

A Novel Framework to Evaluate Changes in Access to and Costs of Trade Finance

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Presentation at 9th IMF-WB-WTO Trade Conference



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Background: framework to study importance trade finance

- ▶ This framework was developed by WTO economists in the wider context of IFC-WTO regional studies on trade finance, looking at characteristics of these markets, supply and costs.
- ▶ The framework defines the conditions for converting trade finance cost and risks into trade taxes, using the data collected by the survey to allow for counterfactual calculations as to how more trade finance and lower costs impacts trade flows
- ▶ The first experiment was applied to Ecowas-4, now to Mekong-3 (results still under embargo)

Background: existing literature and contribution

- ▶ The existing work on the trade and welfare effects of trade finance is empirical or focused on individual countries (Turkey; USA; Peru)
 - ▶ Empirics: Auboin and Engemann (2012);
 - ▶ USA: Niepmann and Schmidt-Eisenlohr (2017); Chor and Manova (2012); Turkey: Crozet, Demir and Javorcik (2022); Peru: Paravisini et al. (2015)
- ▶ In our work we integrate trade finance into a standard computable general equilibrium (CGE) model and conduct counterfactual experiments
 - ▶ Trade costs are a function of the way in which trade is financed and its costs, both the costs of finance and the costs associated with the risk of international trade transactions

Methodology: Global Trade Model

- ▶ The GTM is a quantitative trade model with multiple sectors and intermediate linkages, and multiple factors of production (capital, labor, land)
- ▶ With a fixed trade-balance-to-GDP ratio and a fixed savings rate, investment follows savings
- ▶ The baseline is calibrated to the GTAP Data Base, Version 11 (2017), projected forward to 2022 using macroeconomic projections
- ▶ Trade is handled with Armington preferences. The quantity traded from source s to destination d for commodity c , q_{sdc} , can be written as:

$$q_{sdc} = \tau_{sdc} \left(\frac{\tau_{sdc} t x_{sdc} t m_{sdc} t r_{sdc} p_{sc}}{p_{dc}} \right)^{-\sigma_c} q_{dc}$$

- ▶ With q_{dc} the quantity imported in destination d , p_{sc} the export price in source s , τ_{sdc} iceberg trade costs, $t x_{sdc}$ and $t m_{sdc}$ the export and import tax rate (in power terms) and $t r_{sdc}$ the (power of) the costs of transportation

Methodology: trade costs a function of trade finance costs

- ▶ The costs of financing international trade are an important component of trade costs, consisting of two components:
 - ▶ Costs associated with the risk the counterparty will not pay or deliver the goods
 - ▶ Financial costs consisting both of fees to cover risk and capital costs for goods in transit
- ▶ The financial costs are modelled as import/export taxes given that the financial costs can be seen as a rent/profit collected by the banking sector.
- ▶ The costs associated with transactional risk are modelled partially as an import/export tax and partially as an iceberg trade cost:
 - ▶ The share of goods lost in trade calculated are modelled as import/export taxes.
 - ▶ The costs associated with risk aversion are modelled as a resource loss for agents involved in international trade in the form of an iceberg trade cost.

Methodology: four types of trade finance instruments

- ▶ We have chosen these payment/trade finance instruments because they are the most used in developing countries according to our surveys.
- ▶ The trade finance related trade costs are a trade finance share weighted average of the financial cost and transactional/risk cost for each of the instruments:
 - ▶ Cash-in-advance (CIA): the importer pays for goods upfront thus pre-financing the exporter's cash flow while incurring a transactional risk of not receiving delivery
 - ▶ Letters of credit (LC): the importer pays an issuing fee and the exporter a confirmation fee for a commitment to pay by the issuing bank
 - ▶ Import and export loans (LOA-IMP/EXP): funded trade finance instruments used to address the liquidity needs for both importers and exporters
 - ▶ Internal working capital (IWC): if exports are financed by a firm's own working capital, the exporter bears both transactional risk and financial costs

Methodology: calibration of costs associated with risk

- ▶ To calibrate the costs associated with risk we employ data on the share of non-delivery or non-payment for the different financial instruments:
 - ▶ For CIA and IWC, the share of non-delivery (ND) is based on the share of bank non-performing loans to total gross loans (NPLs) from the IMF
 - ▶ For import and export loans, ND is based on ICC obligor-weighted export and import loan default rates
 - ▶ We assume that traders are risk averse and the costs associated with risks of the transaction thus tend to be larger than the share of goods not arriving in the destination.

Methodology: calibration costs of finance (surveyed regions)

- ▶ Data on the costs of finance, CF, come from the survey for surveyed countries:
 - ▶ The costs of finance for export and import loans are based on survey answers
 - ▶ The costs of financing for cash-in-advance and exports with internal working capital are assumed to be equal to the cost of trade loans multiplied by a factor two
 - ▶ This assumption is based on data showing that the interest rates for microfinance are at least twice as large as for trade loans. Robustness checks are conducted on this assumption
 - ▶ The LC opening and confirmation fees are based on survey answers

Methodology: calibration of trade finance shares

- ▶ Total trade finance provided by local banks is calculated based on the bank survey. To obtain the share of trade flows supported by trade finance, total trade finance is divided by the amount of trade flows. Finally, the survey provides information on the share of each trade finance instrument.
- ▶ The share of trade covered by LCs for non-surveyed countries is based on Niepmann and Schmidt Eisenlohr (2017). The share of trade covered by import and export loans is assumed equal to the share of LCs based on data in a study by ADB (2022)
- ▶ However, these estimates do not consider trade finance obtained from abroad, for example when foreign buyers extend credit or guarantees to local suppliers, through their own foreign bank. In supply chain trade, such trade finance can be significant.
- ▶ Therefore, in the case of the Mekong-3 study, data on the share of foreign owned firms and related party trade per sector are collected, to introduce sectoral variation in trade finance shares

Methodology: calibration of trade finance shares

- ▶ Conservatively, we assume that foreign owned firms on average have a 50% lower share of trade finance provided by local financial institutions in the surveyed countries
 - ▶ The share of foreign owned firms is based on local Census data in the surveyed countries
 - ▶ The 50% lower share of trade finance is assumed to vary between sectors based on data on related party trade between the surveyed countries and the US
- ▶ The reason to incorporate these features in the model is to prevent that the counterfactual rise in local trade finance is too large
 - ▶ We want to make sure that the share of local trade finance in the counterfactual cannot rise if the trade by foreign owned firms is financed by foreign banks (offshore financing)
 - ▶ An example is electronic equipment in Vietnam with most trade conducted by foreign owned firms.

Counterfactual scenarios in the case of Ecowas-4

Four scenarios were carried out with the WTO's Global Trade Model in the case of Ecowas-4.

- Under the first scenario, the share of trade supported by trade finance was increased from the observed levels in the countries surveyed, to the African average of 40 percent.
- Under the third and fourth scenarios, the cost of trade finance (the price of import-export loans and letters of credit) was reduced to lower margins prevailing in more advanced emerging economies.
- The fourth scenario combined cost reductions and increased availability of trade finance

Results: projected trade cost reductions

Projected change (%) in real exports and imports under four trade finance shocks

	Côte d'Ivoire	Ghana	Nigeria	Senegal	ECOWAS4	
EXPORTS	Coverage of Trade	2.50	5.28	3.05	12.83	4.08
	Letter of Credit Fees	0.68	0.18	0.10	0.79	0.28
	Trade Loans	2.30	3.30	1.53	3.37	2.07
	Combined	6.53	10.14	5.78	21.55	7.84
IMPORTS	Coverage of Trade	2.57	3.82	4.06	3.72	3.73
	Letter of Credit Fees	0.76	0.18	0.16	0.24	0.28
	Trade Loans	2.23	2.51	2.20	0.89	2.14
	Combined	6.81	7.71	7.95	6.21	7.57

Results

- ▶ Raising the coverage of local trade finance in Ecowas-4 by about 20 percentage points and reducing the financing costs of export and import loans and LC fees could raise imports and exports of the surveyed countries by about 8%.
- ▶ **The starting point makes a difference:** Senegal has the lowest initial share of trade covered by trade finance, according to the survey (15 percent compared to 33 percent for Cote d'Ivoire). Therefore, increasing the coverage of trade finance to 40 percent of total trade leads to the largest trade cost reductions for Senegal
- ▶ Increasing the trade finance coverage delivers the largest contribution whereas the LC fee delivers a marginal contribution. However, reducing the cost of trade loans can also lead to significant benefits in trade
 - ▶ To note - since trade finance costs are only a fraction of overall trade costs, which are very high in the countries concerned, even a substantial improvement in availability and reduction in the cost of trade finance may only generate so much change.

Discussion: Limitations and validity of the analysis

- ▶ First, the shares of trade finance instruments and their costs are changed exogenously
 - ▶ Modelling these shares and costs endogenously is beyond the scope of the paper and would require extending the trade-oriented model with a full-blown financial sector and crucially require more information about the drivers of shares and costs
- ▶ Second, in the framework the financial costs of different trade finance instruments differ
 - ▶ The lack of arbitrage between instruments reflects that there are differences in risk driven by differences in borrowing constraints related to the extent to which collateral is available and to which payments are guaranteed by third parties which could be modelled in extensions
- ▶ Third, “factoring”/”supply chain finance” is not included in the analysis.
 - ▶ Supply chain finance is similar in structure to loans provided to the exporter. So, introducing supply chain finance would have a marginal impact on the effect of counterfactuals.