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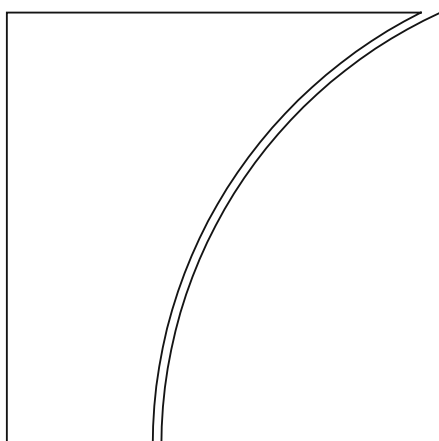
Trade finance: developments and issues

Report submitted by a Study Group established by the
Committee on the Global Financial System

The Group was chaired by John J Clark,
Federal Reserve Bank of New York

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Preface

Historically, the global trade finance market was considered liquid and well-functioning. But more recently, it has experienced periods of stress, most notably right after the Lehman bankruptcy in 2008, and also appears to be undergoing incipient structural change. At the same time, recurrent data gaps have made it difficult to assess the extent and impact of recent dislocations, and to track and evaluate the importance of current market dynamics.

Against this background, in November 2012, the Committee on the Global Financial System (CGFS) established a Study Group (chaired by John Clark, Federal Reserve Bank of New York) to improve central banks' understanding of trade finance markets.

This report presents the Group's findings. It examines the structure and recent evolution of the trade finance market, and the interplay between changes in trade finance and international trade. In particular, it reviews the available data sources and what they reveal about the size and evolution of the market, sheds light on the performance and impact of trade finance during recent episodes of funding strains in global markets, and examines how ongoing structural changes may affect the market's future resilience. In terms of financial stability risks, it concludes that losses on trade finance portfolios historically have been low. Moreover, given their short-term nature, banks have been able to quickly reduce their exposures in times of stress. However, this latter feature also introduces the possibility for trade finance to act as a conduit of stress from the financial system to the real economy, when banks run down trade finance books in response to funding and liquidity strains. As a result, policies that broadly address banking system capital and liquidity vulnerabilities and encourage vibrant competition are found to generally provide an effective means for avoiding or containing disruptions to trade finance flows – current regulatory efforts clearly work in this direction.

The data, concepts and policy implications described in this report are a timely contribution on an important, yet under-researched topic. I hope that the report will inform ongoing discussions among the market and policymaking communities and become a standard reference on trade finance in the literature.

William C Dudley

Chairman, Committee on the Global Financial System
President, Federal Reserve Bank of New York

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Executive summary

This report examines the structure and recent evolution of the global trade finance market and the interplay between changes in trade finance and international trade. In particular, it gauges the size and evolution of the market, sheds light on the performance and impact of trade finance during recent episodes of funding strains in global markets, and examines how ongoing structural changes may affect the market's future resilience. It draws on a range of data sources, outreach to experts in the private and public sector, a review of the available literature, and new statistical analysis conducted for this report. The key findings are:

The role of bank-intermediated trade finance. Bank-intermediated trade finance (or trade finance, in short) performs two vital roles: providing working capital tied to and in support of international trade transactions, and/or providing means to reduce payment risk. The principal alternative to bank-intermediated products is inter-firm trade credit. Firms' ability to directly extend credit is supported by possibilities to discount their receivables and the availability of financing not directly tied to trade transactions, as well as possibilities to mitigate payment risk by purchasing trade credit insurance.

Data coverage. There is no comprehensive source for measuring the size and composition of the trade finance market. Aspects of bank-intermediated trade finance are captured by statistics in many CGFS member countries, but coverage differs significantly across countries, and in many cases is quite limited. Combining these data with information from other sources, such as trade associations and SWIFT, can support a general characterisation of the size, structure and trends of the global market, but the approach requires significant interpolation and inference. Visibility into trends in pricing is very limited.

Size and composition of the trade finance market. The Group estimates that trade finance directly supports about one-third of global trade, with letters of credit (L/Cs) covering about one-sixth of total trade. However, the proportion varies widely at the country level: bank-intermediated products are primarily used to finance trade involving emerging market economies (EMEs), particularly in Asia. Global banks appear to provide about one-quarter to a third of global trade finance, and almost half of their exposure is to firms in emerging Asia. In EMEs for which data are available, local banks account for the bulk of the bank financing in support of trade. Trade finance seems to be even more dollar denominated than global trade, with 80% of L/Cs, and a high proportion of the activities of global and local banks denominated in dollars. The ability of global and local banks to provide trade finance can be disrupted if banks' dollar funding lines are curtailed, as appears to have been the case in some instances in 2008/09, and again in 2011/12.

Instruments and changes in market structure. Growth in trade finance has tended to lag growth in nominal trade in many countries over the last 10-15 years. This pattern is most apparent in the declining intensity of L/C usage. However, trade finance intensity has increased strongly in recent years in China and Hong Kong, and the growing role of the EMEs in world trade has also supported growth in aggregate trade finance exposures. Global banks see supply chain finance, under which banks manage the collection and funding of receivables within a network of firms, as an important new area of activity, and focal point of current competition.

Citing new regulatory demands and high marginal costs of equity capital, the trade finance industry is experimenting with new structures and products to

distribute trade finance exposures to non-bank investors. To date, the scale of this activity has been limited, with take-off not appearing imminent. Expanding the role of non-bank investors may require a significant education effort with investors and regulators and greater standardisation of trade finance products.

The 2008/09 crisis and strains in 2011/12. Bank-intermediated trade finance exposures in almost all countries fell sharply in the quarters immediately after the Lehman bankruptcy, often at rates comparable to declines in the value of trade. In many cases, trade finance subsequently rebounded quickly. In contrast, while pricing firmed, data do not point to a broad contraction in the global provision of short-term trade finance in the second half of 2011, when funding strains at European banks raised concerns about possible disruptions. The provision of trade finance by some European banks decreased. But the retrenchment from global markets was buffered by increased lending from other market participants.

The impact of trade finance disruptions on trade. Surveys and academic studies generally suggest that trade finance disruptions had a secondary but economically significant role in the sharp reduction in global trade volumes in the quarters following the Lehman bankruptcy; reduced global demand for capital goods and consumer durables was the main driver. Statistical analysis conducted by the Group using national data sources found broadly similar results, suggesting that reduced trade finance availability may have accounted for up to one-fifth of the decline in trade volumes in the aftermath of the Lehman bankruptcy. However, in other periods, including in 2011, trade finance does not appear to have been a limiting or accelerating factor in the growth of trade.

Stability risks. Losses on short-term trade finance portfolios historically have been low. Moreover, given their short-term nature, banks have been able to quickly reduce their exposures in times of stress. However, this latter feature also introduces possibilities for trade finance to act as a conduit of stress from the financial system to the real economy, when banks allow trade finance books to run down in response to funding and liquidity strains. The ongoing expansion of supply chain finance networks could make future funding cuts less likely, but potentially more disruptive to production and distribution channels in the event cutbacks occur.

Policy implications. Policies addressing banking system capital and liquidity vulnerabilities and encouraging competition generally provide effective means for avoiding or containing disruptions to trade finance flows. While current regulatory efforts clearly work in this direction, questions have arisen about whether some of the new regulatory requirements might result in an overly conservative treatment of trade finance assets. Adaptions have been made, addressing most of the industry's concerns. Market participants generally describe the emerging regulatory environment as much less burdensome than initially anticipated, while highlighting that some uncertainties remain about the possibly divergent treatment across jurisdictions and the potential impact of aspects of the liquidity coverage ratio. Also, current tight pricing may need to rise once all new rules are fully phased in.

Experience suggests that, in the event of material disruptions specific to trade finance, targeted short-run support, such as through export credit agency guarantees or central bank facilities, can play a complementary role in relieving strains. The short-term nature of trade finance requires that such support be mobilised quickly. A monitoring strategy, using existing data sources complemented by market outreach, can support assessment of the desirability and calibration of any sector-specific response. Enhancing national and industry statistics through standardising data definitions and extending coverage would aid such an approach.

1. Introduction

The global trade finance market historically was considered liquid and well-functioning and accordingly did not attract much attention from policymakers. More recently, however, the sector has experienced periods of stress, most notably after the Lehman bankruptcy and also in late 2011, when funding strains at European banks raised concerns about possible disruptions. The sector also appears to be undergoing incipient structural change – including the entry of new market participants and efforts to develop new modalities that minimise bank capital and balance sheet usage. At the same time, recurrent data gaps have made it difficult to assess the extent and impact of recent dislocations, and to track and evaluate the importance of current market dynamics.

To better gauge these issues, in November 2012 the Committee on the Global Financial System (CGFS) established a Study Group, chaired by John Clark (Federal Reserve Bank of New York). The Group was charged to improve central banks' understanding of the structure and functioning of the trade finance market, gauge how it has been evolving in recent years, explore how central banks can cooperate in better tracking trade finance developments, and assess structural change in trade finance markets and its implications for financial stability.¹

This report documents the Group's findings, which are based on information from a variety of sources, including country-specific data submitted by Group members. Members also reviewed the relevant literature and undertook their own research, using the data set compiled by the Group, which has not been previously analysed in the literature. Members coordinated and exchanged views through conference calls and physical meetings, and conducted outreach to experts in the private and official trade finance community.

The report is organised as follows. Section 2 discusses the role of banks in international trade, followed by a description of the available trade finance data and their sources (Section 3). Section 4 uses this information to estimate the overall size of the trade finance market and assess recent trends, followed by a discussion in Section 5 of the potential impact of trade finance on the real economy and financial stability. Section 6, taking a forward-looking perspective, considers attempts to involve non-bank investors in trade finance markets. The final section discusses policy implications.

2. The role of banks in supporting international trade

What is trade finance? Global and local banks support international trade through a wide range of products that help their customers manage their international payments and associated risks, and provide needed working capital. The term "trade finance" is generally reserved for bank products that are specifically linked to underlying international trade transactions (exports or imports). As such, a working capital loan not specifically tied to trade is generally not included in this definition. Trade finance products typically carry short-term maturities, though trade in capital

¹ A list of Group members is attached at the end of this report. Appendix 1 reproduces the Study Group's mandate.

goods may be supported by longer-term credits. The focus of this report is on short-term trade finance, both because it funds a much larger volume of trade² and because of its interactions with bank funding conditions.

One of the most common and standardised forms of bank-intermediated trade finance is a *letter of credit (L/C)*. L/Cs reduce payment risk by providing a framework under which a bank makes (or guarantees) the payment to an exporter on behalf of an importer once delivery of goods is confirmed through the presentation of the appropriate documents. For the most part, L/Cs represent off-balance sheet commitments, though they may at times be associated with an extension of credit. This can occur, for example, if an import L/C is structured to allow the importer a period of time (known as “usance”) before repaying the bank for the payment it made on the importer’s behalf.

Banks may also help meet working capital needs by providing trade finance loans to exporters or importers. In this case, the loan documentation is linked either to an L/C or to other forms of documentation related to the underlying trade transaction.

Currently, the instrumentation of trade finance is undergoing a period of innovation. For example, the industry recently launched the “bank payment obligation” – a payment method that offers a similar level of payment security to that of L/Cs, but without banks physically handling documentary evidence. “Supply chain finance” is another growing area of banks’ trade finance activities, where banks automate documentary processing across entire supply chains, often linked to providing credit (eg through receivables discounting).³

Trade finance versus trade credit. The principal alternative to bank trade finance is *inter-firm trade credit* between importers and exporters, which is commonly referred to as trade credit. This includes *open account transactions*, where goods are shipped in advance of payment, and *cash-in-advance transactions*, where payment is made before shipment. Inter-firm trade credit entails lower fees and more flexibility than trade finance, but leaves firms bearing more payment risk, and potentially a greater need for working capital. Hence, the reliance on inter-firm trade credit is more likely among firms that have well established commercial relations, form part of the same multinational corporation and/or are in jurisdictions that have reliable legal frameworks for collection of receivables.

Firms’ ability to extend trade credit is supported by possibilities to discount their receivables, eg via factoring, and the availability of financing from banks and capital markets not directly tied to trade transactions. Firms can also mitigate payment risk by purchasing trade credit insurance.⁴ (See Appendix 2 for more details about trade finance, trade credit and the role of trade credit insurance).

² The annual flow of medium to long term trade finance exposures tracked by Dealogic Loanware is in the order of US\$ 175 billion, in contrast to the flow in short term markets, estimated in this report to be between US\$ 6.5-8 trillion in 2011.

³ The industry sometimes refers to new trade finance methods, such as supply chain finance, as “open account trade finance”. Traditionally, open account trade credit has been associated with inter-firm financing of trade (trade credit), and the term is used in this sense throughout this report.

⁴ Trade credit insurance is also used by banks to hedge some of their payment risks. Information on the volume of underwritten trade credit insurance is available from the Berne Union. These data show that in 2011 and 2012 about \$1.7 trillion in new business was covered by guarantees,

3. Measuring bank-intermediated trade finance

There are no readily available data covering the global bank-intermediated trade finance market. To gauge its size, structure and recent developments, the Group therefore relied on a range of sources, drawn in particular from national statistics, the Society for Worldwide Interbank Financial Telecommunication (SWIFT) and the International Chamber of Commerce (ICC) trade register.

These data capture important aspects of bank-intermediated trade finance, but they have major limitations in terms of coverage and mutual consistency. This constrains the meaningfulness of simply aggregating available measures to arrive at a global stock of bank-intermediated trade finance, and suggests instead an approach that treats each data source as providing a partial window into aspects of the bank-intermediated trade finance activity being conducted in that country or market segment. This information can be combined with other statistical and anecdotal evidence to support an interpretive characterisation of the size, structure and trends of the global market.

National data. Aspects of bank-intermediated trade finance are captured by statistics in several CGFS member countries. For the majority, these data cover only stocks of trade finance on a quarterly basis. Coverage differs significantly across countries, and in many cases is quite limited or unavailable. The partial and heterogeneous nature of the national trade finance data is evident from Table 1, summarising the characteristics of trade finance data in participating CGFS member countries and the United Kingdom (for further information see Appendix 3).

A few countries have detailed data capturing large parts of overall trade finance activities in their countries (eg Brazil, India, Italy and Korea). But others have statistics covering only specific components of their trade finance markets, such as export-related trade finance or letters of credit (L/Cs), and several countries have no specific information on bank-intermediated trade finance.⁵

For most countries, the available data cover only on-balance sheet lending activities (ie L/Cs are excluded, except to the extent they are tied to or become funded loans) by resident domestic banks with a focus on bank lending to domestic borrowers. The domestic focus makes it difficult to track global activities of banks from those countries, while in others (eg Germany and the United States) the available data are limited to, or largely comprise, cross-border activity and here in particular to EMEs, making it difficult to fully track support to domestic firms. Given these limitations, several countries have launched efforts aimed at enhancing the coverage of trade finance activities in their national statistics.⁶

equivalent to around 9% of global trade, with most of the volume coming from short-term guarantees (ICC (2013b), see also Appendix 2).

⁵ For participating CGFS member countries, no trade finance data are available in Canada, Japan, the Netherlands, Sweden and Switzerland.

⁶ Generally, the reporting systems that feed into the BIS International Banking Statistics do not allow for separating bank-intermediated trade finance from other forms of short-term bank credit.

Characteristics of national bank-intermediated trade finance data¹

In Study Group member countries and the United Kingdom²

Table 1

Country	Reporting basis			Counterparties		Trade-finance products ⁴		Maturity ⁵		Prices
	Resident banks	Cross-border branches ³	Cross-border subsidiaries ³	Residents	Non-residents	Loans (on-balance sheet)	L/Cs and guarantees (off-balance sheet)	Short term	Long term	
<i>Comprehensive domestic coverage</i>										
Brazil	X			X		X		X	X	X
China ⁶	X			X	X	X	X	X		
Hong Kong	X			X	X	X		X	X	
India	X			X	X	X		X	X	P ⁷
Italy	X + OFIs ⁸			X	X	X	X	X	X	
Korea	X			X	X	X		X		X
Spain	X	X		X	X	P ⁹	X	X	X	
<i>Partial coverage</i>										
Australia	X	X	X	X	X		X	X	X	
France	X			X	X	P ¹⁰		X	X	
Germany ¹¹	X	P ¹²	P ¹²		P ¹³	X	P ¹⁴	X		
Mexico	P ¹⁵			X		X		X	X	
UK	X				X	P ¹⁶	P ¹⁶	X	X	
US	X	X	X		X	X	X	X		

¹ X = dimension is captured. P = dimension is partially captured. ² For participating CGFS member countries, no trade finance data are available in Canada, Japan, the Netherlands, Sweden and Switzerland. ³ Foreign operations of home headquartered banks. ⁴ In general, only the outstanding stock of trade finance exposures is reported, with the exception of Brazil, where information on flows (new loans) is also available. ⁵ Short (long) term refers to maturities of less (more) than 12 months. ⁶ Because these data are publically available, the report uses on-balance sheet short-term foreign exchange loans as a close proxy for on- and off-balance sheet trade-finance exposures in China. ⁷ Only import loans. ⁸ OFIs = other financial institutions. ⁹ Only for non-residents. ¹⁰ Only export loans. ¹¹ Because of a structural break, trade finance series are estimated from book claims of German banks on emerging and developing countries since September 2010. ¹² Without bank branches and subsidiaries of German credit institutions located in an EU/EEA country. ¹³ Only to residents of emerging markets and developing countries. ¹⁴ Undrawn commitments not included. ¹⁵ Only the import-export bank and foreign banks. ¹⁶ UK exposures capture the total lending guaranteed by the UK export credit agency plus a percentage of the total reported as 'bills', comprising all bills drawn on, or accepted by, non-residents, promissory notes and other negotiable paper (including forfait paper) issued by non-residents other than banks and beneficially owned by the reporting institution.

Source: National data.

Data from SWIFT. SWIFT data provide a window into trends related to documentary credits, such as L/Cs, and can be used to track higher-frequency global and regional developments. The global volume of cross-border L/Cs should closely match the volume of L/Cs recorded by SWIFT (see Appendix 4). Developments in message volumes and values, by country, region, and currency can be assessed based on proprietary information. Annual regional aggregates for these data and some time series for a number of individual countries have been released in the ICC's annual global surveys of trade finance. However, the L/C business is only one part of the bank-intermediated trade finance market, which may have different dynamics than other market segments, as was the case after the Lehman bankruptcy (see Section 4.2 below).

The ICC trade register. To deepen the understanding of trade finance products and associated risks, the ICC trade register collects data from a number of banks considered to be the global leaders in the trade finance field. Data are provided on a best efforts basis and the main intent is to document the default and loss record of trade finance products. The database includes unpublished information on the annual flow of short-term transactions by six product types, as well as on geographical reach.⁷ The trade register provides useful insights into the structure of the trade finance market, though not frequent enough to be used for monitoring purposes. For instance, the latest report (ICC (2013a)) covers transactions by 21 banks from 2008 through 2011 on a highly aggregated basis.

Industry surveys and bank disclosures. In addition to market intelligence, surveys by industry associations are another useful source to gauge trends in trade finance markets. Some central banks have also conducted surveys at the national level.

In the wake of the 2008–09 crisis, the International Monetary Fund (IMF) in conjunction with the Bankers' Association for Finance and Trade – International Financial Services Association (BAFT-IFSA) quickly undertook a survey on volumes, pricing and drivers in trade finance markets in March 2009. This was followed by several additional survey rounds. The ICC also conducted several surveys in this window with a similar focus. Another survey was launched in late 2011 by the ICC in collaboration with the IMF in response to concerns about potential dislocations owing to strains in Europe. Currently the ICC annual global trade finance survey is the main broad industry vehicle (260 firms participated in the latest survey) for exploring drivers and trends.

The Institute of International Finance's (IIF) quarterly Emerging Markets Bank Lending Conditions Survey (EMLC), which began in 2009, aggregates the judgment of senior loan officers from currently more than 130 banks. It includes questions on external funding conditions and on whether demand or supply conditions have tightened in trade finance markets in four emerging market regions.

These surveys provide useful insight into broad trends in trade finance markets and the views of smaller banks. However, the reliability of quantitative estimates arising from these surveys is open to question, as respondents generally provide only directional indications (ie whether lines, revenues, or demand is expanding or contracting), percentage change estimates, and/or characterisations of the market as a whole, rather than details for their firm which can then be aggregated.

⁷ The Group would like to thank the ICC for sharing data by region and product type with the Group.

Some banks also release quantitative and/or qualitative information about trade finance activities with their financial statements. Yet this only occurs in an ad hoc fashion and only 9 of the 50 top global banks did so in recent years. Furthermore, reported categories often capture a much broader range of exposures than short-term trade finance (see Table 3).

Pricing. In general, there is limited transparency in the pricing of trade finance loans. There are no live screens or post-transaction pricing services for tracking trends. Leading banks appear to adjust pricing subject to perceived demand, as well as movements in hurdle rates taking into account the cost of funds and capital. From the national data, only three countries – Brazil, Korea and India – have some information to track price trends in their respective markets.⁸

4. Global trade finance markets: structure and recent trends

The available statistical evidence suggests significant variation across countries and regions in the intensity of their use of trade finance – usage is notably more intensive in Asia. Globally, the Group estimates that around a third of trade flows benefit from some kind of bank-intermediated trade finance product.

4.1 The structure of bank-intermediated trade finance: an interpretation

Global market size. The Group estimates that, globally, a flow of some US\$6.5–8 trillion of bank-intermediated trade finance was provided during 2011, of which around US\$2.8 trillion was L/Cs.⁹ Taking into account that some trade transactions may be supported by more than one trade finance product, the Group estimates that about a third of global trade is supported by one or more bank-intermediated trade finance products (Graph 1, Table 2). The remainder was financed by inter-firm trade credit. Both inter-firm and bank credit providers also benefit from trade credit insurance, which covered nearly US\$1.7 trillion of global exports in 2011 and 2012.

The global estimates are not very precise because gauging the overall size of the global bank-intermediated trade finance market requires extrapolation from partial data. The available sources each cover only part of the market, and collectively their coverage leaves major gaps. To overcome these problems, the Group took into account all the available data sources and drew on discussions with market contacts and trade finance experts. (Details and cross-checks are presented in Appendix 4).

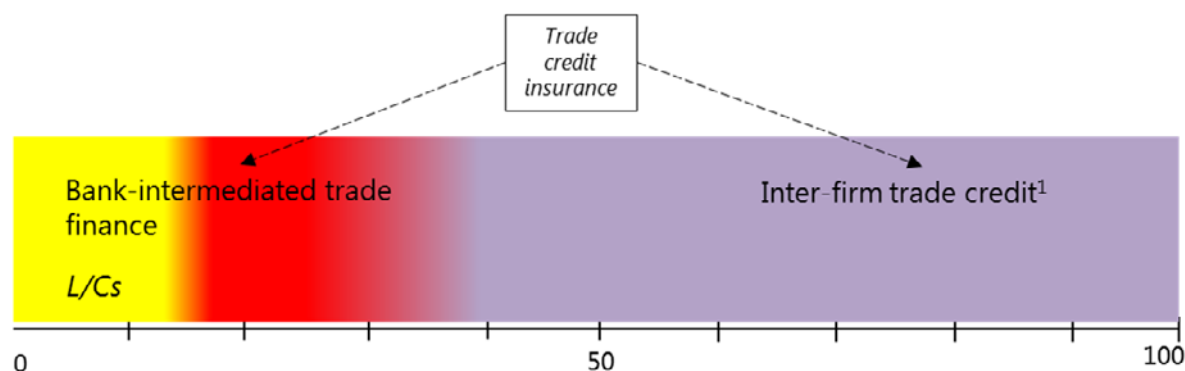
⁸ Dealogic is one of the few sources capturing not only volumes but also pricing and tenor of trade finance loans. But these data cover only self-reported large, medium- and long-term syndicated credits, which is a very small segment of the bank-intermediated trade finance market.

⁹ Data from the ICC trade register, which provides a measure of the activities of global banks, is available only through 2011, so the global market is estimated for that year (see Appendix 4).

Financing global trade – a schematic overview

As a share of total global trade, in per cent

Graph 1



¹ Inter-firm trade credit includes open account transactions, where goods are shipped in advance of payment, and cash-in-advance transactions, where payment is made before shipment.

Sources: Group calculations.

As a share of global trade, the Group's estimate is somewhat lower than what has been reported from surveys conducted by the IMF and BAFT-IFSA (2009, 2010, 2011). In those surveys, participating banks estimated that about 40% of global trade was supported by bank-intermediated trade finance, with the remainder funded on an open account or cash-in-advance basis. On the other hand, some industry studies put the share of trade covered by trade finance much lower, at around 20% (ICC (2009)). Given potentially inconsistent definitions and the incomplete data available on trade finance markets, which were even more limited as of mid-2009, it is unclear how banks arrived at their survey responses and thus how comparable both estimates are.

Regional differences. National data show a wide variation in the measured intensity of trade finance over trade, ranging from 2% for Mexico to more than 40% for China, India, Italy and Korea (Table 2). These differences are partially driven by differences in data coverage, but they also reflect substantial differences in the intensity of reliance on trade finance across jurisdictions.

Specifically, regional shares from sources which are collected on a comparable basis (from SWIFT, the ICC, and for US banks) show that the Asia-Pacific region relies most heavily on trade finance, much more than its share of global trade would suggest (Graph 2). The region accounts for more than half of the L/C-related as well as overall trade finance exposures, while Europe accounts for one quarter, and North America, Latin America, Africa and the Middle East each for around 5–10%.

The higher usage of trade finance in Asia seems to reflect a range of factors, including distance from trading partners, product types and the efficiency of local market practices. The academic literature suggests that trade finance is used more heavily for trade covering longer distances, newly formed trade relationships and trades involving countries with weaker contractual enforcement, less financial development and higher political risk.¹⁰ Yet these factors alone cannot account for the large gap between Asia and other developing regions, such as Latin America. It

¹⁰ See Glady and Potin (2011) and Niepmann and Schmidt-Eisenlohr (2013).

therefore seems that other factors, such as historical preferences and legal frameworks as well as regulatory differences, may also play an important role. For example, discussions with market participants suggest that in Asia L/Cs can be a relatively cheap and effective instrument to finance working capital. This may apply especially in countries that have foreign exchange restrictions or strict regulations applying to ordinary bank lending, and/or where local banks have efficient practices for establishing funded loans based on L/Cs (see Box 1).

Bank-intermediated trade finance markets in 2011

Table 2

Country	Trade finance (US\$ billions)		Percentage of merchandise trade ³
	Stocks ¹	Annual flows ²	
Global estimate	1625-2100	6500-8000	36-40 Adjusted: 30-35⁴
International data sources			
L/Cs (SWIFT)		2,782	15
ICC trade register		1,958	11
<i>National data</i>			
<i>Comprehensive domestic coverage</i>			
Brazil	25	57	24
China	218	871	47
Hong Kong SAR	44	131-175	29-38
India	82	164	41
Italy	83	249-332	47-63
Korea	76	304	56
Spain	25	76-101	23-31
<i>Partial coverage</i>			
Australia	9	35	14
France	50	149-199	23-31
Germany ⁵	47	187	53
Mexico	8	8	2
United Kingdom	23	92	16
United States	69	274	14
<i>Sum national data</i>	<i>736</i>	<i>2,500-2,700</i>	
<i>Average All countries</i>			<i>31-34</i>
<i>Comprehensive coverage</i>			<i>38-43</i>

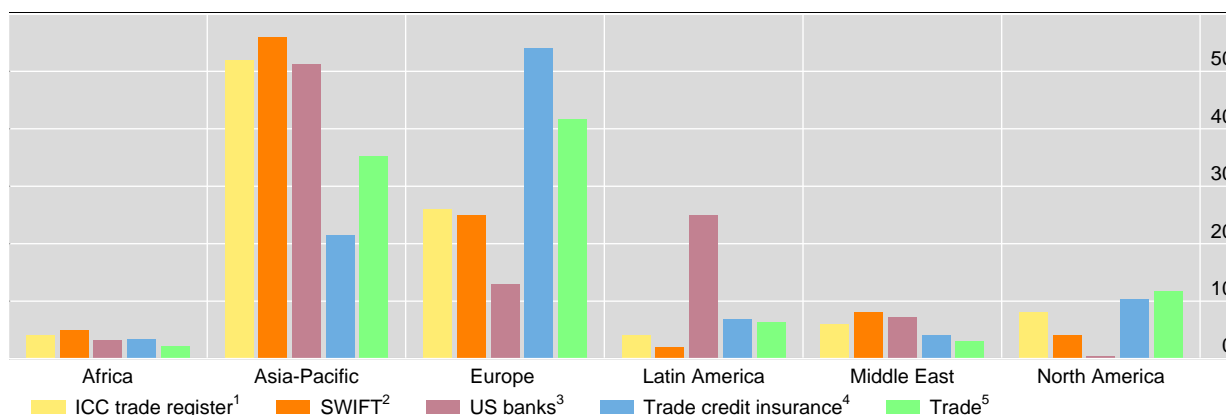
¹ Average quarterly stock for 2011. ² Annual flows for national data are derived by assuming a 90-day maturity of stocks, except in India and Mexico, where maturities are known to be six and 12 months respectively, and in Brazil, where the information on of the flow of new loans is used. For countries where trade finance data capture short and longer maturities (France, Hong Kong SRA, Italy and Spain), a 120-day average maturity is also assumed giving rise to the range in the table. ³ Trade is measured as the average of exports and imports of goods. ⁴ The adjustment accounts for some trade transactions receiving support from more than one trade finance product, if for example an L/C is used as collateral for an export loan or banks refinance underlying exposures to exporters or importers with other banks, which accounts for around 15% of the ICC trade register exposures (see Table 4). For details see Appendix 4. ⁵ Both trade finance and trade are only vis-à-vis emerging markets and developing economies.

Sources: ICC; IMF; national data; Group calculations.

The geographical distribution of trade finance, trade credit insurance and trade

As a share of total, in per cent

Graph 2



¹ Average from 2008 to 2011. ² Based on average value of sent and received SWIFT MT700 messages in 2011. ³ The US data capture only lending vis-à-vis non-residents resulting in a low share of US banks' exposure to North America. Average from 2008 to September 2012. ⁴ Short term credit insurance from the Berne Union. Average for Q4 2011 to Q1 2013. ⁵ Merchandise trade (average of imports and exports) from Q1 2008 to Q4 2012.

Sources: Berne Union; ICC; IMF; SWIFT; national data; Group calculations.

In Europe, shorter distances and well established facilities to insure trade credits and/or to discount trade receivables with non-banks may help explain a lower proportion of bank trade finance to trade.¹¹

The role of global and local banks. The largest global banks appear to account for a quarter to a third of the global supply of bank-intermediated trade finance, with local and regional banks providing the remainder. For instance, the 21 banks participating in the ICC trade register supported about 8% of global trade through short-term trade finance products during 2008-11. However, the share rose through this period, reaching 11% in 2011, when these banks provided US\$2 trillion of the estimated US\$6.5–8 trillion of global trade finance. The increase may reflect in part that the number of banks reporting to the ICC has expanded during successive vintages of the trade register between 2010 and 2013, reaching 21 banks in the latest edition.¹²

Few banks publicly disclose their trade finance exposures, but those that do collectively report trade finance assets and contingent exposures that are larger than would be consistent with the flows captured by the ICC trade register (Table 3).

¹¹ The three largest short-term trade credit insurers accounting for the overwhelming bulk of the short-term insurance business are headquartered in Europe. Usage of Berne Union guarantees is relatively intensive in Europe, particularly compared to Asia.

¹² Data are provided on a best efforts basis, with a focus on providing data by transaction on payment status and recovery values. It is possible that new entrants were less able to provide detailed data for earlier years, and also that existing participant banks improved their data collection for more recent years. Discussions with several firms involved in the preparation of the ICC report suggest that perhaps 10 other internationally active banks not included in the register might also be grouped with the global leaders, based on the scope and scale of their trade finance operations, but the size of their operations would be smaller in proportion to the existing participants.

Reported trade finance assets by selected banks

Table 3

	Total assets (US\$ bn)	Trade finance assets (US\$ bn)	Trade finance as % of total assets	ICC Trade Register 2013	Notes
HSBC (United Kingdom)	2,556	166	6.5	Yes	Loans for international trade and services; documentary credit (2011)
Standard Chartered (United Kingdom)	599	110	18.4	Yes	Trade assets and contingents (2011)
Bank of China (China)	1,878	107	5.7	Yes	Domestic and foreign currency trade finance balance (2011) ¹
Industrial and Commercial Bank of China (China)	2,456	86	3.5		Outstanding on-balance sheet trade financing (2010) ¹
Deutsche Bank (Germany)	2,800	74	2.6	Yes	International trade finance (2012)
JPMorgan Chase (United States)	2,266	35	1.5	Yes	Trade finance loans (2011)
UniCredit (Italy)	1,199	18	1.5	Yes	Advances to customers for import/export (2011)
Banco do Brasil S.A. (Brazil)	523	16	3.1		Advances before and after exports and imports financing (2012)
Intesa Sanpaolo (Italy)	827	8	0.9		Assets in global banking & transaction business (2011)
<i>Average</i>			<i>4.3</i>		

¹ Trade finance of the two Chinese banks includes both credit related to international trade and domestic trade.

Sources: Banks' annual reports and other investor information.

In part, this may reflect inconsistencies in definitions what constitutes trade finance as well as the inclusion of medium- and long-term credits in the individual bank disclosures. The latter appear to account for a small share of the annual flow (and are excluded from the ICC short-term data), but a potentially significant share of credit outstanding.¹³ The Berne Union reports that the stock of medium- and long-term loans backed by export credit agency guarantees (and generally funded by banks) totalled US\$530 billion as of end-2011, and US\$625 billion as of end 2012.

In the EMEs for which data are available, local banks account for the majority of the bank financing in support of trade. Moreover, the share provided by local banks appears to have increased in recent years. For example, around 80% of trade finance in India was provided by domestic banks (including foreign-owned subsidiaries) in 2012, up from 60% four years earlier. Home headquartered banks in Brazil provide around 70% of trade finance, but their market share has been falling somewhat in the last five years.

¹³ For the 2013 ICC trade register, 10 banks provided information on medium and long term trade finance products originated during 2006-11. The total exposure for which information on default and recovery rates was reported was US\$ 211 billion, or US\$ 35 billion per year. The average tenor of these transactions was 11 years, compared with an average tenor of 100 days for short-term products.

The use of trade finance in China

Two China-specific factors contribute to the popularity of trade finance, and especially L/Cs, in China.

From the demand perspective, the interest rate of trade finance is liberalised. In contrast, RMB loans, the bulk of bank credit in China, were subject to the interest rate floor set by the central bank until late July 2013. As a result, the average interest rate of trade finance was much lower than other credit obtained from domestic banks. For example, in 2012, the weighted average interest rate of RMB trade finance settled through Chinese banks (the lender might be the domestic banks or foreign banks and corporations) was 5.0%, while the official one-year RMB loan rate was set at 6.31% and the actual average loan rate was even higher than that.

From the supply perspective, banks are willing to provide trade finance to clients for regulatory reasons. In line with Basel II and regulations by the China Banking Regulation Committee, trade loans are viewed as low-risk assets on the banks' balance sheet. L/Cs are even more popular because of their ability to act as a vehicle for onshore companies to obtain cheap offshore funding and because they are off-balance sheet assets that normally do not consume bank capital.

Historically, L/Cs have also been used to arbitrage on- and offshore markets. The discount rates of both RMB and foreign currency L/Cs were sometimes lower in the offshore than onshore market. Especially from October 2012 onwards, it was profitable to open an L/C in the onshore market and discount it offshore. The China Banking Regulation Committee issued a warning against this practice in May 2013, after which the issuance of L/Cs dropped.

Currency denomination and reliance on dollar funding. Much of global trade is priced and settled in dollars, and so is trade finance. Indeed, a key condition for the ability of many banks to provide trade finance is their access to US dollar funding. Reduced US dollar funding in the wake of the Lehman failure, for example, was one of the key reasons for the Brazilian and Korean central banks to directly support trade finance markets (see Box 3).

Consistent with the US dollar's predominant role as the currency of denomination for invoicing trade outside Europe, and the heavy use of L/Cs in Asia, the US dollar is also the dominant currency of denomination for payments via L/Cs. More than 80% of the L/Cs are settled in US dollars (ICC (2012)). The euro is the second most important currency, but it has only a small share, which declined from 10% in 2010 to 7% in 2012. The renminbi, on the other hand, appears to be gaining market share, though from a low base.¹⁴

Funded loans are often dollar-denominated as well, but the overall picture is more mixed. Discussions with global banks suggest that most transactions with non-residents are conducted in US dollars, as are commodity finance transactions. This is also the case for trade finance in India, where more than 90% of import loans and many export loans are denominated in US dollars.¹⁵ In China, trade finance loans are denominated twice as often in US dollars than in renminbi. In Brazil, the most common local trade finance loans (called ACCs)¹⁶ are denominated in local currency,

¹⁴ The rising share of RMB may be overstated due to over-invoicing of trade in some areas in China.

¹⁵ Export credit in India includes both pre-shipment and post-shipment credit. While pre-shipment is both in domestic currency as well as foreign currencies, post shipment credit is entirely in foreign currency. But information on this segregation is not available.

¹⁶ In Brazil all loans are denominated in local currency as foreign currency loans are illegal. For this reason, a specific product (ACC) was developed, using an export exchange contract as collateral for

Global banks: short-term trade finance activities

Table 4

Type of product	Share of activity (%) ¹	Average maturity (days)
Letters of credit and guarantees	52	90
Import L/Cs	26	80
Export confirmed L/Cs	7	70
Performance guarantees and standby L/Cs	19	110
Loans	48	105
Loans for import	19	110
Loans for export: bank risk	13	140
Loans for export: corporate risk	16	70

¹ Weighted by the dollar value of transactions. Averages for 2008 to 2011.

Source: ICC (2013a)

but funded with lines in foreign currency (mainly in US dollars) that are repaid with payments in foreign currency from export proceeds. In advanced economies, funded loans to resident exporters and importers, in contrast, seem often to be denominated in domestic currencies. This is the case for 80–90% of the trade finance loans in Italy, 60% in Hong Kong¹⁷ and 45% in France (where the share for loans to residents is even higher, at 75%).

Maturities. In the ICC trade register, the average maturity of funded loans was about 3.5 months, while L/Cs and guarantees had slightly shorter maturities (Table 4). There are some indications that maturities are somewhat longer in emerging markets as trade finance loans are sometimes used as a substitute for working capital loans. This is, for example, the case in Brazil, where the trade finance product with the highest market share (the ACC) partly fulfils this role and has an average maturity of around six months. Similar maturities are also observed in India.

The evolving role of L/Cs. Transactions involving L/Cs and guarantees accounted for about half of the aggregate value of global banks' trade finance exposures in the ICC trade register (Table 4). Funded loans, mostly to importers and exporters, make up the remainder. Around 15% of global banks' trade finance loans are to other banks, which enable the recipient banks to fund trade loans to exporters or importers.

L/Cs remain an important component of the global market, providing support to about 15% of global imports (Table 2). The global volume of L/Cs stood at around US\$2.8 trillion in 2011 and 2012 (Table 2). Yet there are clear indications that L/Cs have become less important in recent years. In 2000, L/Cs were used for on

the bank loan. The bank funds this loan with an external credit line (liability in foreign currency) and receives the foreign currency when it settles the exchange contract, having no mismatch of currency. It also allows the interest rate of the ACC loan to be linked to international interest rates (Libor), well below domestic rates.

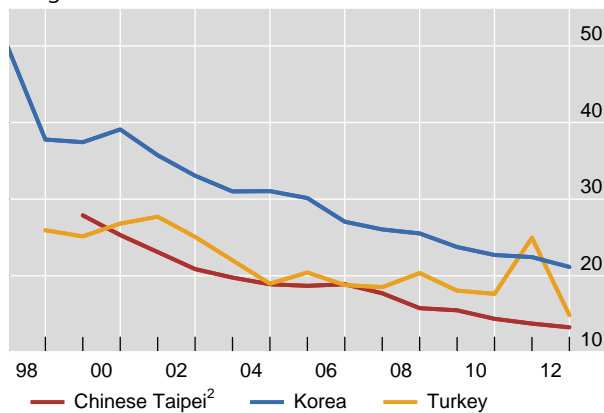
¹⁷ Contrary to anecdotes from other jurisdictions that shortage of US dollar liquidity might be one of the constraints on trade finance supply, the share of foreign currencies (mainly US dollars) in the trade finance balances of Hong Kong banks has been increasing persistently since 2007 and currently stands at a historical high.

The usage of trade finance products

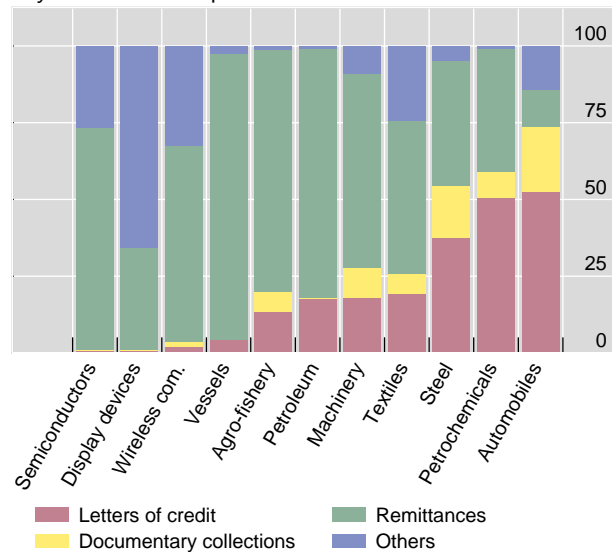
In per cent

Graph 3

Usage of L/Cs¹



Payment methods per sector in Korea



¹ Share of L/Cs in total export and import payments. ² Based on foreign exchange export proceeds and foreign exchange import payments.

Sources: National data.

average 30% of trade payments in Chinese Taipei, Korea and Turkey, dropping to around 15% more recently (Graph 3, left-hand panel). This may reflect in part the expanding network of long-term trade relationships in these countries, which – at least theoretically – reduces the need for this kind of payment protection.

Box 2

Commodity trade finance

Various industry sources suggest that trade finance has an important role in facilitating commodity trading. Many of the largest commodity trading firms are based in Switzerland and the Swiss Banking Association (2013) estimates, based on a survey, that “commodity trade finance in Switzerland, which is guaranteed by banks, amounted to an estimated volume of around CHF 1,500 billion (≈US\$1,7 trillion) in 2011” (p 17). A report by the Swiss government (Schweizerische Eidgenossenschaft, 2013) suggested that “in Switzerland, roughly 70 to 80% of the financing for commodity trading is provided by the banks” (p 13).

Commodity traders arrange purchases and deliveries of physical commodities across the globe. Conceptually, there are several explanations for intensive use of trade finance in commodity trading: the high value of commodity trades and associated need for funding while goods are in transit; the nature of the collateral, which is easy to verify, pledge, sell, and hedge on the market; and the potential for large price fluctuations combined with long transaction chains, which means that there is greater value in conducting bank-intermediated transactions as features of these transactions (including the documentary evidence) provide quick and effective recourse if problems arise.

The market historically has been dominated by European banks, particularly French and Swiss banks, which reportedly provided up to 80% of the financing for commodities trading worldwide. However, as some of these banks have had to reduce balance sheet size and their reliance on US dollar financing, they have apparently scaled back their lending, bringing their share in commodities financing down to about 50%. To some extent, US and Asian banks as well as banks in the Middle East have stepped into the breach by increasing their share of financing for commodity trading (see Lane (2012)).

National data suggest that some industries rely more heavily on L/Cs than others (Graph 3, right-hand panel). In Korea, for example, L/Cs seem to be the most preferred payment method for exports in the automobile and petrochemical industries (around 50% of payments in 2009), whereas they play hardly any role for electronics goods. The latter was not always the case, though. In 1997, for instance, the share of payments using L/Cs was more than 40% for the semiconductor industry. The different intensity of relying on L/Cs may be explained by different business models, the underlying characteristics of traded goods, the relative importance of inter-firm trade and the relationships of the exporting firms with importers. For example, the automobile industry in Korea relies on franchise dealerships and sales subsidiaries, where there is a lack of credit information and L/Cs thus provide a secure payment method. Equally, L/Cs are reportedly favoured in the commodities industry, where goods are relatively homogeneous and easily posted as collateral (see Box 2).

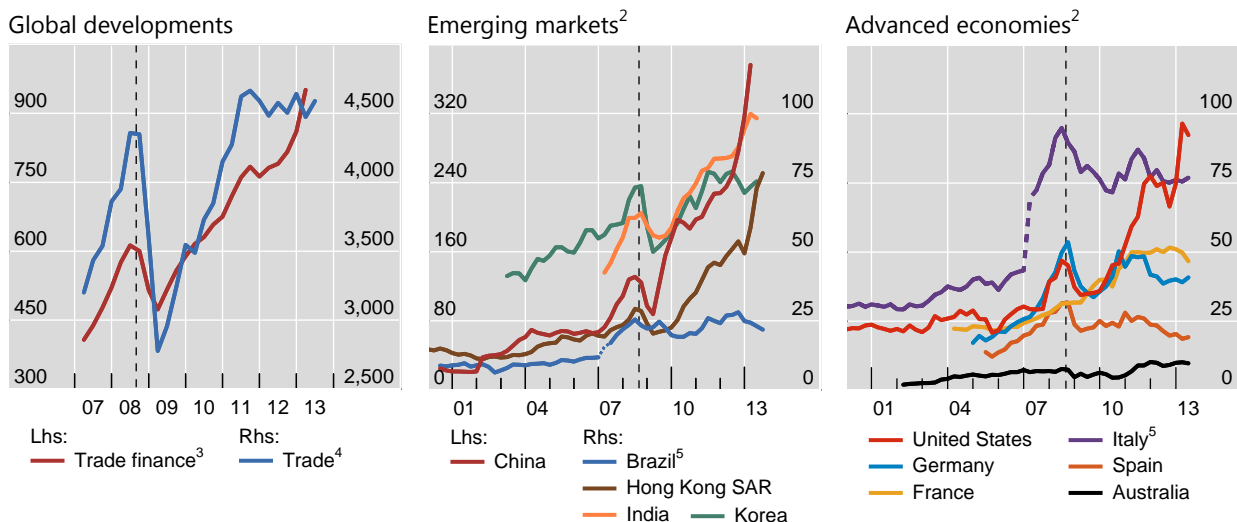
4.2 Bank-intermediated trade finance: recent trends

Globally, bank-intermediated trade finance has increased substantially in dollar terms over the past decade and particularly since end-2006, though its growth was temporarily interrupted after the Lehman bankruptcy in 2008 (Graph 4). However, the pace has diverged notably across countries in recent years. The observed increase in trade finance activity is particularly notable in EME member countries and supports anecdotal reports that local EME banks have started to play a larger

Trends in trade finance¹

In billions of US dollars

Graph 4



¹ Dashed line: Q3 2008. ² Stock of bank-intermediated trade finance. ³ Sum of trade finance in Australia, Brazil, France, Germany, Hong Kong SAR, India, Italy, Korea, Mexico, Spain and the United States. ⁴ Global merchandise trade (average of exports and imports). ⁵ Structural breaks in Q1 2007. Brazil: inclusion of import loans. Italy: inclusion of export and import guarantees.

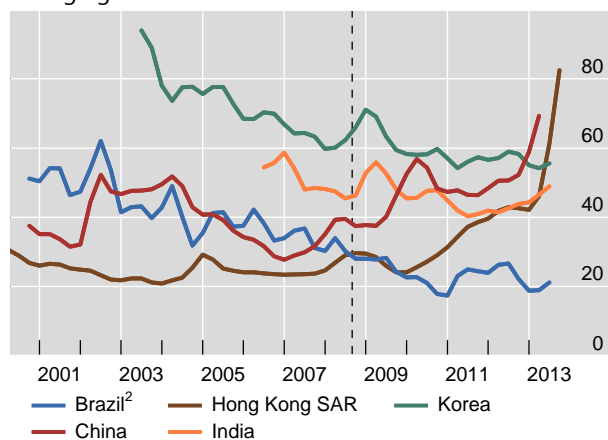
Sources: IMF; national data.

Trade finance intensity¹

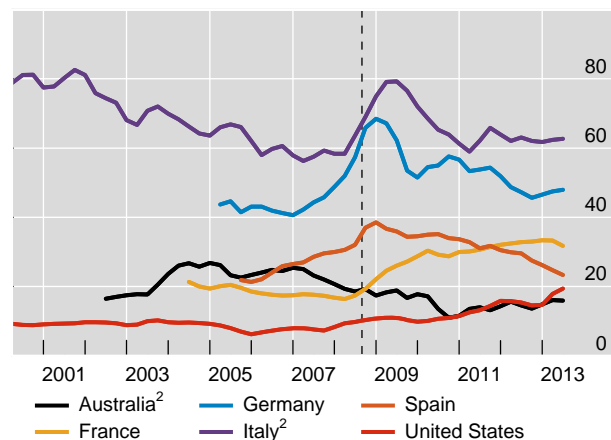
Per cent

Graph 5

Emerging markets



Advanced economies



¹ Ratio of trade finance over merchandise trade; derived by assuming a 90-day maturity of trade finance stocks, except in India and Mexico, where maturities are known to be six and 12 months respectively, and in Brazil, where the information on of the flow of new loans is used. Dashed line: Q3 2008. ² Trade finance data are break adjusted.

Sources: IMF; national data.

Changes in trade finance and trade in 2008–09 and 2011–12¹

In per cent

Table 5

	Q3 2008 – Q1 2009			Q2 2011 – Q2 2012		
	Bank-intermediated (stocks)	L/Cs	Trade	Bank-intermediated (stocks)	L/Cs	Trade
Australia	-20		-34	-2		2
Brazil ²	-46		-47	0		-4
China	-29		-41	15		9
France	0		-25	0		-9
Germany	-30		-30	-20		-10
Hong Kong	-29		-33	15		2
India	-13		-34	5		-4
Italy	-12		-26	-13		-15
Korea	-32	-45	-40	0	-12	-3
Mexico	5		-38	32		6
Spain	-32	-35	-34	-19	-19	-11
United Kingdom	-7		-36	-15		-2
United States	-24		-34	19		4

¹ Relative change in the stock of trade finance exposures from end-Q3 2008 to end-Q1 2009 or from end-Q2 2011 to end-Q2 2012. National data are converted to US dollars at end-quarter exchange rates. Changes are therefore influenced by valuation effects. ² Changes in the quarterly flow of new trade finance loans.

Sources: National data, Group calculations.

role in the provision of trade finance and similar services.¹⁸ In particular, Chinese entities appear to be increasingly active providers of trade finance. The trade finance exposures of Germany and the United States – which are predominantly vis-à-vis EMEs – have also shown a significant increase beginning in 2006. In contrast, trade finance exposures of other European countries have been notably less dynamic than elsewhere since 2009.¹⁹

In many countries, though, trade finance has not grown as strongly as trade with the main exceptions being China and Hong Kong SAR (Graph 5). The relative decline in the use of trade finance is especially strong in Brazil and Korea, where the ratio of trade finance over trade has fallen by more than 30 percentage points since the early 2000s. In contrast, trade finance intensity has gone up by more than 30 percentage points in China and Hong Kong SAR over the same period.

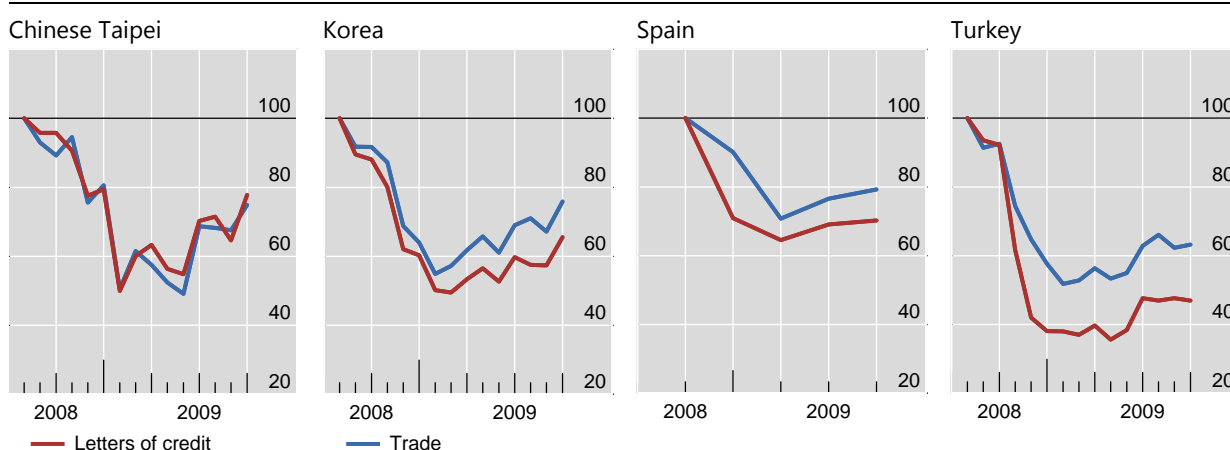
The crisis of 2008. National data show that the outstanding stock of short-term bank-intermediated trade finance fell sharply in the two quarters following the Lehman bankruptcy (Q4 2008 to Q1 2009) and across virtually all countries. The rate of decline in stocks was often comparable to the observed drop in nominal trade flows (see Table 5) even though a somewhat longer perspective around the crisis indicates that trade was affected more severely in many countries (as suggested by the increase in ratio of trade finance over trade (Graph 5)).

L/Cs fell particularly strongly. In countries where data are available, the value of L/Cs fell by 45% on average in comparison to a drop in trade of 38% (Graph 6). At the same time, prices for L/Cs or similar instruments jumped by 200 to 300 basis points in Korea and Brazil (Graph 7, left-hand panel), and anecdotal evidence suggests price jumps of up to 500 basis points in some emerging markets (Auboin and Engemann (2012)).

Letters of credit and trade after the Lehman bankruptcy

Monthly flow data, July 2008 = 100¹

Graph 6

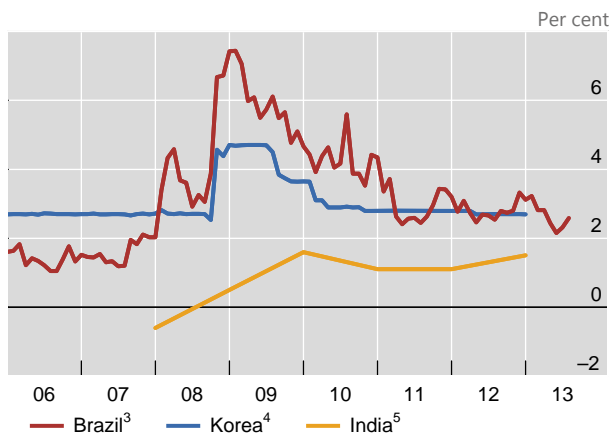
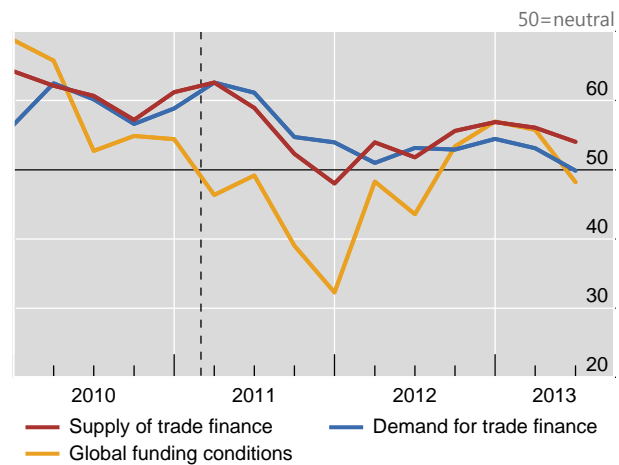


¹ For Spain, quarterly stock data, Q3 2008 = 100.

Source: national data.

¹⁸ One exception is Mexico, where trade finance exposures have been broadly stable. But this may reflect data limitations.

¹⁹ The reporting systems for these countries do not fully capture the overseas trade finance activities of these latter countries' banks.

Price of trade finance¹Demand and supply conditions in emerging markets²

¹ Spreads over funding costs. ² Demand and supply conditions as indicated in the IIF Emerging Markets Bank Lending Conditions Survey. Values above 50 indicate improving conditions while values below 50 indicate deteriorating conditions. The IIF significantly increased the number of banks surveyed from 2011 (dashed line). ³ Interest rates on new advances on exchange contracts (ACCs) over the average of the six-month US dollar Libor rate. ACCs are bank loans in Brazilian real to resident exporters funded with foreign credit lines. ⁴ Three-month exchange commission over US dollar Libor. ⁵ Average cost of import credit over US dollar Libor.

Sources: IIF; national data.

The 2011–12 deleveraging episode. In contrast to the experience in 2008–09, available data indicate that the intensification of the European crisis in 2011 did not result in a material fall in the provision of trade finance globally in the second half of 2011, nor in global trade (Table 5). There is evidence of a fairly notable decline in bank-intermediated trade finance outstanding in some countries, such as Germany, Italy and Spain, beginning in the second half of 2011 (note that data do not fully capture all types of trade finance exposures and/or the overseas activities of banks (Table 1)).²⁰ This is consistent with anecdotal evidence at the time citing a pullback by European banks. But at the same time, trade fell in these countries during this period as well, raising questions about the role of supply versus demand (Table 5). However, it appears that other international and regional banks filled the gap left by European banks in international trade finance markets.

As a result of these shifts in market share and helped by the European crisis response (the so-called LTROs and their impact on bank funding conditions; see Box 3), conditions in trade finance markets – at least at the global level – deteriorated only temporarily. For example, bank lending surveys by the IIF suggest that an improving trend in trade finance terms in EMEs came to a sharp halt in Q4, but then began to turn upward again in 2012 (Graph 7, right-hand panel). Pricing margins did not increase significantly in those emerging markets for which data are available (Graph 7, left-hand panel). On the other hand, representatives of global

²⁰ For France, data indicate that bank-intermediated trade finance has remained stable since mid-2011. This is contrary to anecdotal reports and evidence in the BIS international banking statistics of a retrenchment from international lending activity. It may therefore mainly reflect data limitations. For example, a large share of commodities finance (an area where some of the large French banks have been significant players) provided by French banks is undertaken in Geneva and therefore not captured because the data do not account for foreign operations of French banks (see Table 1).

banks reported that loan prices rose from mid-2011 to end-2011, albeit considerably less sharply than in 2008–09. They also eased subsequently as financial conditions in Europe and globally improved post LTROs.

Developments in 2013. Conversations with market participants indicate that the market is currently characterised by intense competition, particularly in Asia and for top-tier clients. In some market segments, particularly lending to financial institutions, contacts suggested that spreads have halved over the first three quarters of the year, reaching historical lows. This poses the risk of rapid repricing should current favourable bank funding conditions change. In contrast, pricing outside Asia was characterised as being not as compressed.

Contacts described margins for supply chain finance as attractive, as it is a more differentiated and higher value added, and likely “stickier” business, both for the banks, and for the firms within a supply chain network. The enlargement of this area of business was characterized as an area of intense non-price competition as leading banks seek to cement their relationships with multinationals and major retailers to manage the document processing and receivables and payables funding for their global supply chain networks. Once established, contacts viewed these networks as likely to continue to be funded even under stressful conditions, because the relationships would likely be viewed as valuable and worth preserving. However, contacts opined that in the event that a bank were to cut back in response to future stress, the impact could be quite disruptive to the affected businesses.

Participants cited abundant short-term liquidity in global markets as a contributor to current tight pricing. However, the prospect of a phasing-out (“tapering”) of large-scale asset purchases by the Federal Reserve did not seem to significantly affect pricing in trade finance markets in the EMEs in recent months, notwithstanding recent pressures on other EME assets.

One factor behind the intense competition among trade finance providers is the ongoing international expansion of banks headquartered in the key emerging market regions. In addition to follow-your-client strategies in support of the trading activities of domestic corporates, trade finance also appears to be utilised by some firms as an entry-level product to build client relationships and eventually offer a wider range of banking services. And, while regional firms had used the temporary withdrawal of European banks in 2011–12 to build market share, as did US, Australian and Japanese banks (see above), some European firms are now returning to the market, adding to competitive pressures.²¹

A key implication of the current environment of compressed spreads, according to some market participants, is a more limited ability of parts of the trade finance community to cope with the impact of increased compliance burdens and impending regulatory reform, and here especially the leverage ratio (see Appendix 5).²² Nevertheless, to date, there is little concrete evidence that the start of the implementation of the Basel III reforms has constrained trade finance activity or trade at the global level. Market contacts suggested, however, that an uneven

²¹ Not all banks appear to be expanding. Indeed, European banks headquartered in countries with financial problems and associated higher funding costs appear to be more challenged by the current highly competitive landscape.

²² Banks cite the increased costs of compliance (driven for instance by anti-money laundering (AML) and know-your customer (KYC) regulations) as weakening the attractiveness of certain lines of business, in particular lending to smaller banks and SMEs (see eg ICC (2013)).

playing field in terms of regulatory implementation across jurisdictions may lead to the withdrawal of trade finance providers from some countries or markets. In addition, pricing may eventually need to rise to be more consistent with hurdle rates needed to cover internal capital and liquidity charges that banks are phasing in as they prepare for the new capital, leverage and liquidity rules.

5. Trade finance: the potential impact on financial stability and the real economy

The developments in recent years suggest that global and local trade finance markets are likely to be resilient unless there are severe, adverse shocks that affect the creditworthiness and access to foreign currency funding of the majority of banks active in these markets. However, in the face of severe global shocks such as in 2008–09, or severe country-specific shocks, as occurred in some EMEs in the 1990s, it seems that trade finance can act as an amplifier of financial shocks with potential repercussions for the real economy, providing the rationale for policy responses aimed at limiting any externalities for global trade from individual banks' withdrawal from trade finance markets. Yet even in crisis conditions it seems that trade finance claims have been relatively safe and liquid assets, themselves posing only limited risks to banks and overall financial stability.

5.1 The impact of disruptions in trade finance

Prior to the global financial crisis of 2008–09, the role of trade finance in international trade generally received relatively little attention from policymakers, academics and economic commentators.²³ However, beginning in 2008, anecdotal reports suggested that disruptions in the availability of trade finance, particularly in the aftermath of the Lehman bankruptcy, could be playing an important contributory role to the then ongoing contraction in trade flows. Indeed, concerns about a perceived shortage of trade finance elicited joint efforts by the public sector and industry to improve the available data on trade finance markets, and led the G20 leaders to call for joint public sector efforts to boost the availability of trade finance. As part of this effort, the World Bank Group and the regional development banks substantially expanded their support for the sector, largely through guarantee programmes. The Brazilian and Korean central banks also introduced innovative schemes targeting trade finance markets directly (see Box 3).

In fact, trade volumes contracted at a much faster pace than global GDP in 2008–09 – by a factor of four in the 12 months ending March 2009. Some have taken the large relative fall in trade as *prima facie* evidence that something more than a global recession was behind the so-called “Great Trade Collapse”.

²³ Trade finance did receive special treatment in the concerted restructurings during the debt crisis in the 1980s, as a way of preserving export and import capacity. In contrast, the treatment of trade finance was often less interventionist in the EM financial crises of the 1990s and early 2000s, and as a result, trade finance often contracted sharply. The IMF concluded that these contractions exacerbated the economic fallout from these crises, and that in the event of future crises, measures to support trade finance merited explicit consideration as part of the overall stabilization strategy (IMF (2003)).

Policy responses after the Lehman bankruptcy

Given the rapid decline in trade and concerns over the functioning of trade finance markets in the aftermath of the Lehman failure, policymakers around the globe started a variety of initiatives to support the financing of trade, including a pledge by the G20 in 2009 to ensure the availability of US\$250 billion for trade facilitation over the following two years. While the initiative appears to have had some positive impact, it is worth keeping in mind that the overall scale was significantly smaller than the apparent contraction in trade finance flows. Average utilisation rates across all policy initiatives were fairly high in the first half of 2009, at around 70%, but then tapered off to 40% in the second half of the year, with some variation across jurisdictions (G20 (2010)). The reduced utilisation rate was viewed positively, as a sign of normalisation of the trade finance market. Measures were taken at both the international and national levels.

At the international level, multilateral development banks (MDBs) provided substantial support. A number of these programmes were structured to work collaboratively with commercial bank providers of trade finance, drawing on their expertise and funding. For example, the World Bank's International Financial Corporation (IFC) introduced the Global Trade Liquidity Pool allowing for a 40 to 60% co-lending arrangement between the IFC and commercial banks. The IFC initiated the fund with US\$ 5 billion, matched by US\$ 7.5 billion in commercial bank funding (see Auboin and Engemann (2013)).

The bulk of the support was provided by national export credit agencies (ECAs), yet success seems to have been uneven. Countries where existing ECA facilities to provide short-term trade finance were intensified and/or broadened immediately after the Lehman bankruptcy seem to have been successful in supporting trade finance markets. For example, the US Ex-Im Bank increased credit insurance by 145% and direct loans from US\$12 million to over US\$3,000 million in the first nine months of 2009. Likewise, in Korea, direct loans from the Korean Export-Import Bank (KEXIM) increased by 40% and short-term export credit insurance cover by 32% from 2008 to 2009. In Europe, where ECAs were not allowed to provide short-term trade credit insurance so as not to interfere with private trade credit insurance markets, 14 countries implemented state aid schemes in an effort to support the market for short-term export credit insurance in mid- or late 2009. The available information indicates mixed success. For example, in Denmark and the Netherlands, usage was limited and terms had to be modified over time to adequately provide exporters with the necessary coverage for their short-term export credit transactions. Germany, in contrast, experienced considerable demand from exporters for the coverage under the public scheme: On a cumulative basis, the total volume of approved limits under the measure amounted to EUR 992 million (in the first seven months of the scheme) and the actual value of insured exports under these limits reached EUR 465 million.

The Brazilian and Korean central banks also took measures in support of bank-intermediated trade finance markets. In the first instance, both offered indirect support through the provision of US dollar liquidity shortly after the Lehman failure to alleviate broader dollar funding pressures. In addition, both central banks introduced innovative schemes targeting trade finance markets directly. The Central Bank of Brazil undertook several short-term dollar repo operations funding new ACCs – a Brazil-specific type of export loan. After these operations matured, the ACCs were used as collateral for one-year foreign currency loans. In November 2008, the size of these repo operations covered 95% of all newly issued ACCs, dropping to under 30% at the end of the programme in May 2009. In total, US\$9.4 billion was injected into the Brazilian trade finance market. In Korea, the Bank of Korea offered a total of US\$10 billion in loans with maturities of mostly six months against SME export bills as collateral. The take-up rate here was less than 2%, most likely owing to the fact that funding conditions had already improved by the time the programme was in place. This contrasts with take-up rates close to 100% for other official sector programmes supporting trade in Korea that had already started to operate in November 2008.

Given the relatively benign developments in 2011–12, the beneficial effects of the ECB's longer-term refinancing operations (LTROs) for broader market sentiment and the dollar auctions by the ECB, policymakers did not perceive a need for a broad policy response during this period. Nevertheless, some MDBs experienced increased utilisation of existing facilities to support trade finance and also adapted their programmes to address observed market strains. In addition, some central banks expanded the pool of eligible collateral to cover trade finance-related products.

A number of factors complicate the ability to gauge the impact of trade finance fluctuations on international trade flows, not least the paucity of data. Moreover, other factors, such as the demand for and price of traded goods, contributed to the deceleration in trade observed in 2008–09 and 2011; these factors may have had a far greater impact on trade flows than changes in the availability of trade finance. And, of course, to the extent they reduced demand for trade finance, they could have contributed to any observed fall in trade finance.

Public and private sector analysts have used a variety of approaches to address these challenges, including: conducting surveys; extrapolating from case studies where more detailed firm-specific export and financial data are available; or using proxy data to estimate the impact of swings in trade finance availability and usage. They have also attempted to quantify the extent to which alternative factors may have accounted for the observed fall in international trade flows in a given window (see Appendix 6 for a survey of the literature).

A general picture that emerges from the literature is that trade finance disruptions had a secondary but economically significant role in the sharp reduction in global trade volumes in the quarters following the Lehman bankruptcy; reduced global demand for capital goods and consumer durables was the main driver. Statistical investigations carried out by the Group came to similar conclusions. But given the magnitude of the reduction in trade volumes, even a secondary contributory role implies an economically significant impact on trade and economic activity.

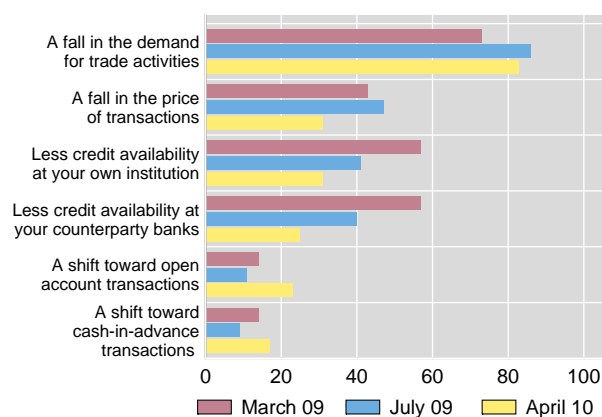
Surveys. In response to the 2008–09 financial crisis, a series of bank surveys were conducted by the IMF, in conjunction with BAFT-IFSA, as well as by the ICC Banking Commission. These surveys queried banks about changes in their trade finance volumes and pricing, and the reasons behind the changes. The results point to increased margins for bank-intermediated trade finance markets during the peak stage of the financial crisis and a significant decline in trade finance volumes, albeit at a pace slower than the decline in nominal trade.

Drivers of the decline in trade finance

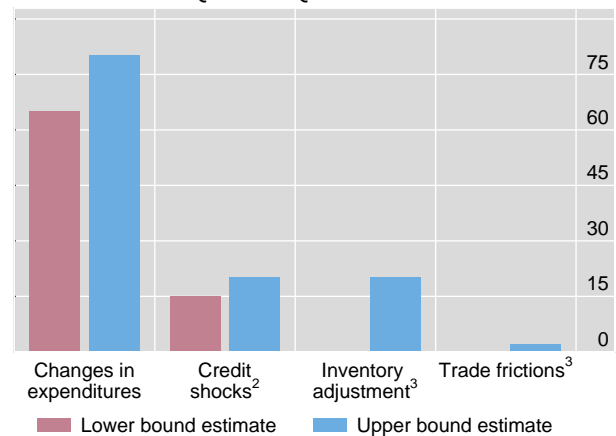
In per cent

Graph 8

IMF-BAFT trade finance surveys



Decomposition of collapse in trade volumes during the Great Recession Q1 2008–Q1 2009¹



¹ Estimates from various studies as summarised in Bems et al (2012). Sum of the estimated contributions does not equal 100. ² Including but not limited to trade finance shocks. ³ Based on only one study.

Sources: Bems et al (2012); IMF-BAFT (2009), IMF-BAFT-IFSA (2010).

Banks participating in the IMF-BAFT surveys placed the greatest emphasis on reduced demand as a driver for reduced trade finance (73%), but credit constraints were also viewed as important, with more than 50% of respondents citing reduced credit availability at their own institution or at a counterparty (Graph 8, left-hand panel). In the ICC surveys, in contrast, more stringent credit criteria was the most cited explanation for reduced availability of trade finance (cited by 76% of banks in the 2010 survey), followed by internal capital allocation restrictions. Reduced interbank lending was cited in both the 2009 and 2010 surveys, but much less frequently. Both sets of surveys attributed a widespread increase in the pricing of banks' trade finance instruments to higher funding costs, increased capital constraints and greater counterparty risk. Furthermore, the ICC surveys also pointed to intense scrutiny of trade documentation by some banks, eventually leading to higher rates of rejection on the basis of minor discrepancies.

Academic studies. A consensus has emerged in the academic literature that global changes in final expenditure shares were the main contributor to the decline in global trade observed during the crisis of 2008–09, broadly consistent with the survey evidence which cited reduced demand as the main driver. Consumer durables and capital goods are disproportionately represented in global trade, and at the onset of the Great Recession spending on these items (both domestically produced and imported) fell sharply. In addition, in response to rising inventories, production of and trade in these goods temporarily fell even further than demand. Overall, the literature suggests that the composition of demand shocks accounted for 60–80% of the reduction in global trade volumes (Graph 8, right-hand panel).

However, given the magnitude of the reduction in trade volumes at the onset of the Great Recession, the unexplained residual after taking into account compositional effects remains quite significant in economic terms.

Several studies which used direct firm-level measures of funding often found a significant contributory role for financial shocks at funding banks impacting exports in 2008–09. But in several papers the channel was not necessarily through trade finance but rather through bank credit more generally. In addition, several researchers using proxy measures have found suggestive evidence that trade finance constraints may have impacted industries and flows that were relatively dependent on trade finance. Taken together, the literature suggests that credit shocks, including to working capital and trade finance, possibly account for about 15–20% of the decline in trade during the crisis (Graph 8, right-hand panel).

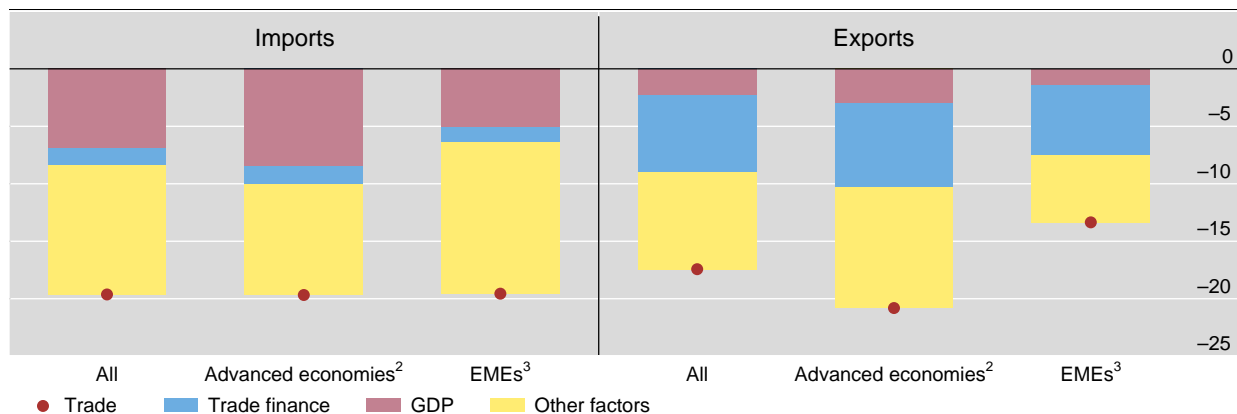
Statistical analysis using national data. To shed further light on these issues, members of the Study Group conducted econometric investigations of the linkages between trade finance and financial developments on the one hand, and between trade finance and the growth of trade volumes on the other (for further details see Appendix 7). These exercises contribute to the existing literature by drawing on the country specific data set on trade finance assembled by the Group. To date, this data, which reveal substantial contractions in trade finance between Q3 2008 and end-Q1 2009 (Table 5), have not been utilised by academic researchers.

The Group found clear evidence of shocks to financial conditions impacting the growth of trade finance across countries where data are available. Tighter financial conditions, surges in risk aversion (as measured by the VIX) and dollar funding pressures have all been correlated with declines in trade finance, after controlling for possible changes in trade finance due to changes in demand due to the growth or contraction of trade.

The impact of trade finance on changes in trade volumes: some estimates¹

In per cent

Graph 9



¹ Estimated impact of changes in trade finance, GDP and other factors on international trade during the three quarters immediately after the Lehman failure. See Appendix 7 for further details. ² Australia, France, Germany, Italy, Spain and the United States. ³ Brazil, Hong Kong SAR, India, Mexico and Korea.

Source: Group estimates.

After the Lehman failure, the drop in the availability of trade finance seems to have contributed substantially to the fall in trade, and here particularly in exports. Indeed, the Group's results suggest that reduced trade finance could have accounted for as much as two fifths of the fall in export volumes, but less than 10% of the fall in import volumes (Graph 9). However, given that in the aggregate, global exports equal global imports, a reasonable approach would be to take the average of the import and export coefficients for benchmarking the global impact of reduced trade finance. Using this approach, the group estimates that up to one-fifth of the decline in global trade volumes may have been attributable to disruptions in trade finance. In other periods, including in 2011, trade finance does not appear to have been a limiting or accelerating factor in the growth of trade.²⁴

However, it is worth keeping in mind that the technique used did not control for the compositional effects in global demand that some have argued accounted for a large share of the declines in trade volumes.²⁵

5.2 The low-risk nature of trade finance

Low loss rates and short maturities, combined with the limited overall size of trade finance assets relative to bank balance sheets (see Table 3), suggest that losses on trade finance exposures are unlikely to pose a financial stability risk in and of themselves.

Data from the ICC trade register suggest that default and loss rates for traditional trade finance products are very low, at least for the largest banks. The average default rate per transaction across short-term trade finance products covering transactions during 2008–11 is 0.02%, while the average loss rate is 0.01%.

²⁴ At the global level, aggregate exports equal aggregate imports. The difference in the estimations may stem from the selection of countries analysed.

²⁵ Controlling for such effects could be an area for future academic investigations.

Moreover, the variation in default rates by product, including L/Cs and loans, and across institutions is minimal, and loss rates are accordingly low (ICC (2013)). In the period 2008–11, the write-off rates on defaulted funded loans and performance guarantees varied between 26% and 65%; in contrast, write-off rates on L/Cs were very low (0–3%).

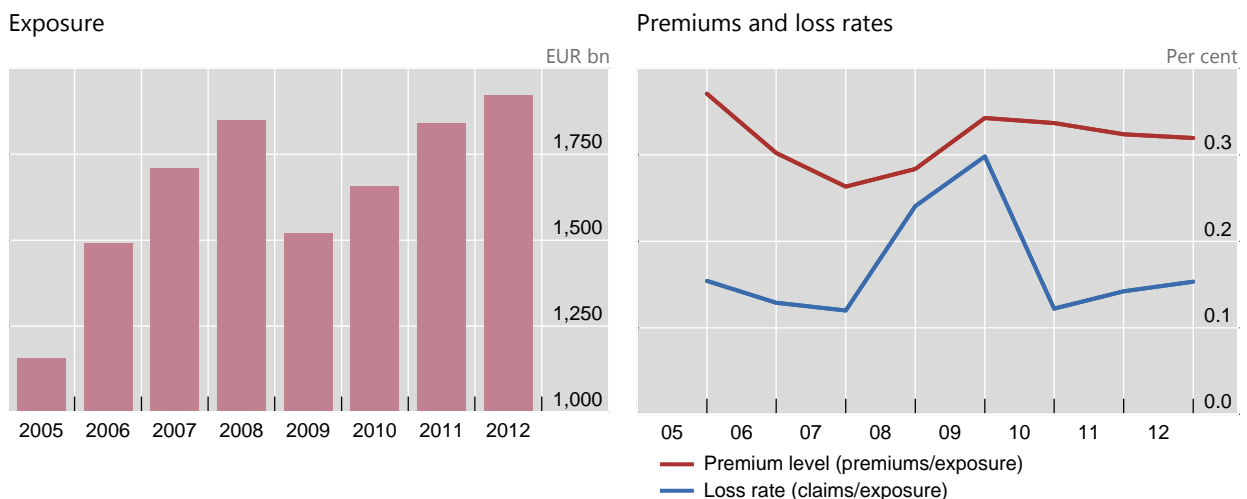
Delinquency rates in Brazil (defined as credit overdue more than 90 days) exceed those on instruments covered by the ICC trade register by a factor of 10–45, but are still low compared to rates on other Brazilian loans. Depending on the product, monthly delinquency rates ranged from 0.2% (import financing) to 0.9% (ACCs) on average in 2012. Surveys of a broader range of banks also suggest that trade finance loans have a relatively good payment record, though perhaps not as uniformly strong as suggested by the ICC trade register: three fifths of respondents to the 2010 ICC survey of 161 banks in 75 countries reported that losses on trade finance were “significantly lower” than those experienced under general banking facilities, and only 4% of respondents said their losses were higher (ICC (2010)).

Private trade credit insurers also report relatively low loss rates, albeit larger and more volatile than indicated by the ICC trade register. The loss rate as calculated by the ratio of claims over exposures was 0.17% on average between 2005 and 2012, but then almost doubled to 0.30% in 2009 (Graph 10).

When banks have sought to reduce their trade credit exposures by allowing portfolios to roll off in recent years, they appear to have been able to do so without a notable surge in delinquencies. The ability to reduce trade finance exposures most likely reflects their short maturity, relatively small size and the linkage between trade finance loans and underlying real transactions, which provide the means for repayment on maturity.

Private trade credit insurance¹

Graph 10



¹ Figures cover insurance of domestic and international trade by private trade credit insurers.

Source: ICISA (2013).

6. Distributing trade finance assets to non-bank investors

In recent years, a number of global banks, as well as the industry association BAFT-IFSA, have actively explored ways to distribute trade finance risk to non-bank investors (see Box 4 for some typical approaches). The distribution of trade finance risk and exposures from bank balance sheets is not a new phenomenon, as banks historically have engaged in secondary market sales to other banks and, less frequently, some banks have also used the trade credit insurance market to reduce risk. However, the distribution of trade finance risk to other banks is viewed as becoming less viable against the backdrop of the changing regulatory landscape. Several leading banks are therefore exploring possibilities for an “originate to distribute” model for trade loans.

To date, the scale of activity has been limited. Nonetheless, some of the Group’s interviews with industry professionals suggest expectations of growth in the scale of non-bank involvement in funding trade finance assets in the years ahead, due to a combination of regulatory change and gradually increasing familiarity on the part of non-bank investors, facilitated by bank and industry efforts to achieve greater standardisation and transparency. Yet several challenges, including agency issues and information asymmetries, would need to be addressed to put securitisation or direct distribution of trade finance assets on a sound footing.

Opportunities. Securitisation offers potential attractions for both banks and non-bank investors. For banks, securitisation would allow them to economise on capital and/or liquidity and reduce US dollar funding needs, while preserving a return on firms’ expertise/comparative advantage in originating and managing trade finance loans. Distribution to outside investors can also free up counterparty space on balance sheets and reduce trade loan concentrations. For non-bank investors, direct or indirect investment in trade finance assets could potentially offer a relatively attractive return relative to risk.

Challenges. Discussions with market participants highlight a number of challenges to expanding the role of the non-bank investors in trade finance markets.

First, there is limited familiarity with trade finance assets outside the community of trade finance providers. Some contacts have suggested that the level of due diligence required to understand an underlying reference pool makes the need for specialised investors paramount. To engage a broader range of institutional investors – particularly for outright securitisations or direct participation in trade finance lending – considerable efforts would need to be made to educate possible investors and standardise trade finance industry terminology and products.²⁶ Insurance companies, in particular, are seen by some observers as a potentially important provider of liquidity and risk capital over time. But this will depend on regulatory treatment. For example, greater scope may exist for engaging insurance investors in Europe than in the United States, where the regulatory approach is more rules-based, placing explicit restrictions on certain asset classes.

²⁶ Efforts are under way to develop industry standards. BAFT-IFSA (eg BAFT-IFSA (2011) and (2012)), in consultation with its members, has developed suggested definitions for trade finance products.

Different approaches for the distribution of trade finance to non-bank investors

The industry has experimented with several different approaches to transfer trade finance risks to non-bank investors: (1) synthetic securitisation; (2) outright securitisation; and/or (3) direct loan sales. In addition, the direct provision of trade finance by non-bank financial institutions has also been increasing, though from a low base.

Synthetic securitisations of trade finance portfolios appear to have been the most common mode to date for involving non-bank investors. These transactions release capital for reinvestment, but do not provide liquidity relief, as banks continue to provide funding for the loans originated. In these structures, the outside investors take a first or second loss position against a portion of a bank's trade finance portfolio in exchange for a stream of payments from the bank. The investor guarantee is established via cash collateral, often held in escrow at the bank involved in the transaction.

The bank's purchase of protection allows it to reduce the risk weighting of the insured loans, and the amount of bank capital required to be held against them. (In contrast, these deals may not make a difference to non-risk-sensitive measures, such as leverage ratios). The investors achieve an equity-like rate of return against a pool of what are seen as relatively safe assets. The insured assets are typically a portfolio of funded, short-term trade loans whose composition follows predetermined guidelines for diversification and concentration. Transaction tenors have been as long as three to five years, although in some instances tenors could become as short as six months to one year, depending on exit clauses.

These transactions appear to be primarily occurring on a bilateral basis between a subset of the largest banks and a limited number of credit hedge funds. There have also been a few public deals, such as Standard Chartered's Sealane I (in 2007) and Sealane II (in 2011). In the Sealane structures, special purpose vehicles were established both to sell protection against the portfolio to the bank and to issue securities to the public.

Outright securitisations of trade finance loans would provide both liquidity and capital relief to originating banks, but do not appear to have gained much traction to date. Citibank announced the launch of a multi-bank trade programme (called Trade MAPS) in 2010, and added ING and Santander as co-sponsors in September 2011, although press reports indicate that implementation of the programme has been delayed. As described in public releases, the programme would entail a true sale of trade assets to a special purpose vehicle funded by issuance of asset-backed securities and commercial paper. The involvement of multiple banks aims to allow for greater diversification of the underlying pool of trade assets and improves access to dollar funding for participating banks.

BNP Paribas, in turn, recently marketed a trade finance securitisation of commodity receivables that is issued from a master issuer platform termed "lighthouse" and financed by four tranches of notes. A novel feature was assigning the junior (equity) tranche to act as a "control agent", which for accounting purposes allowed the originating bank to remove the assets from its balance sheet, except for its retained interest in a vertical slice of the transaction.

Direct sales of trade loans also release bank liquidity and capital for redeployment. Contacts have noted that large banks are increasingly attempting to bring investors and non-bank financial institutions (NBFIs) into their secondary market distribution efforts for syndicated trade loans. *Direct provision of trade finance by investment funds* is also reportedly picking up, albeit from a very low base. Non-bank firms involved in direct lending for trade are typically boutique NBFIs and appear to focus on customers that face constraints in accessing bank-intermediated trade finance, such as small and medium-sized enterprises in emerging markets.

Second, trade finance loans are generally viewed as low-risk, which supports narrow spreads (see Section 5.2 above). But this leaves less scope to compensate banks for originating assets while generating sufficient spread to attract outside investors and pay for due diligence assessments and deal structuring, which can be costly and time-consuming, especially when smaller trade finance exposures (which are difficult to offload individually) are being pooled and securitised. Particularly for public deals, banks must expend considerable effort to identify the appropriate reference portfolio and engage with credit rating agencies and investors. These costs may decline, though, once the infrastructure to structure such deals is in place.

Potential risks. Increased non-bank participation in funding trade finance assets in principle should make the trade finance market more resilient, by lowering linkages between originating banks' capital and liquidity position and their willingness and ability to originate trade finance loans. But to the extent securitisation grows over time, there could be a number of potential risks.²⁷

First, shifts in investor demand and funding models could introduce additional volatility into the availability of trade finance through the business cycle. For example, the attractiveness of securitisation could deteriorate quickly if the economics of the trade finance business change (eg if margins narrow or credit costs rise due to an adverse turn in the business cycle), with potential attendant risks for the supply of trade finance.

Second, given large information asymmetries, assessing and maintaining underwriting standards may become problematic, which may reduce investors' willingness to provide funds. Narrow spreads and short maturities provide limited scope to fund multiple assessments of transaction risks. But to the extent that credit evaluations are outsourced to the originator, agency problems arise that can lead to riskier-than-perceived assets being originated with insufficient risk compensation. In principle, banks have incentives to maintain their reputations for originating high-quality assets, so as to maintain the returns on their origination expertise. Yet the experience during the recent crisis suggests that these incentives can be compromised by competitive pressures, eroding underwriting standards. In addition, information flow can suffer along the securitisation chain and, in the event of deteriorating asset quality, investors may find it difficult to distinguish the roles played by adverse business conditions versus weakened underwriting. This, in turn, could lead to reluctance to fund further or roll over funding for exiting assets, triggering procyclical feedback effects.

7. Policy implications

The findings presented in the earlier sections suggest that trade finance markets are unlikely to be a direct source of financial instability due to asset quality issues. But trade finance markets can be a conduit of stress from the financial sector to the real economy. The developments following the Lehman failure, in particular, suggest that the short-term, self-liquidating nature of trade finance generates some scope for negative externalities for global trade and, hence, the macroeconomy, especially if shocks hitting the banking sector are global and a significant number of banks decide at the same time to draw on the liquidity pool that is embodied in their trade finance portfolios. In addition, trade finance may be affected more broadly by perceptions of increased counterparty credit risk in the interbank market. Even then, trade finance has shown resilience, an ability to recover quickly, once the broader shocks to banking markets begin to be contained. Trade finance began a rapid global rebound beginning in the second half of 2009 even as retrenchment continued in many other lending markets, and expanded activities by market participants from other jurisdictions enabled the market to weather reduced activity by some European banks in 2011/12 in international markets.

²⁷ See CGFS (2005) for a more general discussion of possible risks related to securitisation.

A key implication is that policies that effectively promote the overall stability of the global financial system and reduce the likelihood of systemic stress provide an essential means of insuring against instability in trade finance markets. Likewise, in the event of a potentially systemic shock, policies that directly and efficiently address any associated counterparty and liquidity concerns can substantially attenuate the likelihood of stress being transmitted through trade finance channels.

Nonetheless, the vitality and resilience of trade finance markets may evolve over time, as patterns of participation and instrumentation change, and in response to the evolving regulatory regime. Such changes may merit attention in the implementation of regulatory and supervisory policies and in the crafting of potential policy interventions specific to the trade finance market. Also, in circumstances where trade finance flows are being disrupted, experience suggests that timely complementary policies to address dislocations specific to the trade finance market can play a constructive role. Under such circumstances, policymakers would need to act quickly, in a timeframe commensurate with the short-term maturity of trade finance assets.

This suggests two broad areas for attention by policymakers: (i) measures aimed at increasing the stability and resilience of trade finance markets, both to reduce shocks and to limit the potential for negative spillovers via trade finance channels once shocks materialise; and (ii) monitoring developments in trade finance markets to enable informed policy decisions.

7.1 Enhancing the stability and resilience of trade finance

Enhancing the resilience of banking. Efforts promoting the broad stability and liquidity of the banking system also enhance the stability of trade finance. The ongoing regulatory change in the context of Basel III, with its increased emphasis on stronger bank capital cushions, reduced funding mismatches and more balanced bank funding profiles, will contribute to bank resilience and, by implication, the resilience of trade finance markets. This is also the case for the wider financial reform agenda, especially in the context of measures limiting system interconnectedness and procyclicality as well as efforts aimed at effective recovery and resolution regimes.²⁸

Ensuring appropriate treatment of trade finance assets. At the same time, the specific treatment of trade finance assets under the evolving regulatory regime could carry implications for the availability and pricing of trade finance, and the evolution of the sector's stability and resilience. Indeed, the banking industry, as well as some policymakers, has raised questions regarding certain details of the treatment of trade finance assets under Basel III rules. In particular, as discussed in more detail in Appendix 5, the industry has highlighted a number of issues related to the risk weights applied to funded and contingent trade finance assets under the capital regime, the treatment of contingent claims under the leverage ratio, and the treatment of trade finance assets and associated funding liabilities under the liquidity coverage ratio.

Adaptations have been made, including the BCBS' recent changes to the leverage ratio, addressing most of the industry's concerns. Market participants

²⁸ See FSB (2013) for an overview.

generally describe the emerging regulatory environment as much less burdensome than initially anticipated, while highlighting that some uncertainties remain about the potential impact of aspects of the liquidity coverage ratio and possibly divergent treatment across jurisdictions. The latter could affect the competitive environment and might reduce market resilience by narrowing participation. Also, current tight pricing may need to rise once all new rules are fully phased in.

Enabling competition and entry. Experience has shown that trade finance is likely to be most resilient with a wide pool of actual and potential providers, as is currently the case. This argues in favour of a level playing field in terms of regulatory implementation to avoid the risk that competitive disadvantages lead to the withdrawal of trade finance providers from some jurisdictions or markets.

Current attempts to develop securitisations based on trade finance exposures could also help to support resilience if they contribute to broadening the capital base devoted to trade finance activities and aid the provision of stable funding. Yet, with trade finance-related securitisations still in their early stages of development, the viability and net benefits of this new market segment remain very much uncertain, suggesting that developments in this area may merit attention going forward. This applies, in particular, for their effects over time on the composition of the trade finance investor community and any associated risks, such as adverse effects on underwriting standards or the concentration of exposures on the balance sheets of particular investors.

Responding to stress and limiting spillovers. Because of the role that trade finance can play in transmitting stress from the financial system to the real economy, it is conceivable that circumstances could call for a crisis response aimed at limiting the impact of any banking sector stress on trade finance markets. This raises issues in terms of preparedness as well as instrument choice, for which the recent crisis experience may offer several potential lessons:

First, general crisis management steps that limit banking sector stress directly will support trade finance markets as well. For example, during the financial crisis, major central banks injected large amounts of domestic and foreign currency liquidity into their respective banking sectors and indirectly helped to stabilise bank funding markets through a variety of other measures, such as removing troubled assets from bank balance sheets. This reduced the need for banks to run off their trade finance portfolios and helped to stabilise market confidence, limiting pressures on the trade finance market from counterparty credit and funding risk concerns. The ability to conduct such operations was aided in some cases by the rapid mobilisation of temporary central bank swap lines (see CGFS (2010, 2011)).

Second, measures that support the availability of financing for trade, such as trade credit insurance or public and private sector risk-sharing, can be beneficial. There is evidence, for example, that public sector support for enhanced trade facilitation programmes at ECAs and MDBs helped to stabilise trade finance markets in 2008/09. In addition, the Brazilian and Korean central banks, being unable to address the liquidity and capital concerns weighing on the provision of trade finance by international banks, took measures to directly support trade finance in their own jurisdictions (see Box 3).

As regards preparedness, the crisis experience generally places a premium on the authorities' ability to act fast, as trade finance can run off quickly and may be difficult to replace under conditions of stress. The crisis evidence suggests that measures have generally worked better in those cases where mechanisms for the

provision of such support were already in place and could be flexibly adapted to suit new market conditions. For example, jurisdictions that had well established trade facilitation programmes before the crisis appear to have responded faster and seem to have been more effective in cushioning the impact of reduced trade finance activity on the volume of trade than those setting up new facilities as a crisis response (see Box 3).

7.2 Monitoring trade finance markets

The current condition and recent resilience of trade finance markets do not suggest a need for a major monitoring or data gathering effort on an ongoing basis. However, to ensure that there is sufficient information to allow policymakers to assess the extent and impact of actual or suspected dislocations in trade finance markets in a timely fashion, and to devise appropriate policy responses as needed, it can be useful to keep track of trade-finance market developments in a more ad-hoc fashion. Such an approach would leverage off existing data sources and other information to track broad developments in size and instrumentation over time, combined with a capacity to obtain for relatively detailed and timely information once stress materialises.

Driven in part by regulatory developments, there are signs that the sector is undergoing incipient structural change, including the entry of new market participants and efforts to develop securitisation structures that would help minimise capital and balance sheet usage for the banks involved in trade finance activities. Also, as discussed in Section 4 the growth of new product lines, such as supply chain finance, can have important implications for market functioning and growth, and may be imperfectly captured by existing data. This underscores the importance of understanding current market dynamics and being able to track structural changes over time to assess the potential for negative effects, such as weakened underwriting standards or less stable funding conditions for trade finance markets. This will put a premium on market intelligence.

Existing data. The previous sections of this report suggest that, despite shortcomings in terms of data availability, there are a number of data sets and other sources of information that, in combination, can help central banks and other policymakers in keeping track of broad trends in trade finance markets. These data can also be used to support the identification of the need for, and scale of, any policy measures in support of these markets.

The monthly frequency and global reach of the SWIFT data make them a potentially useful tool for gauging possible sudden changes in trade finance markets at both the global and country levels, notwithstanding the decreased importance of L/Cs. Currently, monthly messaging data are publicly available with less than a two-month delay.²⁹ Additional detail in terms of volumes, historical data and country-level information is accessible on a proprietary basis; broader access to

²⁹ The monthly publication “SWIFT in figures – FIN traffic” on the SWIFT website reports a category “trade” comprising of all trade related messages (category 4 and category 7). These messages capture a large range of administrative or technical messages related to the processing of L/Cs and documentary collections. As there is some correlation between the total number of trade messages and the opening of L/Cs (message MT 700), the monthly SWIFT numbers can provide some rough indications about developments in trade finance markets. Yet the limitations are evident.

these more granular SWIFT data could significantly enhance regular monitoring of trade finance developments.

National data sources and industry surveys (such as the IIF's EMLC, and reports of the ICC), in turn, provide a useful window into specific market segments, in spite of differences in coverage across jurisdictions and data sets.

Possible data enhancements. Further steps by the private and public sector could help to improve data availability and quality going forward, and would be likely to have positive implications for the industry. Currently, a more detailed coverage of global trade finance activities via harmonised statistical reporting frameworks (such as national flow of funds statistics) is complicated by ongoing changes to market modalities and the lack of agreed definitions even amongst banks. But current industry efforts to promote more standardised terminology and instrumentation, and to comply with aspects of capital requirements that give beneficial treatment to trade finance assets, could make these issues more manageable. Consideration could also be given to encouraging more general and more uniform public disclosure by banks of the evolution of their trade finance assets and flows.³⁰

Leveraging off existing higher-frequency survey efforts to collect additional detail on trade finance markets could potentially help to qualitatively assess demand and supply conditions in trade finance markets in a relatively cost-effective fashion. An example of such a potential improvement would be inclusion of trade finance in the bank lending surveys beyond the IIF's EMLC (eg by the IIF surveying non-EM banks regarding trade finance trends).

Market intelligence. Even with these improvements, however, more in-depth assessments would be likely to require more granular and/or more timely information on particular market segments or trends, which would have to be collected on an ad hoc basis employing information from soft sources, such as market intelligence. This would be particularly important in the context of assessing the impact in stressed conditions and more nascent developments and their implications, such as recent attempts to securitise trade finance exposures.

³⁰ This could be done, for example, as part of the FSB-sponsored Enhanced Disclosure Task Force (EDTF).

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Appendix 1: Study Group mandate

Scope of work

To help the central bank community better understand the structure and functioning of trade finance markets, the CGFS is establishing a Study Group on “Trade finance: developments and issues”. The Group will involve central bank staff familiar with trade finance issues. Its main aims are to improve information on trade finance, explore how central banks can co-operate in better tracking trade finance developments and assess structural change in trade finance markets and its implications for financial stability. The Group’s analysis will be complemented by market intelligence.

Work will proceed in two stages. Stage 1 will be a fact-finding exercise, where the Group will pull together trade finance-related information from central banks and other sources and engage in outreach to market participants to establish the key structural features of trade finance markets, trends underway, and how current market conditions and drivers compare with past developments, including the retrenchment experienced in 2008. On this basis, Stage 2 could then consider the driving forces behind ongoing trends, as well as the significance of observed changes from a market functioning and financial stability perspective, with a view to formulating implications for policymakers.

Key questions to be addressed would include:

Stage 1: Fact-finding – market structure and ongoing trends

- *Trade finance data:* What are the key sources of information (eg, central bank data, Berne Union, ICC, SWIFT; flow-of-funds data; or ad-hoc surveys) and how can they be combined to better understand trade finance markets? How can central banks co-operate in better tracking trade finance developments? Are there any data gaps that need to be filled for a comprehensive analysis?
- *Trade finance market structure:* What are the key structural features of and trends in trade finance markets? In terms of volumes and pricing, how does open-account finance compare to bank-based trade finance (eg through letters of credit, loans or credit lines) and the financing or guarantees provided by export finance agencies? How has the importance of different market segments, the composition of market participants, and the availability of trade finance changed over time (including the retrenchment episode in 2008)?

Stage 2: Drivers and implications

- *Trade finance drivers:* What are the driving forces behind the ongoing changes in trade finance markets? Are regulation and financial innovation playing an important role? Are changes likely to be structural or cyclical? How do current market conditions and drivers compare with past developments, including the retrenchment experienced in 2008?
- *Market and policy implications:* What is the significance of observed changes from a market functioning and financial stability perspective? What policies have been implemented in recent years to address dislocations in trade finance and are those policies viewed as effective in mitigating vulnerabilities (including

those related to the volume of international trade)? Do some market responses, such as attempts to use structuring technology, have broader implications? How much scope is there for entry of new market participants, such as investment boutiques, and how could that affect the availability of trade finance and the susceptibility of the market to shocks? Are developments in trade finance and their implications also relevant for other areas of specialised finance (such as project and infrastructure finance)?

Process

The Study Group will be chaired by John Clark (Federal Reserve Bank of New York) and will work through teleconferences and face-to-face meetings. It will aim to provide a progress update, based on its Stage 1 results, at the May 2013 CGFS meeting. Building on this and any guidance received from the Committee, a final draft report could then be prepared for the CGFS meeting in November 2013.

Appendix 2: Background on trade finance and trade credit

In international trade transactions – as with any purchase or sale of a good or service – there is typically a lag between the time at which the good or service is provided and the time at which payment is settled, necessitating the extension of credit by one party to the other.

Global and local banks facilitate international trade by providing “trade finance” – a broad range of banking products which help importers and exporters manage international payment risks and access working capital financing that is directly tied to their international trade transactions. The inter-firm extension of credit among involved parties is commonly known as “trade credit” and typically leaves importers and exporters bearing trade settlement risk. Exporters and financial intermediaries engaged in trade finance can also mitigate the risk of non-payment by using export credit insurance provided by public export credit agencies (ECAs) or private insurance firms.

Bank-intermediated trade finance

A number of bank-intermediated trade finance products are employed to reduce risks related to international payments between importers and exporters.

Letters of credit (L/Cs). L/Cs are one of the most common bank-intermediated trade finance instruments. Typically they have short-term tenors (less than 90 days). An *import L/C* is a commitment by a bank on behalf of the importer that payment will be made to the exporter, provided that the terms and conditions stated in the L/C have been met, as verified through the presentation of all required documents. The importer pays his bank a fee to render this service, while the goods that are being transacted serve as the bank’s collateral. The exporter, in turn, may engage its own bank to provide an *export confirmed L/C*, which would guarantee the payment from the importer’s bank. These L/Cs may be funded or unfunded depending on the point within the trade transaction cycle.

Banks also provide *performance guarantees* or *performance standby L/Cs*, which guarantee the obligations of the exporter or importer to perform according to the contract. These are typically off-balance sheet obligations which are unfunded until the exporter or importer fails to fulfil its contractual obligations.

An L/C or guarantee is useful whenever reliable credit information about a foreign importer is difficult to obtain, but the exporter (or its bank) is satisfied with the creditworthiness of the importer’s bank. The L/C protects the importer because no payment obligation arises until the goods have been shipped or delivered as promised, removing the risk of shipment of goods other than those ordered.

Documentary collections. Under this scheme, the importer benefits from not having to pay for the goods in advance, while the exporter can essentially withhold the relevant documents that allow the importer to take possession of the shipped goods until payment has been made. A documentary collection is a transaction whereby the exporter entrusts the collection of payment to the remitting bank (exporter’s bank), which in turn sends documents to a collecting bank (importer’s bank), along with instructions for payment. Funds are received from the importer and remitted to the exporter through the banks involved in the collection in exchange for those documents. The banks’ liability is limited to the forwarding and

release of documents against payment and acceptance or promise of payment by the importer.

Bank-intermediated trade finance also encompasses a wide range of products that provide working capital financing to both exporters and importers which is specifically tied to underlying international trade transactions (exports or imports). These types of trade finance products typically have shorter-term tenors (on average 3.5 months, see Table 4), but some transactions, particularly for capital goods, may be supported by longer-term credits. A few examples include:

- **Pre-export finance**, in which a bank provides short-term finance to cover ongoing costs for the exporter (such as payment of suppliers, production and transport) before shipment in a similar way to traditional working capital finance but takes a security interest in the goods being shipped and receives a right to payment for those goods directly from the importer.
- **Supplier credit**, in which bank financing is provided to cover an exporter's cash needs when extended or deferred payment terms are offered to the importer.
- **Receivables discounting**, which involves a bank purchasing the exporter's accounts receivables at a discount and assuming risks of non-payment. *Forfaiting* is similar, but typically involves medium-term accounts receivables for exporters of capital goods or commodities with long credit periods.
- **Import and export loans**, which may entail the bank advancing cash to the importer or exporter on presentation of appropriate documentation. This type of financing may also be linked to an L/C.
- **Supply chain finance (SCF)**. SCF is a relatively new and expanding business area for banks that entails combinations of technology and services to facilitate processing and financing of payables and receivables within a global supply chain. The supply chains are typically anchored around the global purchases and sales of a major retailing or manufacturing firm. The financial services within the SCF platform may involve many elements of traditional trade finance (eg pre-shipment or post-shipment finance, receivables purchases or discounting), with the notable exception of letters of credit. Attractions for participants include the possibility of optimising payment and financing terms to suppliers and improving working capital both for suppliers and sellers. Because the supply chain funding centers on purchase commitments by the buyer, SCF offers the possibility of funding rates based on the buyer's credit worthiness or rating rather than on the supplier.

Inter-firm trade credit

Inter-firm trade credit can be either on an *open account* basis or on a *cash-in-advance* basis. In open account transactions, the exporter extends credit to the importer by shipping and delivering goods before payments are due (which is usually within 30 to 90 days). This option is the most advantageous to the importer in terms of cash flow and cost, and consequently presents the highest risk for the exporter, who is exposed to the risk of non-payment. In a cash-in-advance transaction, the importer pays the exporter upfront, and the associated cash flow and settlement risks are reversed. This option is less frequently used.

Inter-firm trade credit offers lower fees and more flexibility compared with bank-intermediated products, but leaves firms bearing more payment risk, and potentially faced with a greater need for working capital. Hence the reliance on

inter-firm credit is more likely among firms that have well established commercial relations and/or are in jurisdictions that have reliable legal frameworks for collection of receivables. Exporters' ability to extend credit to importers is enabled in part by their receipt of inter-firm trade credit from their domestic and international suppliers, as well as possibilities to discount their receivables, eg via factoring and discounting. The availability of financing from banks and capital markets that is not tied to trade transactions, which some practitioners refer to as "clean" trade finance, also enables firms to extend trade credit to their clients.

Given the expanding role of global multinational companies, a growing share of inter-firm trade credit is related to trade between two affiliated companies where these considerations are less important in comparison to managing the companies' cash flows.

Export credit insurance

Instead of using bank-intermediated trade finance products such as L/Cs, exporters can also mitigate the risk of non-payment by purchasing export credit insurance from private insurance firms (typically for shorter-term financing) or obtaining guarantees from public export credit agencies or ECAs (typically for export loans of two years or longer). These firms typically insure against default by the importing firm and political risk. Banks may also seek ECA guarantees for particular international trade transactions to mitigate risks of non-payment from other banks or from customers.

The Berne Union tracks both short-term trade credit insurance and longer-term trade credit and guarantees provided by member private credit insurers and ECAs. These data show that around 9% of global trade has benefited from support in recent years, with most of the volume coming from short-term guarantees.

Appendix 3: Further information on trade finance data

Additional characteristics of national bank-intermediated trade finance data

Table A3

	Data description	Availability and frequency	Source
Australia	Stock of banks' contingent liabilities arising from trade-related obligations (eg documentary L/Cs issued, acceptances on trade bills or shipping guarantees issued).	2002 / quarterly	Reserve Bank of Australia (not public)
Brazil	Stock and flows of resident banks' trade finance vis-à-vis residents for exports and imports. Also information on maturities, prices and delinquency rates of trade credit lines.	2000 / monthly (further detail since 2007 and 2011)	Central Bank of Brazil
Canada	No data available.		
China	Stock of on-balance sheet short-term foreign exchange loans from the Foreign Exchange Credit Survey.	2000 / monthly	People's Bank of China
ECB	No data available.		
France	Stock of trade finance, including both buyer and supplier credit lines.	1994 / quarterly	Bank of France
Germany	Estimations for the volume of short-term trade finance to emerging and developing countries, covering maturities of 12 months or less. Statistical enhancements are currently being implemented.	2004 / quarterly	Deutsche Bundesbank (not public)
Hong Kong SAR	Stock of on-balance sheet trade finance exposures broken down by HK-related trade and trade not touching HK.	1981 / monthly	HKMA Monthly Statistical Bulletin
India	Stock of short-term loans and advances of pre- and post-shipment bank-intermediated export credit, as well as stock and flows of import credit extended by banks with maturities of less than three years.	2002 / quarterly	Reserve Bank of India
Italy	Stock of loans and guarantees for import and export purposes by domestic banks.	1997 / monthly	Italian credit register (not public)
Japan	No data available.		
Korea	Stock of documentary bills, domestic import usance bills and pre-shipment finance.	2003 / quarterly	Bank of Korea, Financial Supervisory Service
Mexico	Stock of trade-related loans by non-Mexican financial institutions to Mexican residents and stock of exposures by the Mexican export and import bank.	2000 / quarterly	Bank of Mexico and Eximbank of Mexico (Bancomext)
Netherlands	No data available.		
Spain	Stock of commercial credit to non-residents and documentary credit to residents and non-residents, granted by banks operating in Spain.	2004 / quarterly	Bank of Spain (not public)
Sweden	No data available.		
Switzerland	No data available.		
United Kingdom	Estimates derived from reported amounts for 'lending under ECGD bank guarantee' and 'holdings of non-resident bills' which may be discounted for trade finance purposes.	2005 / quarterly	Bank of England (not public)
United States	Stock of bank-intermediated, short-term trade finance (including funded loans and unfunded off-balance sheet commitments and guarantees) vis-à-vis foreign residents on an ultimate risk basis.	1997 / quarterly	FFIEC Country Exposure Lending Survey

Appendix 4: Estimating the size of the global bank-intermediated trade finance market

As no single source provides an accurate picture of the global bank-intermediated trade finance market, this Appendix discusses how the Group estimated the size of the global market and how to relate this to trade. As coverage is best, data for 2011 are mainly used, cross-checked with other available evidence.

The global bank-intermediated trade-finance market

The Group estimates that around one third of global merchandise trade benefits from some kind of bank-intermediated trade finance. For 2011, its best estimate for the annual flow of trade finance is US\$ 6.5–8 trillion. This is a broad-brush estimate that relies on a number of assumptions for approximating missing data, but is consistent with a number of rules of thumb suggested by discussions with market experts.

National data form one starting point for estimating the global size of the trade finance market. As only stocks are available (with the exception of Brazil), an important question is how to convert stocks into flows to ensure comparability with trade flows. In India and Mexico, average maturities are known to be six and 12 months respectively.³¹ In other cases, an average maturity of 90 or 120 days is assumed, in line with the ICC data (see Table 4). However, an additional adjustment is made for the presence of longer-term debt in the stock numbers. For these countries, the Group assumed an average maturity of four months. Across countries, this assumption implies an average ratio of trade finance to merchandise trade (average of exports and imports) of between 31 and 34% without any adjustments (Table 2).³²

The global estimate of US\$ 6.5–8 trillion for 2011 is consistent with scaling up the estimated flow implied by national stock data, to adjust for geographical coverage, plus adding another margin to adjust for gaps in data coverage in the national data. The sum of national data implies an annual flow of trade finance of US\$ 2.5–2.7 trillion (Table 2). Two factors need to be considered to scale this value to the global level. First, the group of countries covered accounts for only about half of world trade flows. Second, with the exception of a very few countries, there are generally major gaps in data coverage (see Table 1). For example, data often only account for lending to either residents or non-residents. Also, L/Cs and other off-balance sheet commitments are mostly not captured, even though these account for as much as half of trade finance exposures for global banks (see Table 4) and a significant, albeit slightly lower share of the activity in the countries where this is captured by national statistics. On the other hand, there is some degree of overlap in that exposures of cross-border branches and/or subsidiaries may be captured by both the home and host country reporting system (eg trade finance exposures by a US subsidiary in Korea are both picked up in the US and Korean data).

The group estimates that about one third of global trade transactions benefit from one or more trade finance products, a somewhat lower proportion than would

³¹ The long maturities in Mexico may reflect the fact that only foreign banks' activities and the export import bank are covered. In particular, the latter may have a very different business model.

³² Throughout this report, trade is measured by merchandise trade (ie trade in goods) rather than trade in goods and services.

come from dividing the total flow of trade finance by global trade. This reflects an adjustment for the fact that some trade transactions may be supported by more than one trade finance product. For example, around 20% of trade finance exposures in the ICC trade register are interbank loans specifically tied to trade (see Table 4), such as when for example a bank funds its underlying exposures to exporters or importers with loans from other banks that are specifically tied to funding international trade, or involve a bank guaranteeing (confirming) an L/C written by another bank. Further, an L/C may be used to obtain a funded loan. It may also be the case that both the importer and exporter receive trade finance. Taking a conservative approach to correct for these factors, the group therefore adjusted the ratio of trade finance over trade by a factor of 0.8.

The global estimate is broadly consistent with several rules of thumb suggested by conversations with market participants. Global banks that participate in the ICC trade register are believed to have a market share of around 25–30%. As the trade register captures a flow of trade finance products of around US\$ 2 trillion in 2011, these market shares would imply a global volume of trade finance of US\$ 6.5–8 trillion. These estimates are also consistent with the global volume of L/Cs if the share of L/Cs in all trade finance products is in the range of 35–45%, in line with national data. Last, whilst limited and highly uncertain given the lack of underlying detail, extrapolations from public disclosures of a few of the global leaders leads to ranges with similar midpoints.

The global market for L/Cs

The global volume of cross-border commercial L/Cs should correspond closely with the volume of L/Cs recorded by SWIFT. On that basis, the global volume of cross-border L/Cs was around US\$ 2,800 billion in 2011 and 2012, suggesting that around 15% of merchandise trade has been financed by this instrument.³³ Aggregate SWIFT MT700 message traffic (which captures the opening of a documentary credit, but not the subsequent traffic related to a given credit) may somewhat over- or underestimate the global volume of L/Cs for several reasons. First, according to the industry only about 90% of worldwide L/C transactions are processed by SWIFT (eg ICC (2013b)). The main reasons for banks to not use SWIFT are either that the transaction is intragroup, or that one (or both) of the banks involved is not connected to SWIFT. The former may occur when a global bank acts as both the issuing and confirming bank for a given transaction, while the latter occurs more often for business with small-sized banks, especially in countries with very high commercial default risk. On the other hand, around 10% of L/Cs processed by SWIFT are not related to cross-border but domestic trades (ICC (2010)).

When available, national data provide a broadly consistent picture. In Turkey, the share of L/Cs and documentary collections amounts to 11% for exports and 15% for imports in 2012. In Korea, the share of L/Cs amounts to 14% for exports and 21% for imports in 2012. For China, estimates range from 20 to 35%. Using data on the stock of import guarantees, the implied share of L/Cs in Italy is 9%. Ahn (2013) reports that L/Cs finance 10% of trade in Chile and 4% of imports in Colombia.

³³ These figures exclude standby L/Cs and guarantees. Messages to issue or request the issue of a guarantee or standby L/C carry a different MT code (MT 760).

Appendix 5: Recent regulatory reforms and trade finance

Basel III with its increased capital and liquidity requirements will enhance the resilience of banks, and hence the resilience of trade finance to external shocks. Nonetheless, the banking industry has raised a number of specific concerns about the impact of certain parts of the reforms on its ability to provide trade finance in a cost-effective fashion. This appendix summarises the main issues raised by the industry and discusses the response of the Basel Committee (BCBS (2011)) as well as aspects of the national implementation of the reforms in the European Union, Japan and the United States. The Group's industry interviews suggest that these responses have helped to address most of the industry's concerns.

Calculation of risk weights

The BCBS's risk-based capital regime has never required large amounts of capital for trade finance exposures given the relatively low risk. However, the industry highlighted four main areas of concern regarding the calculation of risk weights under Basel III and its impact on trade finance markets:

One-year maturity floor. For the calculation of risk-weighted assets (RWA) under the Basel II Advanced Internal Ratings Based (IRB) approach, a one-year floor was established for the minimum effective maturity. National authorities, in turn, were given discretion to relax this requirement for trade finance products.

In the Basel III context, the BCBS agreed to waive the one-year maturity floor for self-liquidating trade finance instruments (including both issued and confirmed self-liquidating letters of credit (L/Cs)) with an original maturity of less than one year as the rule rather than an item left to national discretion. Other trade finance transactions can also be exempted, subject to national discretion. The implementation in the European Union, Japan and the United States follows the BCBS agreement.

Sovereign floor. Under the Basel II Standardised Approach, no claim on an unrated bank could receive a risk weight lower than that applied to claims on its sovereign of incorporation (varying between 0 and 150%). There are two options to implement this: under option 1, all banks receive a risk weight that is one notch less favourable than that assigned to claims on the sovereign of that country. Option 2, in turn, bases risk weights on the external credit rating of the bank itself or applies a risk weight of 50% for unrated banks, with claims having an original maturity of three months or less (as is typical for trade finance products) being subject to lower risk weights than those for longer-term claims.

The BCBS agreed to waive the sovereign floor for short-term self-liquidating L/Cs under the option 2 treatment, allowing banks to take advantage of reduced risk weights. In terms of implementation, the European Union applies option 2 and waives the sovereign floor for all trade finance products. Japan and the United States, in contrast, apply option 1, but the United States also grants an exception to the sovereign floor for L/Cs.

Credit conversion factor (CCF). Under the Standardised Approach, a 20% CCF is applied to L/Cs to capture the likelihood that this off-balance sheet position may become an on-balance sheet exposure.

The BCBS decided to keep the current CCF for L/Cs under the Standardised Approach, arguing that currently available data do not justify a lower CCF. But it supports the industry's work to strengthen trade finance data. This treatment has been maintained by the European Union, Japan and the United States.

Asset value correlation (AVC). Under the IRB framework, this factor aims to capture the correlation between the value of claims within the same borrower category (eg corporate, sovereign and bank exposures). Basel III introduced a multiplier of 1.25 to be applied to the AVC formula in the case of exposures to large regulated financial institutions or to unregulated financial institutions, regardless of size. The industry argues for a separate, lower AVC for trade finance-related products and trade-related interbank exposures.

The BCBS has not revised Basel III treatment in this area. No exception is made for trade finance exposures in the European Union, Japan and the United States.

The leverage ratio

The Basel III leverage ratio is intended as a simple backstop to the risk-based requirements established by Basel III. Per the original rules (BCBS 2010), the BCBS generally applied a uniform 100% credit conversion factor (CCF) to all off-balance sheet exposures (a 10% CCF was envisaged for any commitments that are unconditionally cancellable at any time by the bank without prior notice). The trade finance industry has argued that a materially lower CCF would be more appropriate because few contingent trade instruments get converted from off-balance sheet to on-balance sheet, and that a 100% CCF may therefore adversely affect the provision of trade finance when banks make portfolio choices in light of the internal capital allocation process.

The Basel Committee (BCBS 2014) recently decided to apply a 20% CCF to short-term contingent trade finance assets (short-term self-liquidating trade letters of credit arising from the movement of goods (eg documentary credits collateralised by the underlying shipment)). The European Union's Basel III implementation already envisages a 20% or 50% CCF for contingent trade finance assets, depending on the risk of the exposure. The US implementation of the leverage ratio envisages a 100% CCF for contingent trade finance assets, consistent with the then current Basel Committee proposal. However, the US banking agencies indicated that they will consider changes as the BCBS revises the Basel III leverage ratio. In Japan, implementation of the leverage ratio is not yet finalised.

Liquidity regulation

The industry has voiced concerns about possible negative effects of the Liquidity Coverage Ratio (LCR) for the availability of trade finance.

With respect to the original LCR specification (BCBS, 2010), the industry raised questions about the calculation of cash outflows and inflows, which in turn determine net-cash outflows and thus the denominator of the LCR. First, the assumed outflow rate (ie the rate at which contingent assets might need to be funded) for trade finance-related contingent facilities (such as L/Cs) was left open to national discretion, raising fears that applied outflow rates could be similar to those for other contingent liabilities (with outflow rates ranging from 5 to 100%, depending on the nature of the exposure) and, hence, too high. Second, for inflows,

the LCR assumes inflows equal to 50% of payments contractually due within a 30-day horizon from corporate clients, which the trade finance industry thought was too low. The 50% inflow rate reflects an assumed 50% rollover rate for corporate clients. In addition, the industry argued to waive the overall cap on inflows related to trade-finance exposures.

The revised specification of the LCR (January 2013) now includes guidance to indicate that a low outflow rate (0–5%) is expected to apply to contingent trade finance exposures. The BCBS has not changed its positions concerning the calculation of inflows, arguing that the assumed cap is an important mechanism for avoiding unnecessary cyclicality in credit availability during times of stress. The Committee believes that higher caps, while potentially making trade finance (and other products) less expensive in good times, could thus act as a brake on the availability of finance in stressed periods. The regulatory framework in this area has not yet been finalised in Japan and the United States. The European Union's Basel III implementation, in contrast, departs from the Basel III standard by providing a 100% inflow rate for all trade finance receivables with a remaining maturity of 30 days or less, regardless of the type of counterparty.

Appendix 6: Overview of the literature

This appendix summarises insights from the literature on the effects of trade finance, trade credit insurance as well as trade credit on trade.

The impact of trade finance on trade

Surveys. In response to the lack of comprehensive data and reports of dislocation in the trade finance market in 2008–09 and subsequently, the IMF in conjunction with BAFT-IFSA as well as the ICC Banking Commission conducted a series of bank surveys to provide insights into trade finance market conditions. The World Bank also conducted a survey in early 2009 of firms and banks in 14 developing countries to gauge the impact of trade finance disruptions. Overall, these surveys point to a significant tightening in conditions in bank-intermediated trade finance markets during the 2008–09 financial crisis. Results from the IMF and World Bank surveys also suggest that the reduced availability of trade finance played a role in the decline in trade activity at that time, even though it does not appear to have been the primary driver of this decline.

IMF/BAFT-IFSA surveyed banks in March and June 2009 as well as April 2010 about changes in the value and costs of their trade finance operations and the underlying drivers. Results indicate that bank-intermediated trade finance fell sharply between the final quarter of 2008 and the second quarter of 2009, before largely retracing over the second half of 2009. In each of these surveys, a “change in the value of trade” was the most widely cited reason for the decline in trade finance outstanding, though supply side factors were also prominent (Graph 8, left-hand panel). Conducting a detailed analysis of the survey evidence from the 2008–10 IMF-BAFT surveys, Asmundson et al (2011) conclude that shocks to trade finance during the 2008–09 crisis played a role in the decline in trade activity, though they were not the primary driver. A key to their conclusion is the finding from the surveys that the value of global merchandise trade consistently fell more sharply than the value of bank-intermediated trade finance over the survey periods examined.

The World Bank’s survey of non-banks found that a lack of new orders and cancelled orders was the main driver of reduced exports in late 2008-early 2009, cited by 51% and 18% of respondent firms, respectively (Malouche (2009)). However, financial constraints on buyers (25%) and exporting companies (7%) also played a role. In response to a separate question, 25% of firms stated that reduced pre-export financing had become more of an obstacle after September 2008, with one third of firms characterising this as a major obstacle to exports. Participating banks cited drop in demand as the main reason for reduced trade finance lending, followed by credit concerns.

Results from the ICC surveys on the drivers of declines in bank-intermediated trade finance during the crisis period tended to point to credit decisions by banks as a main driver of reduced credit availability. The 2009 and 2010 surveys both point to more stringent credit criteria as the main driver behind reduced availability of trade finance (76% in the 2010 survey), followed by internal capital allocation restrictions. In the 2010 survey, banks also mentioned exiting customer relationships due to credit deterioration, and exiting markets. Reduced interbank lending was cited in both the 2009 and 2010 surveys, but much less frequently. The IMF/BAFT-IFSA and ICC surveys also point to a widespread increase in pricing of banks’ trade finance instruments, reflecting higher funding costs, increased capital constraints and

greater counterparty risk. Furthermore, the ICC surveys point to increased scrutiny of documents, leading to high rates of initial rejection due to discrepancies.

Survey and industry data also suggest a shift towards bank-intermediated trade finance from open account transactions during the 2008–09 financial crisis. The IMF/BAFT-IFSA surveys generally suggest that the share of world trade supported by bank-intermediated trade finance increased moderately. Around half of the banks surveyed by the ICC in 2010 reported an increase in demand for traditional trade finance instruments.

There was also a relative increase in the use of other credit enhancements, such as export credit insurance. New business covered by Berne Union members decreased by less than 10% in 2009 and outstanding exposures fell by only 5%, mainly in short-term export credit insurance, which was much smaller than the observed decline in trade. Many members reported a significant increase in demand for export credit insurance during this period (Berne Union (2010)). However, there was a significant shift in market composition, with private insurers' share of short-term credit limits declining from 85% prior to the crisis to 72% in 2010 (Morel (2010)).

In response to concerns about the impact of developments in Europe on trade finance conditions, in December 2011 the ICC and the IMF carried out a joint survey of nearly 500 banks regarding the market outlook for 2012. The results indicated widely divergent expectations for demand across regions, with reduced demand for trade finance generally expected in the euro area and to a lesser degree in Central and Eastern Europe and increased demand expected in most other EMEs, particularly in Asia. The most common explanation for expectations for trade finance activities to "deteriorate" was less credit from counterparties and internationally active financial institutions, followed by reduced demand for trade. Three quarters of respondents said that European bank deleveraging would cause tightening of lending guidelines and reduced credit and liquidity, targeting specific countries or clients. A substantial proportion of respondents opined that preparations for Basel III had impacted the cost of funds and credit availability to a large (30%) or moderate (44%) extent.

More recent survey evidence points to a broad improvement in conditions in trade finance markets since the crisis. Around 70% of respondents to the ICC's latest survey (ICC (2013)) reported an increase in trade finance revenues in 2012, with two fifths indicating that more credit lines for corporate customers were available. The rise in fees for trade risk after the 2009 trade collapse was thought to have abated. However, pockets of stress remain, and many companies, especially SMEs in emerging markets, reportedly continue to rely on loans in local currency or overdrafts to finance exports and imports. In line with these findings, the Institute of International Finance (IIF) Emerging Markets Bank Lending Conditions Survey suggests that, on balance, trade finance credit conditions have generally been easing since the quarterly survey was first conducted in late 2009; the pace of easing was temporarily disrupted in late 2011 (see Graph 7).

In late 2012, the Asian Development Bank conducted a survey of banks to assess the state of trade finance "gaps" (ie the extent to which banks have been unable to meet the demand for trade finance from their customers) and the effects on economic activity. The survey suggests that the global value of trade finance requests received in 2011 by participating banks was around US\$ 4.6 trillion (US\$ 2.1 trillion in Developing Asia), of which around US\$ 1.6 trillion was rejected. This in turn is interpreted by Beck et al (2013) as a "trade finance gap" of

\$US 1.6 trillion, with a gap of US\$ 0.4 trillion in Developing Asia. However, by construction, the approach would be biased upward by potentially including rejections of the same customer by multiple banks, and making no allowance for an appropriate rate of rejection. The most commonly cited reason for rejection (83%) was previous difficulties with the payment record of the correspondent bank involved in the transaction.

Academic literature. Much of the empirical work examining the effect of a breakdown in the provision of trade finance on international trade stems from the investigation of the collapse in trade observed during the global financial crisis. The fall in real global trade recorded over the year to the first quarter of 2009 exceeded the fall in global output by roughly four times.

Because the declines in trade finance and trade volumes occurred over the same period, establishing the direction of causality between the two variables presents a challenge. Moreover, severe trade finance data limitations make estimation difficult, including separating the effects of trade finance from the deterioration in broader financial conditions. To address these challenges, the literature has used a variety of approaches, including case studies where more detailed firm-specific export and financial data are available or using proxy data to estimate the impact of swings in trade finance availability and usage, as well as attempting to quantify the extent to which alternative factors may have accounted for the observed fall in international trade flows in a given window. Results from the literature are mixed but, on balance, suggest that trade finance did play a role in the collapse in trade.

There is substantial evidence that changes in demand can explain a large proportion of the observed decline in trade. For example, assuming a relatively high GDP-trade elasticity, standard economic models are able to account for 70–80% of the decline in global trade observed during the crisis (see eg Ahn et al (2011)). Using input-output tables, Bems et al (2010) showed that close to 60% of the decline in trade in 55 countries could be explained by the actual changes in demand in those countries. Eaton et al (2011) use a multilateral general equilibrium model to interpret detailed international trade data. Counterfactual simulations of the model show that a shift in spending away from manufactures, particularly durables, accounts for more than 80% of the reduction trade/GDP. Bems et al (2012) suggest there is a consensus in the literature that compositional effects associated with changes in final expenditure were the main contributor to the decline in global trade during this crisis, accounting for around three quarters of the relative decline in trade volumes.

Studies which used direct firm-level measures of funding often found a significant contributory role for financial shocks at funding banks impacting exports in 2008–09. But several papers found that the channel was not necessarily through trade finance. Amiti and Weinstein (2011) matched data on Japanese exporters with an indicator of financial stress for their lead foreign trade bank. They found financial stress at the lead bank led to reduced lending overall, with a greater percentage decline in trade finance, and lower exports. Their results suggest that up to one quarter of the decline in Japan's exports in 2008–09 could have been due to financing disruptions. Del Prete and Federico (2013) matched Italian manufacturing exporters with banks. They show that banks' funding shocks during the crisis affected exports, and firms' exposure to the shock increased with bank borrowing. However, they found this outcome was explained by the reduced availability of long-term investment loans, rather than trade finance constraints. Similarly,

Paravisini et al (2011) studied the effect of credit supply shocks on exports of Peruvian firms during the crisis, finding that credit supply shocks negatively affected exports, but that this reflected constraints on availability of working capital, rather than constraints unique to trade finance. In contrast, Behrens et al (2013) find that limited access to credit had no effect on exports of Belgian firms during the crisis; for imports, they find a marginally negative effect, but this effect could not be uniquely attributed to trade finance. Also, Bricongne et al (2012) use a data set of French firms that matches monthly customs export data with firm-level credit constraints, and show that most of the 2008–09 collapse in trade was driven by demand and product characteristics. However, the authors do find that credit constraints amplified the collapse for financially constrained firms in sectors that are highly dependent on external financing, namely small firms.

In addition, several researchers using proxy measures have found suggestive evidence that trade finance constraints may have impacted industries and flows that were relatively dependent on trade finance, though others found quite different results. For example, Chor and Manova (2012) find that countries with a higher cost of credit (measured using the increase in interbank rates) exported less to the United States, and the effect was stronger for industries that are more dependent on external funding, suggesting that trade finance may have played a contributing role. Ahn et al (2011) find that exporters in major economies significantly raised their prices relative to domestic manufacturers during the crisis, suggesting that exports were facing a larger supply shock than domestic sales. The authors also provide evidence that prices of goods subject to longer shipping times, which they argue are more dependent on trade financing, also rose relative to other goods. In contrast, Levchenko et al (2010), using US trade data and proxy measures for dependence on financing, find no role for financial factors in the collapse of trade.

Bems et al (2012) survey the literature (including most of the aforementioned papers) and conclude that credit shocks, including to working capital and trade finance, possibly account for about 15–20% of the decline in trade during the crisis (Graph 8 in the main text).

The literature examining the linkages between bank-intermediated trade finance and international trade prior to the 2008–09 crisis is relatively small. An IMF staff study (2003) documented substantial declines in trade finance in several EMEs during crisis periods in the 1990s and early 2000s, including falls of 30–50% in Brazil and Argentina in 2002 and in Korea in 1997, and a greater than 80% decline in Indonesia; substantial declines were also experienced during crises in Russia, the Philippines, Thailand and Turkey. These declines are characterized as disrupting trade and growth and possibly exacerbating the respective crises; the authors conclude that these experiences suggest a role for targeted policies to support trade finance during future crises. Auboin and Meier-Ewert (2003) also suggest that the scarcity of short-term intermediated trade finance facilities was a constraint on trade for several countries during the Asian financial crisis. Amiti and Weinstein (2011) use Japanese firm-level data from the 1990s to establish the importance of the health of banks providing trade finance and growth in firm exports relative to domestic sales. Their results suggest that the trade finance channel accounted for around one third of the deviation in Japanese export growth during periods of crisis in the 1990s.

Export credit insurance, public guarantees and trade credit

Export credit insurance and public guarantees. The literature on export credit insurance and public guarantees is limited but growing. Results suggest that the impact of changes in trade credit insurance on trade is significant, and can be effective in mitigating the impacts of financial stress on trade flows.

Egger and Url (2006) provide one of the first empirical studies on the trade-promoting effect of public guarantees. Using industry-level data from 1996 to 2002 on Austrian public export credit guarantees, they find a long-run trade multiplier of public export credit guarantees of 2.8. Similarly, Moser et al (2008) find a long-run trade multiplier of 1.7 using country-level data on German public guarantees from 1991 to 2003, implying that the export promotion policies via ECAs are effective. Van der Veer (forthcoming) studies the trade-promoting effect of private export credit insurance using bilateral country-level data on insurance provided by one of the world's leading private trade credit insurers (Euler Hermes, Atradius and Coface), covering 25 countries (mostly OECD) and 183 destination countries from 1992 to 2006. The author finds an average short-term trade multiplier of private export credit insurance of around 1.3. Auboin and Eggerman (2013) and Korinek et al (2010) also find that trade credit insurance has had a positive impact on trade, albeit with smaller coefficients.³⁴ Using quarterly country-level data of export credit insurers from the Berne Union for the period of 2005 to 2011, Auboin and Eggerman find that a 1 % increase in trade credit granted to a country leads to a 0.4 % increase in real imports of that country. Korinek et. al. find a similar coefficient for the crisis period 2008-Q2 to 2009-Q1, but a smaller coefficient (0.1 %) for the three years before the crisis.

Two studies examine the effectiveness of public export credit insurance in alleviating financial frictions during the recent crisis. Felbermayr et al (2012) assess the effect of public export credit guarantees on sales and employment using German firm-level data from 2000 to 2010. They find that guarantees increased sales and employment growth, particularly during the financial crisis of 2008–09. Using the same data, Felbermayr and Yalcin (forthcoming) find some evidence that guarantees had an export-enhancing effect during the recent financial crisis, notably in sectors that rely more on external finance. The authors conclude that public export credit guarantees can mitigate financial market frictions, although their efficiency differs significantly across sectors and countries.

In sum, it appears that export credit insurance and public guarantees are effective at enhancing trade even during periods of economic and financial stress. The striking result that the trade elasticity of credit insurance and public guarantees exceeds unity has several possible explanations. First, export credit insurance might allow exporters to acquire experience on new markets and to learn about importers' creditworthiness after repeated transactions. Second, export credit insurance reduces importers' transaction costs, which could stimulate their demand for imports. Finally, access to insurance enhances access to supplier or bank finance, as it might be considered a signal of importers' creditworthiness and of exporters' good management practices. An implication of these results might be that policies

³⁴ Both sets of authors interpret their results, based on trade credit insurance, as a proxy for trade finance.

to support trade could be more effective if more resources are allocated to increasing export insurance and guarantees.

Trade credit. In the aftermath of the global financial crisis, some studies re-examined the behaviour of inter-firm trade credit and its potential role in the collapse of trade and global economic activity. In general, they find that firms that were more reliant on trade credit to fund their own operations (and hence less reliant on bank funding for working capital) were less affected.

The results from a survey conducted by the World Bank (Malouche (2009)) in 14 developing countries show that trade credit was relatively more resilient than bank credit during the 2008–09 crisis. This is consistent with the results in Coulibaly et al (2013). Using firm-level data from six emerging market economies, the authors find that trade credit was resilient during the recent global financial crisis and that firms relied more on it, alleviating the effect of financial constraints.

Given the importance of trade credit as a source of funding, dislocations in this market could adversely affect economic activity, yet very few studies have documented instances where this has been the case. The results in Coulibaly et al (2013), for example, indicate that exports and economic activity of the six countries examined declined during the crisis for all firms, but the effect was less pronounced for firms that relied more on trade credit. Chor and Manova (2012) also study the role of credit conditions, including trade credit, in the collapse of trade during the global financial crisis using three-digit industry data for various countries. Their results show exports of industries with greater access to trade credit were more resilient. A possible exception to the stabilising role of trade credit is presented in Raddatz (2010). Using industry data for 43 countries from 1980 to 2004, the author shows that a greater trade credit linkage between two sectors results in a higher correlation of output in those sectors. As such, trade credit linkages can propagate and amplify sectoral shocks; a default by a firm on payments to its suppliers can trigger a sequence of defaults along the supply chain.

Appendix 7: The determinants of trade finance and the impact of trade finance on trade: some Group estimates

This appendix details the Group's analytical work on the determinants of bank-intermediated finance and the impact of trade finance on trade. The analyses use the national data submitted by Australia, Brazil, France, Germany, Hong Kong SAR, India, Italy, Korea, Spain, the United Kingdom and the United States spanning the time period from 1999 at the earliest to end-2012.

The determinants of bank-intermediated trade finance

The determinants of bank-intermediated trade finance should be related to those of cross-border bank flows, more generally. As such, the Group followed recent empirical studies in this field (eg Bruno and Shin (2013), Avdjiev et al (2012), Takáts (2010)). A priori, global financial conditions are expected to be important, measured by the VIX (a synthetic indicator of financial stress), the Financial Conditions Index (FCI) and a measure of dollar funding costs.³⁵ Global import growth is used as a proxy for world demand.

Country-specific macroeconomic determinants include real GDP growth, as faster-growing economies are likely to have greater demand for credit, and country-specific total trade flows. In addition, Standard & Poor's (S&P) country credit rating is included as a measure of sovereign creditworthiness, following the recent literature on the interlinkages between sovereign debt and banks' funding costs.³⁶

Trade finance may also be facilitated by country-specific financial factors such as the leverage, equity and funding costs of local banks. Lack of good-quality data poses a challenge in investigating this link rigorously. Nevertheless, banks' capital-to-assets ratios are used as a proxy for the soundness of the local banking system, which is expected to be positively correlated with growth in bank-intermediated trade finance. The degree of financial openness (measured by the Chinn-Ito financial openness index) could also affect trade finance.

In the benchmark specification, the dependent variable is the quarter-over-quarter change in the outstanding volume of trade finance.³⁷ It is estimated using the Generalized Method of Moments (GMM) estimator for dynamic panels, to account for potential endogeneity. Results are robust to using ordinary least squares, excluding time dummies, and estimations using a restricted sample of countries with more comprehensive trade finance data. All variables included are stationary.

Table A7.1 shows the main results. Unsurprisingly, the results indicate that changes in trade flows (ie demand) are the most important driver of changes in

³⁵ The Financial Conditions Index (FCI) aggregates the financial conditions of the euro area, Japan, the United Kingdom and the United States. As such, it is expected to be a more comprehensive measure of global financial conditions than the widely used VIX (see Guichard et al (2009)).

³⁶ Sovereign defaults are frequently accompanied by domestic banking crises. This would make domestic liquidity scarcer, which in turn would put upward pressure on the cost of trade finance.

³⁷ The benchmark model also includes time dummies as well as country-specific dummies to account for differences in how trade finance is measured in each country and to control for any additional country-level effects not captured by our control variables.

trade finance. Bank-intermediated trade finance is adversely affected by global financial instability, measured either by the FCI or by the VIX. Higher dollar funding costs also tend to restrict trade finance, probably because of the prominent role of the dollar in global trade. The crisis dummy is statistically non-significant in all the specifications, indicating no additional informational value beyond that captured by global financial variables in the crisis quarters. Country-specific characteristics are also important determinants of trade finance: trade finance growth is positively correlated with indicators for the country's sovereign rating and the soundness of the banking system.

One intriguing result is the negative and significant association of trade finance with the index of financial openness. Financial openness tends to increase with economic development, and the relative importance of bank-intermediated trade finance seems to shrink as countries become more financially developed.

The determinants of trade finance				Table A7.1
	(1)	(2)	(3)	(4)
Lag trade finance growth	-0.887 [0.583]	-0.659 [0.496]	-0.748 [0.540]	-0.658 [0.496]
Trade flows growth	0.257*** [0.083]	0.243*** [0.085]	0.234*** [0.078]	0.288*** [0.093]
Financial openness index	-0.018** [0.008]	-0.024* [0.012]	-0.024* [0.013]	-0.022* [0.013]
Bank capital to total assets	0.005* [0.003]	0.006* [0.003]	0.006* [0.003]	0.006* [0.003]
S&P rating	0.005*** [0.002]	0.005** [0.002]	0.006** [0.003]	0.005* [0.003]
Real GDP growth	-0.001 [0.001]	-0.005 [0.005]	-0.005 [0.005]	-0.004 [0.004]
Crisis	-0.035 [0.023]	-0.069 [0.045]	-0.066 [0.047]	-0.093 [0.058]
Financial Conditions Index	-0.109*** [0.036]			
VIX		-0.005** [0.002]		
World imports growth			0.009*** [0.003]	
Dollar funding pressures				-0.040*** [0.012]
Observations	375	375	375	352
Number of id	11	11	11	352
Country dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Number of instruments	26	26	26	26

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All growth rates are quarter-on-quarter growth. All specifications are estimated using GMM with the dependent being the change of outstanding trade finance volumes. Variables deemed as endogenous are: trade finance growth, lagged; and trade flows growth. They are instrumented using lags 2 to 4 for differences, and 1 to 3 in levels.

The impact of trade finance on trade

The baseline specification relates each economy's real import (export) growth to changes in the lagged dependent variable, domestic GDP growth (trade-weighted real GDP growth of each country's export destinations), changes in the real effective exchange rate and the change in bank-intermediated trade finance. In addition, an interaction term between trade finance and a financial crisis dummy variable which spans the time period from the second half of 2008 to the first half of 2009 is included.³⁸

Econometric results suggest that variation in bank-intermediated trade finance typically does not significantly affect a country's international trade performance, except during crises. In these periods, trade finance seems to play a statistically and economically significant role, as suggested by the significant coefficient of the interaction term between bank-intermediated trade finance and the financial crisis dummy (Table A7.2, column (1) and (3) for imports and exports, respectively). Holding constant the effects of other determinants, a 10% drop in bank-intermediated trade finance was associated with approximately a 0.6% drop in imports and a 3.5% drop in exports. Baseline results remain valid when adding measures of cross-border inter-firm trade credit to the baseline model (column (2) and (4)). Similar to bank-intermediated trade finance, inter-firm trade credit significantly affected international trade during the crisis.³⁹

The economic significance of the estimated impact of trade finance on international trade during the financial crisis is illustrated in Graph 9 (in the main text). Two findings stand out. First, bank-intermediated trade finance had a substantially larger impact on exports compared to imports. Second, the relative impact on exports was larger for the group of EMEs than advanced economies (AEs).⁴⁰ For the latter group of countries, the findings suggest that 2 and 7 percentage points, respectively of the observed import and export collapse of 19% and 21% during the financial crisis, respectively, can be attributed to bank-intermediated trade finance. By comparison, for EMEs around 6 percentage points of the observed 14% drop in exports during the crisis can be attributed to bank-intermediated trade finance.

The findings are substantiated by a battery of robustness checks which test the sensitivity of the baseline results to alternative model specifications and choice of regressors. In particular, robustness checks demonstrate that the main findings do not change qualitatively when using different country samples, splitting the sample into crisis and non-crisis periods, and controlling for cross-country heterogeneity in data quality.

³⁸ A quarter is classified as a financial crisis period when the majority of countries in the sample have negative import and export growth. Based on this criterion, the financial crisis period stretches from the third quarter of 2008 to the second quarter of 2009; this is the quarter when trade bottomed for most of the countries.

³⁹ For the import regression, the impact of inter-firm trade credit appears to be larger than the effect of bank-intermediated trade finance.

⁴⁰ EMEs include Brazil, Hong Kong SAR, India, Mexico and South Korea.

The impact of trade finance on trade

Table A7.2

	Imports		Exports	
	(1)	(2)	(3)	(4)
Lag trade	0.017 (0.147)	-0.224** (0.112)	-0.129 (0.129)	-0.106 (0.117)
GDP	1.129** (0.440)	2.687*** (0.608)		
GDP Export destinations			3.119 (2.545)	1.781 (1.205)
Trade Finance	0.001 (0.015)	-0.025 (0.036)	-0.062 (0.044)	-0.059 (0.044)
Trade Finance*Crisis	0.059** (0.030)	0.076** (0.035)	0.353*** (0.076)	0.330*** (0.105)
REER	-0.084 (0.091)	-0.356** (0.156)	-0.325** (0.134)	-0.157 (0.152)
Crisis	-0.077* (0.045)	-0.040** (0.020)	-0.007 (0.020)	-0.043** (0.018)
Firm Credit		0.042 (0.035)		0.116 (0.078)
Firm Credit*Crisis		0.139*** (0.054)		0.186** (0.075)
Observations	440	185	442	186
Number of id	11	11	11	11
Country dummies	Yes	Yes	Yes	Yes
Quarter dummies	Yes	Yes	Yes	Yes
Number of instruments	25	24	25	24

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. The regression models employed in the baseline specification as well as in the various robustness checks are based on the GMM estimator for dynamic panels. All variables are in real terms, seasonally adjusted and in quarter-on-quarter growth rates. Trade finance and GDP are instrumented using own lags.

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