the hypothesis that the use of OA increases with the quality of institutions in the importing country. The figure groups destination countries according to the degree of contract enforcement, measured by payment timeliness. Payment timeliness (PT) is an index published by International Country Risk Guide (ICRG) and measures the risk associated with receiving and exporting payments from the country.[4] Higher values of the index are associated with lower risks. The figure presents the share of exports on OA terms to countries that have below- and above-mean PT over the sample period. The share of OA-based exports is consistently higher to countries that rank highly in payment timeliness. The average difference between the two groups over the sample period is 9 percentage points and is statistically significant at the one percent level. So, again summary statistics are consistent with the theoretical predictions.

Next we categorize HS10 products into differentiated and non-differentiated using the classification suggested by Rauch (1999). Rauch classifies goods that are not traded on an organized exchange and do not have a reference price as differentiated goods. Characteristics and quality of a differentiated product may vary across different buyer-seller pairs and thus such products are considered more sensitive to contract enforcement. Result 3 suggests that the choice among different financing terms depends on the degree of product differentiation. Figure 3 presents the share of OA-based exports in total exports for differentiated and non-differentiated products. There is a clear difference in the share of OA-financed exports across two product types. The share of OA-financed exports is 20 percentage points higher for differentiated compared to non-differentiated products, and the difference is statistically significant at the one percent level. Therefore, compared to exports of reference-priced or homogeneous products, exporters of differentiated products rely less on importer or bank financing.

The distance between trade partners can also affect the choice of financing terms. The longer the time to ship, the riskier the transaction (Antràs and Foley (2013)). In that case, which party bears the risk becomes more important. To see the effect of distance, we first calculate the mean distance between Turkey and all of its trading partners and then split countries into those with the distance above and below the mean. As evident from Figure 4, the use of OA is less common when Turkish exporters ship to countries located farther away. The difference in the share of exports on OA terms between the

[4]ICRG names the index "payment delays". We change the name to make it consistent with its definition.

two groups of trading partners is 14.5 percentage points and statistically significant at the one percent level.[5]

III Empirical Strategy and Results

III.1 Empirical specification

Stylized facts discussed in the previous section are broadly consistent with the predictions of the simple model presented in Section I. The following specification provides a more formal test of the model's predictions:

$$(1) \qquad X_{cpft} = \beta_0 OA_{cpft} + \beta_1 OA_{cpft} * IQ_{ct} + \Theta OA_{cpft} * Z_{ct} + \gamma_{ct} + \alpha_{c,HS6} + \varepsilon_{cpft},$$

where X_{cpft} denotes the log of Turkey's exports, measured in physical units, of HS10 product p to country c on financing term f at time t.[6] IQ_{ct} is a measure of institutional quality in country c at time t. OA is a binary variable that takes on the value one for exports on OA terms, and zero otherwise. Thus the omitted category are exports financed on CIA or LC terms. Z_{ct} is a vector of additional destination-level controls.

The main variable of interest in (1) is the institutional quality, for which we use two alternative measures in the baseline regressions: payment timeliness (PT) and contract viability (CV). PT captures the risk associated with receiving and exporting payments from the country, while CV measures the risk of unilateral contract modification or cancellation. For both measures, higher values are associated with lower risks (or better institutional quality). Both measures are expressed in terms of deviations from the sample mean. Our preferred measure is PT since it is most directly related to the effect we want to capture.

We include interactions between financing terms and GDP per capita in the empirical specification. Otherwise, contract enforcement variables may capture the effect of the level of development. Finally, we include interactions between financing terms and countries' distance to Turkey to control for varying degree of riskiness of shipments. We cluster standard errors at the country-year level. All control variables are measured as deviations from their respective means. Table 1 presents the summary statistics and descriptions of the variables used in the analysis.

We follow a difference-in-difference approach to identify the factors that affect the

[5] A similar exercise for LC-based exports reveals that exports on LC terms account for a larger share of exports to more distant countries. Over the sample period the share of LC-based exports to distant countries is 12 percentage points higher than the corresponding share for close countries, and the difference is significant at the one percent level. This may suggest that trade partners choose to transfer the risk associated with longer shipments to their banks. High risk associated with longer shipments may justify the cost of bank financing.

[6] Units remain unchanged over time for a given HS6-destination combination.

use of different financing terms in international trade. In the baseline specification, we include various fixed effects to control for the factors that might affect the volume of exports to a destination regardless of the choice of financing term. Time-varying demand factors in the destination country are captured by importer-time fixed effects γ_{ct}. Product composition of exports to a particular country is captured by HS6-product category-destination fixed effects $\alpha_{c,HS6}$. These fixed effects also control for differences in units across HS6-destination pairs.[7] In some specifications, we also add product group-time fixed effects to capture time-varying product group-specific supply and demand factors. A more stringent test of the theory includes time-varying importer-HS2 fixed effects to account for industry-specific demand factors in the destination country.

Our parameter of interest β_1 captures the differential effect of institutional quality on OA-based export values relative to CIA and LC-based exports. Its identification comes from cross-country variation in institutional quality and the use of different financing terms within a product-destination.[8] According to Result 1 the model predicts $\beta_1 > 0$. In other words, countries with institutional quality above the mean should receive more exporter than importer or bank-financed exports.[9]

III.2 Baseline results

The results obtained from estimating (1) presented in the first two columns of Table 2 suggest that both exporter-financed exports are higher relative to importer- or bank-financed exports when destined for countries with institutional quality (proxied by payment timeliness PT) above the mean. This finding is in line with the model's predictions: the use of OA terms is more likely when exporting to countries with better institutions. In the third column, we add interaction between OA dummy and GDP per capita as our institutional quality measure may pick up the effect of the importer's economic development. Although its magnitude is lower the coefficient on the interaction retains its statistical significance. The effect is also economically significant: a one-standard-deviation increase in the importer's payment timeliness is associated with a 20 percent increase in OA-based exports relative to exports on other financing terms. [10] In column (4), we add destination-sector-time fixed effects (2-digit HS) to account for sector-specific demand factors in the importing country. The estimates do not appear to be affected by this change.

In the next four columns, we use contract viability as an alternative measure of in-

[7] It is worth noting that there are no differences in units within HS6-destination pairs.

[8] The share of HS10 product-destination-year groups that use both OA and non-OA financing terms in the data is 45 percent.

[9] The model predicts that the institutional quality in the importing country should not matter for the level of LC-based relative to CIA-based exports. When we seperate exports on LC and CIA terms, the results we obtain are in line with the model's predictions. Results are available upon request.

[10] This calculation is based on the estimate presented in the third column of Table 2.

stitutional quality in the importing country. Our conclusions remain unchanged. As shown in columns 7 and 8 of Table 2 the volume of OA-based exports relative to CIA or LC-based exports is 16 percent higher to a country with contract viability one standard deviation above the mean.

Some products are exported to a given destination only under one type of financing terms. To make sure that our findings are not driven by these cases in columns (9)-(10) and (11)-(12) we restrict our attention to product-destination-year combinations with non-zero exports on both OA and non-OA terms. Doing so leads to a large drop in the number of observations but has little effect on our conclusions. The interaction term between the OA dummy and the institutional quality remains statistically significant at the one percent level and its magnitude increases slightly.

Another robust finding across different specifications presented in Table 2 is related to bilateral distance. Relative to exports financed otherwise, OA-based exports decrease with the importer's distance from Turkey. When it takes longer to ship goods, working capital requirements for production increase. So the exporter may be less willing or less able to bear the financing burden. Moroever, in the case of a contract breach, the costs of intervention (i.e., the cost of shipping the goods back or traveling to the partner country to deal with a dispute) increase in the distance.

In Table 3, we measure the importer's institutional quality using proxies related to the performance of the judicial system. These are: an index of confidence in the legal system (CLS) and the total duration of a legal procedure. Confidence in legal system is derived from the World Business Environment Survey that was conducted by the World Bank across 80 countries in 1999-2000. The survey includes responses from over 10,000 firms. CLS measure is derived from the question that asks the managers the degree to which they believe the judicial system will defend their rights in a business dispute. A higher score implies a higher confidence, and we use a country-average of individual scores. The measure of the total duration of a legal procedure is taken from Djankov et a.l (2003), and it is the estimated sum of calendar days from the original filing of a complaint to the ultimate enforcement of judgment. Thus higher values of this variable are associated with worse performance of the legal system. We expect to find a positive coefficient on the interaction term between the OA exports and the institutional quality when the first proxy is used and a negative coefficient when the second proxy is employed. The results, based on these alternative measures, confirm our earlier conclusions.

III.3 Does product differentiation matter?

Next we turn to the other main prediction of the model stating that product differentiation matters for the trade financing decision. The intuition is simple. The more differentiated the product is the more tailored its specifications are to the relationship

between the trading partners, and the lower the price it commands outside the relationship. Therefore, when the product is highly differentiated, an improvement in the quality of institutions in the importing country exerts a greater marginal positive effect on the expected profits of the exporter under OA terms.

Our results confirm the prediction of the model. This can be seen in Table 4 where we allow the estimated coefficients to differ for differentiated products. We find that product differentiation increases the sensitivity of the choice between OA and other financing terms to the quality of institutions in the importing country. This effect is statistically significant in three of four specifications and its magnitude is economically meaningful. A one-standard-deviation increase in institutional quality, as measured by payment timeliness, is associated with 13-14 percent higher exports on OA terms relative to others. The corresponding magnitude for differentiated goods equals 21 percent. We also find that the financing choice of differentiated products is more sensitive to the distance and the GDP per capita than the financing choice for other goods.

In Table 5, we focus on proxies related to the judicial system. We find that confidence in the legal system affect the choice between OA and other financing terms, and the magnitude of the effect is the same for differentiated and for other products. In contrast, the duration of the legal procedures matters for the choice of financing only when differentiated products are involved.

To further test the robustness of our conclusions, we go deeper into product classification proposed by Rauch (1999). In the first two columns of Table 6, we compare the determinants of export financing for differentiated versus reference-priced goods, while in the next two columns we do so for differentiated versus homogenous goods. We find that the prevalence of exporter-financing is more sensitive to the importer's institutional quality when differentiated products are compared to homogenous goods. This confirms our priors as homogenous goods are much easier to resell should the importer fail to make a payment. In the last two columns, we make a comparison between reference-priced and homogenous goods. We find a difference in the sensitivity of exporter-financing to the importer's institutions between the two groups but the estimated coefficients are statistically signficant only at the ten percent level.

III.4 Working with more aggregated data

One less satisfying aspect of our analysis so far has been the mismatch between the aggregation level of the dependent variable (HS10) and the fixed effects on the right hand side (HS6). This section addresses this issue by aggregating trade flow data to the HS6 level. Thus in its most stringest specification our estimating equation becomes

(2)

$$X_{cft,HS6} = \gamma_0 OA_{cft,HS6} + \gamma_1 OA_{cft,HS6} * IQ_{ct} + \Theta OA_{cft,HS6} * Z_{ct} + \gamma_{ct} + \alpha_{c,HS6} + \upsilon_{t,HS6} + \varepsilon_{cft,HS},$$

where $X_{cft,HS}$ denotes the log of Turkey's exports of a given HS6 product, measured in physical units, destined for country c on financing term f at time t. This modification causes a decline in the sample size, but has very little impact on the estimated coefficients (see Table 7). All of the coefficients remain statistically significant at the one percent level. Their magnitudes are only slightly larger than those found in our baseline specification in Table 2 .

Similarly, as evident from Table 8 , our conclusions with respect to product differentiation being an important determinant of the financing choice are robust to working with more aggregated data when our preferred measure (payment timeliness) is used. The estimates are not statistically significant when the other proxy (contract viability is employed).

III.5 What happened during the recent crisis?

As a final exercise, we investigate how financing of Turkish exports changed during the recent financial crisis. In contrast to many of its trading partners, the Turkish economy recovered relatively quickly from the Great Recession with its banking sector weathering the crisis times unscathed (Uygur (2010)). To examine this issue, we include an interaction term between the OA dummy and a dummy denoting trading partners affected by the crisis. The latter variable, $Crisis$, takes on the value one if country c is affected by a financial crisis at time t, and zero otherwise, where crises are identified by Laeven and Valencia (2013).[11] We expect that importers in crisis-affected countries are less well-positioned to offer trade financing. This indeed appears to be the case (see Table 9). We find that trade with crisis-affected countries is much more likely to take place under OA terms. This effect is robust to controlling for overall changes in OA trade during the 2008-2012 period.

As shown in the following tables, our conclusions with respect to the crisis are quite robust. They hold for both differentitated and non-differentiated producsts, with the estimated effect of interest being larger for the former subsample. They are also robust to aggregating the data to the HS6 level.

In Table 13, we include finer measures capturing the depth of the crisis in terms output loss, liquidity support, and peak non-performing loans (NPLs), all obtained from Laeven and Valencia (2013). Output loss is defined as the cumulative sum of the differences between the actual and the trend real GDP over the period $[T; T+3]$, expressed as a percentage of the trend real GDP, where T denotes the starting year of the crisis. Liquidity support is defined as the ratio of central bank claims on deposit money banks and liquidity support from the Treasury to total deposits and liabilities to non-residents.

[11] Laeven and Valencia (2013) focus on systemic banking sector crises that are characterized by noticeable signs of financial distress in the banking system, and significant banking sector intervention measures taken as a response to realized losses in the banking system.

NPLs measure the share of non-performing loans to total loans. All of these time-invariant variables are expressed in mean deviation form. During the non-crisis years (as defined by Laeven and Valencia), they are set to zero. As expected, we find that severity of the crisis affecting the importer increases the prevalence of exporter financing. The estimated effects are statistically significant in all specifications.

IV Conclusions

This study examines the choice between exporter and importer/bank financing and the role product differentiation plays in this choice. We conduct the first comprehensive empirical test of the theory of financing terms in international trade. To do so, we use a unique dataset that provides a break-down of Turkey's exports by three main financing terms (OA, CIA, and LC), destination country and the 10-digit HS product level for the period 2004-2012. We also examine, for the first time, the role of product differentiation in the choice of export financing. We present evidence suggesting that exporter-financed exports increase relative to importer/bank-financed exports when destined for countries with better institutions. The magnitude of this effect is larger for differentiated products. Our results suggest that, compared to exporters of non-differentiated products, exporters of differentiated products have a more limited access to importer or bank financing. This may be seen as an obstacle to export diversification in countries with less developed financial systems. Finally, we find that the recent Great Recession has increased exporters' reliance on own financing.

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Figure 2: Share of exports on open account terms and institutional quality

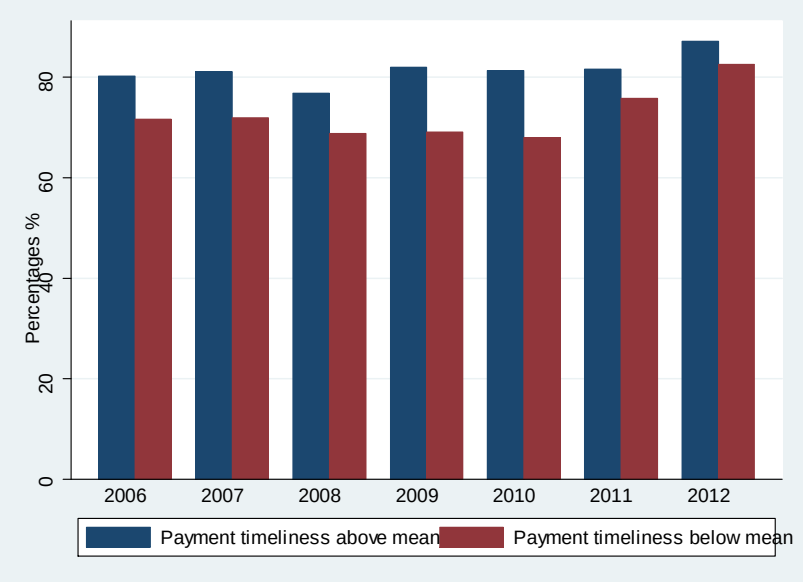

Table 1: Summary statistics

Notes: Source of contract enforcement measures is ICRG. Contract viability measures the risk of unilateral contract modification or cancellation, and Payment delays measures the risk associated with receiving and exporting payments from the country. They both lie between 0 and 4, with higher values indicating lower risk. Source of GDP and GDP per capita is World Development Indicators, and it is measured in current USD. Source of bilateral distance is Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

	Mean	Standard deviation
Log of exports value	9.4492	2.4802
Log of exports quantity	7.2822	3.1848
Open account dummy	0.7251	0.4465
Payment timeliness	2.9768	0.7981
Contract viability	3.1289	0.6729
Confidence in legal system	3.2113	0.5617
Log of duration of legal procedure	5.4354	0.9917
Political stability	−0.1620	0.9808
Rule of Law	0.0772	1.0492
Government effectiveness	0.1795	1.0156
Differentiated product dummy	0.8056	0.3957
Log of distance	7.7217	0.7275
Log of GDP	16.8360	18.8361

Figure 3: Share of exports on open account terms across product types

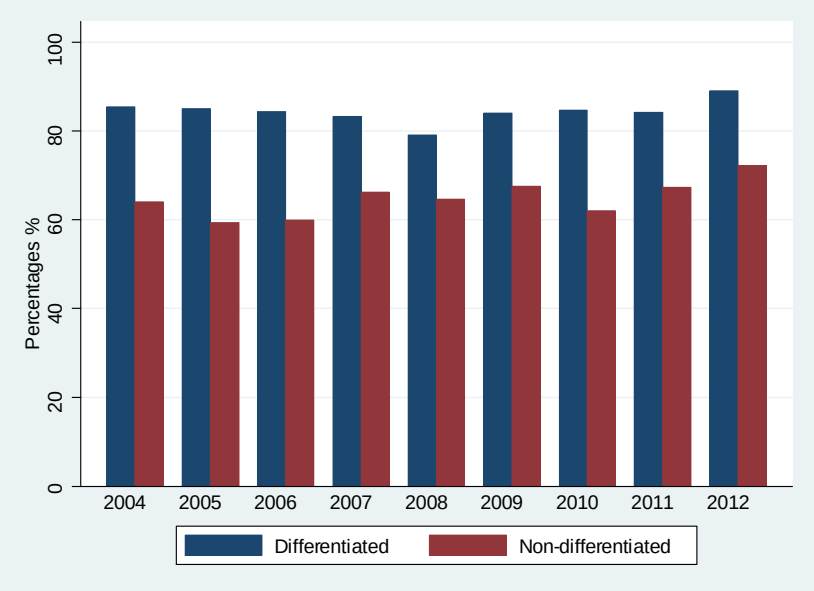

Figure 4: Share of exports on open account terms and bilateral distance

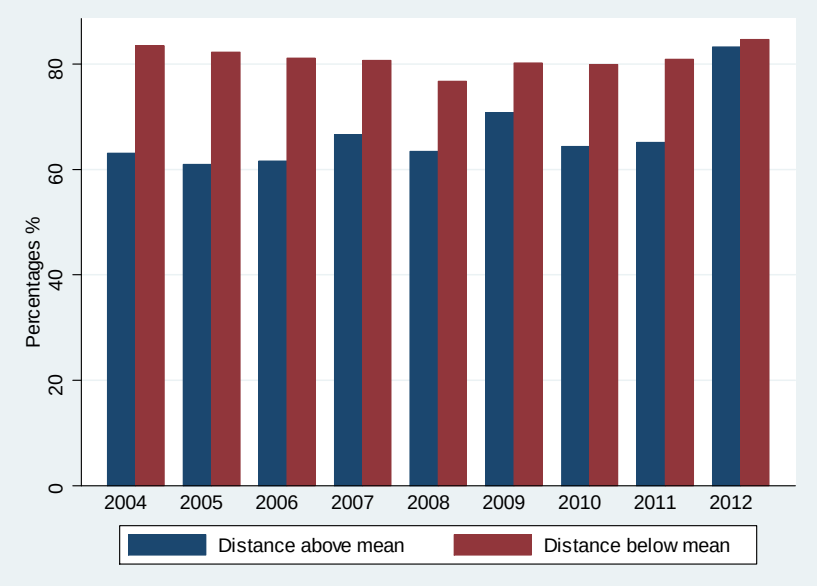

Table 2: Exporter-financed exports and institutional quality: baseline specifications

	Payment timeliness Full sample		Payment timeliness Full sample		Contract viability Full sample		Contract viability Full Sample		Peayment timeliness Restricted sample		Contract viability Restricted sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OAxIQ	0.306***	0.345***	0.231***	0.235***	0.267***	0.310***	0.168***	0.172***	0.272***	0.272***	0.215***	0.215***
	(0.0315)	(0.0390)	(0.0516)	(0.0532)	(0.0407)	(0.0520)	(0.0545)	(0.0565)	(0.0664)	(0.0677)	(0.0729)	(0.0743)
OAxDistance	-0.366***	-0.343***	-0.365***	-0.359***	-0.320***	-0.283***	-0.338***	-0.332***	-0.448***	-0.448***	-0.413***	-0.413***
	(0.0264)	(0.0327)	(0.0325)	(0.0338)	(0.0274)	(0.0340)	(0.0329)	(0.0342)	(0.0429)	(0.0438)	(0.0434)	(0.0443)
OAxGDPpercap			0.00831***	0.00840***			0.0113***	0.0114***	0.0105***	0.0105***	0.0138***	0.0138***
			(0.00249)	(0.00255)			(0.00209)	(0.00214)	(0.00318)	(0.00324)	(0.00262)	(0.00267)
OA	3.652***	3.752***	3.913***	3.885***	3.328***	3.328***	3.733***	3.695***	5.012***	5.012***	4.773***	4.773***
	(0.211)	(0.256)	(0.257)	(0.266)	(0.217)	(0.264)	(0.260)	(0.268)	(0.334)	(0.340)	(0.338)	(0.344)
N	1241001	1241001	1213445	1213445	1241001	1241001	1213445	1213445	538328	538328	538328	538328
R^2	0.536	0.700	0.702	0.710	0.535	0.700	0.702	0.710	0.724	0.733	0.724	0.733
Fixed effects												
CountryxYear	Yes	Yes	Yes		Yes		Yes		Yes		Yes	
HS6xYear	Yes						Yes					
CountryxHS6		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
CountryxHS2xYear				Yes		Yes				Yes	Yes	

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS10 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is given at the top of each column. In columns 5-6 and 11-12, the sample is restricted to destination-HS10-year combinations with non-zero exports on OA and non-OA terms. All variables are in mean deviation form.*

Table 3: Exporter-financed exports and institutional quality: role of judicial system

	Confidence in legal system		Duration of legal procedure	
	(1)	(2)	(3)	(4)
OAxIQ	0.228***	0.230***	-0.0995***	-0.0999***
	(0.0477)	(0.0487)	(0.0334)	(0.0341)
OAxDistance	-0.409***	-0.402***	-0.355***	-0.349***
	(0.0340)	(0.0352)	(0.0338)	(0.0349)
OAxGDPpercap	0.0259***	0.0260***	0.0144***	0.0145***
	(0.00212)	(0.00215)	(0.00179)	(0.00184)
OA	4.511***	4.469***	3.902***	3.873***
	(0.267)	(0.277)	(0.274)	(0.282)
N	791587	791587	950474	950474
R^2	0.699	0.707	0.701	0.709
Fixed effects				
CountryxYear	Yes		Yes	
CountryxHS6	Yes	Yes	Yes	Yes
CountryxHS2xYear		Yes		Yes

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS10 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is given at the top of each column. Duration of legal procedures is in logarithm, All variables are in mean deviation form.*

Table 4: Exporter-financed exports and institutional quality across product types: baseline specifications

	Payment timeliness		Contract viability	
	(1)	(2)	(3)	(4)
OAxIQ	0.161***	0.171***	0.120***	0.133***
	(0.0281)	(0.0290)	(0.0265)	(0.0274)
DiffxOAxIQ	0.0913***	0.0821**	0.0599**	0.0488
	(0.0312)	(0.0322)	(0.0293)	(0.0303)
DiffxIQ	-0.0515	-0.0290	0.00170	-0.0172
	(0.0332)	(0.0391)	(0.0273)	(0.0313)
OAxDistance	-0.316***	-0.322***	-0.297***	-0.301***
	(0.0256)	(0.0263)	(0.0256)	(0.0263)
DiffxOAxDistance	-0.0851***	-0.0713**	-0.0757***	-0.0635**
	(0.0281)	(0.0289)	(0.0281)	(0.0289)
OAxGDPpercap	0.0152***	0.0154***	0.00751***	0.00791***
	(0.00173)	(0.00175)	(0.00121)	(0.00124)
DiffxOAxGDP	0.0127***	0.0125***	0.00763***	0.00730***
	(0.00190)	(0.00193)	(0.00132)	(0.00135)
DiffxGDPpercap	-0.00716*	-0.00367	-0.00360	-0.00134
	(0.00397)	(0.00478)	(0.00238)	(0.00294)
OA	3.108***	3.172***	2.975***	3.019***
	(0.196)	(0.201)	(0.196)	(0.201)
DiffxOA	1.203***	1.096***	1.142***	1.047***
	(0.216)	(0.222)	(0.216)	(0.222)
N	1141857	1141857	1141857	1141857
R^2	0.703	0.711	0.703	0.711
Fixed effects				
CountryxYear	Yes		Yes	
CountryxHS6	Yes	Yes	Yes	Yes
CountryxHS2xYear		Yes		Yes

*Notes: Standard errors are clustered at the country-product(HS6) level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS10 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is given at the top of each column. Diff is a binary variable which takes on the value one if it is classified as differentiated according to Rauch (1999), and zero if it is classified as reference-priced or homogeneous. The interaction between distance and Diff is captured by CountryxHS6 fixed effects. All variables are in mean deviation form.*

Table 5: Exporter-financed exports and institutional quality across product types: role of judicial system

	Confidence in legal system		Duration of legal procedure	
	(1)	(2)	(3)	(4)
OAxIQ	0.276***	0.281***	-0.0269	-0.0248
	(0.0425)	(0.0431)	(0.0235)	(0.0240)
DiffxOAxIQ	-0.0510	-0.0534	-0.0888***	-0.0919***
	(0.0466)	(0.0473)	(0.0257)	(0.0263)
OAxDistance	-0.316***	-0.317***	-0.294***	-0.298***
	(0.0318)	(0.0327)	(0.0278)	(0.0286)
DiffxOAxDistance	-0.142***	-0.133***	-0.0978***	-0.0869***
	(0.0350)	(0.0360)	(0.0305)	(0.0313)
OAxGDPpercap	0.0152***	0.0154***	0.00751***	0.00791***
	(0.00173)	(0.00175)	(0.00121)	(0.00124)
DiffxOAxGDP	0.0127***	0.0125***	0.00763***	0.00730***
	(0.00190)	(0.00193)	(0.00132)	(0.00135)
DiffxGDPpercap	-0.00716*	-0.00367	-0.00360	-0.00134
	(0.00397)	(0.00478)	(0.00238)	(0.00294)
OA	3.304***	3.328***	3.009***	3.055***
	(0.245)	(0.252)	(0.212)	(0.217)
DiffxOA	1.727***	1.649***	1.297***	1.211***
	(0.270)	(0.278)	(0.233)	(0.239)
N	745550	745550	894862	894862
R^2	0.700	0.708	0.702	0.710
Fixed effects				
CountryxYear	Yes		Yes	
CountryxHS6	Yes	Yes	Yes	Yes
CountryxHS2xYear		Yes		Yes

*Notes: Standard errors are clustered at the country-product(HS6). *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS10 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is given at the top of each column. Diff is a binary variable which takes on the value one if it is classified as differentiated according to Rauch (1999), and zero if it is classified as reference-priced or homogeneous. The interaction between distance and Diff is captured by CountryxHS6 fixed effects. Duration of legal procedures is in logarithm, All variables are in mean deviation form.*

Table 6: Exporter-financed exports and institutional quality across product types: detailed product classification

	Differentiated vs. Reference-priced		Differentiated vs. homogenous		Reference-priced vs. homogenous	
	Payment timeliness	Contract viability	Payment timeliness	Contract viability	Payment timeliness	Contract viability
	(1)	(2)	(3)	(4)	(5)	(6)
OAxIQ	0.184***	0.194***	-0.00671	0.00999	-0.00480	0.00800
	(0.0292)	(0.0302)	(0.0964)	(0.102)	(0.0989)	(0.109)
DiffxOAxIQ	0.0678**	0.0597*	0.258***	0.244**		
	(0.0322)	(0.0332)	(0.0974)	(0.103)		
DiffxIQ	-0.0293	-0.0215	-0.196**	-0.0562		
	(0.0345)	(0.0415)	(0.0982)	(0.106)		
RefxOAxIQ					0.194*	0.187*
					(0.103)	(0.113)
RefxIQ					-0.184*	-0.0982
					(0.104)	(0.157)
OAxDistance	-0.348***	-0.352***	-0.0710	-0.0855	-0.0775	-0.0718
	(0.0267)	(0.0279)	(0.0785)	(0.0777)	(0.0806)	(0.0832)
DiffxOAxDistance	-0.0530*	-0.0416	-0.329***	-0.308***		
	(0.0292)	(0.0304)	(0.0794)	(0.0787)		
RefxOAxDistance					-0.274***	-0.281***
					(0.0851)	(0.0883)
OAxGDPpercap	0.00443***	0.00443***	0.00418	0.00456	0.00422	0.00416
	(0.00139)	(0.00143)	(0.00353)	(0.00354)	(0.00362)	(0.00376)
DiffxOAxGDPpercap	0.00405***	0.00413***	0.00431	0.00398		
	(0.00151)	(0.00155)	(0.00358)	(0.00359)		
DiffxGDPpercap	-0.000766	0.00387	-0.000562	-0.0113*		
	(0.00241)	(0.00299)	(0.00663)	(0.00669)		
RefxOAxGDPpercap					0.000179	0.000267
					(0.00389)	(0.00406)
RefxGDPpercap					0.000972	-0.00380
					(0.00734)	(0.0112)

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	Differentiated vs. Reference-priced		Differentiated vs. homogenous		Reference-priced vs. homogenous	
	Payment timeliness	Contract viability	Payment timeliness	Contract viability	Payment timeliness	Contract viability
	(1)	(2)	(3)	(4)	(5)	(6)
OA	3.377***	3.423***	1.030*	1.168*	1.078*	1.064
	(0.204)	(0.212)	(0.614)	(0.610)	(0.630)	(0.652)
DiffxOA	0.934***	0.846***	3.275***	3.098***		
	(0.224)	(0.232)	(0.621)	(0.617)		[1em] RefxOA
		2.325***	2.362***			
					(0.664)	(0.690)
N	1115118	1115118	952499	952499	216097	216097
R^2	0.701	0.709	0.694	0.704	0.678	0.698
Fixed effects						
CountryxYear	Yes		Yes		Yes	
CountryxHS6	Yes	Yes	Yes	Yes	Yes	Yes
CountryxHS2xYea		Yes		Yes		Yes

*Notes: Standard errors are clustered at the country-product(HS6). *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS10 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is payment timeliness. Diff (Ref) is a binary variable which takes on the value one if it is classified as differentiated (reference-priced) according to Rauch (1999), and zero if it is classified as reference-priced (differentiated) or homogeneous.All variables are in mean deviation form.*

Table 7: Exporter-financed exports and institutional quality: HS6 level

	Payment timeliness			Contract viability		
	(1)	(2)	(3)	(4)	(5)	(6)
OAxIQ	0.305***	0.307***	0.300***	0.211***	0.214***	0.203***
	(0.0629)	(0.0654)	(0.0644)	(0.0656)	(0.0687)	(0.0674)
OAxDistance	-0.470***	-0.463***	-0.477***	-0.438***	-0.430***	-0.446***
	(0.0405)	(0.0424)	(0.0414)	(0.0409)	(0.0428)	(0.0418)
OAxGDPpercap	0.00940***	0.00948***	0.00969***	0.0136***	0.0137***	0.0139***
	(0.00302)	(0.00312)	(0.00310)	(0.00257)	(0.00265)	(0.00264)
OA	5.092***	5.055***	5.167***	4.875***	4.827***	4.954***
	(0.322)	(0.336)	(0.330)	(0.325)	(0.339)	(0.333)
N	885972	885972	885972	885972	885972	885972
R^2	0.803	0.813	0.813	0.803	0.813	0.812
Fixed effects						
CountryxYear	Yes		Yes	Yes		Yes
HS6xYear			Yes			Yes
CountryxHS6	Yes	Yes	Yes	Yes	Yes	Yes
CountryxHS2xYear		Yes			Yes	

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS6 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is given at the top of each column. All variables are in mean deviation form.*

Table 8: Exporter-financed exports and institutional quality across product types: HS6 level

	Payment timeliness			Contract viability		
	(1)	(2)	(3)	(4)	(5)	(6)
OAxIQ	0.240***	0.248***	0.236***	0.190***	0.203***	0.187***
	(0.0302)	(0.0314)	(0.0307)	(0.0284)	(0.0297)	(0.0289)
DiffxOAxIQ	0.0823**	0.0755**	0.0824**	0.0234	0.0120	0.0189
	(0.0336)	(0.0349)	(0.0341)	(0.0315)	(0.0329)	(0.0320)
DiffxIQ	-0.0976***	-0.0445	-0.106***	-0.00419	0.000993	-0.0117
	(0.0352)	(0.0427)	(0.0368)	(0.0292)	(0.0343)	(0.0313)
OAxDistance	-0.413***	-0.416***	-0.425***	-0.386***	-0.386***	-0.398***
	(0.0275)	(0.0288)	(0.0278)	(0.0274)	(0.0287)	(0.0277)
DiffxOAxDistance	-0.0961***	-0.0848***	-0.0890***	-0.0900***	-0.0800**	-0.0831***
	(0.0303)	(0.0317)	(0.0307)	(0.0302)	(0.0315)	(0.0306)
OAxGDPpercap	0.00603***	0.00609***	0.00650***	0.00928***	0.00931***	0.00969***
	(0.00145)	(0.00151)	(0.00148)	(0.00130)	(0.00135)	(0.00132)
DiffxOAxGDPpercap	0.00340**	0.00338**	0.00318**	0.00465***	0.00465***	0.00450***
	(0.00159)	(0.00164)	(0.00161)	(0.00142)	(0.00147)	(0.00144)
DiffxGDPpercap	0.00239	0.00274	0.00405	0.00220	0.00194	0.00287
	(0.00251)	(0.00315)	(0.00293)	(0.00245)	(0.00310)	(0.00291)

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	Payment timeliness			Contract viability		
	(1)	(2)	(3)	(4)	(5)	(6)
OA	4.207***	4.243***	4.327***	4.015***	4.030***	4.136***
	(0.211)	(0.220)	(0.213)	(0.211)	(0.220)	(0.213)
DiffxOA	1.319***	1.233***	1.252***	1.285***	1.210***	1.220***
	(0.233)	(0.243)	(0.236)	(0.233)	(0.242)	(0.235)
N	834111	834111	834111	834111	834111	834111
R^2	0.803	0.813	0.812	0.803	0.812	0.812
Fixed effects						
CountryxYear	Yes		Yes	Yes		Yes
HS6xYear			Yes			Yes
CountryxHS6	Yes	Yes	Yes	Yes	Yes	Yes
CountryxHS2xYear		Yes			Yes	

*Notes: Standard errors are clustered at the country-product(HS6) level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS6 product p to country c on financing term f at time t. Measure of institutional quality (IQ) is given at the top of each column. Diff is a binary variable which takes on the value one if it is classified as differentiated according to Rauch (1999), and zero if it is classified as reference-priced or homogeneous. The interaction between distance and Diff is captured by CountryxHS6 fixed effects. All variables are in mean deviation form.*

Table 9: Exporter-financed exports during the crisis

	(1)	(2)	(3)	(4)	(5)	(6)
OAxCrisis	0.614***	0.676***	0.615***	0.679***	0.647***	0.714***
	(0.0703)	(0.0693)	(0.0719)	(0.0709)	(0.104)	(0.103)
OAxD_2008-12		-0.158**		-0.163**		-0.180
		(0.0678)		(0.0711)		(0.110)
OAxIQ	0.287***	0.269***	0.290***	0.272***	0.288***	0.269***
	(0.0449)	(0.0444)	(0.0462)	(0.0458)	(0.0674)	(0.0667)
OAxDistance	-0.359***	-0.355***	-0.355***	-0.351***	-0.357***	-0.353***
	(0.0316)	(0.0318)	(0.0328)	(0.0330)	(0.0479)	(0.0479)
OAxGDPpercap	0.00123	0.00120	0.00128	0.00125	0.00174	0.00168
	(0.00194)	(0.00188)	(0.00199)	(0.00192)	(0.00291)	(0.00279)
OA	3.735***	3.809***	3.717***	3.793***	3.847***	3.933***
	(0.255)	(0.258)	(0.263)	(0.266)	(0.380)	(0.383)
N	1212871	1212871	1212871	1212871	1212871	1212871
R^2	0.703	0.703	0.711	0.711	0.807	0.807
Fixed effects						
CountryxYear	Yes	Yes				
CountryxHS6	Yes	Yes	Yes	Yes		
CountryxHS2xYear			Yes	Yes		
CountryxHS6xYear					Yes	Yes

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Measure of institutional quality is payment timeliness in all specifications. Crisis is a country-year-specific dummy variable that takes on the value one for countries in crisis as identified by Laeven and Valencia (2013), and zero otherwise. D_2008-12 is another dummy variable that takes on the value one for the period 2008-2012, and zero in all other years.*

Table 10: Exporter-financed exports during the crisis: differentiated goods

	(1)	(2)	(3)	(4)	(5)	(6)
OAxCrisis	0.645***	0.709***	0.646***	0.711***	0.676***	0.744***
	(0.0752)	(0.0745)	(0.0770)	(0.0763)	(0.109)	(0.108)
OAxD_2008-12		-0.164**		-0.167**		-0.185*
		(0.0704)		(0.0741)		(0.112)
OAxIQ	0.309***	0.291***	0.312***	0.294***	0.307***	0.287***
	(0.0479)	(0.0473)	(0.0495)	(0.0488)	(0.0710)	(0.0700)
OAxDistance	-0.392***	-0.388***	-0.387***	-0.382***	-0.382***	-0.378***
	(0.0342)	(0.0346)	(0.0355)	(0.0359)	(0.0511)	(0.0514)
OAxGDPpercap	0.00117	0.00116	0.00120	0.00118	0.00178	0.00173
	(0.00207)	(0.00201)	(0.00213)	(0.00206)	(0.00305)	(0.00293)
OA	4.103***	4.179***	4.077***	4.154***	4.149***	4.237***
	(0.277)	(0.279)	(0.286)	(0.288)	(0.407)	(0.410)
N	925270	925270	925270	925270	925270	925270
R^2	0.691	0.691	0.700	0.700	0.798	0.798
Fixed effects						
CountryxYear	Yes	Yes				
CountryxHS6	Yes	Yes	Yes	Yes		
CountryxHS2xYear			Yes	Yes		
CountryxHS6xYear					Yes	Yes

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Measure of institutional quality is payment timeliness in all specifications. Crisis is a country-year-specific dummy variable that takes on the value one for countries in crisis as identified by Laeven and Valencia (2013), and zero otherwise. D_2008-12 is another dummy variable that takes on the value one for the period 2008-2012, and zero in all other years.*

Table 11: Exporter-financed exports during the crisis: non-differentiated goods

	(1)	(2)	(3)	(4)	(5)	(6)
OAxCrisis	0.536***	0.581***	0.541***	0.593***	0.558***	0.617***
	(0.0598)	(0.0611)	(0.0642)	(0.0657)	(0.0971)	(0.0985)
OAxD_2008-12		-0.111		-0.133*		-0.160
		(0.0722)		(0.0794)		(0.126)
OAxIQ	0.216***	0.204***	0.224***	0.210***	0.231***	0.215***
	(0.0428)	(0.0430)	(0.0465)	(0.0468)	(0.0691)	(0.0694)
OAxDistance	-0.323***	-0.321***	-0.327***	-0.325***	-0.351***	-0.348***
	(0.0315)	(0.0312)	(0.0347)	(0.0344)	(0.0512)	(0.0505)
OAxGDPpercap	-0.00322*	-0.00332*	-0.00331	-0.00343*	-0.00345	-0.00361
	(0.00185)	(0.00182)	(0.00202)	(0.00198)	(0.00303)	(0.00296)
OA	3.043***	3.102***	3.089***	3.159***	3.386***	3.474***
	(0.248)	(0.251)	(0.271)	(0.273)	(0.396)	(0.396)
N	216050	216050	216050	216050	216050	216050
R^2	0.678	0.678	0.698	0.698	0.802	0.802
Fixed effects						
CountryxYear	Yes	Yes				
CountryxHS6	Yes	Yes	Yes	Yes		
CountryxHS2xYear			Yes	Yes		
CountryxHS6xYear					Yes	Yes

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Measure of institutional quality is payment timeliness in all specifications. Crisis is a country-year-specific dummy variable that takes on the value one for countries in crisis as identified by Laeven and Valencia (2013), and zero otherwise. D_2008-12 is another dummy variable that takes on the value one for the period 2008-2012, and zero in all other years.*

Table 12: Exporter-financed exports during the crisis: aggregated to HS6 level

	(1)	(2)	(3)	(4)
OAxCrisis	0.802***	0.906***	0.804***	0.909***
	(0.0990)	(0.0978)	(0.103)	(0.101)
OAxD_2008-12		-0.260***		-0.269***
		(0.0894)		(0.0953)
OAxIQ	0.387***	0.358***	0.391***	0.362***
	(0.0631)	(0.0623)	(0.0658)	(0.0651)
OAxDistance	-0.491***	-0.484***	-0.485***	-0.478***
	(0.0448)	(0.0449)	(0.0470)	(0.0471)
OAxGDPpercap	0.000663	0.000649	0.000623	0.000605
	(0.00279)	(0.00268)	(0.00290)	(0.00278)
OA	5.165***	5.277***	5.138***	5.253***
	(0.365)	(0.363)	(0.381)	(0.379)
N	780593	780593	780593	780593
R^2	0.822	0.822	0.832	0.832
Fixed effects				
CountryxYear	Yes	Yes		
CountryxHS6	Yes	Yes	Yes	Yes
CountryxHS2xYear			Yes	Yes

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Measure of institutional quality is payment timeliness in all specifications. Crisis is a country-year-specific dummy variable that takes on the value one for countries in crisis as identified by Laeven and Valencia (2013), and zero otherwise. D_2008-12 is another dummy variable that takes on the value one for the period 2008-2012, and zero in all other years.*

Table 13: Exporter-financed exports and depth of the crisis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OAxOutput_loss	0.00613***	0.00622***	0.00656**						
	(0.00202)	(0.00209)	(0.00316)						
OAxLiquidity_support				0.0103**	0.0103*	0.00982			
				(0.00523)	(0.00529)	(0.00758)			
OAxPeak_NPL							0.0253***	0.0258***	0.0273**
							(0.00722)	(0.00750)	(0.0112)
OAxIQ	0.246***	0.249***	0.246***	0.246***	0.249***	0.245***	0.260***	0.264***	0.262***
	(0.0516)	(0.0532)	(0.0768)	(0.0515)	(0.0531)	(0.0768)	(0.0511)	(0.0527)	(0.0763)
OAxDistance	-0.360***	-0.355***	-0.354***	-0.350***	-0.344***	-0.343***	-0.359***	-0.354***	-0.353***
	(0.0325)	(0.0338)	(0.0493)	(0.0340)	(0.0353)	(0.0515)	(0.0328)	(0.0340)	(0.0496)
OAxGDPpercap	0.00656***	0.00661**	0.00744*	0.00722***	0.00729***	0.00827**	0.00710***	0.00716***	0.00804**
	(0.00254)	(0.00261)	(0.00380)	(0.00254)	(0.00261)	(0.00380)	(0.00245)	(0.00251)	(0.00364)
OA	3.858***	3.829***	3.939***	3.779***	3.750***	3.864***	3.833***	3.805***	3.917***
	(0.258)	(0.267)	(0.386)	(0.271)	(0.280)	(0.405)	(0.262)	(0.272)	(0.392)
N	1212871	1212871	1212871	1212871	1212871	1212871	1212871	1212871	1212871
R^2	0.702	0.710	0.806	0.702	0.710	0.806	0.702	0.710	0.806
Fixed effects									
CountryxYear	Yes			Yes			Yes		
CountryxHS6	Yes	Yes		Yes	Yes		Yes	Yes	
CountryxHS2xYear		Yes			Yes			Yes	
CountryxHS6xYear			Yes			Yes			Yes

*Notes: Standard errors are clustered at the country-year level. *, **, and *** represent significance at the 10, 5, and 1 percent levels, respectively. Dependent variable is log quantity of exports of HS10 product p to country c on financing term f at time t. Measure of IQ is payment timeliness. Data on the crisis indicators are obtained from Laeven and Valencia (2013). Output loss is the cumulative sum of the differences between actual and trend real GDP over the period $[T, T+3]$ as a percentage of trend real GDP, where T denotes the starting year of the crisis. Liquidity support is measured as the ratio of central bank claims on deposit money banks and liquidity support from the Treasury to total deposits and liabilities to non-residents. NPLs measure the share of non-performing loans to total loans. All variables are in mean deviation form.*