Trade finance matters: evidence from the COVID-19 crisis

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Abstract: This study documents a substantial decline in the exports of major trading nations taking place in March 2020. Accounting for product-specific seasonality and annual trends, the data suggest a drop by 38 per cent in France, about a quarter in Turkey and Germany, and 12 per cent in the US, relative to their historical averages. Detailed export data from Turkey, disaggregated by financing terms, show another striking pattern. Flows using bank intermediation which eliminates or reduces the risk of non-payment or non-arrival of prepaid goods, such as letters of credit or documentary collection, appear to have been much more resilient to the current downturn relative to flows using other financing terms. These findings suggest that access to trade finance is vital during times of heightened uncertainty.

Keywords: COVID-19, trade financing, letters of credit, exports

JEL classification: F14, G21

I. Introduction

In a world of global value chains where goods cross borders multiple times, any downturn takes a disproportionate toll on trade. The Great Trade Collapse that took place in the aftermath of the 2008 financial crisis is a case in point.

The current downturn, caused by the COVID-19 pandemic, is unlikely to be different. The latest available data already indicate that French exports dropped by 38 per cent in March 2020 relative to historical patterns. A 23 per cent drop was observed in Germany, while Turkey and the US registered a 25 per cent and a 12 per cent decline, respectively. Although French and German exports were already on a declining trajectory due to the Eurozone slowdown, the March drop was much sharper than what would have been consistent with the pre-pandemic trend (see Figure 1).

There are many reasons why trade goes down in downturns, with the decline in demand, particularly for durables (e.g. Levchenko et al., 2010; Eaton et al., 2016) being the primary culprit. Other factors cited include increased protectionism (Evenett,
and the interplay between uncertainty and higher ordering costs for foreign (relative to domestic) inputs (Berman et al., 2019). During financial crises, worsened access to credit and trade finance also plays a significant role (e.g. Ahn et al., 2011; Amiti and Weinstein, 2011; Chor and Manova, 2012; Paravisini et al., 2015; Crozet et al., 2020).

This paper draws attention to yet another reason—increased risk of non-payment or non-delivery of pre-paid goods—which means that unsecured flows are less resilient than insured flows. Disruptions to international trade caused by increased uncertainty and inability to secure flows using trade finance instruments, such as letters of credit, have been reported in the press. For instance, the Financial Times reported on 28 April 2020 that ‘the current crisis brings with it a significant increase in late payments and additional risks that our clients may face unpaid invoices as certain buyers may present heightened levels of risk of non-payment and deteriorated credit worthiness’ and that ‘the financing available for trade flows in emerging and frontier markets has dropped even more than the volume of trade’.

Notes: In each graph the y-axis shows the estimated coefficient ($\beta_k$) and the corresponding 90 per cent confidence intervals (dashed lines) on the respective time fixed effects obtained from the following regression:

$$\ln \text{Value}_{ptm} = \sum_{k=1}^{11} \beta_k D_k + \alpha_p + \gamma_{pm} + \epsilon_{ptm},$$

where $k = 1$ represents May 2019, $k = 2$ June 2019, ..., and $k = 11$ March 2020. $\alpha_p$ denotes fixed effects at the level of 6-digit HS product codes and the 12-month period from April to the March of the following year. $\gamma_{pm}$ are product-month dummies that control for product-specific seasonality. $\ln \text{Value}$ is the natural logarithm of the value of exports. The regression sample covers the period January 2017 to March 2020. Robust standard errors are clustered at the 6-digit HS product level.

Source: Authors’ estimates.

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1 https://www.ft.com/content/c8a13e05-f47f-410a-898b-af3d758d7a6e
Although the current downturn is not accompanied by a financial crisis, the availability of trade finance in emerging markets has been steadily declining in the past decade (WTO and IFC, 2019).

We present evidence consistent with the view that increased risks of non-payment and non-delivery have negatively affected trade flows during the pandemic. Namely, we show that export flows secured by bank intermediation exhibited greater resilience to the downturn relative to other export flows. Our analysis is based on Turkish export data. Turkey is unique in that it collects very detailed data on payment terms in international trade transactions, which allow us to analyse how its exports using different types of financing terms performed in the first 3 months of this year relative to the historical average. Turkey is also a good setting for our study because its economy was not affected by a lockdown during that time period.

This article is structured as follows. The next section discusses risk and ways of mitigating it in international trade transactions. Section III reviews the literature, while section IV describes the data used. The main empirical findings are presented in section V. The last section includes concluding remarks.

II. Risks in international trade transactions

Trade across international borders is more risky than trading within national borders. This is because shipping goods internationally involves dealing with trading partners who are located far away, speak a different language, and are subject to different laws and regulations. International trade involves longer transit times that expose trading partners to risks ranging from exchange rate movements and demand uncertainty to political instability.

Trading partners need to decide how to allocate those risks by choosing one of the following three financing terms: cash in advance, open account, and letter of credit. Under cash-in-advance (CIA) terms, the exporter receives a payment before the ownership of the goods is transferred to the importer or even before the goods are shipped. This means that the importer faces the risk of never receiving the pre-paid goods. Under open account (OA) terms, goods are shipped and delivered before a payment is made by the importer, so it is the exporter who bears the risk of never receiving a payment. The letter-of-credit (LC) terms allow both parties to shift the risk on to a bank in exchange for a fee. Under an LC, the importer’s bank commits to making the payment to the exporter upon the verification of the fulfilment of the terms and conditions stated in the LC, so the exporter is sure that a payment will be received, while the importer does not need to make a payment prior to the goods arrival.

Documentary collection (DC) is another financing term that involves bank intermediation. Under DC the exporter delegates the collection of the payment to its bank, which sends the documents to the buyer’s bank together with payment instructions. This instrument is much cheaper than the LC since the banks do not provide a payment guarantee, but properly structured can significantly contribute to risk mitigation.

An unexpected adverse economic shock, such as the current pandemic, increases the risks of non-payment or non-delivery of prepaid goods. Thus we expect export transactions backed by LC (and DC) to be more resilient than transactions on other financing
In other words, we expect a smaller decline in exports backed by LC and DC terms than in exports based on OA and CIA terms.

III. Literature review

While there exists an extensive literature on finance and international trade (e.g. Ahn et al., 2011; Amiti and Weinstein, 2011; Chor and Manova, 2012; Paravasini et al., 2015), the literature on financing terms used in international trade is relatively new but growing.

On the theoretical front, Schmidt-Eisenlohr (2013) developed a model that presents the trade-offs faced by trading partners when choosing between different financing terms. The model predicts that trading partners are more likely to prefer OA to CIA financing when the cost of financing and quality of contract enforcement in the exporter’s country are high relative to the importer’s country. LC becomes the preferred financing term if the quality of contract enforcement in both countries is low and LC fees are low.

Antràs and Foley (2015) extend the model developed by Schmidt-Eisenlohr (2013) to a dynamic setting to show that the choice of financing terms in international trade also depends on the duration of the relationship between the trading partners: the incidence of CIA financing decreases with the duration of the relationship as repeated interaction helps develop trust. Antras and Foley (2015) also test the predictions of their model using data from a large US poultry firm.

Demir and Javorcik (2018) highlight another factor that matters for the choice of financing terms in international trade. They use detailed firm-level customs data disaggregated by financing terms to show that an increase in the level of market competition leads exporters to provide more trade credit to their buyers (i.e. there is an increase in OA financing).

On the empirical front, the most detailed information about the use of LCs across countries is reported by Niepmann and Schmidt-Eisenlohr (2017). They rely on SWIFT data, which covers close to 90 per cent of global LC transactions, to present an extensive set of empirical findings related to various country-level characteristics that affect the use of LCs. In contrast, Crozet et al. (2020) focus on product-level factors that affect the intensity of the usage of LCs in international trade. Using detailed customs data from Turkey, they construct a measure that captures the product-level reliance on insurance in international trade. Their analysis suggests that products that rely more on trade insurance registered a larger decline in exports to destinations affected by the Great Recession (which negatively affected the supply of LCs) than other products did. Ahn (2011) presents a model that rationalizes these results.

Banking sector developments also affect the choice of financing terms by trading partners. Ahn and Sarmiento (2019) use detailed data on imports transactions from Colombia and find evidence that bank liquidity shocks had significant effects on imports via the LC channel during the Great Recession. In another study, Demir et al. (2017) use the mandatory adoption of the Basel II framework in Turkey, which affected the cost of holding LCs by banks, as a quasi-natural experiment to show that firms...
used LCs less (more) intensively when exporting to countries for which the cost of LCs increased (decreased) after the Basel II adoption.

IV. Data

In our empirical analysis, we employ data from two sources.

In the first part of the paper, we consider the evolution of exports before and during the current pandemic and use cross-country trade data for the US, France, Germany, and Turkey provided by the International Trade Centre. The dataset covers the period January 2017 to March 2020, which is the latest available. The data are reported as monthly export flows from each reporting country to the rest of the world disaggregated at the product level, where products are classified according to 6-digit Harmonised System (HS).

In the second part of the paper, we rely on a unique dataset, provided by the Turkish Statistical Institute, which covers the entirety of Turkish monthly exports for the period January 2018 to March 2020. The dataset reports the value of export flows disaggregated by 6-digit HS product codes and main financing terms (OA, CIA, LC, and DC). We exclude agricultural products and medical products related to COVID-19.2

In line with the findings of earlier studies, OA financing accounts for the largest share of Turkish exports (68 per cent), DC for 13 per cent, CIA for 12 per cent, and LC for 8 per cent.

We merge these data with information on various product characteristics: durability; an indicator variable that equals one if the product falls into the intermediate good category according to the Broad Economic Classification; contract intensity defined as the share of inputs that require relationship-specific investment (obtained from Nunn (2007)); and external financial dependence defined as the extent of the need for external borrowing to finance investment (first constructed by Rajan and Zingales (1998), and updated by Kroszner et al. (2007)).

V. Findings

In our analysis, we consider developments in the value of Turkish exports during the early stages of the pandemic. Turkey was affected by COVID-19 later than western European countries and did not stop its economic activities through a lockdown. It restricted people’s movements only on weekends, ensuring that employees were free to travel to their workplaces during the week. However, many of its export markets, e.g. Germany, Italy, and Spain, went into lockdown in early March, which negatively

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2 The list of products can be found in the following Global Trade Alert report: https://www.global-tradealert.org/reports/51. In all regressions, we trim trade values at the 1st and 99th percentiles of the distribution. Finally, in the Turkish data, we drop exports on financing terms other than CIA, OA, LC, and DC (e.g. acceptance credit, barter, etc.) which amount to less than 2 per cent of total exports during the period under consideration.
affected demand for Turkish exports and created uncertainty about the ability of these
trading partners to make payments. And China, another important market, was af-
fected by COVID-19 earlier, with the lockdown in Wuhan starting on 23 January 2020.

As we have seen in Figure 1, Turkish aggregate exports went down by 25 per cent
in March 2020. Now we want to investigate whether exports using different types of
financing terms fared differently during this period of heightened uncertainty.

Our hypothesis is that exports secured by letters of credit or intermediated by banks
through documentary collection have done better than exports on other financing
terms. That’s because an LC guarantees the exporter that a payment will be made and
does not oblige the importer to make a payment until the goods arrive. Thus neither
party to the transaction faces a risk. While bank intermediation in the form of a DC
does not formally offer such assurance, when properly structured it can go a long way
towards risk mitigation.

In contrast, goods sold on open account terms leave the exporter exposed to the risk
of non-payment. Many retailers have been hit hard by the pandemic as lockdowns pre-
vented them from keeping their stores open, while many manufacturers were forced to
close their factories during lockdowns. Neither retailers nor manufacturers may have
the need or the ability to pay for a shipment of goods arriving from Turkey. Expecting
this to happen, a Turkish producer may have preferred to cancel the shipment than to
risk receiving no payment.

When it comes to goods traded on cash in advance terms, a Turkish exporter will not
send a shipment until a payment is received, but a foreign partner hit by the crisis may
lack the ability to send the payment or may be concerned that pre-paid goods will not
arrive if Turkey goes into a full lockdown.

To shed light on these issues we use Turkish data disaggregated by month, HS6
product, and financing terms. We examine how Turkish export flows in January,
February, and March 2020 compare to those observed in the same calendar months of
the previous 2 years, taking into account monthly seasonality of each HS6 product and
allowing for annual shocks specific to each HS6 product.3 We conduct this exercise for
each type of financing terms separately.

Our hypothesis finds support in Figure 2, which depicts estimates and their confi-
dence intervals for each type of financing terms. Exports on CIA terms experience the
steepest decline among all groups, with the decline becoming visible already in January
2020, deepening in February, before sharply dropping to 40 per cent in March. Open
account exports register a decline in February, which deepens to 28 per cent by March.
In contrast, no decline is visible in DC and LC exports until March and its magnitude
is much smaller, amounting to 12 and 23 per cent, respectively.

One might be concerned that country-specific demand conditions during the
period under consideration or country composition of exports might drive the results

3 In other words, the log value of exports of product $p$ exported in month $t$ is the dependent variable.
The variables of interest are dummies for March, February, and January 2020. To consider pre-trends we
also include dummies for May 2019, . . ., December 2019. To take into account product-specific seasonality
our specification controls for month-HS6 fixed effects (i.e. month fixed effects pertain to January, February,
etc., rather than January or February of a particular year). Finally, year-HS6 product fixed effects capture all
annual shocks to the supply or demand side of a particular product. We define a year as a 12-month period
that starts in April and ends in the March of the following calendar year.
To address such concerns, we aggregate export flows at the level of destination countries at each year-month and repeat the analysis above. The results are presented in Figure 3. Controlling for country-specific demand and seasonality does not change the conclusion drawn from the product-level analysis. While in March 2020 exports on CIA and OA terms saw a decline of 22 and 11 per cent, respectively, no such drop was registered in exports on LC and DC terms. In other words, exports insured by letters of credit or exports with payments intermediated by banks through documentary collection have exhibited greater resilience to the crisis.

The first shortcoming of the analysis done so far is that it ignores the possibility that some products may be traded using only one particular type of financing terms. If this is the case, we may be comparing apples to oranges. To take this into account we repeat our analysis from Figure 2 restricting the sample to product-time cells where all four financing terms are used. We will refer to this set-up as the ‘restricted sample’.

The second shortcoming of the analysis done so far is that it does not take into account the possibility that different types of goods may experience different demand

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$$\ln \text{Value}_{ptm} = \sum_{k=1}^{11} \beta_k D_k + \alpha_{pt} + \gamma_{pm} + \epsilon_{ptm},$$

where $k = 1$ represents May 2019, $k = 2$ June 2019, ..., and $k = 11$ March 2020. $\alpha_{pt}$ denotes fixed effects for 6-digit HS product codes and the 12-month period from April to the March of the following year. $\gamma_{pm}$ are product-month dummies that control for product-specific seasonality. $\ln \text{Value}$ is the natural logarithm of the value of Turkish exports on financing term $f = \{\text{CIA, OA, DC, LC}\}$. The regression sample covers the period January 2018 to March 2020. Robust standard errors are clustered at the 6-digit HS product level.

Source: Authors’ estimates.

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4 High prevalence of zeros in the data prevents us from conducting the analysis at the product-country-month level.
Shocks during a downturn and that this pattern may be systematically correlated with the type of financing terms. For instance, demand for durable goods tends to be particularly affected during crises, so if durable goods tend to be traded on CIA terms, this could explain our findings.

To address this possibility, we use the restricted sample and interact our variables of interest (dummies for May 2019, June 2019, . . ., March 2020) with (i) a dummy for durable products, (ii) a dummy for intermediate inputs, (iii) contract intensity, and (iv) dependence on external financing. The choice of these additional variables is driven by an observation made in the literature that they tend to be correlated with the use of LC (Crozet, et al., 2020).5

The results from these robustness checks are depicted in Figure 4, which compares the coefficients from Figure 2 (labelled as ‘no controls’) with those obtained from the restricted sample (labelled as ‘restricted sample’), and those from the augmented specification (labelled as ‘restricted sample with controls’).

Two observations emerge from Figure 4. First, taking into account the issues we have mentioned deepens the difference between trade flows on OA and CIA terms and those benefiting from bank intermediation (LC and DC). While restricting the sample or introducing additional controls has no impact on the estimates for the former group, it renders the estimates for the latter group statistically insignificant once additional controls are introduced. In other words, these estimates suggest that while exports on OA and CIA terms experienced a steep decline, there was no impact on LC- and DC-backed exports. Second, restricting the sample produces some indications that DC-backed flows were less resilient than LC-backed flows, which is consistent with our priors.

In our final exercise, we take a more stringent approach and rather than considering the value of trade flows we focus on the share of exports on LC terms in total exports of a given product in a given month. In this way, we control for all factors that may have affected the supply of or the demand for a given product, such as, for instance, disruption to input supplies or decline in demand in export markets. Our specification

5 See the previous section for definitions of all variables.
The results from this more stringent approach confirm our earlier findings. As visible in the left-hand side panel of Figure 5, the share of exports on LC terms increases on average by 0.9 per cent points in March 2020. This increase is meaningful as across all products LC exports account on average for 8 per cent during period January 2018 to March 2020.

Notes: Each bar shows the estimated coefficient (together with the corresponding 90 per cent confidence interval depicted by vertical lines) on the indicator variable for March 2020 for a given financing term and specification. For the first two samples (‘no controls’ and ‘restricted sample’), the specification is:

\[ \ln \text{Value}_{fptm} = \sum_{k=1}^{11} \beta_k D_k + \alpha_{pt} + \gamma_{pm} + \epsilon_{ptm}, \]

where \(k = 1\) represents May 2019, \(k = 2\) June 2019,..., and \(k = 11\) March 2020. \(\alpha_{pt}\) denotes fixed effects for 6-digit HS product codes and the 12-month period from April to the March of the following year. \(\gamma_{pm}\) are product-month fixed effects that control for product-specific seasonality. \(\ln \text{Value}\) is the natural logarithm of the value of Turkish exports on financing term \(f = \{\text{CIA, OA, DC, LC}\}\). The latter restricts the sample to product-time cells where all four financing terms are used. Finally, ‘restricted sample with controls’ adds to the above specification interactions between time fixed effects and the following product characteristics: indicator for durable goods, indicator for intermediate goods, contract intensity, and external finance dependence. The regression sample covers the period January 2018 to March 2020. Robust standard errors are clustered at the 6-digit HS product level.

Source: Authors’ estimates.

6 Note that focusing on shares will implicitly control product-specific seasonality, thus there is no need to include product-month fixed effects.

7 The increase in the share of LC-financed exports can be due to greater resilience of flows that have used LC terms before the crisis, or to flows previously using other financing terms switching to LC terms. With the data at hand we cannot distinguish between the two possibilities. However, our earlier work using more disaggregated data has documented switching of payment terms in response to shocks (Demir et al., 2020).

In an additional exercise, not reported to save space, we focused on more disaggregated data (product–country–month flows rather than just product–month flows). We considered the share of LC-based exports (excluding zero shares) and controlled for country-period, product-period, and month fixed effects. These results suggested an increase of 12.5 per cent points in the share of LC exports in March 2020. The estimated coefficient had a p-value of 0.108.
In the right-hand side panel of the same figure, we focus on exports to China. Here the picture is somewhat different. We find a 1.8 per cent point increase in the share of LC-backed exports which takes place in February 2020. This is consistent with the earlier timing of lockdowns in China, which started in late January and started being relaxed in mid-March 2020. It is also consistent with a lower level of governance quality in China, which makes exporting there more risky.

VI. Conclusions

This study documents a substantial decline in exports of major trading nations taking place in March 2020, which is the latest month for which trade figures are publically available. Accounting for product-specific seasonality and annual trends, the data suggest a drop by 38 per cent in France, about a quarter in Turkey and Germany, and 12 per cent in the US relative to historical averages.

The analysis then focuses on Turkey and considers the composition of export flows through the lens of financing terms. It documents a striking pattern—flows using bank intermediation which eliminates or reduces the risk of non-payment or non-arrival of prepaid goods, such as letters of credit or documentary collection, appear to have been much more resilient to the downturn relative to flows using other financing terms. The most stringent specification shows no decline in flows backed by letters of credit or documentary collection relative to the historical average. At the same time, the data indicate a 42 per cent drop in cash-in-advance flows, where the importer risks that prepaid goods will not be delivered and a 27 per cent decline in open-account flows where the exporter takes on the risk of not receiving a payment.
Several policy implications emerge from these findings. Developing countries and emerging economies which are perceived as risky trading partners may not be able to import essential supplies unless they are able to guarantee payments. If they do not want to prepay and risk that supplies will never materialize, they need access to instruments, such as letters of credit. Worryingly, as reported by the WTO and IFC (2019), the reluctance of the global financial sector to invest in developing countries after the 2008–9 financial crisis has limited access to trade finance in certain countries. Local banks need international correspondent banks to confirm their letters of credit, engage with them in supply chain finance, and clear trade-related payments in foreign currency. Unfortunately, about 200,000 correspondent banking relationships, over about a million in total, have disappeared since the end of the financial crisis. Africa, the Caribbean, Central and Eastern Europe, and the Pacific Islands are the regions most affected by the termination of correspondent banking relationships. These developments have been to a large extent driven by a heightened perception of the regulatory risk of operating in developing countries since the adoption of new anti-money-laundering and countering the financing of terrorism regulations, and other regulations involving sanctions. At the same time, local banks in developing countries have faced greater demand from foreign jurisdictions in terms of complying with regulations. As they often lack capacity to do so, they risk being marginalized within the international financial system. Thus more international and inter-institutional cooperation is urgently needed to address the shortage of trade finance, particularly in times of sharp economic downturn, such as the one caused by the current pandemic.

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