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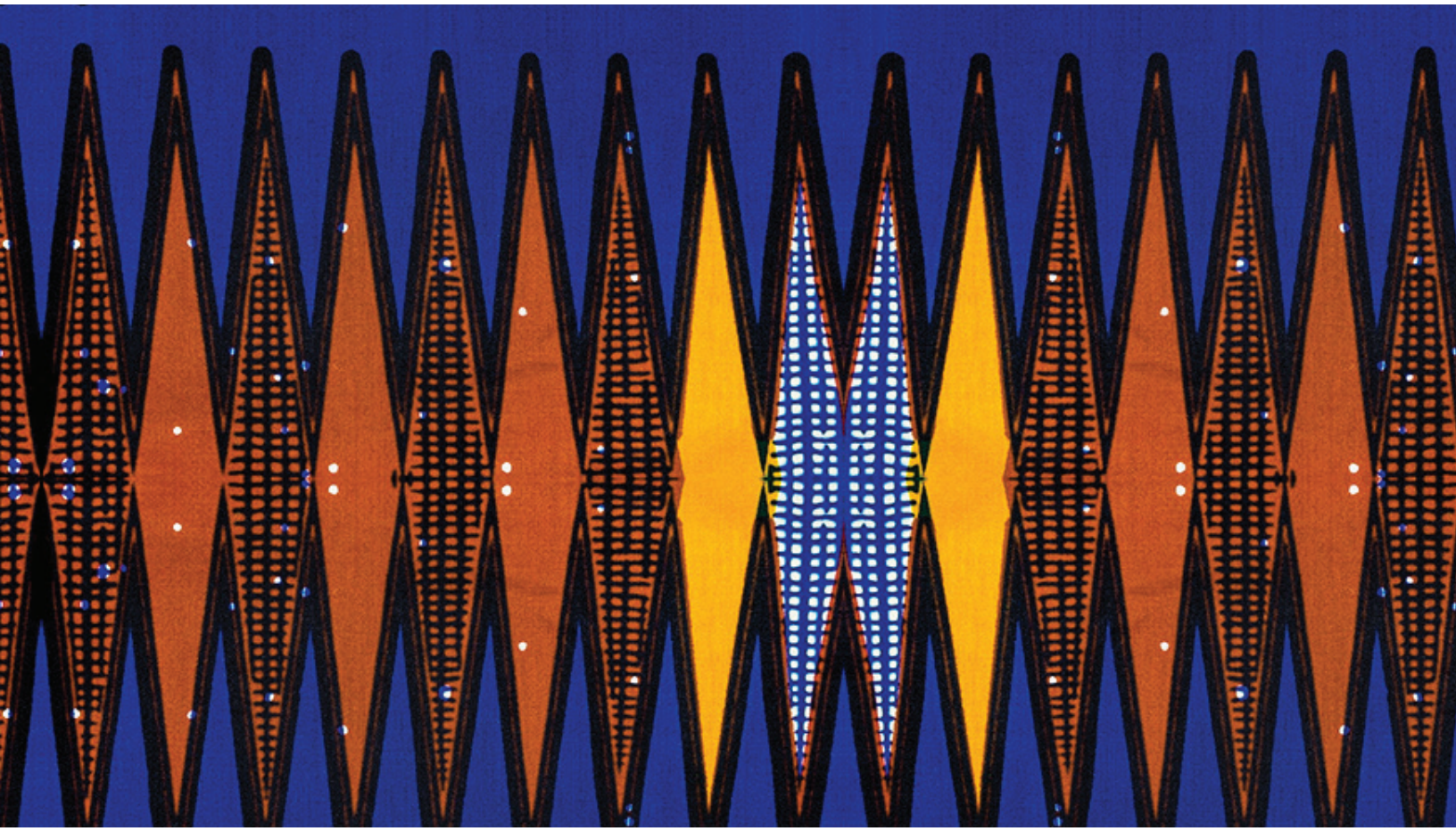
Trade Finance in West Africa

A STUDY OF CÔTE D'IVOIRE, GHANA, NIGERIA, AND SENEGAL

OCTOBER 2022



About IFC

International Finance Corporation (IFC)—a member of the World Bank Group—is the largest global development institution focused on the private sector in emerging markets. It works in more than 100 countries, using its capital, expertise, and influence to create markets, and opportunities in developing countries.

About WTO

The World Trade Organization (WTO) is the only global international organization dealing with the rules of trade between nations. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. The goal is to ensure that trade flows as smoothly, predictably, and freely as possible.

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Foreword

Trade finance—credit facilities used by importers and exporters to transact business—is important for enabling global trade. These instruments bridge the gap between when the exporter wants to receive payment for producing and shipping goods, and when the importer receives them. Although trade finance is routinely provided by banks to importers and exporters in advanced economies, developing countries face chronic shortages.

The multiple challenges the world is facing today—COVID-19, inflation, Russia's invasion of Ukraine, and pressure on food and energy supply—are exacerbating this scarcity, making it harder still for developing countries to harness trade as an engine of growth.

To better understand the trade finance ecosystem in developing countries, the constraints to trade finance and the gaps in provision, the International Finance Corporation (IFC) and the World Trade Organization (WTO) pledged in November 2021 to enhance their cooperation in this area. This report stems from that initiative and was produced jointly by staff at IFC and the WTO under the guidance of Susan Lund, Vice President of Economics at IFC, and Anabel Gonzalez, Deputy Director-General at the WTO. It focuses specifically on the four largest economies in the Economic Community of West African States (ECOWAS), namely Côte d'Ivoire, Ghana, Nigeria, and Senegal.

We conducted a survey of banks providing trade finance in these countries to assess the obstacles faced by borrowers and lenders. The study was comprehensive, eliciting responses from lenders accounting for almost the entirety of the four countries' banking assets and trade finance provision. We then used these results along with other data to estimate the size of trade finance shortfalls in the four countries and the potential boost to trade that would come from closing those gaps.

This research was undertaken to better understand the barriers limiting the provision of trade finance in developing countries, and to inform debates involving a wide range of stakeholders beyond academia, from policy advisors and practitioners to bankers and traders in emerging economies. As in all IFC and WTO research, the findings here are based on objective analysis of data and surveys and were not influenced by any government, company or other organization.

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Acknowledgments

This report was prepared under the guidance of Susan Lund, Vice President of Economics at IFC, and Anabel Gonzalez, Deputy Director-General at the WTO. Marc Auboin (WTO) and Denis Medvedev (IFC) provided leadership for the research and Eddy Bekkers (WTO), Alexei Timofti (WTO), Alexandros Ragoussis (IFC), and Susan Starnes (IFC) managed the project team. Working team members included Karlygash Dairabayeva, Leo N. Holtz, Serhii Kostohryz, Shan Shan Li, Steve Mbollo, Ibrahim Nana, Joshua Ostry, Arun Prakash, Dario de Quarti, Friedemann Roy, Yulia Vnukova, and Ariane Volk.

The survey of lenders was completed thanks to substantial contributions from Taiwo Abisola, Boubakari Ake, Damata Akyeampong, Leika Karasawa, Zeynep Attar, Nuvin Sharma Bholah, Marie Dieng, Florian Eberth, Zeynep Ersel, Karla Lopez Flores, Claudia Gutierrez, Yasser Tawfik Hassan, Harris Hounton, Alok Kumar, Fide Maksut, Benjamin Miranda, Anurag Mishra, Ahmed Hanaa Mohamed, Charlotte Ndaw, Lien Nguyen, Babatunde Obaniyi, Akintunde Ogunmodede, Sinan Onat, Claude P. Owona, Aleksey Nikiforovich, Kragbin Pacome Okpo, Phares Rutalala, Mubarak Sanni, Barbara Tetteh, Ying Yan and Elhadji Malick Thioub.

Expertise and insights on project design and trade finance were provided by Nathalie Louat, Makiko Toyoda, Florian Wicht, Benie Kouakou, and Susanne Kavelaar while Roberta Piermartini, Federica Maggi, and Stela Rubínová brought invaluable guidance on trade costs. Christopher Vellacott was the Editor and Irina Sarchenko served as the graphics editor.

We thank the peer reviewers from the World Bank: Arnaud Dornel and Martin Molinuevo for their insightful suggestions, as well as colleagues from the African Development Bank: Ousman Gajigo and Eugene Nyantaki Bempong for their suggestions and advice during the report's preparation. We are also grateful for the support of IFC colleagues Sergio Pimenta, Regional Vice President for Africa, Issa Faye, Director, Development Impact Measurement Department, Aliou Maiga, Regional Director for West and Central Africa, Manuel Reyes, Regional Director, South America and Florence Boupda, Manager, Financial Institutions Group.

A STUDY OF CÔTE D'IVOIRE, GHANA, NIGERIA, AND SENEGAL

Trade Finance in West Africa

Key Findings

- Côte d'Ivoire, Ghana, Nigeria, and Senegal—the ECOWAS4—are making progress in integrating their economies internationally through trade. The number of firms participating in international markets is growing, and exporters in some countries are becoming more competitive, expanding into new products, and reaching new destinations. Ongoing regional integration associated with the African Continental Free Trade Area (AfCFTA) will further support these positive trends and create new opportunities to expand trade for development.
- While the challenges in realizing trade's development potential in the ECOWAS4 are numerous, one particularly important and understudied constraint is limited and costly trade finance. Our survey of financial institutions in the ECOWAS4 found that trade finance supports only 25 percent of goods trade in these countries, far below the African average of 40 percent and the global average of 60–80 percent.
- Rejection rates by banks for trade finance applications are high, at an average 21 percent of requests and 25 percent in value terms. Rejections fall disproportionately on small and medium-sized enterprises (SME), particularly those owned by women. Altogether, we calculate that the unmet demand for trade finance—the trade finance gap—is around $14 billion annually for the four economies combined. The rejection rate may include companies turned down because they are less creditworthy and declined applications do not always mean foregone trade, as some rejected firms may find alternative sources of financing.
- Trade finance in the ECOWAS4 is more expensive in comparison to international benchmarks. The average price of a letter of credit in the four countries ranges from around 2 percent to 4 percent of the value of the transaction, generally above the 2 percent global emerging market average and the 0.25–0.50 percent lower bound that is typically observed in advanced economies.

- The trade finance market is highly concentrated. The five largest banks in the region account for around 50 percent of trade finance supply, with scale effects leading the largest firms toward the largest banks which have more extensive networks of international correspondent bank relationships and can finance higher-value transactions. Smaller banks have larger trade finance portfolios as a share of their assets but may find it more challenging to scale trade finance provision in line with the region's needs.
- Banks report that common barriers to trade finance availability include difficulty meeting the requirements of foreign correspondent banks (90 percent of respondents), insufficient collateral for the high perceived risk of borrowers (81 percent) and shortages of low-cost funding (77 percent).
- Increasing coverage of trade by bank-intermediated finance to the African average and lowering its costs to international benchmarks could boost ECOWAS4 merchandise exports and imports by around 8 percent, equivalent to nearly $13 billion in annual trade, according to the analysis. Lowering costs and raising trade finance coverage in these countries to global averages, could yield an increase in goods trade of around 16 percent, or some $26 billion.
- This report identifies a need to increase the availability of both traditional and new trade finance instruments. This would involve ensuring that trade finance features prominently in the implementation of the AfCFTA, building the capacity of local lenders, strengthening correspondent banking relationships, improving access for SMEs, and aiding decision-making through better quality data. More effective enforcement of rules for collateral could also significantly broaden access to trade finance. These measures would require coordinated action by financial institutions, national policymakers, regulators, and international organizations.

Executive Summary

Trade is an important component of economic activity in Africa, equivalent to around 50 percent of the continent's gross domestic product (GDP), according to the World Bank. The four largest economies of the Economic Community of West African States, namely Côte d'Ivoire, Ghana, Nigeria, and Senegal—which we refer to as the ECOWAS4—traded $208 billion in goods and services during 2021, representing between 25 percent and 63 percent of GDP. [i]

The region has opportunities to expand trade further, building on progress achieved over the last decade. ECOWAS4 firms have been increasing their penetration of existing markets and forging new trade linkages, particularly with China and other parts of Asia. Between 2010 and 2020, the number of exporters rose by around 75 percent in Côte d'Ivoire and Senegal while the number of firms that import goods at least doubled. This momentum could continue, aided by a broad global trade recovery and ongoing implementation of the AfCFTA.

Yet despite these encouraging signs of progress, there remains considerable room for improvement in fully enabling trade as a driver of development. Among all possible combinations of export destinations and products, we find the ECOWAS4 countries are active in less than 3 percent of these markets, below other emerging economies, such as South Africa, at around 20 percent.

Economic diversification away from commodity exports in the ECOWAS4 has also been slow. Raw materials make up more than 70 percent of total exports, well above the global average. Furthermore, imports of non-consumer goods that can be used in domestic production processes are lower than average, limiting opportunities to achieve greater participation in global value chains.

An important step toward encouraging trade growth in the region would be to make access to trade finance easier and more affordable, enabling successful integration into international markets. In advanced economies, banks routinely provide trade finance to cover the time lag between when the exporter wants payment (on production or shipment of goods) and when the importer wishes to pay (after they receive or sell the goods to their customers). A variety of financial solutions are used for different types of trade, including letters of credit, payment guarantees, open account payments, and advance payments.[1] In developing countries, however, access to these products is more constrained.[ii]

1 For an explanation of different types of trade finance product, see Box 1.2 in Chapter 1

This report provides new evidence on the size and nature of the gap between demand and supply of trade finance in the ECOWAS4. IFC conducted a survey of the banks in those countries, with responses covering the vast majority of banking assets and trade finance provision, revealing that trade finance is not only relatively scarce in the ECOWAS4, but also costly.

Our survey estimates the total size of the trade finance market in the ECOWAS4 in 2021 was around $42 billion, but that supports only 25 percent of these countries' merchandise trade.[2] That rate of coverage of trade finance, produced using two alternative methodologies which nonetheless provide comparable results, is well below published estimates for Africa of about 40 percent,[iii] or advanced country levels between 60–80 percent.[iv] At the individual country level, we find that trade finance covers between 15 percent of trade in Senegal and 41 percent in Ghana.

Although relatively scarce, trade finance has been a key enabler of traditional exports and imports in the region. Pre-export finance is in high demand for the four countries' main exports, particularly crude oil in Nigeria, cocoa and rubber in Côte d'Ivoire, and cocoa in Ghana. Meanwhile, large imports of medicine and medical equipment, refined oil, transport equipment, and food benefit from import finance and letters of credit. However, harnessing trade opportunities through global value chains and expansion into new products and services will require deeper and more diverse trade finance markets, particularly in relation to products such as intermediate and capital goods.

Banks are the main suppliers of trade finance in the ECOWAS4. The 10 largest banks in the four countries account for more than two-thirds of the trade finance market, although smaller banks have a higher proportion of their assets dedicated to trade finance and receive two-thirds of total requests. Our survey found that local trade finance markets remain focused on well-established bulk exporters and importers using traditional trade finance products such as pre-export financing for commodities and letters of credit for trusted importers. Consumer goods are the most frequently supported products, with 90 percent of respondent banks providing financing for this category, while sectors such as agriculture and infrastructure are identified by bankers as facing the largest shortfalls in the provision of trade finance.

2 The trade finance market refers to credit products available under the surveyed banks' international trade business. These include unfunded documentary transactions (e.g. cross-border letters of credit, standby letters of credit, letters of guarantee, and performance bonds) and funded trade transactions (e.g. import letters of credit with post-financing, international trade-related borrowings, pre-export finance facilities, and post-shipment finance facilities). Surveyed banks were asked not to include transactional products such as collections or trade-related payments and transfers in their estimates.

Average rejection rates for trade finance applications by banks in the ECOWAS4 are high, amounting to 21 percent of requests and 25 percent of their total value, according to the survey. For larger banks catering to bigger clients with more resources, deeper pools of collateral and stronger credit histories, the rejection rate is lower, at 13 percent of requests and 19 percent of their value. On the other hand, smaller banks report a 23 percent average rejection rate, and 25 percent in value terms. These rates are significant in view of the low risk profile of trade finance, regionally and internationally.

These rejections suggest an overall trade finance gap between supply and demand in the ECOWAS4 of about $14 billion annually. Rejection will not always directly reflect a shortage of trade finance as some companies will have been turned down because they are not creditworthy. Refusal will also not always mean foregone trade as some rejected firms will find alternative sources of funding. Nevertheless, at the country level, the shortfall is around $7 billion for Nigeria, $3 billion for Côte d'Ivoire and Ghana, and $1 billion in Senegal.

Rejected trade finance applications encourage traders to turn to sub-optimal alternatives such as using their own funds or borrowing through family networks and other informal channels. This can be less efficient, riskier, and more costly. Self exclusion from the trade finance market—possibly in reaction to previous rejections—may also be leading firms to withdraw from international trade altogether.

Banks cite a number of barriers that limit their ability to provide more trade finance. These include challenges from foreign correspondent banks—lenders providing banking services to financial institutions in other jurisdictions—insufficient collateral against the high perceived risks of borrowers, particularly relating to SMEs, and shortages of low-cost funding for trade finance. Between 45 percent and 67 percent of banks across the four countries mention lack of collateral and high applicant risk as the top causes of rejection. The survey also found that, on average, ECOWAS4 lenders have less extensive networks of correspondent banking relationships than their counterparts elsewhere in Africa and in other regions. Opportunities to expand the number of international partners executing cross-border transactions with ECOWAS4 banks would make the market more competitive and help ease a blockage to trade finance highlighted by nearly all the respondents in the survey.

The survey also found the cost of trade finance to be high in the four countries by international standards. The average price of a letter of credit in the four countries is around 2–4 percent of the transaction value per year, compared with a 2 percent global emerging market average and a 0.25–0.50 percent lower bound typically observed in more advanced countries.

SMEs typically face higher costs than large corporates, with premiums for trade loans or import financing potentially costing almost twice as much as for large firms. Additionally, even though the merchandise itself often qualifies as collateral in international trade, banks in the survey reported they often ask for further collateral on the basis that unreliable legal enforcement makes it difficult to seize and resell merchandise.

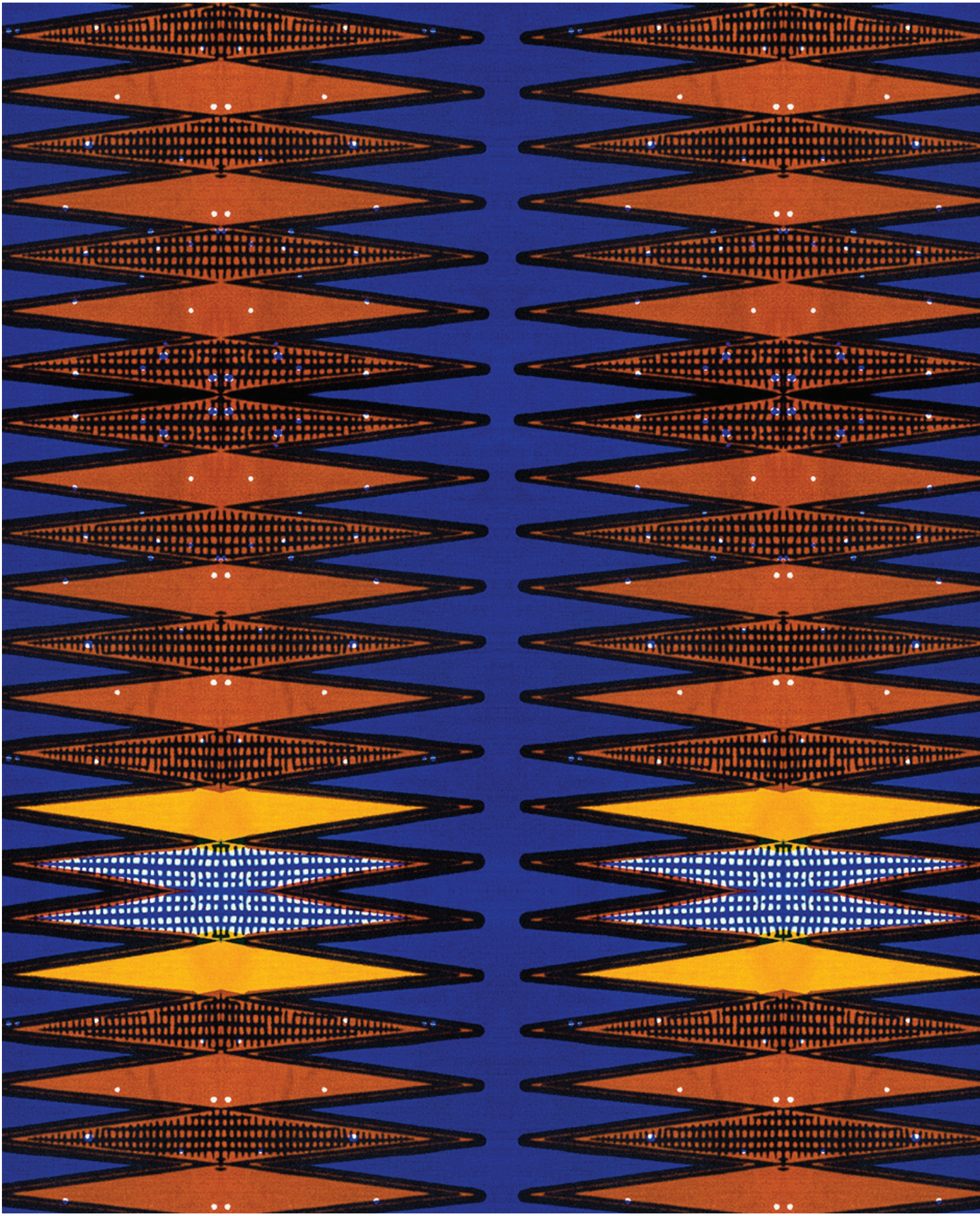
According to our projections based on data gathered in the survey, removing bottlenecks to trade finance could boost ECOWAS4 trade in goods by 8 percent

annually, or nearly $13 billion per year, under a scenario where the coverage of trade by bank-intermediated trade finance rises to the African average while fees and spreads are brought down to international benchmark levels. Raising the coverage of trade by bank-intermediated trade finance in line with the global average and lowering its cost could boost ECOWAS4 merchandise exports and imports by 16 percent or some $26 billion annually. In both cases, intra-ECOWAS trade is the biggest beneficiary of improved trade finance access, according to the simulations. Meanwhile, most of the estimated impact would come from increased coverage of trade finance, with a more modest contribution from lower trade finance prices.

Coordinated action by the corporate sector, financial institutions, national policymakers, regulators, and international organizations could help reduce trade finance gaps in the ECOWAS4. The most effective measures would include increasing the provision of trade finance through traditional and new instruments, more firmly integrating trade finance into the implementation of the AfCFTA, and expanding the range of firms that can access trade finance by working with large and small banks to extend their offerings to SMEs. Strengthening correspondent banking relationships, making more data available to support decision-making, and effective enforcement of rules for collateral could also significantly broaden access to trade finance. Alternative forms of trade finance via supply chain finance, trade finance funds or working capital e-platforms are currently embryonic in the region and could be expanded.

Technology solutions could facilitate the adoption of new instruments such as supply chain mapping, blockchain-like transaction tracking, and digital financing while also helping banks develop more sophisticated internal credit risk assessment systems, particularly for smaller companies and new entrants to the trade finance market. A higher level of digitization could also help reduce the processing costs for trade finance instruments. Banks and other institutions can also provide training and outreach to smaller and women-owned firms to better inform them of what facilities are available and help them to access the market.

Evidence-based studies of trade finance gaps and research into what determines them are relatively rare, notwithstanding the work of academic researchers and international organizations including the African Development Bank. Additional efforts by the research community and development finance institutions to accumulate more country-focused data and analysis will help deepen understanding of the issue and help identify markets where shortages of trade finance are particularly acute.



Chapter 1: The Trade Profile of the ECOWAS4

Key Themes:

- Trade is an important component of economic activity in Côte d'Ivoire, Ghana, Nigeria, and Senegal, equivalent to 25-63 percent of GDP, compared with global and African averages of around 50 percent.
- Trade prospects for the ECOWAS4 are positive, supported by global recovery from the pandemic, the implementation of the AfCFTA, improvements in the competitiveness of the region's exporters, expansion into new markets, and growing numbers of traders and products.
- However, exports remain concentrated in lower value-added products and commodities while the use of foreign inputs in exports is limited, stifling participation in global value chains. All this constrains opportunities to fully harness trade for development.
- While the costs associated with exporting for the ECOWAS4 have declined over the past decade, costs for imports remain persistently high. One contributor to this is a relatively high cost of trade finance in the four countries amid constraints in availability and access.

Integration into the global economy through trade brings well-documented benefits to developing countries by linking them to new markets while boosting access to technology, knowledge, and sources of capital. Firms that participate in international trade, either as importers or exporters, pay higher wages, are more skill- and capital-intensive, grow larger, and tend to be more productive than non-trading firms.[v]

The next decade could see a prolonged period of accelerating trade, faster growth, economic diversification, and poverty reduction across Africa as global trade flows recover from the COVID-19 pandemic and governments commit to further trade liberalization, including through the AfCFTA. However, seizing these opportunities requires decisive action by a range of stakeholders to ensure economies are not held back by institutional and structural barriers. In West Africa, and specifically in Côte d'Ivoire, Ghana, Nigeria, and Senegal, many firms continue to be constrained by high trade costs despite improvements in competitiveness and expansion into new products and markets.

A major step in alleviating this challenge would be to improve access to trade finance—debt facilities such as letters of credit used by importers and exporters to transact business (see Box 1.2). This study showcases new data and scenario analysis which demonstrate the importance of closing trade finance gaps to facilitate new opportunities for the region's traders and bring down overall costs.

IFC surveyed 78 banks providing the bulk of trade finance in the ECOWAS4 and representing almost all the countries' banking assets. The study found many lenders report they are struggling to keep pace with

BOX 1.1

The IFC Bank Survey on Trade Finance in West Africa

IFC surveyed banks in Côte d'Ivoire, Ghana, Nigeria and Senegal on the state of trade finance in 2022. The survey was sent to 89 banks and 78 had responded by August 10, 2022, representing almost the entirety of the countries' banking sectors. Between 92 and 100 percent of the respondent banks reported they offer trade finance facilities in their markets.

Lenders were asked how much trade finance they support and in what sectors, seeking to identify the biggest gaps in provision. The survey also addressed their outlook for trade finance in their respective countries and where they see the most need for additional support to help meet demand.

Where gaps in provision were identified, respondents were invited to comment on possible causes for the shortfall. Other topics covered included the state of their correspondent banking relationships and the problems encountered when transacting across borders.

The survey put more than 20 questions to respondent banks, seeking to quantify the trade finance market, understand each country's trade finance landscape, assess areas such as rejection rates and underserved sectors, and capture the outlook for trade finance.

growth in demand for these instruments. They also highlighted shortfalls in areas that are most likely to underpin economic diversification and trade expansion.

The following discussion sets the stage for the rest of the report by highlighting some key features of trade in these economies, focusing especially on aspects where a lack of availability of trade finance may pose particular challenges. The remaining chapters then present the findings of the survey and the results of a global simulation to estimate the potential effects of easing trade finance constraints on trade flows. A concluding chapter offers some suggestions for corporates, banks, governments, regulators, and international institutions to consider as potential ways to alleviate trade finance gaps, broaden access, and increase supply to a wider variety of firms in the ECOWAS4.

ECOWAS4 trade: advancing but still behind potential.

Côte d'Ivoire, Ghana, Nigeria, and Senegal, with a combined GDP of $615 billion, traded $208 billion in goods and services during 2021, according to the WTO. [vi] Trade flows are largest relative to the economies of Ghana and Senegal, at 62 percent and 63 percent of GDP respectively. For Côte d'Ivoire the ratio is around 45 percent while for Nigeria it is 25 percent, reflecting its large domestic economy (see Figure 1.1).[3] Nevertheless, as Nigeria is the biggest economy in the region, it accounts for over half of total ECOWAS exports and imports. Together, the four countries contribute to nearly 17 percent of the African continent's total trade value. Their biggest export markets are in Europe, India, China, and the United States.

New opportunities for ECOWAS4 traders are on the horizon. While the four countries suffered a $60 billion slump in trade after 2019 on account of the COVID-19 pandemic, trade liberalization and the lifting of restrictions in accordance with AfCFTA commitments should boost commerce between African countries. Indeed, the value of trade from the ECOWAS4 to the rest of the continent could rise more than five times in the next 15 years, according to World Bank projections.[vii] The removal of non-tariff barriers and trade facilitation measures are critical drivers of this outcome, which could be further reinforced by the dynamic effects of trade expansion on productivity and investment. Meanwhile, the share of agricultural imports from non-African partners is expected to nearly halve from over 80 percent today to less than 45 percent in 2035, upon full implementation of the agreement, while imports from the rest of Africa into the four countries could double in value.

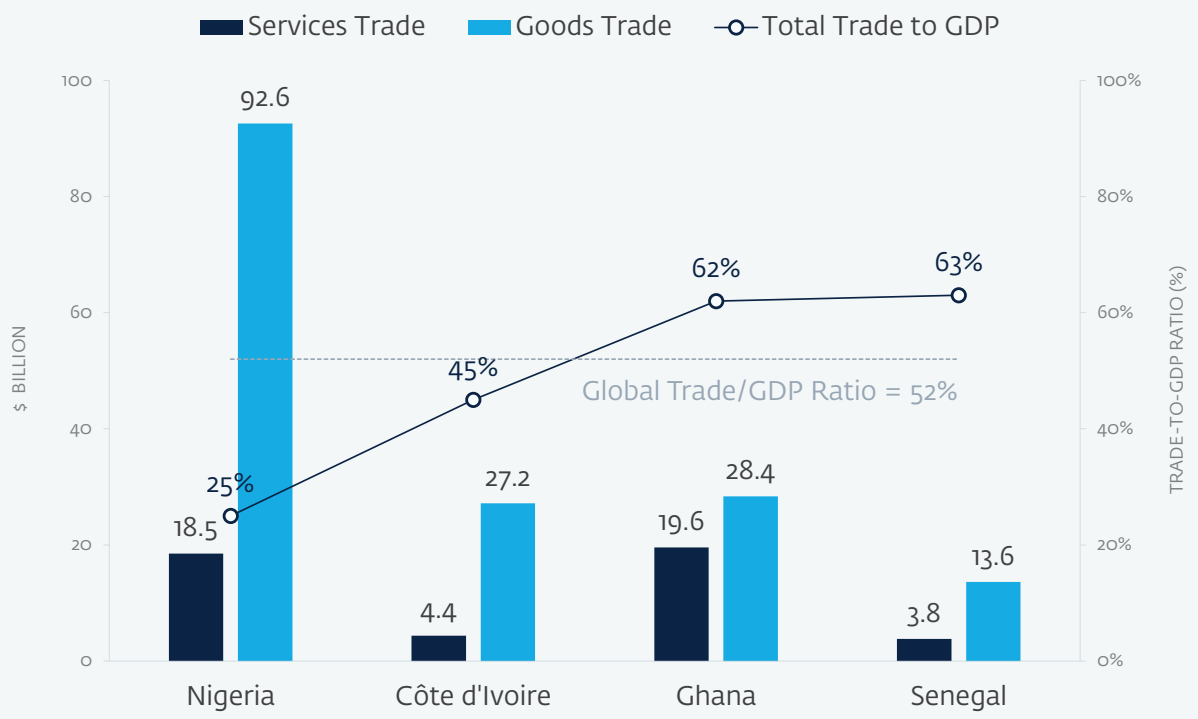
Beyond Africa, the ECOWAS4 are also forging closer trade links with other regions of the world, particularly Asia (see Figure 1.2). Imports of Chinese machinery and transport equipment have already increased 50–100 percent in the four countries in the six years from 2015, according to the UN. Meanwhile, Nigerian exports to China increased three-fold, while Senegal saw them multiply four times and Côte d'Ivoire saw a five-fold rise in value within the last decade. Exporters from Ghana, Nigeria, Senegal, and Côte d'Ivoire have also

3 For countries with large domestic economies, trade flows are smaller relative to GDP as more goods can be economically produced within the country. However, trade relative to GDP in Nigeria is lower than other large developing countries, such as Brazil, China, India, and Indonesia (see World Development Indicators, 2022).

FIGURE 1.1

Trade Represents an Important Share of Economic Activity in the ECOWAS4

Goods and services trade flows and their size relative to GDP (2021)



Note: The global trade/GDP ratio refers to the year 2020 due to incomplete global coverage of trade data for 2021.
Source: IFC-WTO staff calculations using WTO-UNCTAD estimates of trade flows and World Development Indicators (2022)

been capturing bigger shares of the Indian market. Exports to India from Senegal and Ghana, have grown on average by over 20 percent annually since 2012.[viii]

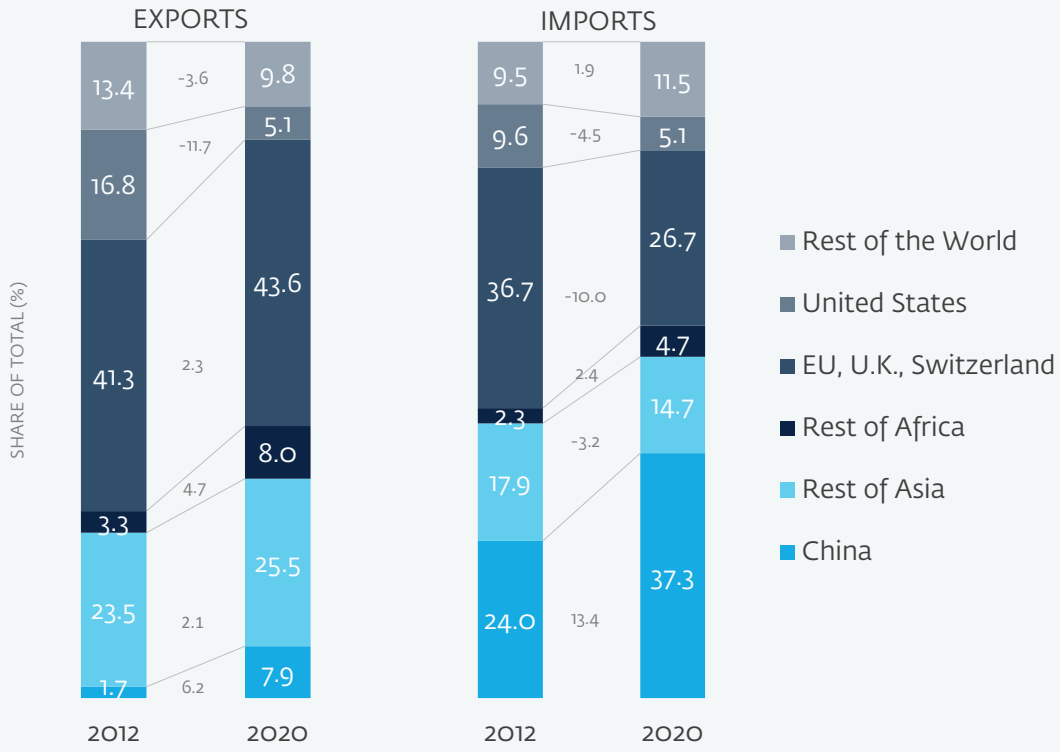
The application of the AfCFTA could boost production capabilities and income that further benefit trade connections with these emerging economies. Imports from China, for example, are expected to substantially outpace those from the European Union should the AfCFTA be fully implemented, growing to exceed $100 billion by 2035, according to the World Bank.[ix]

Another positive development is a growing number of traders in the ECOWAS4 alongside a greater diversity

FIGURE 1.2

West Africa's Trade with Asia is Growing

The share of ECOWAS4 trade by origin and destination in 2012 and 2020



Note: The mirror trade data for 2021 in the UN Comtrade database were still partial as of August 2022 because only 96 countries out of ~195 had submitted their numbers for 2021 to the UN.

Source: IFC-WTO staff calculations using UN Comtrade data, accessed via WITS World Bank, August 2022

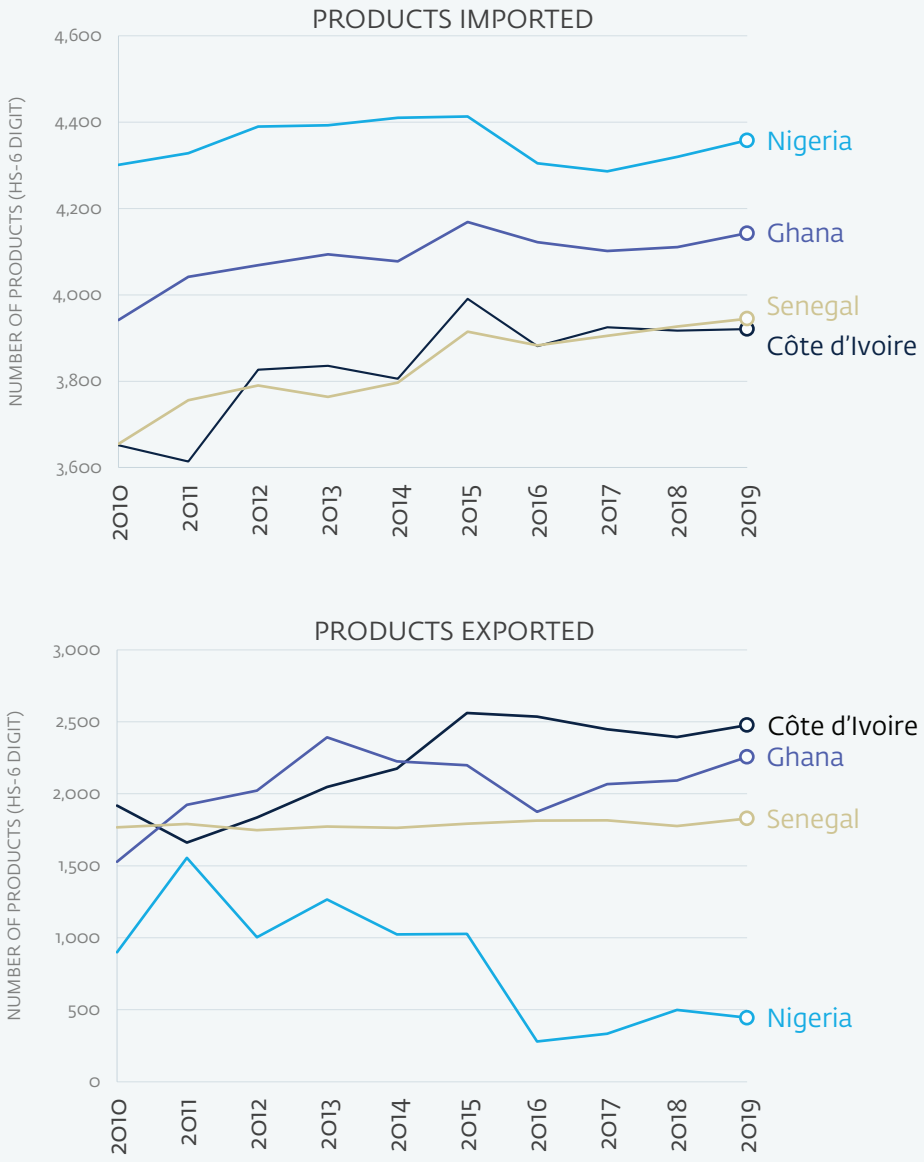
of products. The World Bank's Exporter Dynamics Database[x] based on customs records, shows that Côte d'Ivoire saw a 75 percent increase in the number of firms that export during the decade to 2020, to 1,750.[4] Senegal posted a similarly sized gain, from 900 exporters to 1,550. Meanwhile, the number of importers doubled to 8,000 firms in Côte d'Ivoire.

4 Data covering the last 10 years 2010-2019/2020.

FIGURE 1.3

The ECOWAS4 Range of Traded Products Has Expanded

The number of products exported and imported, 2010-2019



Source: IFC-WTO staff calculations using UN Comtrade data accessed via WITS World Bank, August 2022

Nigeria saw a drop in the number of products it exported over the last decade, which is likely to be associated with a commodity market slump after 2014. However, the number of distinct product types exported rose 29 percent for Côte d'Ivoire, 34 percent for Senegal, and 47 percent for Ghana. Exporters from the latter three countries also improved their access to new markets, while the range of imported products expanded in all four countries, moving closer to the roughly 4,700 products traded in the world (see Figure 1.3), based on HS 6-digit classification. More generally, there is evidence that exporters in Côte d'Ivoire, Ghana, and Senegal are becoming more competitive, capturing greater export market shares globally (see Annex 1, Figure A1.1). Specifically, the increases in the global footprint of exporters during the 10 years prior to the COVID-19 pandemic were attributable more to the improving performance of exporting firms than compositional changes in their trade such as the growth of trading partners or rising global demand for the products they commonly export.[5]

Despite these encouraging developments, ECOWAS4 traders still reach only a small share of available global opportunities. Among all possible combinations of export destinations and exportable products, the four countries' firms generally reach between 1.7–3 percent, according to the World Bank (see Annex 1, Figure A1.2).[6] This is below other emerging economies such as South Africa which reaches almost 20 percent.

Similarly, despite the growing number of products sold overseas, exports overall remain highly focused on commodities. Exports of raw materials make up more than 70 percent of the total in Nigeria, Ghana, and Côte d'Ivoire, as well as nearly half of Senegal's exports (see Figure 1.4). This share, which has not changed appreciably in the last decade, is above regional benchmarks such as South Africa, or European or Chinese exports where raw materials comprise less than 10 percent.

The ECOWAS4 countries' limited integration into global value chains reflects this commodity dependence. The extent of an economy's participation in value chains is conventionally measured as a sum of the foreign value-added content of exports, known as "backward participation," and the domestic value-added embedded in foreign exports, or "forward participation." Forward value chain participation is relatively high at 31–41 percent of gross exports across the four countries. However, backward participation

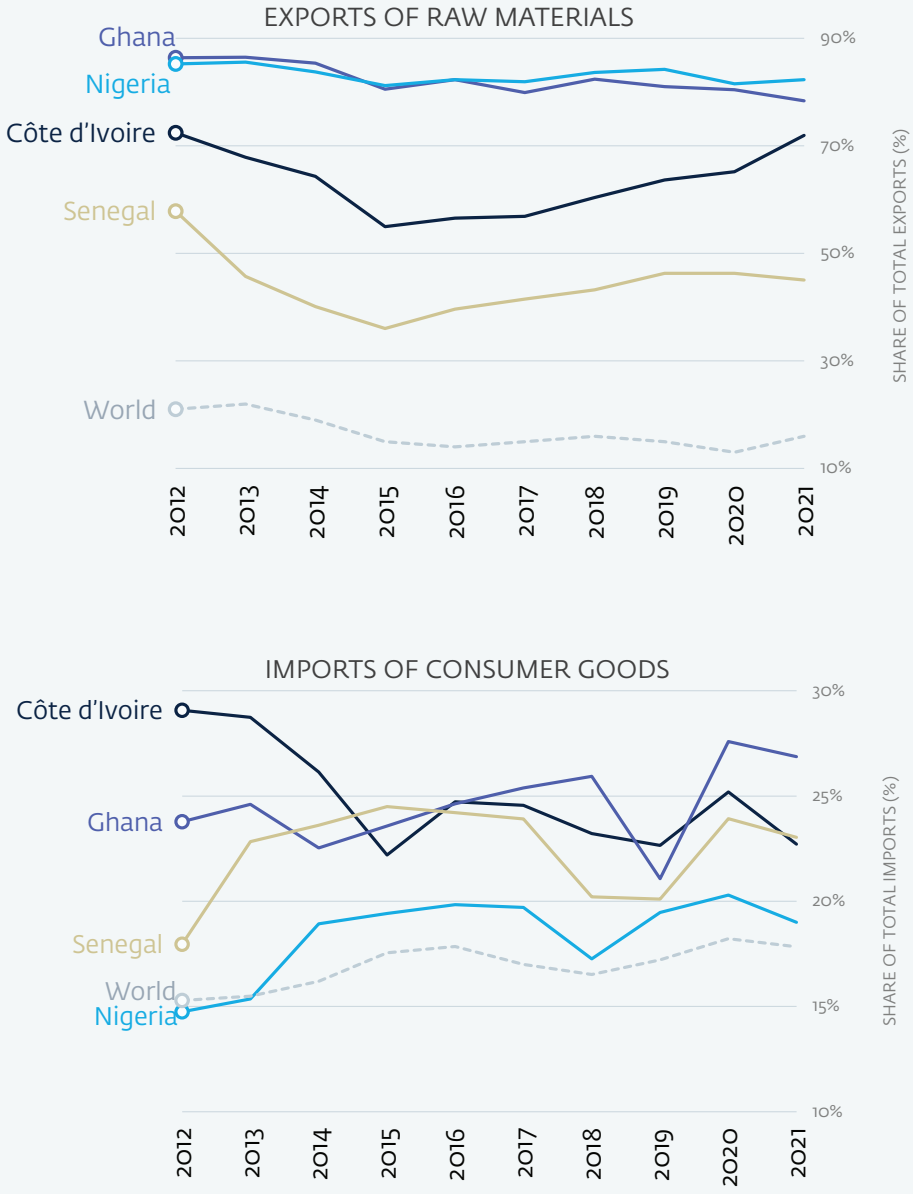
5 To fully decompose the growth of export market shares, we use the methodology developed by Gaulier et al. (2013). The total change in export market share is decomposed into (1) domestic (supply-side) competitiveness effect ("push" factor due to competitiveness or other supply-side factors) calculated as a residual in the change in export market share without the demand-side "composition effects", and (2) two demand-side composition effects ("pull"), which are external changes in importing countries, geographical markets or sectors such as (2a) geographical effect, which refers to a country's mix of trade partners, and (2b) sectoral effect, which refers to a mix of goods (Source: MEC database based on Gaulier et al. (2013). The empirical strategy in Gaulier et al. consists of four main steps. The first stage, following Bricongne et al. (2011), includes the computation of the so-called "mid-point growth rates" of exports (a measure initially proposed by Davis and Haltiwanger (1992),). Unlike normal growth rates, the mid-point growth rate allows one to compute export growth accounting not only for the intensive margin of trade, but also for the extensive margin. This is particularly important when one works with highly disaggregated data and higher frequency data, in which the extensive margin is highly dominant. The second step includes the decomposition of export growth into a sectoral effect, a geographical effect and an export performance effect, as in Cheptea et al. (2005) and Cheptea et al. (2010). Specifically, the regression of the mid-point growth rate is based on three sets of fixed effects, i.e. exporter, importer and sector/product fixed effects, by means of a weighted OLS estimation. The weights are given by the relative share of an export flow (identified as exports from country i exporting a value x to a country c of product k at time t) in total exports, where total refers to the exports of the whole sample of countries. The third step includes the computation of the indices from the estimated coefficients, after normalizing the coefficients and standard errors. The fourth step comprises further extension of the decomposition to separating quantity from price effects, using a Törnqvist index to carry out the decomposition.

6 Brenton and Newfarmer (2007) compare for each exported product, the number of countries to which the country exports that product relative to the total number of countries that import it, and then sum across all products exported. The ratio yields an index of export market penetration (IEMP) that measures the extent to which a country is actually exploiting the market opportunities from the existing set of export products. For the given range of products that a country exports, the IEMP will be higher for countries that reach a large proportion of international markets that import those products. Countries that only export to a small number of the overseas markets that import the products will have a lower value on the index.

FIGURE 1.4

Raw Materials Dominate Exports; Consumer Goods Import Shares Exceed Global Average

Goods trade by stage of processing, 2012-2021



Note: Goods are classified to stage of processing following Classification by Broad Economic Categories (BEC) at HS Rev 2 as used in UNCTAD Key Statistics 2021.

Source: IFC-WTO staff calculations using UN Comtrade data accessed via WITS World Bank, August 2022; UNCTAD

stands at between 5.8–11.1 percent of gross exports, lagging behind other emerging economies that have successfully diversified such as South Africa with 18.4 percent, and Vietnam, at 32.1 percent (see Annex 1, Figure A1.3). Countries with large manufacturing sectors are highly reliant on imported inputs and typically display high levels of backward participation. Worryingly, this ratio for the ECOWAS4 also declined between 2012 and 2018.

Imports of non-consumer goods—such as raw materials, intermediate, and capital goods that are essential enablers of global value chain participation—are also relatively low (see Figure 1.4). Imports play a key role in facilitating access to quality inputs, machinery, and the knowledge and technology embedded in these products. However, while on an upward trajectory, intermediate imports—products and components used by domestic producers—account for 30–40 percent of total imports, below the level seen in rapidly diversifying countries such as Kenya or Vietnam where the rate is over 50 percent. Improved access to trade finance for importers could help stimulate this form of trade, making it easier to access products that would nurture nascent manufacturing industries.

A more diversified trade mix will require greater use of trade finance.

Trade finance has been a key enabler of traditional exports and imports in the ECOWAS4. Pre-export finance is in high demand for the four countries' main exports, including crude oil in Nigeria,[xi] cocoa and rubber in Côte d'Ivoire,[xii] and cocoa in Ghana.[7] Large pre-export finance facilities are syndicated by either local or international banks and occasionally multilateral financial institutions when syndication proves difficult. Meanwhile, large importers of medicine and medical equipment, refined oil, transport equipment, and food benefit from import finance and letters of credit. International financial institutions improve access to international trade finance by extending credit lines and letter of credit confirmation guarantees or capacity to local banks.

Seizing new trade opportunities through global value chains and expansion into new products and services requires deeper and more diverse offerings of trade finance. For example, the expansion of the construction sector in West Africa to meet demand for new housing, industrial facilities, transport, and energy infrastructure as well as medical facilities has stimulated local production of cement, wood, metals, and other materials, some of which are now exported regionally.[8] It has also generated demand for imported materials, machinery, and other equipment.

7 Since 1993, the Ghana Cocoa Board (Cocobud) has every year negotiated an 11-month pre-export facility with local and international banks to meet financing needs for the upcoming cocoa crop season. The 2021 facility was worth $1.5 billion and involved several local and international banks. https://www.gtreview.com/news/africa/cocobod-bumps-up-annual-pre-export-finance-facility/, 21 September 2021

8 For example, while the Western African region has traditionally been a large importer of cement, the expansion of local production capacity led countries such as Nigeria, Senegal, and Togo to start exporting clinker or cement regionally. Examples of recent investments in this area are numerous: in 2021, Société de Ciment de Côte d'Ivoire inaugurated a 1.5Mt/year grinding plant which involved a $110m investment near Abidjan. According to Deloitte's 2021 Africa Construction Report, Africa experienced in 2021 a record year for total construction projects, reaching $520 billion in value. Western Africa outpaced all other sub-regions, with a third of total project values ($172 billion). While Nigeria accounted for the largest part ($100 billion), Ghana ($22.5 billion), Côte d'Ivoire ($17.5 billion) and other ECOWAS countries also showed significant dynamism. Projects are increasingly implemented by domestic firms (28 percent), or by consortiums of local and foreign firms.

BOX 1.2

The Different Types of Trade Finance

There are three separate channels to exchange payments for goods that cross borders.

(1) *Advance Payments* require an importer to pay for goods well in advance of receiving them, sometimes as much as a year. This provides the exporter with payment certainty but leaves significant delivery risk for the importer.

(2) *Open Account Payments* usually indicate payment occurs following shipment or receipt of goods. This provides the exporter certainty of receipt but requires the importer to take on payment risks and cash flow delays. A related financing mechanism for open account usage is trade credit, which refers to payment deferral facilities that sellers may grant their buyers.

(3) *Documentary Trade Finance* helps to mediate risks by providing a series of records and tracking of goods. It also supports traders on both sides as banks take on payment risk in many cases by agreeing to pay for the trade shipment should one party default. Banks also serve as objective mediators in organizing documentation to confirm the shipment and receipt of goods.

Letters of Credit are one of the most widely used facilities within the category of documentary trade finance. They are written commitments to pay, typically issued by a bank on behalf of the buyer (importer) to the seller (exporter) or its bank. They carry a number of obligations for the seller (delivery conditions, submission of documentation) and the buyer (notably the guarantee that if the buyer is unable to pay, the bank will cover the outstanding amount). A letter of credit can also support an exporter who can borrow against their receivables at a discount to obtain cash flow prior to the actual payment.

Several other products fall into this category. These include Payment Guarantees, whereby banks guarantee payment on delivery of goods, reducing risk for the traders involved. Bid and Performance Bonds hold similar attributes, more frequently related to the exchange of services. Guarantees and other proof of documentary trade finance can allow for the factoring of cross-border receivables, that is, short-term borrowing from a bank based on the guarantee, as with letters of credit. Standby Letters of Credit, counter-guarantees, and other type of guarantees are different types of facility that ultimately help the recipient mitigate counterparty risk. Bank Payment Obligations in concept shadow the activities of a letter of credit. However, payment decisions are automated and based on e-data matching. At this stage, there are limitations on bank payment obligations usage as there can be insufficient automated data available relative to the more paper-based letters of credit.

Other forms of trade finance support associated with capital loans are also available. Pre-Export Finance is generally a working capital line to finance expenditures before export deliveries take place, where payment for the goods repays the finance facility.

Post-Shipment Finance is beneficial for importers, but comes into effect at a later stage when the goods are already received. Trade Loans and General Working Capital used for trade are similar by nature. However, with trade loans, banks often link the loan to a specific trade contract. Working capital provides the borrower with more flexibility. While many trade finance offerings are short term, equipment finance is longer term to accommodate time associated with post-order equipment production, shipping or installation.

Purpose-defined categories such as Supply Chain Finance may refer to instruments listed above as well as risk mitigation practices to optimize the management of working capital and liquidity invested in supply chain processes. Supply chain finance transactions may take place directly between firms or are intermediated by banks or other financial institutions offering logistical or invoicing services.

This report is primarily focused on bank-intermediated documentary forms of trade finance, where banks are taking a risk on trade payments versus facilitating advance payments or open account transactions by processing, for example, documentary collections. In measuring trade gaps, the report focuses on international, cross-border bank-intermediated trade finance. In addition, the study reviews the availability of supply chain finance as a part of the market landscape. It does not consider the usage of trade credit insurance, whose structure and market dynamics bring distinct benefits and challenges. These mechanisms are further detailed by Dornel et al., 2020.

Trade in many of these intermediate and capital goods relies more on trade finance than other products.[9] A systematic assessment of the use of letters of credit for specific products independently of the destination or the timing of a transaction[xiii], shows that trade in capital and intermediate goods requires more support from letters of credit than consumer goods or raw materials (see Figure 1.5). Although variation across categories is significant and the use of trade finance would eventually not only depend on what is shipped, but to where and at what point in time, the implication is that an ECOWAS4 transition towards more sophisticated products and markets would require greater reliance on bank-intermediated trade finance.

Import costs with key partners remain a challenge.

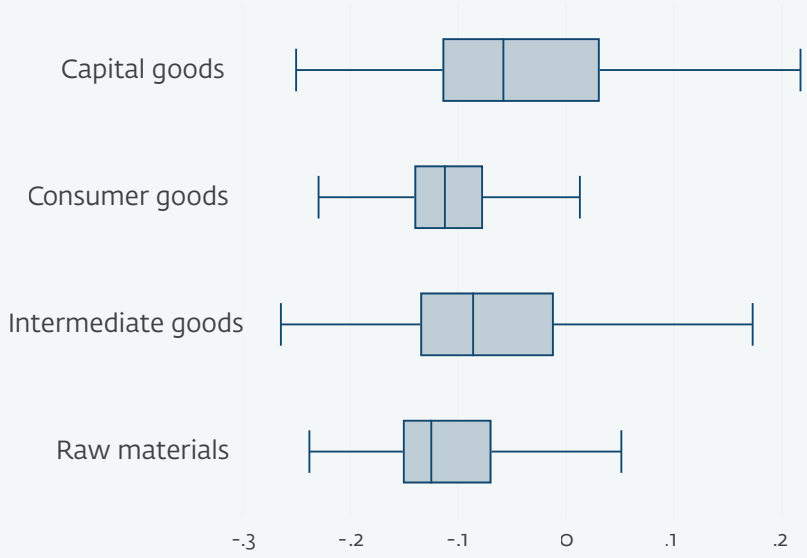
Trade incurs costs, including the price of transportation, regulatory compliance, currency conversion, and trade-related taxes such as import tariffs. As transport links become more established,

9 It is noteworthy that capital goods imports are often financed with longer-tenure (medium-term) letters of credit, or regular working capital loans. IFC's Global Equipment Finance Facility implemented in 2018-19 supported five-year transactions in Armenia and Pakistan, financed through import letters of credit.

FIGURE 1.5

Capital and Intermediate Goods Trade Use More Letters of Credit

Index of letter of credit use across products by stage of processing



Note: The index of letter of credit use published by Crozet et al. (2022), addresses the question of "how dependent on letters of credit is trade in specific products" independently of the destination or the time it occurs. The index was calculated using data from Turkey, by removing variation in the use of letters of credit due to different partner countries and years. Although the actual figures have only relative, not absolute interpretation, the index exhibits intuitive correlations with several product characteristics, such as, the value per weight, durability, average shipping time, or transaction size. The box plots display a five-number summary of letter of credit intensities in each category. From left to right, the five-number summary is the minimum, first quartile, median, third quartile, and maximum. The box shows the range of intensities from the first quartile to the third quartile. The vertical line through the box corresponds to the median intensity.

Source: IFC-WTO staff calculations based on letter of credit intensity analysis by Crozet et al. (2022); UNCTAD BEC Classification used in Key Statistics 2021

governments implement trade agreements and flows gather momentum, many of these costs would be expected to decline. Indeed, estimates from the WTO[xiv] suggest that globally they dropped by about 15 percent in the decade preceding 2018.

In the ECOWAS4, the improvement has been significant too, with the average cost of exports to their top 10 trading partners declining on average by nearly 15 percent over the same period, according to the WTO. Import costs to the four countries, however, have not improved substantially, if at all, and exceed significantly costs of exporting (see Figure 1.6). One important element of this is the cost of trade finance. While there is significant variation, costs of trade with traditional partners in Europe, such as France, Germany, or the UK, have increased in critical areas such as agricultural exports or imports of manufactured goods. Costs of trade with China have improved by an average margin of as much as 28 percent on the export side, suggesting promising channels for further growth.

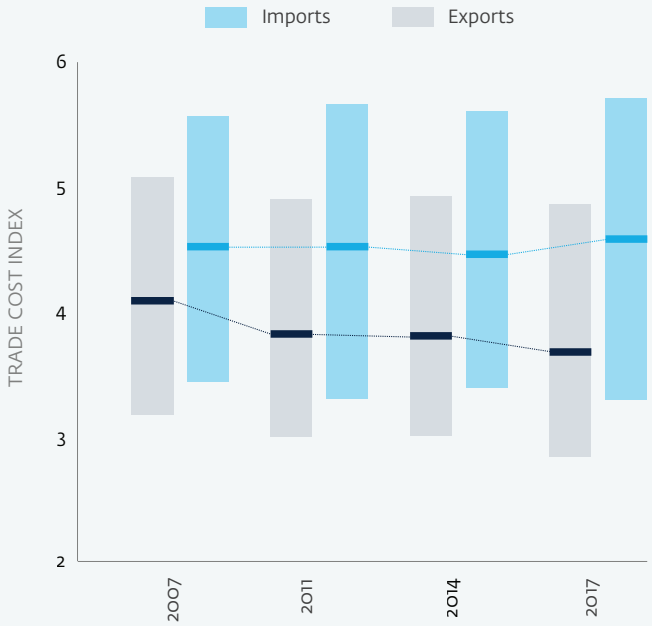
High trade costs not only restrict trade directly but can also affect the availability of trade finance. If trade becomes less profitable and margins are narrower, providing trade finance facilities to importers and exporters becomes riskier. But the narrower margins make it difficult to charge borrowers more to compensate the lender for that risk.

The next chapter will show more evidence on the constrained availability of trade finance and its impact on trade in the region. The following chapters will quantify this adverse impact of trade finance gaps on trade and propose ways forward for different stakeholders, namely traders, financial institutions, governments, and development agencies.

FIGURE 1.6

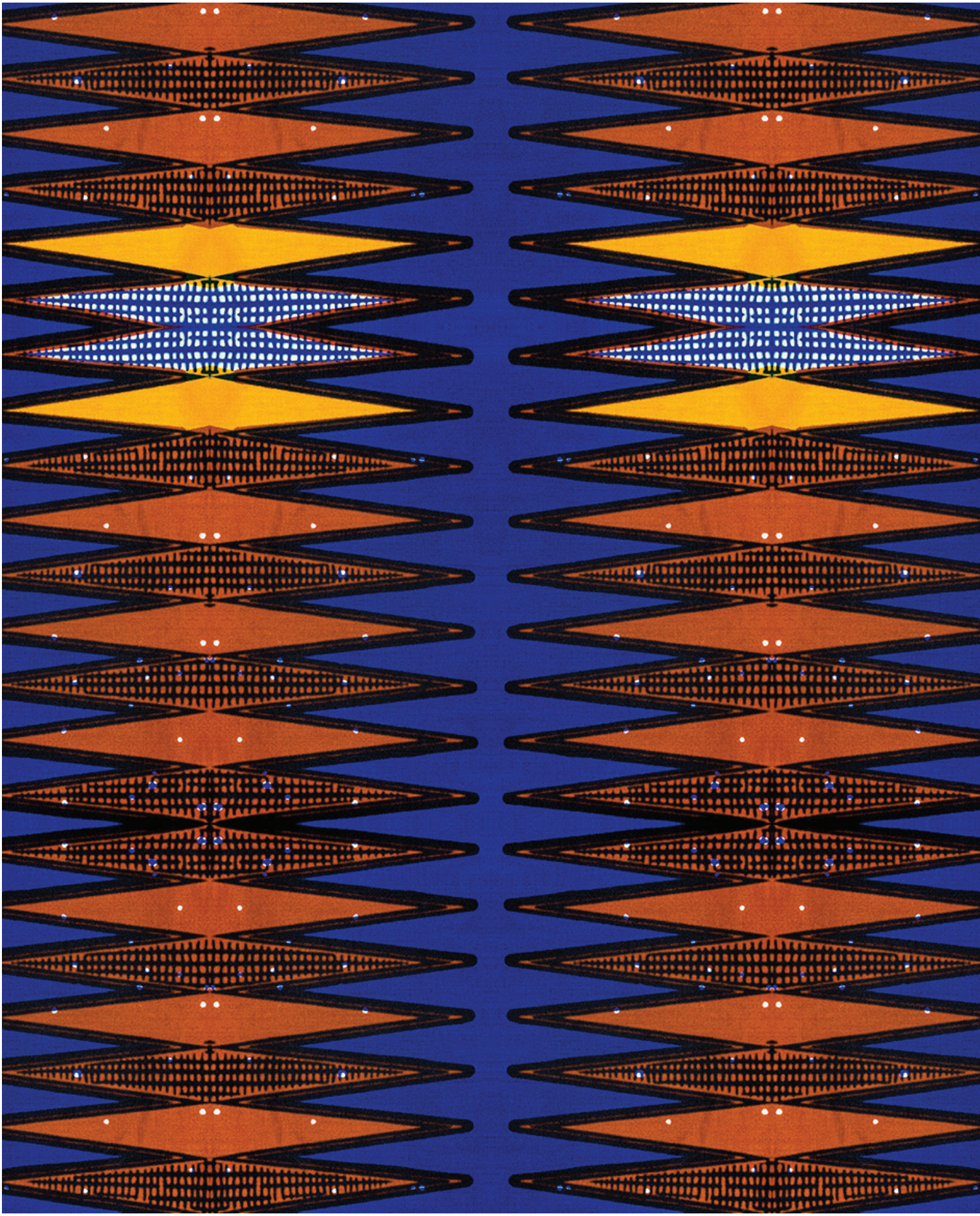
Import Costs Fail to Follow Falling Export Costs

Trade costs with top ECOWAS4 trade partners (2007-2017)



Note: The index of global trade costs can be interpreted as how many times higher international trade costs are compared to domestic trade costs (WTO, 2021); For example, a value of 2.0 means that international costs are double the domestic trade costs (ad valorem equivalent of 200 percent). The box plots display a three-number summary of the trade cost distribution across the ECOWAS4 economies and their top partners (the top 10 origin countries for imports to any of the four ECOWAS economies, and top 10 destinations for exports for any of the four countries, namely Belgium, Brazil, China, France, Germany, India, Italy, Malaysia, Netherlands, Norway, Spain, Turkey, the United Kingdom, and the United States). The bottom of each box represents the first quartile, the horizontal line the median, and the top of the box the third quartile of trade costs in each year.

Source: Calculations on the WTO Trade Cost Index (2021)



Chapter 2: Trade Finance in the ECOWAS4

Key Themes:

- The total trade finance market for the ECOWAS4 is estimated to be $42 billion annually, supporting 25 percent of these countries' merchandise trade.
- Trade finance rejection rates are running at 25 percent, giving rise to a trade finance gap of as much as $14 billion annually.
- Rejections disproportionately affect SMEs, in particular women-led SMEs.
- Trade finance availability is constrained by challenges in correspondent banking relationships, high levels of risk associated with borrowers, and limited availability of low-cost funding.
- Trade finance costs in the ECOWAS4 are high, with the average price for a letter of credit running between around 2 percent and 4 percent of the value of the transaction, compared with a 2 percent global emerging market average and a lower bound of 0.25-0.5 percent typically observed in advanced economies.

The following chapter outlines the principal findings of an analysis of the IFC survey of ECOWAS4 banks. The study found that a smaller share of trade is covered by trade finance in the four countries compared with other regions. Costs to access these facilities are higher and rejections of applications more frequent, often because of insufficient collateral. The rejection rate is used to assess the extent of unmet demand for trade finance, thereby quantifying the trade finance gap. Further issues highlighted by bankers in the ECOWAS4 included inadequate networks of correspondent banks overseas with which to conduct cross-border transactions.

The ECOWAS4 trade finance market is estimated to be worth around $42 billion annually, supporting 25 percent of merchandise trade.

At the individual country level, the share of trade covered by trade finance ranges from 15 percent in Senegal to 41 percent in Ghana (Table 2.1).[10] The comparable share for Africa is about 40 percent, according to the African Development Bank,[xv] while globally the share is around 60-80 percent.[11] The estimates of total trade finance assets in the four countries were produced using two different methodologies, one developed for this study based on observations of bank assets, and the other previously used by the African Development Bank for its continental Africa Trade Finance Survey (see Annex 2). Both methodologies lead to similar estimates of market size and gaps in provision, in large part because the high response rate to the survey has resulted in a sample that incorporates almost the entirety of the market in the four countries and therefore approximates reality.

Banks are the main suppliers of trade finance in the ECOWAS4.

Scale matters in trade finance markets, and there are clear market leaders in each country. Although nearly all surveyed financial institutions (75 of 78 respondent banks) offer trade finance, the five largest banks by assets account for half of the trade finance market by dollar value while the 10 biggest account for slightly more than two-thirds of trade finance assets. The average trade finance portfolio of the 10 largest banks in the sample is four times larger than the average for their smaller peers, processing three times as many transactions with higher transaction values.[12]

Pan-African banks with local operations, banks present in neighboring countries, and subsidiaries of international banks all have the advantage of being able to offer the largest local traders a bigger network of international correspondent banks, which allows them to more easily process and finance trade transactions globally. The survey confirms that banks with more trade finance activity are more likely to be larger and spread across more than one jurisdiction with over two thirds of respondents reporting

10 The size of the trade finance market refers to credit products under the surveyed banks' international trade business. See Footnote 2 for a detailed list of facilities included in the estimation.

11 The Bank for International Settlements (2014) estimated that trade finance accounted for some 60 percent of world trade in 2014, while the WTO (2016) said that up to 80 percent of trade could be covered by trade finance.

12 In this study, "large" or "the largest banks" refer to lenders with more than $5 billion in assets. These are the 10 biggest banks in the sample. "Small" or "smaller" banks refer to the remaining respondent banks.

operations in more than one country. Around half of the survey participants in Côte d'Ivoire, Ghana, and Senegal manage trade finance portfolios on average more than three times larger than their purely local counterparts. It also highlights the important role played by subsidiaries of international banks in offering trade finance to corporations working in multiple countries. For some international banks, entry into these markets is a decision to follow corporate clients, explaining why there are subsidiaries of international banks with a smaller share of local assets but larger trade finance portfolios. These banks appear to have better capacity to serve companies that need support for larger transactions and across multiple

TABLE 2.1

Bank-Intermediated Trade Finance in the ECOWAS4

	Côte d'Ivoire	Ghana	Nigeria	Senegal	Total
Total number of surveyed banks	28	23	19	19	89
Respondent banks [#]	24	23	19	12	78
Respondent banks involved in trade finance [#]	22	23	18	12	75
Respondent banks involved in trade finance [%]	92	100	95	100	96
Average value of trade finance portfolio [$ Million]	381	410	1,174	108	537
Total merchandise trade in 4 countries [$ Billion]	29	23	99	14	165
Size of bank-intermediated trade finance [$ Billion]	**10**	**9**	**21**	**2**	**42**
Coverage of trade by bank-intermediated trade finance [%]	**33**	**41**	**21**	**15**	**25**

Note: The trade finance balance as a percentage of the total assets of surveyed banks was reported specifically as of December 31, 2021

Source: IFC-WTO staff calculations on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

jurisdictions, including larger commodity exporters and large-scale essential goods importers, among others.

Banks outside the top 10 by assets have larger trade finance portfolios as a proportion of their total assets. They receive two-thirds of the total number of applications for trade finance from clients and tend to be on par with larger banks in terms of the average number of products offered. At the same time, they are more likely to work with SMEs (91 percent of these banks work with SMEs compared with eight out of 10 of the largest banks) and have about half the number of correspondent bank relationships versus the largest banks. These challenges could make it more difficult for these banks to scale up the provision of trade finance in line with the region's needs.

We found 70 percent of banks provide finance in sectors such as chemicals, and 90 percent provide finance for consumer goods. Meanwhile, sectors such as agriculture and infrastructure are identified as some of the most in need of additional trade finance (Figure 2.1).

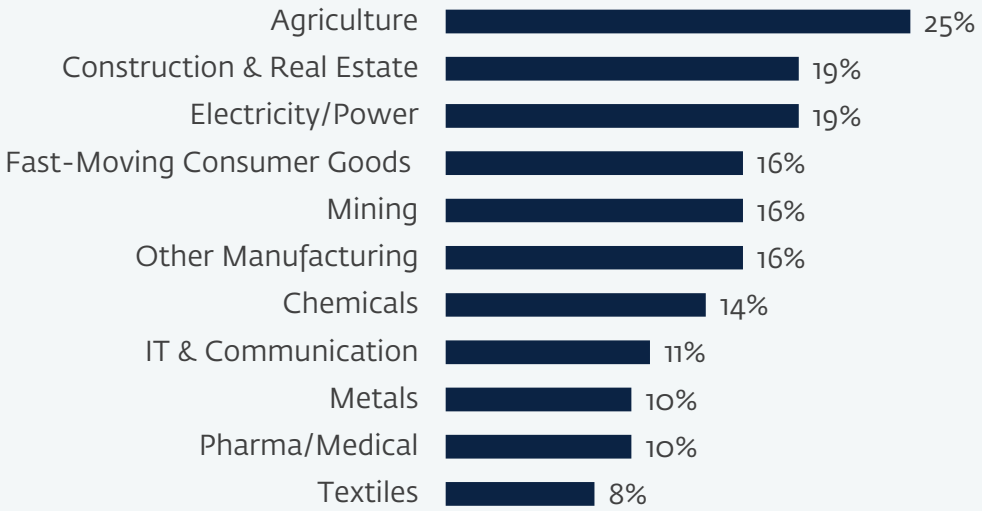
The trade finance market is dominated by traditional trade finance instruments.

Letters of credit, mainly for importers, and loans that largely comprise revolving, short-term capital and pre-shipment export facilities, constitute the bulk of the

FIGURE 2.1

Sectors Needing More Trade Finance from ECOWAS4 Banks

Share of respondents mentioning a sector as experiencing insufficient trade finance supply



Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022); UN Comtrade accessed via WITS, August 2022

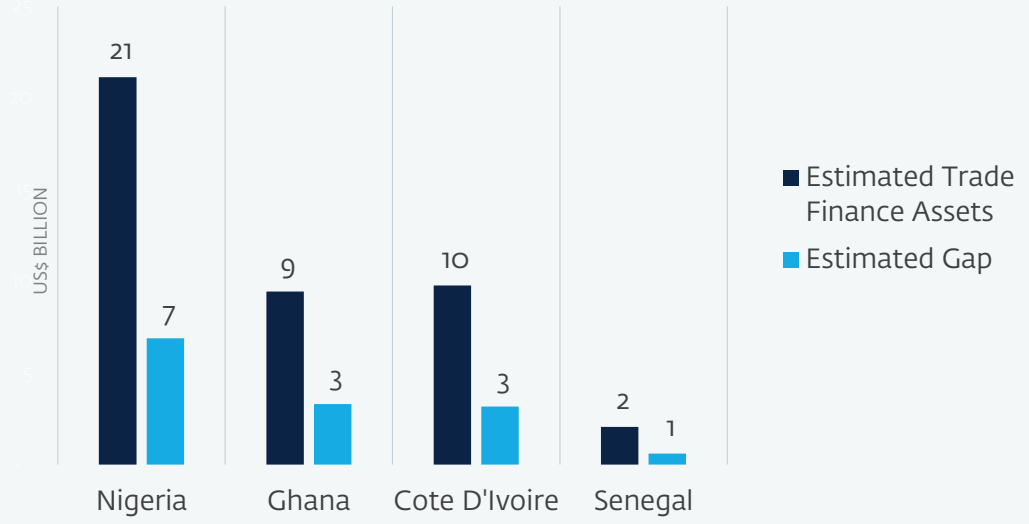
existing market. Letters of credit have the advantage of providing legal assurances to the parties involved in a trade transaction and default rates are typically lower than for loans in Africa and elsewhere. Because of this security, they are often less costly than the average interest rate on a loan.

Nevertheless, securing a letter of credit is a laborious process requiring extensive documentation, thereby favoring bigger customers with more resources that are better able to meet all the demands set by banks. Swift data[xvi] appears to illustrate that the market favors larger customers, at least for exports. The data has shown that average import letter of credit values in Africa are broadly in line with global rates. Average transaction sizes for export letters of credit, on the other hand, are among the world's largest, suggesting they are weighted toward larger customers and bigger volumes. Newer forms of trade finance such as supply chain facilities are at embryonic stages of development in the four countries. Fewer than half of the lenders said they provide supply chain finance and the majority indicated that supply chain finance accounts for between zero and 20 percent of trade in their markets. Digital-based financing (working capital platforms, fintechs) are also very early stage with several banks noting that they are either not familiar with this type of product or that they are not involved at all.

FIGURE 2.2

Trade Finance Supported by Banks and the Shortfalls

Estimated trade finance gaps in the ECOWAS4 based on rejections of applications by banks



Note: The estimated value of unmet demand for trade finance corresponds to the product of rejection rates x the estimated total trade finance assets in the country. The latter is approximated using the methodology described in Annex 2.

Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

Pre-export finance is a key instrument funding exporters.

Interviews with bankers indicated that the availability of working capital and financing solutions for the production of goods for export is key to the survival of exporters. This is particularly true in agriculture where there is a relatively long period between the upfront cost of purchasing initial inputs ahead of cultivation, and the harvesting of produce and eventual export. While large commodity exporters may secure international syndicated pre-export financing to cover the entire crop season,[xvii] smaller exporters can only rely on local financing. While bankers underlined the existence of solutions for each stage of the process such as inventory financing, input financing, and other facilities, farmers and farming cooperatives reported struggling to secure staged lending. Bankers highlighted that producers should define their needs, improve credit applications, and allocate the proceeds of the credit facility to the approved use. Meanwhile, businesses pointed to onerous collateral requirements, an insufficient risk culture, and a lack of familiarity on the part of financial institutions with their activities.

Rejection rates are high, resulting in $14 billion of annual unmet demand for trade finance.

Refusals for trade finance applications across the ECOWAS4 are 21 percent of the total number of

TABLE 2.2

The Estimated Trade Finance Gap Based on Rejected Applications

	Côte d'Ivoire	Ghana	Nigeria	Senegal	TOTAL
Size of bank-intermediated trade finance [$ Billion]	10	9	21	2	42
Average rejection rate [%]	25	26	25	23	25
The size of the trade finance gap (unmet demand) [$ Billion]	3	3	7	1	14

Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

requests and 25 percent of their value.[13] As larger banks focus on bigger clients, their reported rejection rate is lower, at 13 percent of applications and 19 percent of their value when compared with a 23 percent average rejection rate among smaller banks, or 25 percent in terms of value. Smaller banks have higher relative exposure to trade finance because it makes up a larger share of their overall portfolios, and fewer correspondent bank relationships, which means they face greater levels of risk and more challenges completing transactions. Their greater exposure to SMEs also adds to the risk they face.

Following the methodology described in Annex 2, these rejection rates suggest unmet demand for trade finance at $14 billion annually across the ECOWAS4. At the country level, this translates into a trade finance gap of around $7 billion in Nigeria, $3 billion in Côte d'Ivoire and Ghana, and $1 billion in Senegal (see Table 2.2 and Figure 2.2).

Not all rejections translate into foregone trade—only 20-40 percent, according to existing literature and other surveys.[xviii] Blocked trade finance applications may be leading firms to look for less optimal solutions such as drawing on their own funds, borrowing through informal channels, from their suppliers, or from microfinance institutions. Furthermore, more than a third of respondent banks reported importers need more trade finance than lenders can currently provide. More than 30 percent reported supply shortfalls for local companies.

Self-exclusion following previous rejections of applications may also be prompting firms to simply refrain from applying to banks for financing to carry out international trade. This, alongside limited supply, high prices, and frequent rejections make it unsurprising that the share of trade supported by trade finance in the ECOWAS4 is lower than elsewhere in Africa.

Insufficient collateral and categorization of the borrower as high risk are the top two reasons cited by banks for rejecting trade finance applications.

Trade finance requires more documentation than domestically focused facilities, related to customs, transportation, insurance, and other areas. Furthermore, requirements for book-keeping and due diligence are higher for trade finance as financial arrangements must be vetted by counterparty banks and clients. Recent international regulatory developments, such as enhanced know-your-customer requirements and anti-money laundering laws, have made the process more complicated still.

Figures 2.3 and 2.4 show the main reasons for rejection reported by the institutions participating in the survey. Lack of collateral and high applicant risk top the list in all four countries, although respondents in Senegal and Côte d'Ivoire mentioned these two reasons more often than their counterparts in Ghana and Nigeria, at 64 percent and 67 percent.

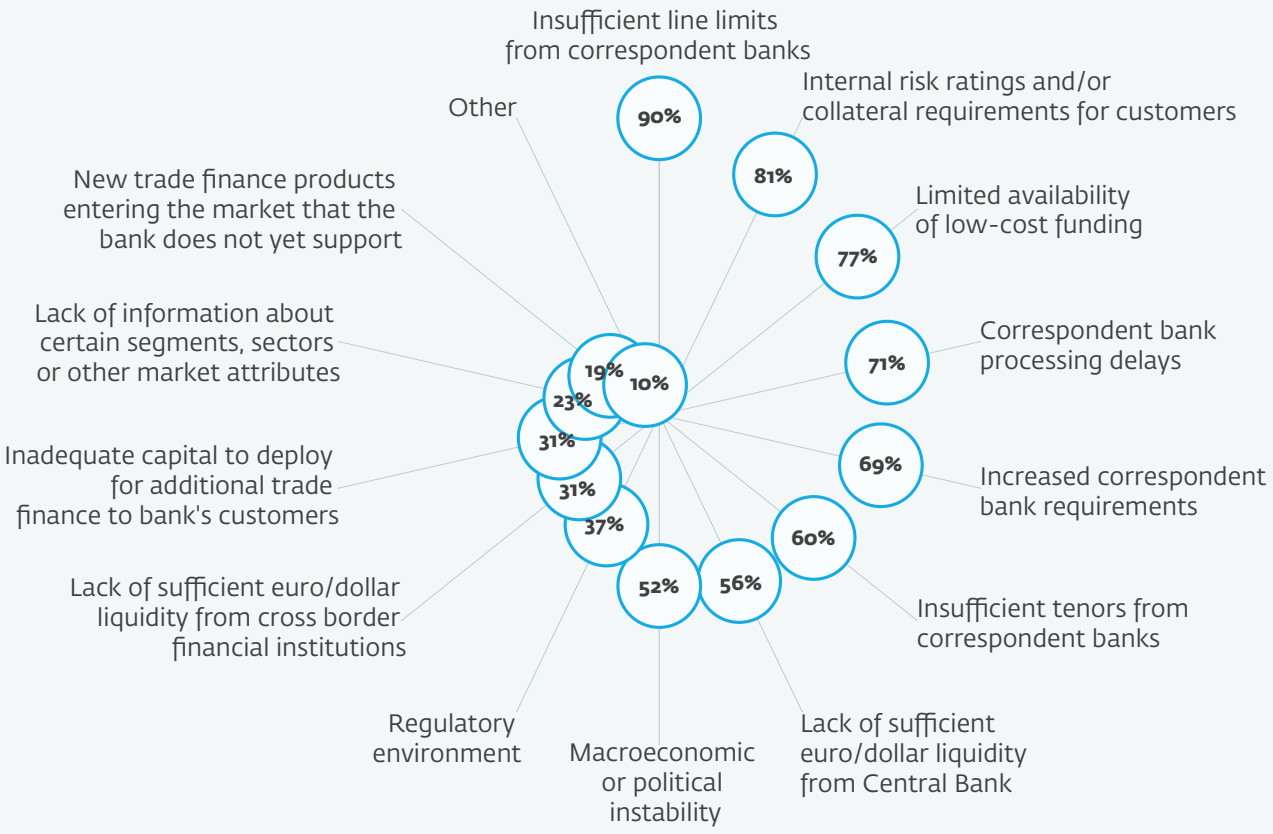
Across the four countries, Senegalese banks were most likely to reject a trade finance transaction based

13 Based on a global survey of 85 IFC clients participating in the Global Trade Finance Program (GTFP), which extends and complements the capacity of banks to deliver trade financing by providing risk mitigation in new or challenging markets, the global average rejection rate for this group is 12 percent of the total number of requests, as opposed to 25 percent for the sub-sample of GTFP clients in the ECOWAS4 (mainly in Ghana and Nigeria).

FIGURE 2.3

Insufficient Collateral and Credit Risk are the Top Causes of Rejection

Share of respondents mentioning the following reasons for denied trade finance applications



Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

on the high credit risk of the applicant. In Nigeria, bottlenecks in accessing or predicting the availability of foreign exchange are mentioned as a major cause for rejection, particularly given the very high demand for pre-export shipment facilities.

Collateral requirements remain challenging in the ECOWAS4.

In international trade, the merchandise itself is commonly used as collateral for trade finance. It can be resold to cover a bank's exposure and when transactions are covered by letters of credit, can be seized ex officio in case of non-payment. However, banks in the survey said they often ask for further collateral on the basis that shortcomings in local legal enforcement mean they are not confident that they would be able to seize and resell merchandise.

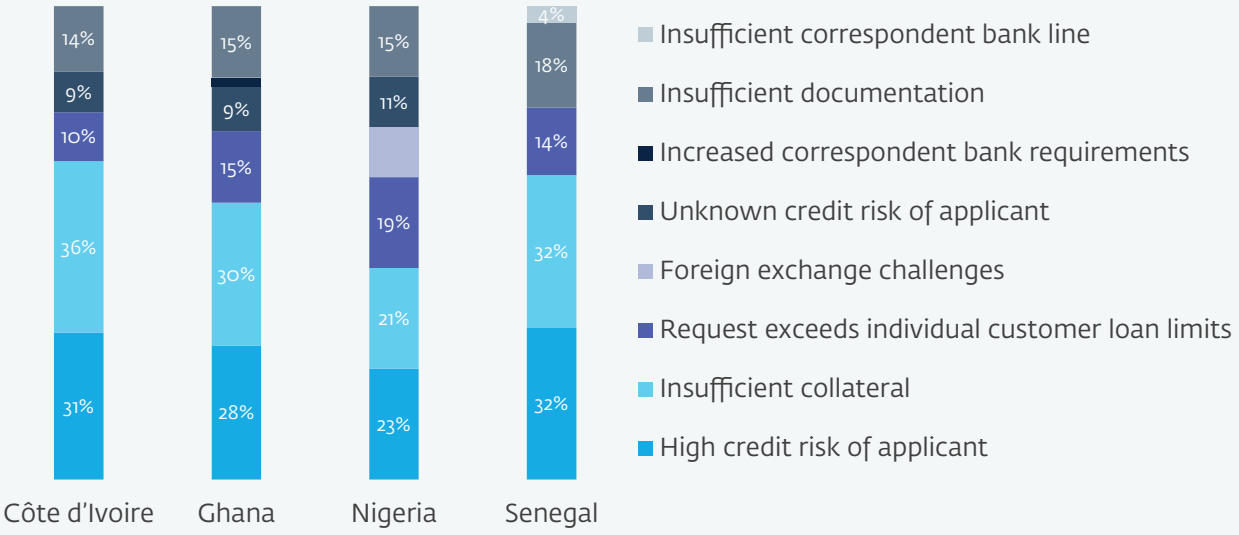
SMEs, with their smaller balance sheets, are more likely to face onerous collateral requirements and often lack the financial sophistication to negotiate effectively with their financiers.

Consequently, SMEs, including women-owned SMEs, are disproportionately affected by trade finance gaps. In the survey, 72 percent of respondents stated that SMEs and micro-enterprises face higher rejection rates than other categories of applicants, while approximately 30 percent of banks indicate that they

FIGURE 2.4

Reasons for Trade Finance Rejections by Country

Share of respondents by country mentioning the following causes of refused trade finance applications



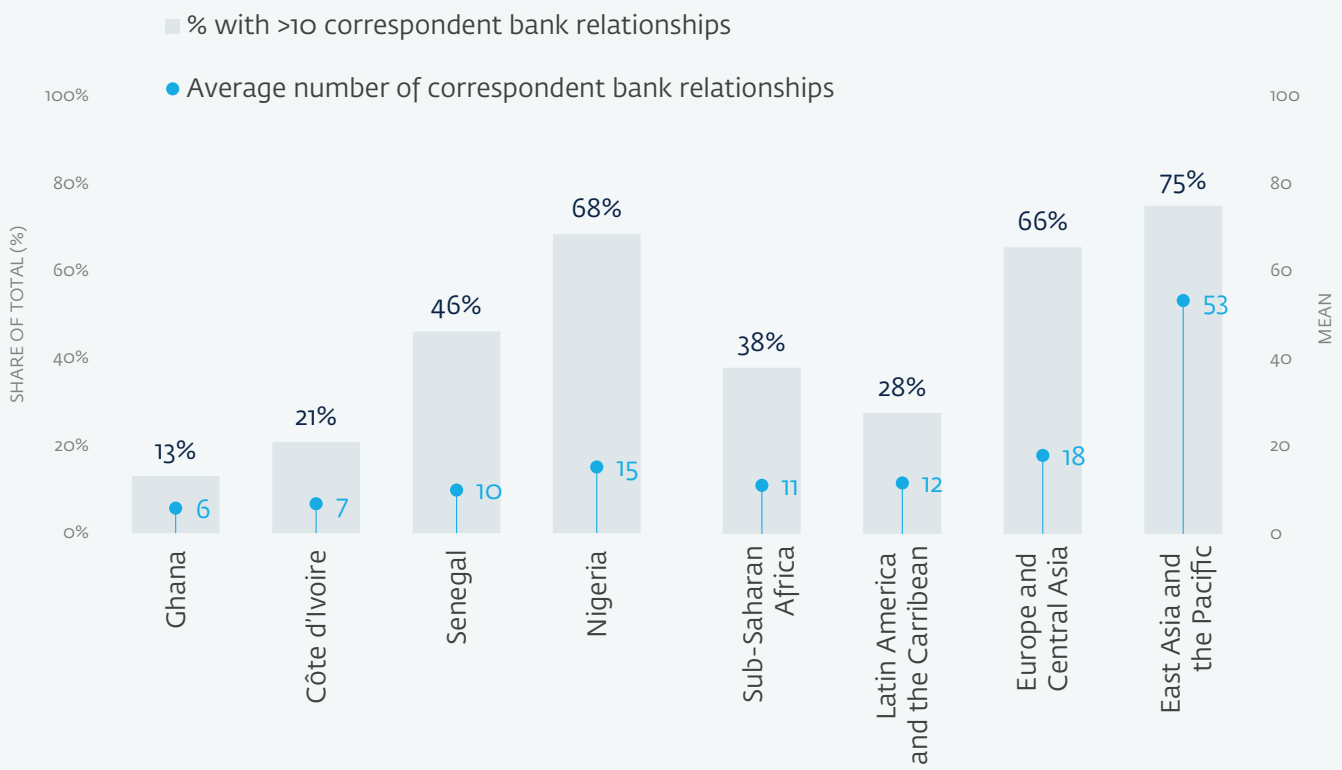
Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

do not yet have women-owned SMEs specifically on their books. Anecdotal evidence from emerging markets points to several drivers of this gap, including a lack of information regarding the size of the segment, its market potential and limited access of women to trade finance products.

FIGURE 2.5

West African Banks' Narrow Cross-Border Networks

The share of lenders with more than 10 correspondent banking relationships, and the average number of relationships in ECOWAS4 and globally



Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

Limited correspondent banking relationships constrain the availability of trade finance.

Virtually all ECOWAS4 banks report challenges with correspondent banking relationships—networks of financial institutions in different countries providing each other with services. These are essential to issuing, confirming, and settling cross-border trade finance transactions. Growing export penetration and the sourcing of inputs from emerging markets requires bigger networks of correspondent banks.

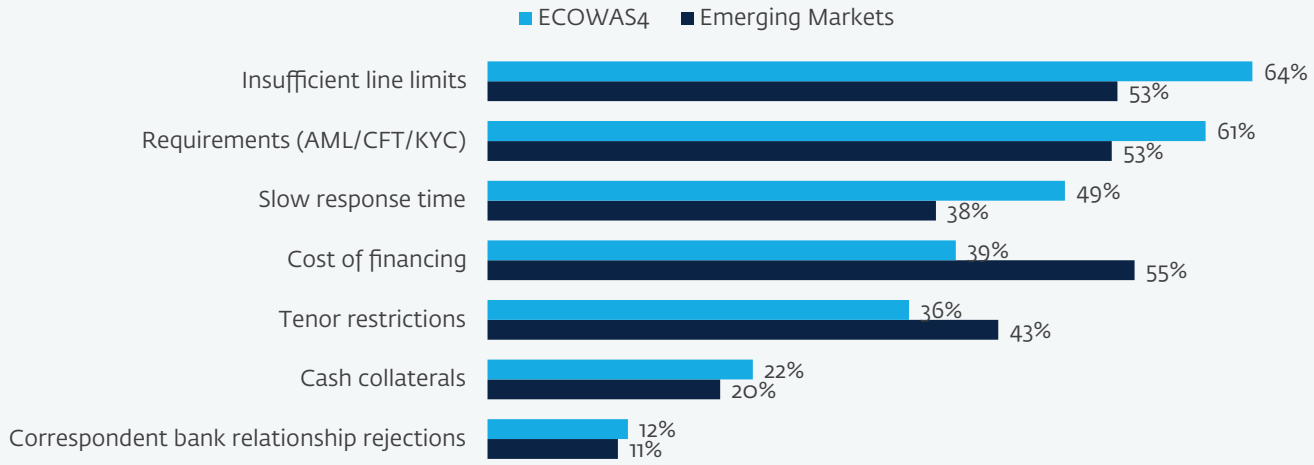
A perception of increased risk in either country involved in the transaction can prompt a correspondent bank to reduce line limits, increase reporting requirements, or raise fees. A smaller number of correspondent banking relationships makes trade transactions more vulnerable to such instances of worsening terms. The survey found that banks in ECOWAS4 countries typically have fewer such relationships than lenders in the rest of Africa and other regions.

On average, banks across the four countries reported nine correspondent relationships, with 64 percent reporting less than 10 and almost a third reporting five or fewer (see Figure 2.5). Nearly all banks reported hindrances to executing more trade finance and some form of correspondent banking stress, namely challenges in working within existing cross-border bank lines to execute individual transactions. Over 60

FIGURE 2.6

ECOWAS4 Banks Face High Correspondent Bank Relationship Stress

Share of respondents mentioning the following reasons for correspondent bank relationship stress on transactions



Note: AML refers to "anti money laundering," CFT refers to "combatting the financing of terrorism," and KYC refers to "know your customer." The emerging markets average is calculated using survey results from IFC Global Trade Finance Program (GTFP) clients.

Source: IFC-WTO staff calculations on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

percent indicated that they face insufficient line limits and nearly half cited problems from slow response times, while 12 percent reported transaction rejections (Figure 2.6).

ECOWAS4 trade finance prices are high, particularly for SMEs.

For letters of credit, banks charge fees to compensate for risk, which is influenced by the nature of the client, the country where they operate, the nature of the transaction, its duration as well as the level of foreign

TABLE 2.3

All-in Prices for Letters of Credit in the ECOWAS4

Price of an import letter of credit as a percentage of the transaction value

	Côte d'Ivoire	Ghana	Nigeria	Senegal
Minimum	2%	1.8%	2%	2%
Average	4%	2.3%	3.5%	4%
Maximum	5.5%	3.3%	5.8%	5.5%

Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

TABLE 2.4

Average Price for Letters of Credit Issuance and Confirmation

Price of an import letter of credit as a percentage of the transaction value

Instrument Type	Côte d'Ivoire	Ghana	Nigeria	Senegal
Letter of credit issuance local (yearly)	1.5%	0.5%	0.5%	1.5%
Letter of credit confirmation (yearly)	2.5%	1.8%	3.0%	2.5%
All-in price	4.0%	2.3%	3.5%	4.0%

Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

exchange risk. For trade loans, the cost of funds for the bank is an important element of pricing, along with the transaction's overall risk, and the market structure. Additionally, non-risk fees are customarily charged to clients for originating, structuring, negotiating, and confirming trade finance instruments.

Letter of credit prices in ECOWAS4 significantly exceed global emerging market benchmarks, as well as the rates observed in more advanced economies. Costs can be exacerbated by poor supply of foreign exchange in a specific market as the vast majority of trade finance transactions are denominated in dollars or euros. When the availability of these currencies is low,

TABLE 2.5

Pre-Shipment Financing Cost

Price for pre-shipment financing per year as a percentage of the financing granted

	Instrument Type	Côte d'Ivoire	Ghana	Nigeria	Senegal
Cost of Funds	Cost of funds	4.0%	19.0%	13.0%	4.0%
	Base rate	10.5%	24.0%	19.5%	8.5%
Pre-Shipment Financing	Working capital/pre-shipment (large firm)	9.0%	22.0%	21.5%	9.0%
	Net margin (over cost of funds)	5.0%	3.0%	8.5%	5.0%
	Working capital/pre-shipment (small firm)	13.0%	25.0%	26.0%	13.0%
	Net margin (over cost of funds)	9.0%	6.0%	13.0%	9.0%
	Micro-finance	21.0%	-	-	21.0%
	Net Margin (over cost of funds)	17.0%	-	-	17.0%

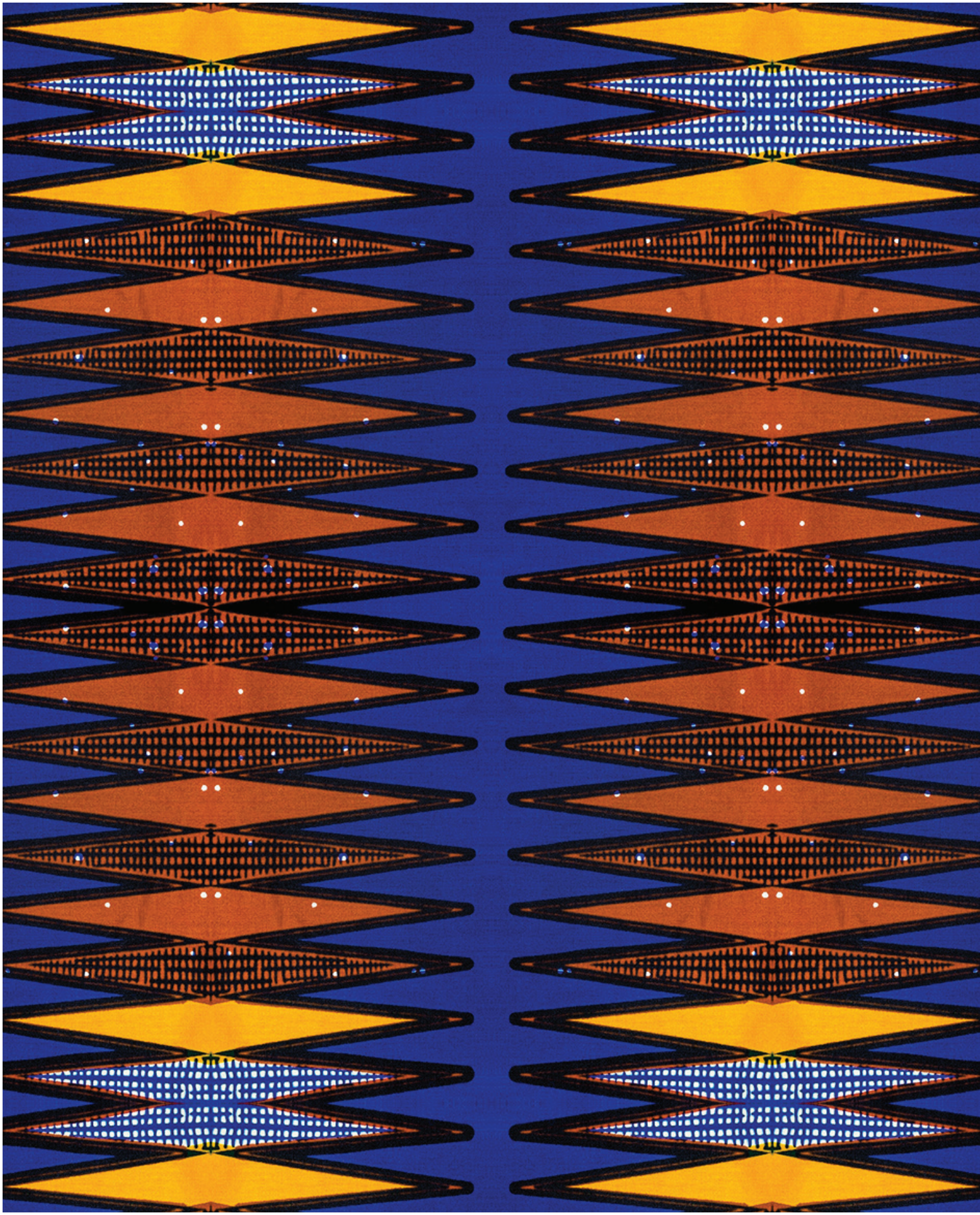
Source: IFC-WTO staff calculations based on IFC 2022 survey of trade finance in ECOWAS (sample August 10, 2022)

there can be pressure on both the supply and prices for trade finance.

Table 2.3 lists letter of credit prices, showing that the average charge was reported around 2.3 percent of the transaction value in Ghana, 3.5 percent in Nigeria, and 4 percent in Senegal and Côte d'Ivoire, compared with a 2 percent global average for emerging markets, and a 0.25–0.50 percent lower bound typically observed in advanced economies.[14] A short-term working capital pre-shipment facility was priced at around 13 percent in Côte d'Ivoire and Senegal, and around 25 percent in Ghana and Nigeria, while refinancing rates for import finance stood between 4–19 percent in the focus countries.

SMEs customarily pay more than large corporates. In Côte d'Ivoire and Senegal, large companies may be charged 4–5 percent above the refinancing rate for a trade loan, while the corresponding premium for SMEs stands at 7–9 percent. Import financing is quoted at cost of funds +7–10 percent for large firms and +9–17 percent for smaller companies. Table 2.3 also shows aggregated price ranges reported by surveyed banks in the four countries. Given the short-term nature of trade finance (around 180 days in the ECOWAS4), trade finance products are often offered at a discount to other forms of credit. If SMEs are finding the market harder to access, therefore, they are being deprived of a relatively low-cost source of financing to conduct trade. Tables 2.4 and 2.5 provide additional detail on pricing for letters of credit and pre-shipment financing.

14 All fees are annualized, reported as a percentage of the transaction value charged per annum.



Chapter 3: The Impact of Closing the Trade Finance Gap

Key Themes:

- Increasing the coverage of trade by bank-intermediated finance toward African averages and lowering financing costs to benchmarks seen in more advanced economies could lift ECOWAS4 exports and imports of goods by around 8 percent, the equivalent of nearly $13 billion in annual merchandise trade.
- If the lowering of costs is combined with a coverage of trade by bank-intermediated finance that approaches international levels of around 60 percent, goods trade would increase by about 16 percent (both on the import and export sides), representing a potential $26 billion of additional merchandise trade.

This section assesses the extent to which reducing the cost of trade finance and increasing its availability can boost trade, based on the survey results outlined in previous chapters. We use the WTO Global Trade Model (GTM), a computable general equilibrium (CGE) model describing the economic interactions between regions, to simulate the effects of changes in the price and availability of trade finance on trade flows. Data on trade and production for the four ECOWAS countries as well as their trading partners are based on the GTAP (Global Trade Analysis Project) database.

The costs involved in the carrying out of international trade are an important determinant of trade flows and comprise a range of transaction costs, including the cost of financing. Total prices for financing international trade transactions are determined by the instruments employed.

The analysis distinguishes between four modes of payment or financing employed, each differing in cost and transactional risk: cash-in-advance, export or import loans, exports financed with working capital, and letters of credit. For example, in using cash-in-advance, the importer pays for goods upfront and in doing so, pre-finances the exporter's cash-flow, while incurring a (transactional) risk of not receiving delivery on time or at all, without the benefit of collateral.

Using cash in advance, therefore, means that the importer faces a maximal transactional risk relative to other identified instruments and a high financial cost—the opportunity cost of using the firm's own cash flow and engaging its capital, which could at the extreme be lost if the other party did not deliver. Under the terms of letters of credit, most of the transactional risk is transferred to the bank and no funds are engaged by the importer until it receives the merchandise. The exporter, however, has to pre-finance the production and shipment of the exported goods until it is paid for, although the payment is guaranteed by the letter of credit.

In view of the high rejection rates for trade finance applications, high costs for facilities and low coverage revealed by the survey, four scenarios were carried out with the GTM. In the first, the share of trade supported by trade finance was increased to the African continental average of 40 percent.[xix] This concerns Côte d'Ivoire, Nigeria, and Senegal, which display shares of, respectively, 33 percent, 21 percent and 15 percent. For Ghana, which is already above the threshold, the rejection rate of trade finance applications was reduced from the 25 percent revealed in the survey, to the African continental level of 12 percent identified by the African Development Bank[xx].

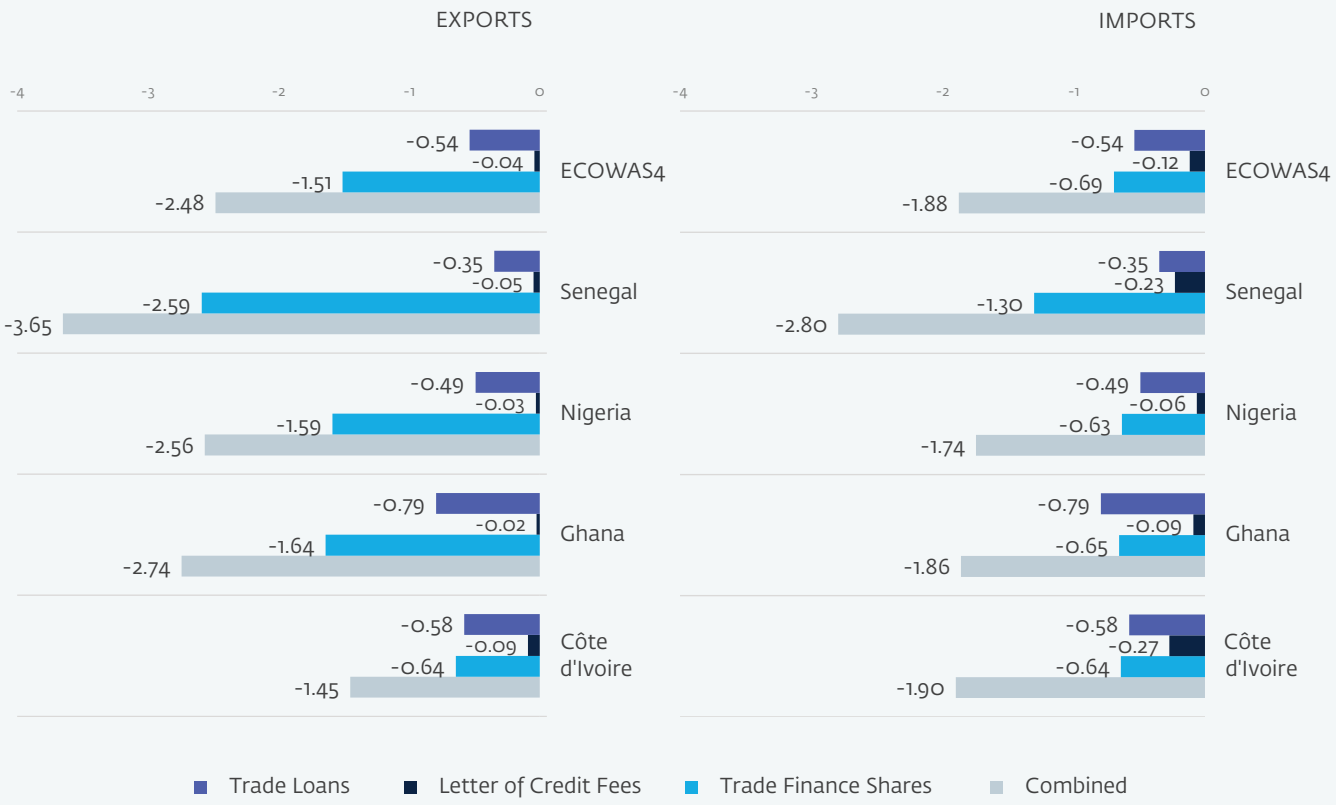
In the second and third scenarios, the cost of trade finance instruments (the price of import-export loans and letters of credit) was reduced to lower margins prevailing in more advanced economies. The fourth scenario combined the reduction in costs and increased availability of trade finance.

The model generates trade cost reductions when the share of trade finance increases, and interest rates and fees are lower. An increase in the share of trade covered by trade finance, for example through more letters of credit, and a greater supply of trade finance, reduces overall trade costs. This reflects the fact that trade finance is a cheaper way to finance international trade than other, often riskier options such as cash-in-advance payments or using internal working capital. The reduction in trade finance costs consists both of reductions in the net letter of credit issuing and

FIGURE 3.1

The Potential Benefit to Trade Costs

Projected ad valorem trade cost reduction (%) under four different scenarios in the ECOWAS4



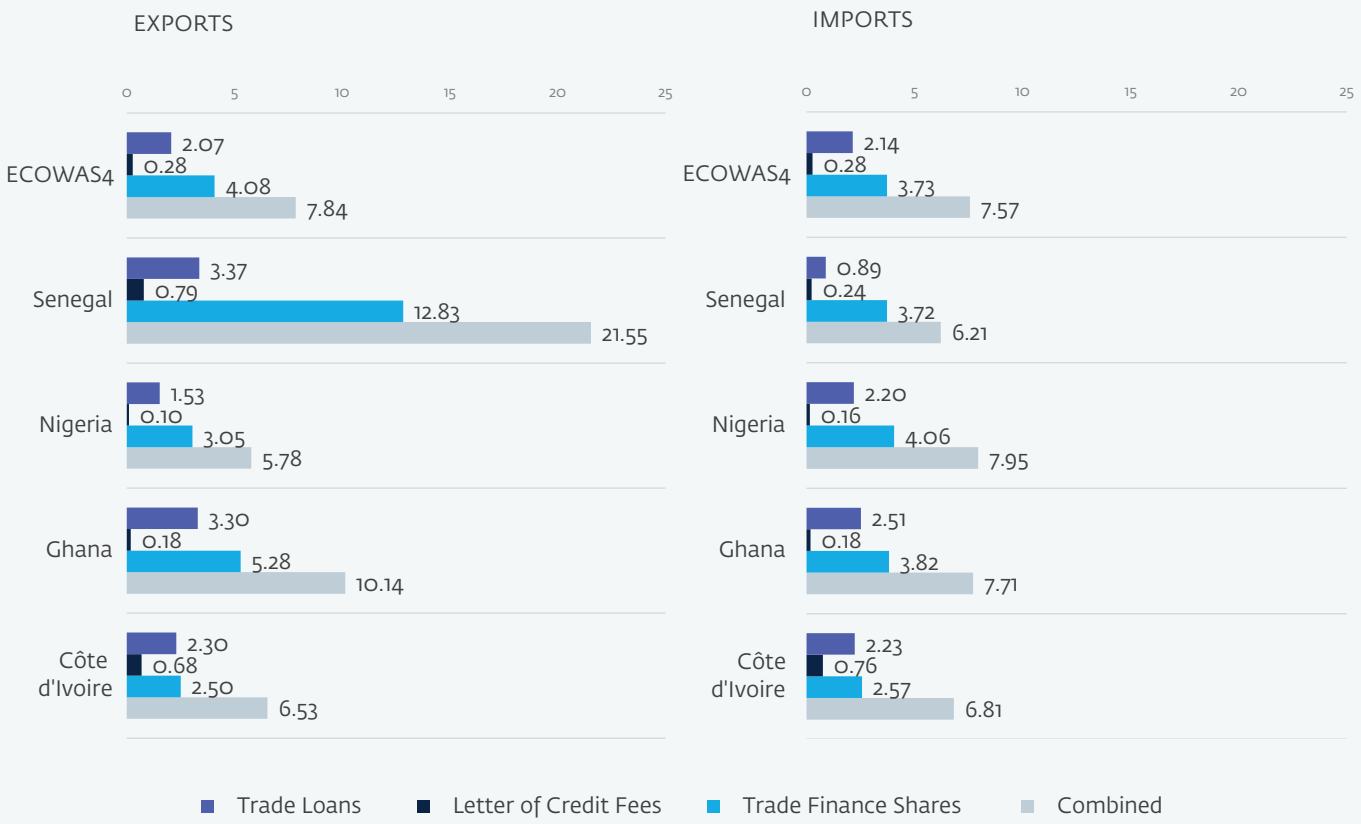
Note: Numbers are expressed in percentage changes. Each number should be interpreted as the reduction in the ad-valorem trade cost stemming from each counterfactual experiment. Trade Finance Share stands for the shock where the coverage of trade finance is increased. Letter of Credit Fees represents the shock where fees on letters of credit are decreased to lower bound advanced economy levels. Trade Loans stands for the shock where trade loan funding costs are decreased to a "net spread" equivalent to advanced economy levels.

Source: Simulation results with WTO Global Trade Model

FIGURE 3.2

The Potential Boost to Trade

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



Note: Numbers are expressed in percentage changes. Each number should be interpreted as an increase in trade stemming from each of the following counterfactual experiments. Trade Finance Share stands for the shock where the coverage of trade finance is increased. Letter of Credit Fees is the shock where fees on letters of credit are decreased to lower bound advanced economy levels. Trade Loans stands for the shock where trade loan funding costs are decreased to obtain a "net spread" equal to advanced economy levels.

Source: Simulation results with WTO Global Trade Model

TABLE 3.1

Projected Increase in Trade for the Combined Shock

Projected Increase ($ Million)	Exports	Imports	Trade
Côte d'Ivoire	1,002	954	1,956
Ghana	1,641	547	2,188
Nigeria	2,711	4,121	6,832
Senegal	1,094	536	1,630
ECOWAS4	6,544	6,174	12,718

Note: Numbers are expressed in millions of dollars.

Source: Calculations using simulation results from the WTO Global Trade Model and trade data from the WTO Trade Data Monitor (TDM).

confirmation fees and in the reduction of net interest rates for import and export loans (net of refinancing costs).

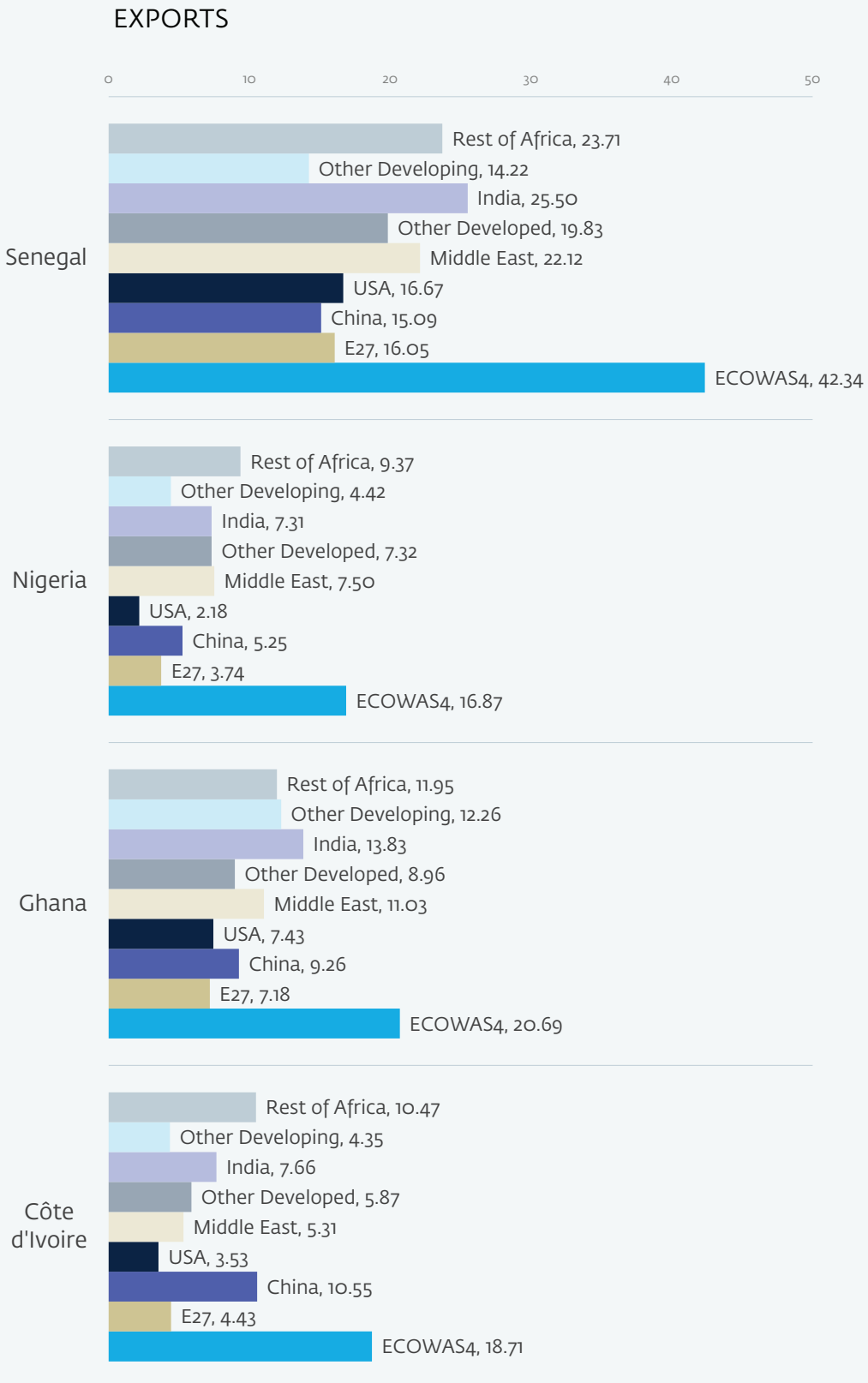
The projected change in the costs of import and export loans was calculated assuming that the difference between the interest rates on import and export loans and the baseline cost of funds falls from the ECOWAS4 level to more advanced markets' net spread, i.e., to the difference between local trade finance loans and cost of funds. While it can be argued that high prices may reflect exogeneous factors such as perceived and actual country risk, it can also be argued that in light of high observed interest rates, these rates would reflect a rationed market, hence containing an element of "rent," whereby loan rates are higher than they could be with better access to trade finance.

An important caveat is that all scenarios generated trade cost reductions. However, 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

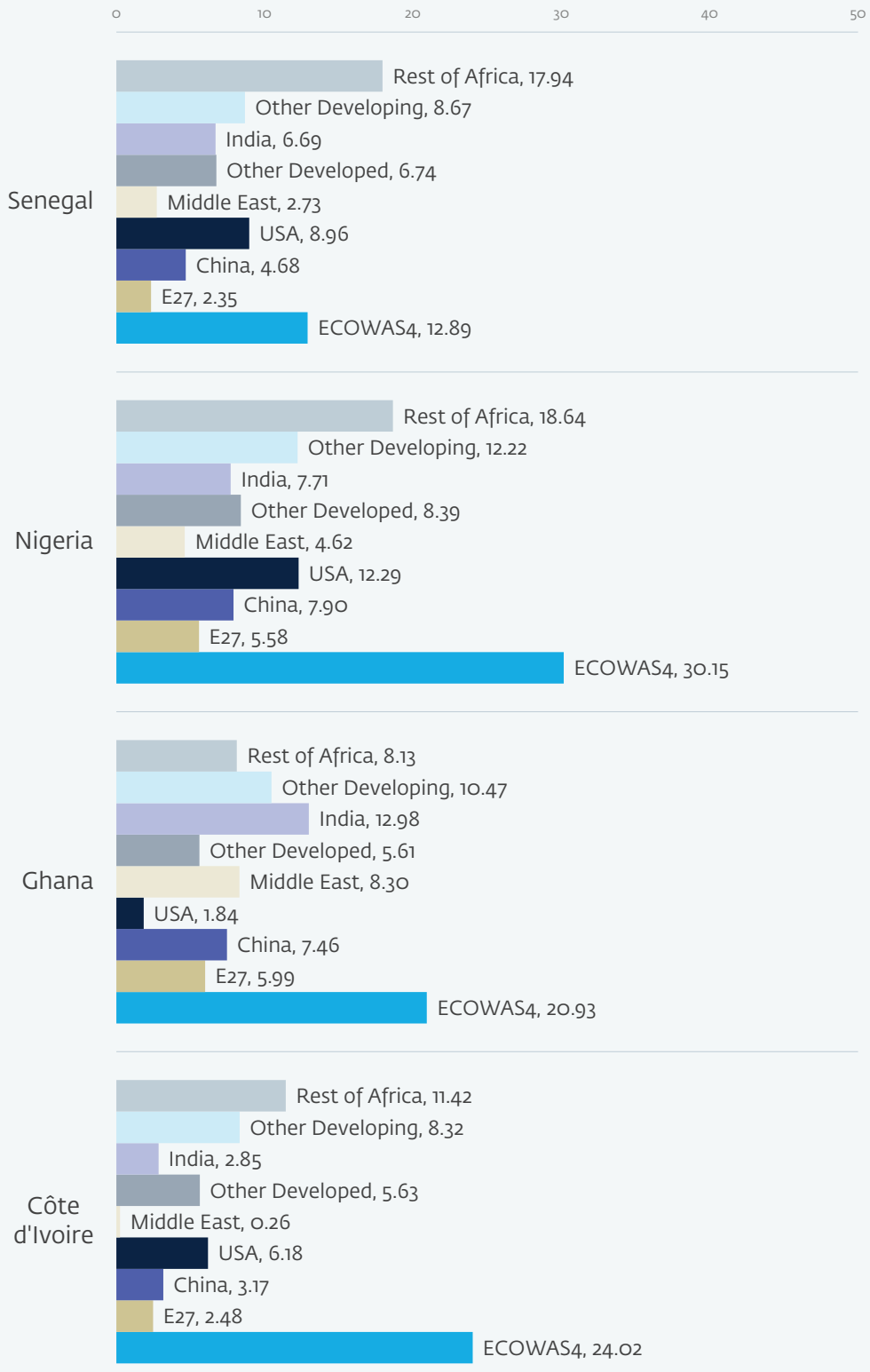
FIGURE 3.3

Intra-ECOWAS Trade Benefits from Increased Access to Finance

Projected change in real exports and imports (%) in ECOWAS4 by trading partner



IMPORTS



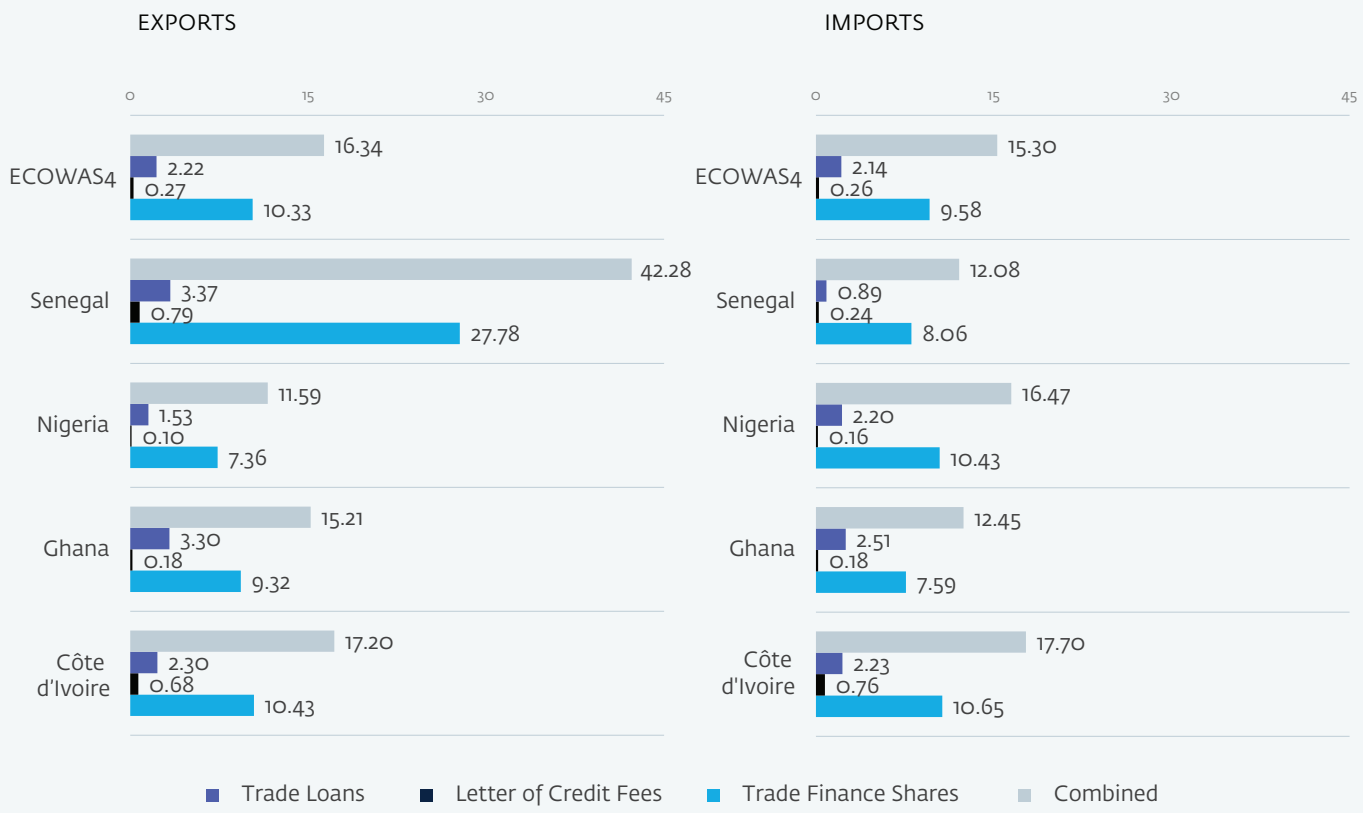
Note: Numbers are expressed in percentage changes. Each number should be interpreted as an increase in trade stemming from the combined shock counterfactual experiment. E27 represents the 27 members of the European Union

Source: Simulation results with WTO Global Trade Model

FIGURE 3.4

Increasing Coverage Gives Biggest Boost to Trade

Projected change (%) in real exports and imports



Note: Numbers are expressed in percentage changes. Each number should be interpreted as an increase in trade stemming from each of the following counterfactual experiments. Trade Finance Shares stands for the shock where the coverage of trade finance is increased. LC Fees stands for the shock where fees on letters of credit are decreased to lower bound advanced economy levels. Trade Loans stands for the shock where trade loan funding costs are decreased to obtain a "net spread" equal to advanced economy levels.

Source: Simulation results with the WTO Global Trade Model

moderate reduction in overall trade costs.[15]

Robustness checks were conducted to confirm the validity of the analysis. The construction of baseline trade finance costs is based on a close analysis of the available data, as presented in Annex 3 describing the conceptual framework for the counterfactual experiments. However, two assumptions were included with little guidance in the actual data, more specifically on the split of the share of trade not covered by trade finance instruments between cash in advance and exports with internal funds and on the difference between the costs of capital on trade finance instruments and non-trade finance instruments. These were disciplined in the analysis by data on trade finance costs and other forms of finance. Therefore, robustness checks were included on these two assumptions, as described in Annex 5. The results of the checks indicate that the assumptions are not critical for the nature and magnitude of the results, with the assumptions having a relatively small impact on the projected results. The assumptions mainly affected baseline trade costs and had less effect on the changes in trade costs in the counterfactual experiments.

Boosting the availability of trade finance and reducing prices brings down the ad valorem equivalent of trade costs by up to 4 percent, with greater effects on exports. Figure 3.1 displays the projected reductions in trade costs on both the importer and exporter sides for the ECOWAS4 economies under the different scenarios. The contribution of lower letter of credit fees is smaller than the contribution of increased trade finance shares, because the baseline share of trade financed with letters of credit is modest and the fees for this instrument are smaller than the costs of other types of trade finance facility—hence the impact of their reduction on trade costs is necessarily small too. Figure 3.1 additionally shows that the projected effect of raising the share of trade covered by trade finance generates the largest cost reductions for Senegal (2.59 percent on the export side), whereas the smallest projected reduction is for Côte d'Ivoire (0.64 percent). Senegal has the lowest initial share of trade covered by trade finance, according to the survey (15 percent, compared to for, example, 33 percent for Côte d'Ivoire). Therefore, increasing the coverage of trade finance to 40 percent of total trade leads to the largest trade cost reductions for Senegal.[16]

15 A detailed description of the set-up of the simulations can be found in Annex 3.

16 The decline in trade costs is driven by shifts to less expensive trade finance instruments as well as reductions in fees. Letters of credit opening fees reflect operational costs involved in executing instruments while the typically higher letter of credit confirmation fees are related to the transaction payment risk of importers. In the scenarios, both letter of credit opening fees and confirmation fees become lower for ECOWAS countries, driving down trade costs. A reduction in the price of letters of credit also leads to a larger cost reduction for imports than for exports. This relates to the fact that the exporter's costs of using letters of credit are smaller in the baseline. In the simulations it is assumed that firms in ECOWAS countries only pay letter of credit confirmation fees when trading with destinations that are at least as risky as ECOWAS countries. As a result, exports financed with letters of credit do not involve a letter of credit confirmation fee, whereas imports always involve a letter of credit opening fee. Hence, when these fees fall, the observed cost reductions are necessarily smaller on the import side.

Merchandise trade could rise by 8-16 percent, with a particularly strong boost to intra-ECOWAS flows.

These reductions in trade costs could raise ECOWAS4 exports and imports by around 8 percent.[17] Figure 3.2 displays the projected change in real exports and imports under the four scenarios, namely increasing the share of trade covered by trade finance, reducing letter of credit fees, lowering trade loan spreads, and combining all these changes. Among the different scenarios, the increase in the share of trade covered by trade finance has the largest impact while the reductions of letter of credit fees and of trade loan prices play a smaller role, because they contribute less to the reduction of trade costs.

Across the four countries, exports are projected to increase by between 5.78 percent for Nigeria and 21.55 percent for Senegal, whereas the projected rise in imports is between 6.21 percent for Senegal and 7.95 percent for Nigeria. The large projected increase in exports from Senegal is driven by larger than average trade cost reductions relative to other regions, as well as the sectoral and geographical composition of the country's exports. In particular, a large share of Senegal's exports tends to occur in sectors with a high responsiveness to changes in trade costs. Detailed analysis for Senegal indicates that most of the increase in exports comes from more sales of chemicals to other African countries and to India, but also of minerals to the EU and other developed countries (see Figure A.4.1 in Annex 4). On the other hand, the projected increase in exports is more moderate for Nigeria because most of its exports consist of oil and minerals to developed countries (see Figure A.4.2 in Annex 4), for which trade finance costs play a smaller role.

The projected increase in trade represents nearly $13 billion in foregone trade every year related to the low availability and high costs of trade finance (see Table 3.1). For Nigeria, the largest foregone opportunity is for imports while for the rest of the ECOWAS4 countries it relates to exports.[18]

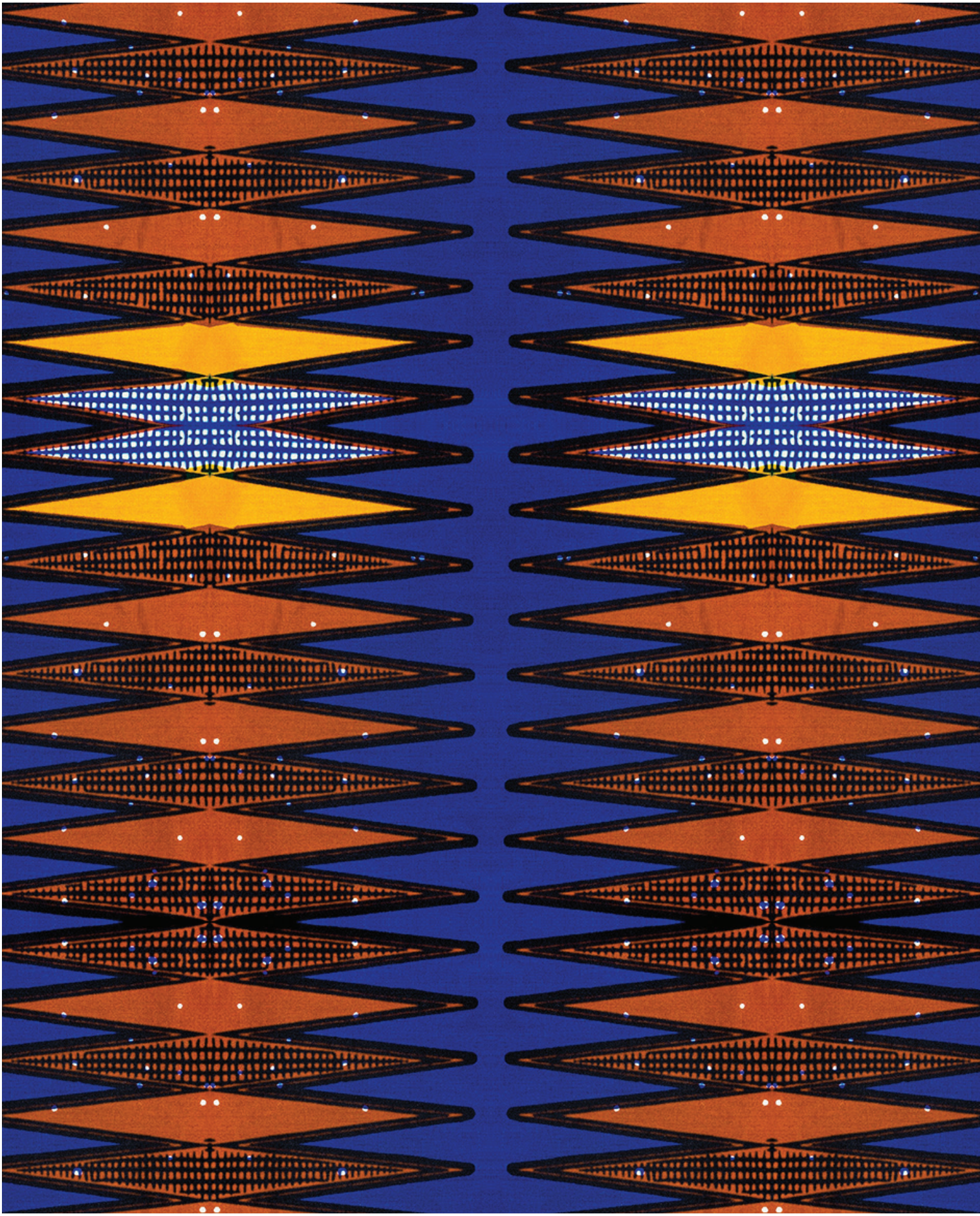
Intra-ECOWAS trade is the biggest beneficiary of improved access and a lower cost of trade finance. Figure 3.3 displays the projected change in the volume of exports and imports by major trading partner. Since trade cost reductions occur both on the exporting and on the importing side, the reduction in trade costs is five- to-10 times larger for intra-ECOWAS trade than for trade with other countries, therefore leading to the largest effects on trade. Beyond the ECOWAS market, other destinations with large projected increases of exports from ECOWAS4 countries are India and the rest of Africa, since they similarly have the largest initial trade finance costs and thus the most scope for reductions. With regard to ECOWAS4 imports, the rest of Africa and other developing countries are the largest beneficiaries beyond intra-ECOWAS trade due to their high baseline trade finance costs. On the

17 Since trade costs are projected to decrease only for goods trade in the counterfactual policy experiments, the projected changes in trade represents changes in goods trade only, thus excluding services trade, which changes only marginally.

18 The projected changes in trade can be compared with empirical estimates in the literature on the responsiveness of trade flows to trade finance supply. Chor and Manova (2010) find a 0.2 elasticity between trade credit availability and imports and a small but significant coefficient of the effect of firms' external financial dependence in the United States and imports. Auboin and Engemann (2014) find that a 1 percent increase in insured trade credit granted to a country leads to a 0.3–0.4 percent increase in real imports of the country, using quarterly country-level data of export credit insurers for 91 countries. Niepmann and Schmidt-Eisenlohr (2017) find that a one-standard deviation negative shock to a country's letter of credit supply reduces U.S. exports to that country by 1.5 percent. The projected changes in the simulations are closer to the estimates in the last paper.

other hand, projected trade finance costs hardly fall for imports from the Middle East and the European Union, implying a smaller projected increase in imports from these regions with imports shifting to other sources (or even a decrease for trade from the Middle East to Côte d'Ivoire).

Lowering costs combined with raising coverage of trade by bank-intermediated finance toward international levels of around 60 percent would increase goods trade by about 16 percent (both on the import and export sides), or some $26 billion. For Senegal, with a baseline trade finance coverage of 15 percent, this would multiply the initial trade finance availability by a factor of four and make Senegal the largest beneficiary under this scenario. Most of the impact is driven by the increased coverage of trade finance, with a more modest contribution from lower trade finance prices. This experiment highlights that expanding the accessibility of trade finance could lead to significant trade growth in all countries.



Chapter 4: Conclusions

Côte d'Ivoire, Ghana, Nigeria, and Senegal—the ECOWAS4—are making progress in integrating their economies internationally through trade. The number of firms participating in international markets is growing, and exporters are becoming more competitive, expanding into new products, and reaching new destinations. Potential regional integration associated with the AfCFTA will further support these positive trends and create new opportunities to leverage trade for development.

However, much remains to be done to take full advantage of these opportunities. Exports remain concentrated in commodities and the use of foreign inputs in exports is low which stifles integration into global value chains. Other contributing challenges faced by the ECOWAS4 include stubbornly high trade costs and poor access to trade finance. As shown by the new data and analysis in this report, the costs of trade finance in the region are disproportionately high and the availability of trade finance particularly limited, giving rise to a trade finance gap as high as $14 billion annually.

Addressing this shortfall has the potential to open major new opportunities. Though intended primarily to indicate the potential boost from deepening trade finance markets, our simulation analysis shows that ECOWAS4 trade in goods could rise by around 8 percent, or

$13 billion in additional annual trade, if the availability of trade finance were raised in line with the rest of Africa and its costs were brought down to international benchmarks. Making further progress and improving access to trade finance to the global average could increase trade by as much as 16 percent, or $26 billion, according to the model. SMEs, and especially those owned by women, would be particularly likely to benefit as they face some of the highest costs and most restricted access to trade finance.

What would it take to achieve these outcomes? The analysis in the note suggests several possible avenues for action, aimed at increasing the availability and reducing the costs of trade finance. These include:

- **Deepening the supply of trade finance through both traditional and new instruments.** Our survey suggests that trade is primarily executed through open account, advance payments, and documentary credit facilities such as letters of credit. Closing the trade finance gap will require further expanding the supply of these instruments, including documentary credit which, although relatively expensive, remains a pivotal component of the trade finance market. In the longer term, banks may be able to introduce more innovative offerings by incorporating some form of digitization, which is currently still at a nascent stage of development in the region. Supply chain finance (including factoring) and an array of instruments that support various points along the trade cycle need to be more readily available and further developed. More flexible and transparent financing support such as supply chain mapping and blockchain-like transaction tracking may help to speed cash flow and, through greater transaction efficiency, lower the costs of trade. Introducing these digital tools would require greater support to develop the necessary legal and institutional infrastructure and boost the capacity of local financial institutions.
- **Considering the trade finance dimension as countries move toward implementation of the African Continental Free Trade Area.** The AfCFTA has the potential to increase both the number of trade corridors and the volume of goods that move through them. Connecting trade finance channels to these emerging corridors, along with focused support for trade coordination and infrastructure development could help to accelerate the realization of AfCFTA objectives. One specific opportunity will be to encourage banks in Africa and elsewhere to offer more financial support for AfCFTA trade corridor expansion.
- **Expanding the customer base for trade finance.** Firms, including SMEs and companies owned by women, would benefit from greater awareness of how to engage with providers of trade finance and the different products that are available. Financial institutions can develop specialized tools and rely more on digitization to reduce the processing costs of more labor-intensive instruments. Encouraging more banks, particularly larger ones, to grow their SME trade finance offerings would help to close the gap in this segment. To this end, facilitating the development and adoption of technology solutions to improve banks' risk appraisal and management capacity could make it easier for them to take

on more SME clients. Development finance institutions would need to focus on these market segments and are encouraged to provide more support (such as financing instruments specifically targeting these areas) and capacity building.

- **Building local capacity.** Governments as well as development finance institutions could play a role in supporting local financial institutions and SMEs via increased capacity building and boosting market intelligence on new opportunities across sectors, segments, products, and structures. Our survey suggests that local institutions would be able to finance substantially more trade if they received additional lines of guarantees, thereby reducing their exposure to risk. Development finance institutions can also support the diffusion and adoption of innovative approaches to close the trade finance gap, such as "regtech" solutions which are already commonplace in advanced trade finance counter-party markets.
- **Strengthening correspondent bank relationships**. The survey identified inadequate networks of correspondent banks and high levels of correspondent bank relationship stress as key factors inhibiting the supply of trade finance. Although the trade finance asset class is nearly zero loss, it is particularly vulnerable to stress given its open account nature and sensitivity to sovereign risk when banks need to shore up capital, expand regulatory oversight or reduce the amount of risk on their balance sheet. International institutions could support governments and banks with compliance training in areas such as trade-based money laundering. This could help reassure correspondent banks on counterparty risk and help local lenders build bigger networks.
- **Strengthening collateral rules and legal enforcement.** Bolstering legal enforcement capabilities, particularly related to collateral, could also considerably ease access to trade finance. We note that banks across the four countries cite lack of collateral and high applicant risk as among the top causes of rejection, a problem that is aggravated by unreliable legal enforcement.
- **Supporting evidence-based solutions**. Despite initiatives including this report as well as work by the African Development Bank, Asian Development Bank, and an extensive academic literature on trade finance, evidence on the size of the trade finance gap and its determinants in emerging markets remains scarce. Additional efforts are needed by all stakeholders, including development finance institutions, to improve understanding of trade finance gaps. Improved country-focused data and surveys can help target markets where the mismatch between supply and demand is particularly high.

Annexes

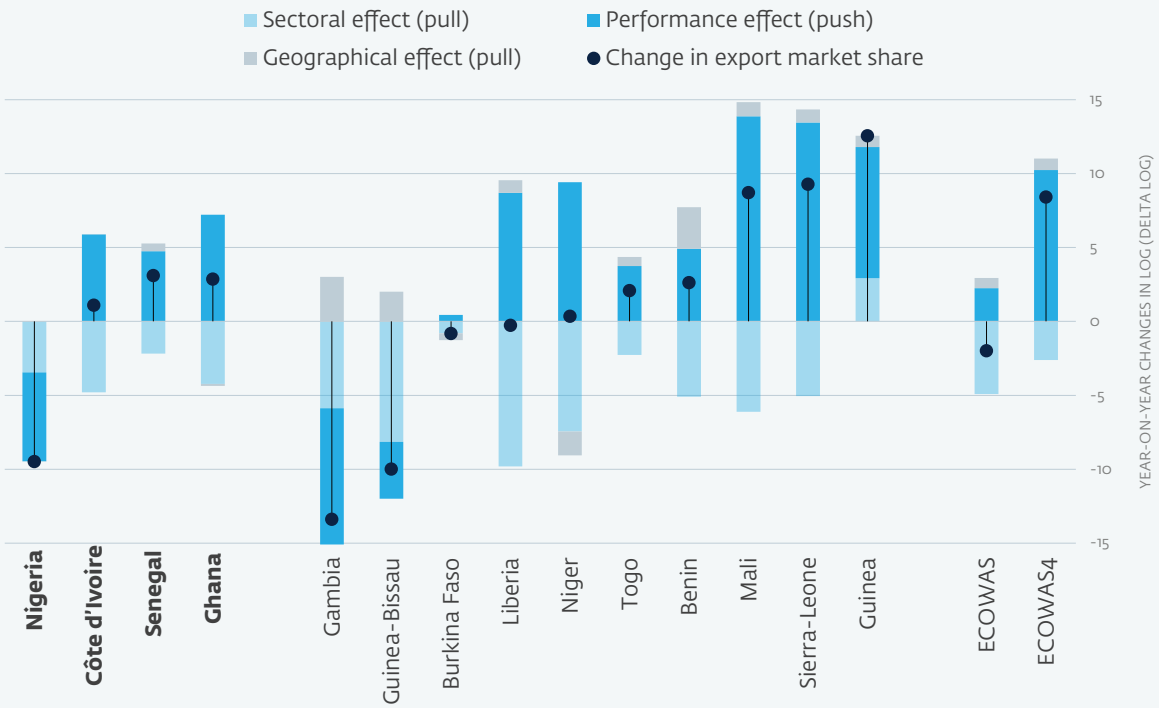
Annex 1: ECOWAS4 Trade and Global Value Chain Performance

This annex includes additional exhibits on the four countries' change in export market shares, their export penetration and global value chain participation. These illustrations complement evidence discussed in Chapter 1.

FIGURE A1.1

Decomposition of Change in Export Market Share

ECOWAS members (excl. Cabo Verde) between Q1, 2012 and Q4, 2019

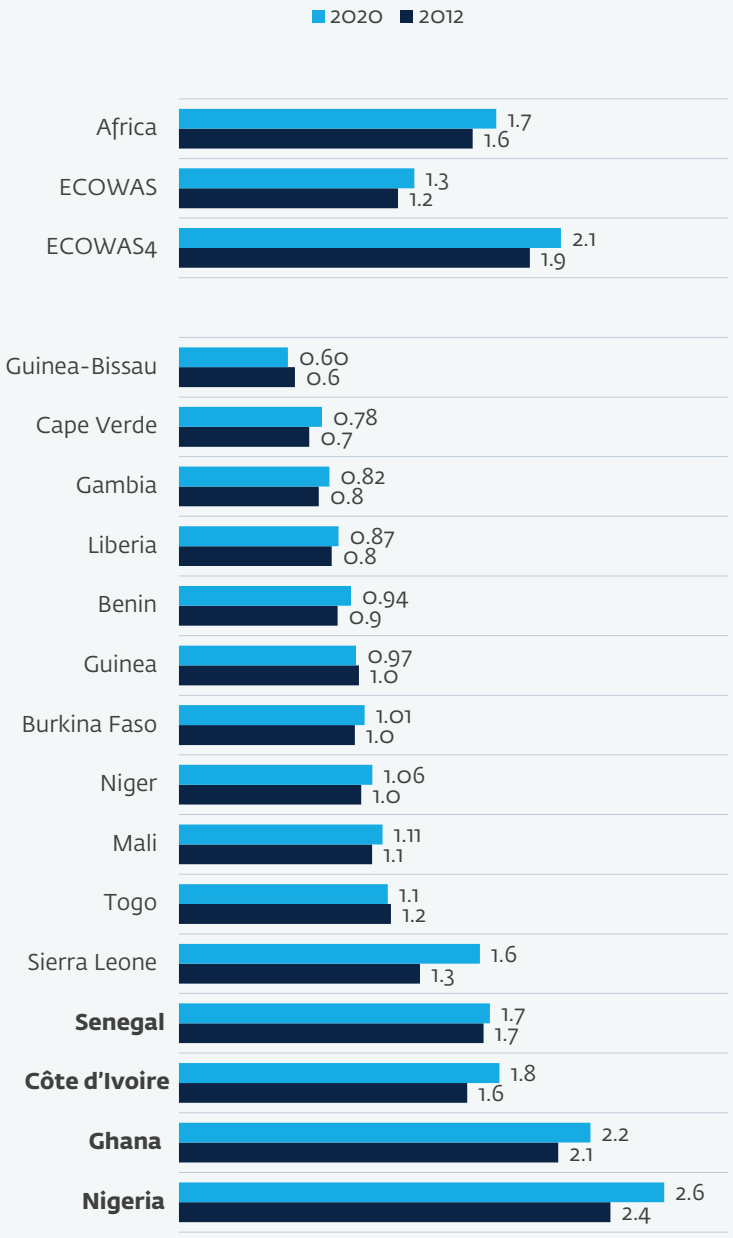


Note: The World Bank MEC (Measuring Export Competitiveness) Database covers 228 countries/territories until 2019. The database contains indicators on export growth and export market share change, broken down to changes in geographical and sectoral specialization of exporters (trade composition effects) as well as changes in their performance. The latter consist of changes in export market share growth once trade composition effects have been removed. The figure presents averages of the year-on-year changes by country in natural logarithms (delta log) for the period 2012q1-2019q4, which preserve the additivity of its components. For relatively small changes, the delta log approximates almost exactly the simple percentage growth rate. The underlying data are sourced from ITC (International Trade Center, UN/WTO, Geneva). See Gaulier, Santoni, Taglioni. Zignago (2013).

Source: WBG-WTO staff calculations on MEC (Measuring Export Competitiveness) Database, World Bank.

FIGURE A1.2

Index of Export Market Penetration



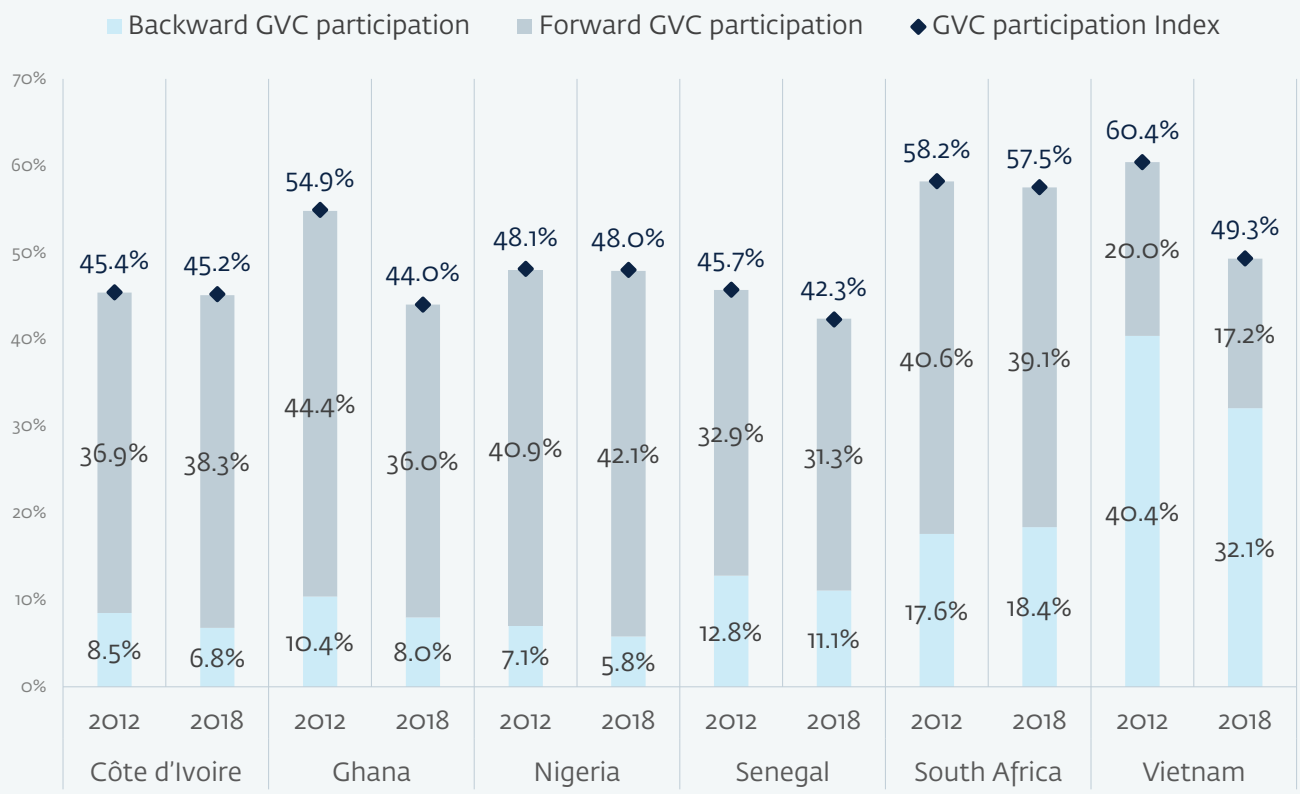
Note: The index follows Brenton and Newfarmer (2007) by comparing for each exported product, the number of countries to which the country exports that product relative to the total number of countries that import that product, and then sums across all products exported. The ratio yields an index of export market penetration (IEMP) that measures the extent to which a country is actually exploiting the market opportunities from the existing set of export products.

Source: WBG-WTO staff calculations on UN Comtrade data accessed via WITS, World Bank, August 2022

FIGURE A1.3

Global Value Chain Participation Index

ECOWAS4 and comparators, 2012 vs 2018 (% of gross exports)



Note: The GVC participation index is calculated as the sum of the foreign value-added content of exports, "backward participation," and domestic value-added imbedded in foreign exports, or "forward participation.". 2018 was the latest year for which EORA data were publicly available.

Source: UNCTAD-EORA database.

Annex 2:
Estimating Total Trade Finance Assets: Methodology

In order to estimate the total value of trade finance in a country, we have considered two alternative methodologies. One has been developed by the African Development Bank for its continental trade finance study. The other was developed by us and uses the relationship between the assets of banks in the country, based on central bank statistics, and trade finance assets identified in the survey.

WTO-IFC methodology: One considers two alternative relationships between the trade finance assets and total assets of banks in our sample. These relationships may take the functional form of a power-law distribution (as in di Giovanni, Levchenko and Rancière, 2011), or our two asset variables may be proportional to each other (as in the African Development Bank methodology).

Power Law

We hypothesize that as banks become larger (in terms of total assets), they gain access to the largest trade finance contracts and have a larger network of correspondent banks than smaller banks. Therefore, larger banks would have a greater market share of trade finance assets than total assets as compared to smaller banks, as shown in Figure 1. We assume the functional form of this relationship is:

$$TF = TA^k$$

where TF and TA are the trade finance assets and total assets of a bank respectively, and k is a constant greater than 1.

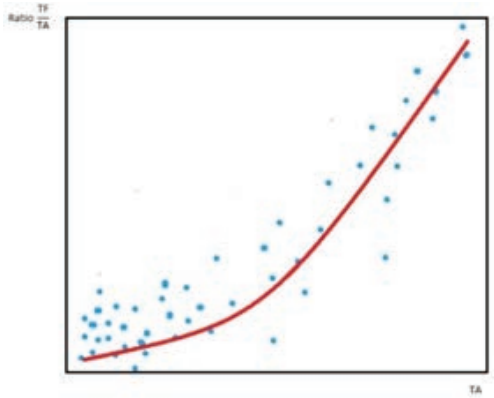


Figure 1: Power Law

Proportional

We hypothesize that the total assets of a bank are not related to their preference for, or access to trade finance assets. Precisely, we assume a constant proportion of trade finance assets to total assets of a bank, regardless of the size of the bank. We assume a functional form of this relationship to be:

$$TF = b * TA$$

where b is a number between 0 and 1. We illustrate this relationship in Figure 2, below.

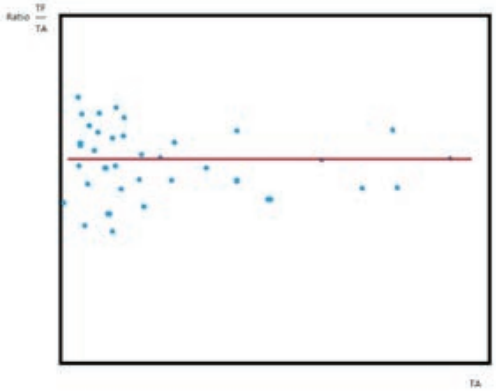


Figure 2: Proportional

From our sample survey results, we estimate the coefficients of both methodologies using country-specific linear regressions. While estimating the coefficient b in our proportional model is straightforward, we must take the natural logs of our trade finance assets and total assets in our power law relationship in order to use linear regression. Specifically, we estimate the following equation via linear regression:

$$\ln(TF) = k * \ln(TA)$$

After plotting the country-level distributions of trade finance assets and total assets, we found that the power-law methodology did not sufficiently characterize the relationship between these two variables in order to warrant using that methodology. However, the proportional methodology, with the addition of an intercept term, worked much better. The intercept serves purely for simulation purposes, since observed banking assets are positive across the sample. Therefore, our final regression equation is as follows:

$$TF_{i,c} = a_c + b_c * TA_{i,c} + \varepsilon_{i,c}$$

where $TF_{i,c}$ is the value of trade finance assets of bank $_i$ in country $_c$, and $\mathcal{E}$ is an error term.

Once we estimated the coefficients using our proportional methodology, we estimate the trade finance assets of banks that were not in our survey results given their known total assets (e.g., from each bank's annual reports) and our estimated coefficients. Finally, we add the observed and estimated trade finance assets of all banks in a country in order to estimate the total value of trade finance in that country.

The African Development Bank methodology is described as such: Let N be the number of commercial banks in an economy and M be a representative sample of N such that $M<N$. It is assumed that is the value of trade finance assets for each bank $i = 1, 2 \ldots N$. The average trade finance assets of all commercial banks in the economy N can be expressed as: $\bar{a} = \frac{1}{N}\sum_i a_i$,where $i = 1, 2 \ldots N$. Also, let be the actual proportion of banks that participate in trade finance activities in N. If assuming that all trade finance application demand was fully met by banks, the actual size of bank-intermediated trade finance in in that particular economy can be calculated as:

$$S = \bar{a}\bar{p}\,N \qquad (1)$$

Notice that $\bar{a}$ and $\bar{p}$ are parameters that are not observed at the country level and that S cannot be measured directly due to the lack of information on trade finance activities and participation for all N. If M is a representative sample of N, an estimate of ($\bar{a}$) and ($\bar{p}$) can be obtained from M, such that $\hat{a} = \frac{1}{M}\sum_i a_i$, where $i = 1, 2 \ldots M$, and $\hat{p}$ are the estimated size of bank-intermediated trade finance and proportion of banks in M that participate in trade finance activities respectively. One therefore obtains an estimate of bank-intermediated trade finance ($\hat{S}$) for the entire economy, by obtaining the products of $\hat{a}$ and $\hat{p}$ and extrapolate that to the total population of banks (N) in that economy, such that:

$$\hat{S} = \hat{a}\,\hat{p}N \qquad (2)$$

If there are no trade finance application rejection by banks, then the sample average should accurately reflect the true trade finance demand and the bank-intermediated trade finance gap (G) should be zero and could be expressed as:

$$G \equiv S - \hat{S} = N(\bar{a}\bar{p} - \hat{a}\hat{p}) \quad (3)$$

Although, $\bar{a}$ and $\bar{p}$ aare unobserved, one assumes that the bank-intermediated trade finance gap ($G \equiv S - \hat{S}$),is fully explained by bank rejection rate *(r)*, where *0 < r < 1*. This implies that the unobserved bank-intermediated trade finance (S) and the observed bank-intermediated trade finance ($\hat{S}$) for an economy are related as follows:

$$\hat{S} = (1 - r)S = (1 - r)\bar{a}\bar{p}N \quad (4)$$

Substituting equation (4) into equation (3), we can express G as a function of only known but unobserved parameters such that:

$$G = S - \hat{S} = \bar{a}\bar{p}N - (1 - r)\bar{p}\bar{a}N = r\bar{a}\bar{p}N \quad (5)$$

Notice that from equation (4), the unknown parameters $\bar{a}\bar{p}$ can be rearranged and expressed as known parameters as:

$$\bar{a}\bar{p} = \frac{\hat{S}}{(1-r)N} \quad (6)$$

Substituting $\bar{a}\bar{p}$ from equation (6) into equation (5), G can be expressed as:

$$G = \left(\frac{r}{1-r}\right)\hat{S} = \left(\frac{r}{1-r}\right)\hat{a}\hat{p}N \quad (7)$$

Equation (7) can be estimated using the survey of banks *(M)*, representative of the total population of banks *(N)* in an economy. Notice that the gap estimate relies on four key parameter estimates that can all be observed from the representative sample of banks *(M)*. The average rejection rate *(r)* is obtained as the share of trade finance applications rejected by banks and averaged across M or $r = \frac{1}{M}\sum_i r_i$, where *i = 1, 2 ... M*, while, $\hat{a}$ and $\hat{p}$ are trade finance assets size averaged across M and the proportion of banks in M that participate in trade finance activities respectively. It is important to have a sufficient sample of banks that are representative of the total population of banks to have a good estimate of $\hat{a}$ and $\hat{p}$.

Annex 3: Framework for Counterfactual Experiments on Trade Finance Costs

The costs of financing international trade are an important component of total trade costs. This annex contains a description of the determination of financing costs based on the survey and data in the literature and the calculation of counterfactual financing costs. Furthermore, details of the employed WTO Global Trade Model are provided.

The Financial Costs of Trade Instruments

The costs of financing international trade consist of two main components. These are: the costs associated with the transaction risk that the counterparty will not pay or deliver the goods, and the financial costs related to using an instrument mitigating such risks, comprising fees to cover risk and capital costs, and to bridge the time when goods are in transit. In the framework, international trade transactions can be paid for using four different instruments: cash-in-advance, export or import loans, exports financed with internal working capital by the exporter and letters of credit and other documentary credits.

Cash-in-Advance (CIA)

Under CIA, the importer pays for the goods up-front. The exporter sends the goods upon receipt of the payment or even later. Hence, the importer pre-finances the exporter's cash needs, and still incurs the risk that goods would not be delivered. Therefore, the importer bears both a high transactional risk and faces the opportunity cost of capital. The costs of using CIA for an importer include a risk component since the importer pays without a guarantee that the goods will be delivered. Also, capital costs are included since the imports must be funded beforehand with capital. The costs of using CIA can thus be expressed as follows:

$$cia\_TC_{isd} = cia\_RC_{isd}^{imp} + cia\_CF_{isd}^{imp} \qquad (1)$$

where $cia\_RC_{isd}^{imp}$ is the transactional risk for an importer to use CIA for transactions in sector I from exporter s to importer d, $cia\_CF_{isd}^{imp}$ is the cost of funds implied by the early payment by the importer under CIA, and cia_TC_{isd} is the resulting total cost of using CIA.

Import and Export Loans (LOA)

Import and export loans are funded trade finance instruments used to address the liquidity needs for both importers and exporters until they have to pay or they get paid. The financial cost of loans are the interest rates on the loans. With an export loan, the exporter also incurs the risk of not being paid. The import loan does not mitigate or alleviate the risk of not receiving the merchandise - only a letter of credit would do that, so the importer similarly bears the risk of not receiving the goods.

Therefore, the costs for an import loan are expressed as follows:

$$loa\_TC_{isd}^{imp} = loa\_RC_{isd}^{imp} + loa\_CF_{isd}^{imp} \qquad (2)$$

where $loa\_RC_{isd}^{imp}$ is the import loan risk of paying and not receiving the goods, and $loa\_CF_{isd}^{imp}$ is the interest rate on an import loan.

Similarly for an export loan, the costs are expressed as follows:

$$loa\_TC_{isd}^{exp} = loa\_RC_{isd}^{exp} + loa\_CF_{isd}^{exp} \quad (3)$$

where $loa\_RC_{isd}^{exp}$ is the exporter's risk to take a loan not receive the importer's payment and $loa\_CF_{isd}^{exp}$ is the interest rate on a pre-shipment loan.

Exports Financed with Internal Working Capital (INT_WC)

Instead of taking an export loan, an exporter can also decide to finance the process of production for the purpose of exercising an export contract.

Upon order, the exporter would typically receive a small advance from the buyer. In this case, it would have to finance the whole production cycle, including inputs purchase, salaries, machinery, packaging and shipping before receiving its export receipt.

By doing so, the exporter incurs the opportunity cost of using capital to produce the goods, and the transactional risk of sending the goods before the payment .

The associated costs can be expressed as follows:

$$int\_WC_{isd}^{exp} = int\_WC\_RC_{isd}^{exp} + int\_WC\_CF_{isd}^{exp} \quad (4)$$

where $int\_WC\_RC_{isd}^{exp}$ is the cost of the transactional risk to send the goods before being paid, $int\_WC_{isd}^{exp}$ is the capital cost of using own funds to pre-finance the transaction, and int_Wis the total resulting cost.

Letters of Credit and Other Documentary Credit (LC)

Letters of credit are a payment guarantee against the importer's default. An Issuing Bank (IB) commits to pay for the transaction if the importer is unable to pay. A confirming Bank (CB) in the exporter's region could also bear the final payment risk in the event that the IB cannot pay. To open an LC, the importer incurs an opening fee to the IB and the exporter pays a confirmation fee to the CB.

The exporter also incurs capital costs for sending the goods before the payment is done. These capital costs are assumed not to be part of trade finance .

The total costs for an importer and an exporter under LC can thus be written as follows:

$$lc\_TC_{isd}^{imp} = lc\_fee_{isd}^{imp} \quad (5)$$

$$lc\_TC_{isd}^{exp} = \begin{cases} lc\_fee_{isd}^{exp} + lc\_CF_{isd}^{exp} \\ lc\_fee_{isd}^{exp} \end{cases}$$
$$if\ exporter's\ country\ is\ riskier\ than\ ECOWAS$$
$$otherwise \quad (6)$$

Where $lc\_fee_{isd}^{imp}$ is the issuing fee paid to the IB, $lc\_fee_{isd}^{exp}$ is the confirmation fee paid to the CB, $lc\_CF_{isd}^{exp}$ includes the capital costs for sending the goods beforehand, and $lc\_TC_{isd}^{imp}$ and $lc\_TC_{isd}^{exp}$ are the total resulting costs of using an LC for an importer and an exporter.

Total Costs of Trade Instruments

From equations (1), (2), (3), (4), (5) and (6), the total costs of trade instruments can be expressed as follows:

$$TC_{isd} = sh_{isd}^{cia,imp} * cia\_TC_{isd} + sh_{isd}^{loa,imp} * loa\_TC_{isd}^{imp} + sh_{isd}^{loa,exp} * loa\_TC_{isd}^{exp} + sh_{isd}^{int\_wc,exp} * int\_wc\_TC_{isd}^{exp} + sh_{isd}^{lc} * [lc\_TC_{isd}^{exp} + lc\_TC_{isd}^{imp}] \quad (7)$$

where $sh_{isd}^{cia,imp}$ is the share of trade covered by CIA, $sh_{isd}^{loa,imp}$ by import loans, $sh_{isd}^{loa,exp}$ by export loans, $sh_{isd}^{int\_wc,exp}$ by exports financed with internal WC, and sh_{isd}^{lc} by LCs. The total trade finance costs are a weighted average of the costs of using each of the instruments with the weights determined by the relative importance in trade.

Calibration of costs and shares

To calibrate baseline values, the following approach is employed:

1. The share of trade covered by different instruments

(a) The shares of trade covered by import and export LC, sh_{isd}^{lc}, are obtained from Niepmann and Schmidt-Eisenlohr (2017) for a subset of countries. Furthermore, African Development Bank Group 2020 indicates that on average, half of banks' trade finance portfolios were associated with LC or Documentary Collections (DC), and the other half with funded instruments (import or export loans), which provides the share of import and export loans, $sh_{isd}^{loa,imp}$ and $sh_{isd}^{loa,exp}$.

(b) The shares of trade covered by CIA and INT_WC, $sh_{isd}^{cia,imp}$ and $sh_{isd}^{int\_wc,exp}$ are assumed to cover each 50 percent of the non-trade finance transactions. Robustness checks are run on this assumption. World Trade Organization (2016) suggests that globally, open account represents two times as many transactions as cash-in-advance. Since in ECOWAS open account is not used, similar importance is given to INT_WC and CIA.

2. The costs associated with the transaction risk

(a) The cost of transaction risk for CIA (importer) and internal working capital for exports, $cia\_RC_{isd}^{imp}$ and $int\_WC\_RC_{isd}^{exp}$ are based on the share of bank nonperforming loans to total gross loans (NPLs) provided by AfDB for ECOWAS countries (African Development Bank Group (2020)) and by the International Monetary Fund through the World Bank website for the rest of the world.

(b) The cost of transaction risk for import or export loans, $loa\_RC_{isd}^{exp}$ and $loa\_RC_{isd}^{imp}$ are based on ICC Obligor-weighted Export & Import loans default rates (International Chamber of Commerce (2019)).

3. Financial costs

Since the WTO Global Trade Model is a real model, the financial costs have to be expressed in real terms as well. Therefore, the expected rate of inflation is subtracted from the nominal financial costs, based on the expected inflation rate for 2022 from IMF projections .

(a) The LC issuing and confirmation fees, $lc\_fee_{isd}^{imp}$ and $lc\_fee_{isd}^{exp}$ are based on survey answers for ECOWAS countries. We use the average survey value for the countries surveyed.

(b) The cost of funds for CIA and exports with internal financing, $cia\_CF_{isd}^{imp}$ and $int\_WC\_CF_{isd}^{exp}$, are for the ECOWAS countries based on the cost of trade loans multiplied by a factor of two, which is motivated by the fact that survey answers for ECOWAS countries indicate that the interest rates for microfinance are twice as large as for trade loans.

For non-ECOWAS countries lending rates provided by the International Monetary Fund through the World Bank website for December 2021 are updated to June 2022 using the change in interbank rates for the same period.

(c) The cost of funds for using LC for an exporter, $lc\_CF_{isd}^{exp}$ are calculated by multiplying the lending rates for each region by a ratio of the risk on export/import LCs - measured by the average default rate on export and import LCs (International Chamber of Commerce (2019)) - and on CIA/INT_WC - measured by the World Bank NPLs . Therefore, the cost of funds for LC are lower than for CIA/INT_WC, reflecting the fact that LC are less risky.

(d) The interest rates on export and import loans, $loa\_CF_{isd}^{exp}$ and $loa\_CF_{isd}^{imp}$, are for ECOWAS countries based on survey answers. For non-ECOWAS countries, lending rates from the World Bank are scaled down by a factor of two reflecting that interest rates for microfinance are twice as large as for trade loans and that a trade loan is cheaper than CIA or INT_WC.

Two assumptions in the framework are not based on data: the shares of trade covered by CIA and INT_WC, assumed to be both 50 percent of the share of trade not financed with trade finance, and the ratio of the costs of trade loans relative to the regular costs of funds, assumed to be 2. Robustness checks are conducted for both assumptions.

Counterfactual policy experiments

Counterfactual policy experiments are conducted on two sets of variables for the ECOWAS countries:

1. Increases in the share of trade covered by trade finance, increasing both the share of trade covered by letters of credit, sh_{isd}^{lc} and the share of trade covered by import and export loans, $sh_{isd}^{loa,imp}$ and $sh_{isd}^{loa,exp}$. The increase in the share of trade covered by trade finance is equal to the trade finance gap emerging from the survey, 25 percent of the initial share of trade covered by trade finance.

2. Reductions in the costs of trade finance, reducing both the LC issuing and confirmation fees, $lc\_fee_{isd}^{exp}$ and $lc\_fee_{isd}^{imp}$, for both the importer and the exporter and reducing the interest rates for import and export loans, respectively $loa\_CF_{isd}^{imp}$ and $loa\_CF_{isd}^{exp}$. The projected change in the LC financial costs is calculated based on the results of the survey combined with LC fees in advanced emerging markets. The projected change in the costs of import and export loans is based on double differencing: the cost of funds is subtracted from the lending rates for both the ECOWAS countries and the emerging markets reference countries.

WTO Global Trade Model

The WTO Global Trade Model is a recursive dynamic CGE model featuring intermediate linkages, multiple sectors, multiple factors of production and trade modelled according to an Armington structure. A

detailed description of the model is in Aguiar et al. (2019). The costs of financing international trade are included in the model as part of import and export taxes. The reason is that trade finance costs consist of payments of firms exporting/importing paying financing costs to the financial sector. Therefore, they are modelled as a tax instead of a resource wasting (iceberg) trade cost. A reduction in trade finance costs means that rents earned by the financial sector will fall, which can be captured by changes in import and export taxes in the model given that it features a consolidated household collecting both factor income and taxes.

In the simulations, the latest version of the GTAP Data Base, Version 11p3, for 2017 is aggregated to 10 sectors and 20 regions. The data for 2017 are projected to 2022 imposing IMF World Economic Outlook data on population, employment, and GDP growth and changes in the savings rate. The counterfactual experiments are conducted for the year 2022, imposing a fixed trade balance.

Annex 4: Additional Simulation Results

FIGURE A4.1

The contribution to the projected percentage change in real exports for ECOWAS4 in different sectors and destinations

	Crops	Extraction	Heavy Mfg.	Light Mfg.	Livestock	Oil	Processed Food
Côte d'Ivoire							
Africa	0.03	0.01	0.73	0.13	-	0.71	0.15
China	-	0.02	0.02	-	-	0.08	-
Developed	0.08	0.01	0.29	0.01	-	0.15	0.08
Developing	0.17	-	0.23	-	-	0.00	0.03
ECOWAS	0.05	0.09	0.45	0.11	-	0.11	0.09
EU27	0.48	0.05	0.21	0.04	-	0.40	0.26
India	0.05	0.09	0.03	-	-	-	-
Middle East	0.04	0.04	0.01	0.01	-	-	0.02
USA	0.20	-	0.04	-	-	0.10	0.03
Ghana							
Africa	0.01	0.02	0.43	0.07	-	0.08	0.05
China	0.01	0.27	0.01	0.02	-	1.72	-
Developed	0.14	0.03	0.70	0.02	-	0.08	0.04
Developing	0.08	0.42	0.02	0.02	-	-	0.03
ECOWAS	0.01	0.01	0.08	0.05	-	-	0.11
EU27	0.20	0.04	0.05	0.03	-	0.38	0.13
India	0.02	0.12	1.66	0.01	-	-	-
Middle East	0.02	0.01	0.61	0.05	-	0.02	0.02
USA	0.07	0.01	0.01	0.02	-	0.43	0.01
Nigeria							
Africa	-	0.14	0.07	0.02	-	0.20	0.02
China	-	0.02	0.01	0.01	-	0.03	-
Developed	0.02	0.25	0.06	0.01	-	0.19	-
Developing	0.03	0.02	0.01	-	-	0.13	-
ECOWAS	-	-	0.06	0.02	-	0.45	0.05
EU27	0.07	0.34	0.03	0.06	-	0.56	0.02
India	0.01	0.12	0.01	0.01	-	1.13	-
Middle East	0.02	0.62	0.09	0.01	-	0.08	-
USA	0.01	-	-	0.01	-	0.26	-
Senegal							
Africa	0.02	0.51	1.93	0.09	-	0.75	0.67
China	0.21	0.19	0.01	0.01	-	-	0.02
Developed	0.10	1.55	0.81	0.02	0.01	-	0.10
Developing	0.03	0.03	0.02	-	-	-	0.03
ECOWAS	-	0.50	0.12	0.02	-	-	0.61
EU27	0.15	1.61	0.08	0.04	0.01	-	0.21
India	0.01	0.26	1.88	0.01	-	-	-
Middle East	-	0.63	0.73	-	-	-	0.01
USA	0.01	0.43	0.01	0.05	-	-	0.01

Source: Simulation Results using the WTO Global Trade Model. Note: All numbers are expressed in percentage changes.

FIGURE A4.2

The share of exports of ECOWAS4 to different sectors and destinations

	Crops	Extraction	Heavy Mfg.	Light Mfg.	Livestock	Oil	Processed Food
Côte d'Ivoire							
Africa	1%	0%	8%	2%	0%	5%	3%
China	0%	0%	0%	0%	0%	1%	0%
Developed	3%	0%	5%	0%	0%	1%	2%
Developing	6%	0%	4%	0%	0%	0%	1%
ECOWAS	0%	0%	3%	1%	0%	1%	1%
EU27	20%	0%	4%	1%	0%	3%	8%
India	2%	0%	0%	0%	0%	0%	0%
Middle East	1%	0%	0%	0%	0%	0%	1%
USA	9%	0%	1%	0%	0%	1%	1%
Ghana	0%	0%	0%	0%	0%	0%	0%
Africa	0%	0%	4%	1%	0%	1%	1%
China	0%	3%	0%	0%	0%	23%	0%
Developed	3%	0%	8%	0%	0%	1%	1%
Developing	1%	3%	0%	0%	0%	0%	1%
ECOWAS	0%	0%	0%	0%	0%	0%	1%
EU27	4%	0%	1%	0%	0%	5%	3%
India	0%	1%	15%	0%	0%	0%	0%
Middle East	0%	0%	6%	1%	0%	0%	0%
USA	1%	0%	0%	0%	0%	7%	0%
Nigeria	0%	0%	0%	0%	0%	0%	0%
Africa	0%	1%	0%	0%	0%	4%	0%
China	0%	0%	0%	0%	0%	1%	0%
Developed	0%	2%	1%	0%	0%	5%	0%
Developing	0%	0%	0%	0%	0%	4%	0%
ECOWAS	0%	0%	0%	0%	0%	3%	0%
EU27	1%	8%	0%	1%	0%	21%	0%
India	0%	1%	0%	0%	0%	18%	0%
Middle East	0%	9%	1%	0%	0%	2%	0%
USA	0%	0%	0%	0%	0%	14%	0%
Senegal	0%	0%	0%	0%	0%	0%	0%
Africa	0%	2%	13%	1%	0%	2%	7%
China	3%	1%	0%	0%	0%	0%	0%
Developed	2%	9%	6%	0%	0%	0%	2%
Developing	0%	0%	0%	0%	0%	0%	0%
ECOWAS	0%	1%	0%	0%	0%	0%	3%
EU27	2%	13%	1%	0%	0%	0%	3%
India	0%	1%	11%	0%	0%	0%	0%
Middle East	0%	4%	5%	0%	0%	0%	0%
USA	0%	4%	0%	1%	0%	0%	0%

Source: Simulation Results using the WTO Global Trade Model. Note: All numbers are expressed in percentage changes.

Annex 5: Robustness Checks

A range of robustness checks was conducted to confirm the validity of our analysis. The construction of baseline trade finance costs is based on a careful analysis of the available data, as presented in Annex 3 describing the conceptual framework for the counterfactual experiments. However, two assumptions had to be included with little guidance in the actual data. Therefore, robustness checks are included on these two assumptions.

First, the survey results (and insights from the literature for other regions) only provide information on the share of trade covered by trade finance instruments (letters of credit and trade loans). However, the distribution of the remaining share of trade between cash-in-advance (CIA) and exports financed with internal funds (INT_WC) for each of the 20 regions is unknown. In the baseline, the assumption is made that 50 percent of the trade not covered by trade finance is covered by cash-in-advance, and 50 percent by exports financed with internal funds. A first set of robustness checks is conducted on this assumption. In the first robustness check, called 30 CIA, the assumption is modified giving a 30 percent weight to cash-in-advance, and a 70 percent weight to exports financed with internal funds, meaning that 30 percent of the trade not covered by trade finance is covered by cash-in-advance, and 70 percent by exports financed with internal funds. In 70 CIA, the shares are inverted with a 70 percent weight for cash-in-advance, and 30 percent for exports financed with internal funds.

Second, for ECOWAS countries, data on the trade loan premiums charged by banks are based on a survey showing that the interest rates on other forms of financing (particularly micro-finance) are a factor two smaller than the interest rates on trade finance instruments. Combining this assumption with the survey results for the interest rates charged on the trade finance instruments, the financing costs for cash-in-advance and exports financed with internal funds were calculated. For the other regions, the same assumption is made, i.e., that the interest rates on trade finance instruments are a factor 2 smaller than on other forms of financing. However, in those regions, data on lending rates for other forms of financing are available (through IMF data) and the costs of trade finance were thus calculated by dividing these lending rates by a factor 2. Two robustness checks are conducted on the factor 2 assumption. In the scenarios called "1.5 Premium" and "2.5 Premium", this premium was changed from 2 to 1.5 and 2.5 respectively. In other words, the cost of working capital with cash-in-advance or exports with internal funds are respectively 1.5 and 2.5 higher than the capital costs of trade loans.

Finally, a last robustness check called "Comtrade" is presented. The counterfactual experiments are conducted on baseline trade data for 2022, projecting data from the GTAP Data Base for 2017. As an alternative, a pre-simulation was conducted for 2022 to bring the baseline trade data from this procedure in line with Comtrade (UN) trade data for the year 2020.

Endnotes

i WTO-UNCTAD Estimates (August 2022)

ii Kim et al. (2021) and African Development Bank (2022)

iii African Development Bank (2020)

iv Bank for International Settlements (2014); WTO (2016)

v Bernard et al. (2007); World Bank (2020a)

vi WTO-UNCTAD Estimates (August 2022)

vii World Bank (2020b)

viii UN Comtrade, accessed via World Bank WITS (August 2022)

ix World Bank (2020b)

x Fernandes et al. (2016)

xi Olugbemi (2020)

xii Sustainable Trade Initiative and Land Degradation Neutrality Fund (2021)

xiii Crozet et al. (2022)

xiv WTO (2021)

xv African Development Bank (2021)

xvi ICC (2020)

xvii Ghana Cocoa Board (2020)

xviii African Development Bank (2022)

xix See for example Kim et al. (2021)

xx African Development Bank (2021)

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OCTOBER 2022