

Inter-Firm Trade Finance in Times of Crisis

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Abstract

The paper discusses the main features that distinguish inter-firm international trade finance from alternative sources of financing. On the one hand, inter-firm trade finance could help overcome informational problems associated with other lending relationships; on the other, it may contribute to propagate shocks due to the interconnection among firms along credit chains. The paper evaluates the potential effects of a financial crisis on

the use of trade credit for firms operating in developing countries. It argues that while the advantages of trade credit might remain largely unexploited due to poor legal institutions, the disadvantages might be exacerbated because of these firms' greater exposure to a default chain. Based on these arguments, a menu of choices is identified for what policymakers can do to boost firms' access to inter-firm trade finance in times of crisis.

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**Inter-Firm Trade Finance
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1. Introduction

The severe recession that is hitting the global economy, with very low or even negative growth rates, has caused widespread contractions in international trade, both in developed and developing countries. World Trade Organization (WTO) has forecast that exports will decline by roughly 9% in volume terms in 2009 due to the collapse in global demand brought on by the biggest economic downturn in decades. The contraction in developed countries will be particularly severe with exports falling by 10%. In developing countries, which account for one-third of world trade, exports will shrink by some 2% to 3% in 2009.

The contraction in international trade has been accompanied by a sharp decline in the availability of trade finance. This decline is only partly explained by the contraction in demand: according to a BAFT (Banker's Association for Trade and Finance) and International Monetary Fund (IMF) joint survey (2009), flows of trade finance to developed countries have fallen by 6% relative to the previous year, more than the reduction in trade flows, suggesting that part of the fall reflects a disruption of financial intermediation. The contraction in value of trade finance has also been accompanied by a sharp increase in its price. Fear that the decline in trade finance and the increase in its cost would accelerate the slowdown of world trade has triggered a number of government initiatives in support of trade finance (Chauffour and Farole, 2009).

The situation is especially worrisome for firms operating in developing countries which rely heavily on trade finance to support both their exports and imports.¹ With a restricted access to financing and an increased cost of financing, these firms may find difficulties in maintaining their production and trade activities.

Trade finance refers to the methods and instruments designed to support importers and exporters throughout the trade cycle. Importers do not want to pay cash in advance for imported goods and services. Consequently exporters have to provide credit and secure financing until they receive payment. Moreover exporters themselves need to finance their own production to support their export sales.

There are various ways for both exporters and importers to finance their trade cycle. This study focuses on inter-firm trade finance,² i.e. the finance provided to importers from exporters to buy the goods from overseas, and that provided to exporters, to help

¹ Emerging market banks report on average a 6% decline in trade finance transactions (IMF/BAFT, 2009).

² The study will not address issues related to trade finance intermediated by banks *per se*, although this represents a conspicuous share of trade finance.

them produce the goods to export as well as to allow them to finance their extensions of credit to importers.

This is one of the most important sources of short-term financing for firms around the world (Petersen and Rajan, 1997).³ It tends to be relatively more prevalent for firms located in developing countries (Demirgüç-Kunt and Maksimovic, 2001; Beck *et al.*, 2008). Its use tends to increase in times of crisis (Calomiris, 1995; Love *et al.*, 2007). Within the scenario described above, these three stylized facts are striking and suggest that a closer look should be devoted to this specific form of financing.

To this aim, we will start by identifying the main features which distinguish it both from the financing provided by financial intermediaries and the trade financing intermediated by banks.

We will then try to understand whether these features can shield this form of financing from the general credit crunch or rather constitute an extra element of tension, especially from the point of view of developing and low-income countries. Our ultimate objective will be to identify theoretical economic rationales that could underpin policy actions in favor of this form of financing.

Firms simultaneously extend trade finance to their customers and receive it from their suppliers. This exposes them on one side to the risk of non-payment by their customers, and on the other side to the risk of credit stopping by their suppliers. Because of this, trade credit is considered as a mechanism of propagation of shocks. This risk might be stronger in countries with less developed financial markets, and thus in many emerging countries, which have higher proportions of their debts financed with trade credit.

However inter-firm trade finance also presents a number of advantages that justify its widespread use. Unlike standard lender-borrower relationships and intermediated trade finance, inter-firm relationships may be characterized by less severe incentive problems which facilitate contract enforcement and affect both the cost and the access to credit. Intermediated trade finance, for example, involving several agents, is more prone to problems of asymmetric information relative to inter-firm finance. A letter of credit, for instance, involves an importer, the local issuing bank, the exporter confirming bank and the exporter. With several agents there are multiple incentive problems. Buyer's creditworthiness is crucial for the issuing bank to be willing to undertake the risk. In turn the confirming bank has to be confident that the issuing bank has sufficient funds to extend credit to the importer. In these circumstances, it becomes more difficult to control and align the incentives of the various parties

³ According to Global Business Intelligence (GBI, 2007), a consulting firm specialised in supply chain matters, accounts payable and receivable represent 78% of international trade.

taking part in the relationship. However, reducing the number of parties involved in the credit relationship does not solve the problem: as will be more thoroughly discussed in section 3.1, a standard lender-borrower relationship still presents more severe incentive problems with respect to those that characterize inter-firm financing.

Unlike other forms of financing, inter-firm trade credit may also be favored by the establishment of a relationship of trust between the trading parties, a relational type of contract (Gibbons, 1997). These types of relations are particularly valuable when contracts are largely incomplete due for example to unobservability of parties' actions or unverifiability of traded goods characteristics. In these circumstances it may be difficult and costly to have the contract enforced by a third party. Agreements must therefore be enforced informally or be self-enforcing. This is achieved through repeated relations: parties abide by the agreements because they know that this will be rewarded with future business gains. Reputation becomes therefore sufficiently valuable that neither party wishes to renege on the deal.

Strictly related with the factors that favor the establishment of long-term relationships, suppliers and customers might each be necessary to each other in the business and thus have (extra) mutual advantages from a trade relationship. For example, suppliers can produce specific goods which make it difficult for the customer to find alternative suppliers and determine a lock-in effect.

Last, inter-firm trade finance may have other advantages which do nevertheless remain unexploited due to specific provisions of business law, or sometimes to poor legal institutions. The supplier might for example be more efficient than other firm's creditors in liquidating the goods supplied in case of non-payment of the customer. However, in many bankruptcy codes trade credit is a junior claim, so that this advantage remains largely unexploited.

Based on these features, it is possible to identify various measures to increase access to this form of finance. These measures should go in the direction on one side of creating the conditions to exploit in full its potential advantages, and on the other side of identifying "critical" market participants, i.e. those which are more likely to be exposed to market failures and/or are more likely to transmit shocks. These measures would include: 1. creating or improving mechanisms of information sharing; 2. promoting institutional reforms aimed at increasing the efficiency of the legal and judicial system; 3. creating the conditions for exploiting the benefits of structured financing schemes, especially in developing countries.

The remainder of the paper is organized as follows. The next section examines some singularities of this form of financing which are relevant in the current credit crunch and briefly reviews some of the main trade finance instruments. Section 3 explores

the main features of inter-firm trade credit which distinguish it from other forms of financing. Based on these, Section 4 discusses some measures that could be taken to increase access to this form of finance in current circumstances. Section 5 concludes.

2. Inter-firm trade finance in the current credit crunch

As argued in the introduction, there may be several reasons that justify the reliance on inter-firm financing. In this section we want to highlight some potential risks involved in it. Since firms simultaneously take credit from their suppliers and extend credit to their customers, it appears on both sides of their balance sheets. Moreover, it is not well diversified at the firm level, as firm's customers tend to belong to a specific sector.⁴

Debtors' lending and lack of diversification may constitute an element of great risk in times of crisis, particularly in the light of the increasing organization of production in global supply chains, i.e. in a network of different types of companies that participate in the production of goods and services and ultimately deliver them to the final consumer. Aside from the aspects concerning technology improvements and efficiency increasing methods, a key element in determining the competitiveness of each company along the chain, and ultimately of the whole chain of production, is related to financing. In order to guarantee themselves production orders, suppliers have to offer their customers attractive payment options. However, to finance their credit extensions, they themselves need financing, which may be extended by upstream suppliers or by financial intermediaries. When firms are perceived as potentially risky, or the financial sector is poorly developed, which is often the case for firms in developing countries, access to credit for weak firms in the chain may be difficult and costly. In these cases, firms with good credit ratings along the chain may act as guarantor with the financier to facilitate lending to their suppliers, or they may themselves step in by directly financing its working capital. One possible way to do this is by resorting to structured financing schemes, i.e. schemes by which an exporter receives lending by securitizing its assets.⁵

All this implies that, besides the supplying relationship, there may be strong financial links among the various parties interacting along a supply chain. These links may become particularly relevant in times of crisis, as shocks to the liquidity of some firms, caused by the default of the customers belonging to a sector in distress, may in turn cause default or postponement of debt repayments on their suppliers and propagate through the supply chain.

⁴ Often a large share of firms credit is represented by receivables vis-à-vis one big customer, especially for firms in developing countries producing for one big developed country firm.

⁵ These will be better described in the following section on trade financing instruments.

It is no surprise, therefore, that in the current circumstances inter-firm trade finance becomes a particular issue of concern, especially for developing countries, and this for a number of reasons.

First, large international companies in developed countries have increasingly outsourced their production to low cost sourcing markets. Disruptions in production may then arise if these suppliers have insufficient credit to finance the shipment of their production to the next stage of the chain or even to carry out production. Second, exports from emerging markets may highly depend on imports from developed country firms along the chain. A collapse in import financing may thus further depress emerging countries exports, thus causing further disruptions in production. In addition, with a large proportion of their debts financed with trade credit (Demirgüç-Kunt and Maksimovic, 2001; Beck *et al.*, 2008), firms located in emerging countries might face stronger risks of propagation of shocks.

The following section explores some distinguishing features of international trade finance relative to domestic trade finance and discusses some of the most used trade financing instruments.

Trade financing instruments

Any trade transaction involves a commercial risk, like the non-acceptance of goods by buyer or the failure of buyer to pay debt, which may be amplified within an international context. Moreover, international trade transactions involve an exchange rate risk, which firms operating in domestic countries or in single currency unions are protected from. Last, international transactions may involve an “infrastructure” risk, occurring when trading partners operate in very heterogeneous countries, with different financial systems or different legal systems.

Various financing instruments have been designed to assist and facilitate the parties involved in international trade as well as mitigate the risks associated to it.

Among the methods and instruments designed to effect a payment, the most commonly used ones are open account, collection of payment against document and letter of credit. These transfer the commercial risk from the exporter to the importer at different stages of the transaction.

Among the methods used to raise capital, we may list the following:

- Buyer’s credit. A financial institution in the exporting country extends a loan, directly or indirectly, to a foreign buyer to finance the purchase of goods and services from the exporting country, thus enabling the buyer to make payments due to the supplier under the contract.

- Leasing. This is generally used by manufacturing companies that need to import equipment or machinery to produce goods for export. The company procures the equipment and pays a monthly rental fee to a leasing company (or to a bank), which owns the equipment.
- Factoring. The exporter sells its accounts receivables at a discount to a factoring house in exchange for immediate cash.
- Forfaiting. The exporter offers credit terms to the importer and then sells the receivables to a financier in exchange for cash without recourse.⁶
- Structured financing. This scheme is generally used to provide working capital financing to exporters by securitizing its assets, which therefore serve as collateral for the loan. There are various types of structured financing schemes. With inventory financing, a loan is secured by inventories of raw materials or intermediate or finished products. It is commonly used to finance trade in commodities, since commodity producers and traders typically hold substantial inventories. With export receivables-backed financing, pre-exports loans or advance payment facilities are extended to an exporter, with repayment being obtained from the exporter's receivables resulting from the sale of the pre-financed exported goods. With pre-payment financing, a buyer raises a loan from a financier and uses it to effect pre-payment for the producer/exporter. It is obtained by a seller itself from its buyer in another country. The difference between the last two instruments is that with the latter it is the buyer that raises the loan from the financier to finance the producer/seller, while with the former it is the seller that procures the funding to finance a given export contract.

It should be pointed out that schemes of structured trade financing may not always be viable: inadequate laws may constitute an obstacle in securing the loan, creating liens on assets may involve non-negligible costs, enforcing the contract, in case the loan is not paid out, may be costly, lengthy and unpredictable. That is why government guarantees are sometimes used to facilitate the use of these financing instruments and mitigate the underlying risks. We will explore on some of these aspects in Section 4.

Among the instruments designed to mitigate the risks associated to the international dimension of the trade transaction we find the Export Credit Insurance (ECI) and the Export Credit Guarantees (ECG). With the first, the exporter protects himself against non-payment for his trade receivables.⁷ By minimizing the risk of non-payment, it allows exporters to offer competitive terms to foreign buyers, increase export sales and increase their borrowing capacity against receivables.

⁶ Due to the non-recourse of the forfaiter in case of non-payment of the importer, this is also considered as an instrument to mitigate risks.

⁷ It usually covers commercial risks, like the insolvency of the buyer or bankruptcy, and certain political risks such as war, terrorism, riots and revolution. It also covers currency inconvertibility, expropriation and changes in import or export regulations.

While ECIs protect an exporter against the risk of non-payment by a foreign buyer, ECGs are instruments to safeguard export-financing banks from losses that may occur from providing funds to exporters. Such guarantees arise because, even when trade financing is commercially available, banks may be reluctant to lend to firms with insufficient track records. Therefore, providing the banking system with financial guarantees for purveying export credit is an important element in helping local companies to export.

ECIs and ECGs may be provided by Export Credit Agencies (ECAs), both private and governmental (such as the Exim Banks). They help promoting exports through a variety of activities like insuring loans made by private banks, providing various forms of trade financing which would be more costly or more difficult to obtain with pure commercial lending, generating and providing information. Recently they have also been involved into direct money lending. They play a very important role especially for developing countries exporters, which are usually small and therefore less able to collect information about their counterparts abroad and to get favorable financing terms. The greater risk premium they involve translates into greater financing needs, and as a result greater financing needs also for importers. By guaranteeing exports to developing countries, ECAs can reduce the overall financing needs and increase efficiency (WTO, 1999).

3. Specificities of inter-firm trade finance

Firms simultaneously take credit from their suppliers and provide credit to their customers. Thus, their balance sheet presents both financial assets (receivables from the customer) and liabilities (payables to the supplier). Although it may seem puzzling that, in the presence of specialized financial intermediaries, firms both receive and extend trade credit, it can be rationalized in various ways. Offering trade credit may be profitable because accounts receivable can be collateralized and used to obtain additional financing against them (Burkart and Ellingsen, 2004). Alternatively, demanding trade credit may allow firms to hedge their receivables risk (Fabbri and Klapper, 2009). Also, it may be the result of firms having trouble collecting from their own customers and being forced to delay paying their suppliers (Boissay and Gropp, 2007).

Alternative rationales stress the advantages that inter-firm credit presents over other forms of credit. One of these, according to some literature, lies in the fact that the problem of borrower opportunism that plagues any lender-borrower relationship is less severe with inter-firm trade finance than with other sources of financing. There may be two factors behind this.

First, the supplier might have private information regarding the customer's creditworthiness that other financial intermediaries do not have (Biais and Gollier, 1997). To test the information advantage hypothesis, MacMillan and Woodruff (1999) and Johnson *et al.* (2002) have studied the impact on the extension of trade credit of repeated business interactions and of prior information acquisition on the customer's reliability. Their results seem to find support to the information advantage hypothesis as they show that trade credit tends to be granted when 1. supplier and customer have a long standing business relationship; 2. the supplier has information about the customer's creditworthiness; 3. the supplier belongs to a network of similar firms.

Another factor behind the ameliorated incentive problem of inter-firm financing has to do with the nature of the supplier-customer lending relationship. Unlike other credit relationships, this involves an exchange of goods rather than cash. Since goods are not as liquid as cash, defaulting on the supplier may provide limited benefits to the customer (Burkart and Ellingsen, 2004). Moreover, since among the tradeable goods, some are less liquid than others, the benefits of defaulting may be further reduced. Thus, the less severe incentive problem implied by goods-lending is strictly related to the characteristics of traded goods.

Besides providing low benefits, defaulting on the supplier may also be costly. This occurs when the client cannot easily and rapidly secure the same good from elsewhere, or when the good supplied is tailored to the needs of a single customer. This gives the supplier a market power in that he can threaten to stop deliveries should clients fail to pay and thereby enforce debt repayment better than financial intermediaries (Cuñat, 2007).

As a result of the buyer reduced opportunism, in all the above cases suppliers are willing to lend more liberally.

Another possible determinant of trade credit use proposed by the literature lies in the supplier's better ability in liquidating the goods supplied in case of customer's default (Frank and Maksimovic, 2004; Fabbri and Menichini, 2009). Whether this is a viable option depends again on traded goods characteristics, in that not all goods have a liquidation value in case of default, as well as the characteristics of the legal system.

Alternative theories focus on the market structure, which may give the buyer a market power vis-à-vis the supplier and allows it to get better terms. Or it may be the supplier that, due to market power, can profit from a credit relationship with the buyer and be more willing to extend credit (Wilner, 2000).

Although these advantages may be significantly diluted when firms trade internationally, some of them may still be relevant. In particular, it is still true that when traded goods are very specific, there is little scope for the customer to behave opportunistically, even in an international context. Or that strong supplier-customer relationship, due either to long-term business interaction or to a difficulty in replacing the supplier, can also develop among firms that trade internationally.

The following sections will further elaborate on some of the aspects which seem to be most relevant both theoretically and empirically.

3.1 The role of traded goods characteristics

Some of the theories briefly surveyed above imply that willingness to extend trade credit may be related to the characteristics of the goods traded.

We identify three factors which may facilitate inter-firm credit relationships and which are related to those characteristics: 1. possibility of diverting the goods traded; 2. easiness of switching to alternative suppliers; 3. traded goods collateral value. In order to highlight the relevance of these factors, we classify the goods into three broad categories; standardized goods, differentiated goods and services.

Standardized goods can be used by many different customers and thus have a high re-sale value. Consequently, it is easy for the buyer to divert them. Moreover, due to their widespread use, they can be easily sold by any agent, which implies that their suppliers are easily replaceable. Last, they may have high liquidation value in case of buyer's default, so long as they have not been transformed into finished goods.

Differentiated goods are more specific and often tailored to the needs of particular customers, which makes more difficult for them to switch to alternative suppliers. Due to their specificity, they are particularly valuable in the hands of the original customer and, as there are fewer alternative users, they are worth more in the hands of the original supplier and more difficult to divert.

Services have no collateral value and are almost impossible to divert. Moreover, when the service provided is very specific, it may be hard to find alternative suppliers.

From the above analysis we may deduce that, because buyer opportunism is less severe for firms in sectors offering differentiated goods and services (they can be less easily diverted and it is more costly to replace their suppliers), these firms should extend more trade credit (and offer better terms) to their customers than firms selling standardized goods (moral hazard hypothesis). Similarly, because differentiated

goods are worth more in the hands of the original supplier in case of buyer's default, firms selling (resp. buying) differentiated goods should offer (resp. receive) more trade credit (liquidation hypothesis).

Using a sample of small U.S. firms, Burkart *et al.* (2008) show that service firms as well as firms producing differentiated products grant more trade credit, while firms offering standardized goods offer less trade credit.⁸ This evidence seems to provide support for the moral hazard hypothesis, but does not allow to clearly disentangle whether the driver of the results is the different diversion value of the goods or the different cost in switching to alternative suppliers. A direct investigation into the relevance of this last motivation is provided by McMillan and Woodruff (1999), who, based on survey data collected on a sample of Vietnamese firms,⁹ show that customers lacking alternative suppliers receive more trade credit.

As regards the collateral hypothesis, Burkart *et al.* (2008) provide some limited evidence in support of it, as firms offering differentiated goods offer more trade credit and firms buying a larger proportion of differentiated goods receive more trade credit. Also Petersen and Rajan (1997) provide evidence in support of this hypothesis, but they test it using the fraction of the firm's inventory not consisting of finished goods as a proxy for the liquidation advantage, based on the assumption that when the intermediate inputs are converted into finished goods, the supplier's liquidation advantage is lost.

3.2 The role of credit chains

One potential risk arising from the use of trade credit is that it may cause shocks to propagate in the economy. In a network where firms borrow from each other, a temporary shock to the liquidity of some firms may cause a chain reaction in which other firms also get in financial difficulties.¹⁰ This has obvious implications for the production activity along supply chains: disruptions in production may arise if suppliers at any stage of the supply chain cannot finance shipment of their products to the next stage of the chain. The scale of the damage depends on the length of the credit-chain between constrained agents. In a recession such chains are longer because more firms suffer negative shocks to their flow of funds. However, the presence of firms with sufficient access to outside finance to absorb defaults without

⁸ Looking at the credit terms offered, the analysis seems to partly support the diversion hypothesis as firms in the service sector offer also better terms.

⁹ A distinctive feature of this economy is the absence of legal enforcement of contracts. The existence of inter-firm credit in such a type of environment is interpreted by the authors as evidence of relational mechanisms to be in place.

¹⁰ Besides transmitting shocks from customers to suppliers, trade credit may also cause shocks to propagate from suppliers to customers, if the former, facing liquidity problems, reduce their credit to the latter (Coricelli and Masten, 2004).

transmitting them along the supply-chain (deep pockets firms) weakens the credit-chain propagation mechanism (Kiyotaki and Moore, 1997).

This theory has received some empirical support. Raddatz (2008) provides evidence of the presence and relevance of credit-chains for the transmission and amplification of shocks. Boissay and Gropp (2006) find evidence in favor of the existence of trade credit default chains. In particular, firms that face default are themselves more likely to default. Liquidity shocks are transmitted along the trade credit chain until they reach deep pockets firms, which ultimately absorb the shock. Thus, by extending the maturity period of trade credit to their defaulting customers, deep pocket firms not only stop the propagation of the liquidity shocks, by relaxing the financial constraints faced by their direct customers, but also “invert” it, relaxing their customers’ customers financial constraints, and so on going back upwards along the supply chain.

This suggests that there may be external effects associated to supply chain productions which might amplify the downsides of a credit crunch. However, if it is true that inter-firm trade finance is a mechanism of propagation of shocks especially for firms operating along supply chains, it is also true that the repeated business interactions among these firms may provide relevant benefits, especially during a financial crisis. The typical fear that lack of trust in times of extreme uncertainty may squeeze intermediated trade finance, exacerbating the effects of the crisis, may be less of a problem for firms operating along supply chains. These are often involved into long-term relationships and thus less likely to experience an “uncertainty driven” contraction in financing. Anecdotal evidence reported by practitioners¹¹ shows that the increase in the perception of risk induced by the crisis has promoted supply chain solutions and that supply chain finance is being increasingly used to mitigate risk and increase firm’s capital needs.

This might also explain why trade credit is often countercyclical.¹² In times of recession banks are more concerned about credit risk and less willing to extend credit. Firms that rely more on relational contracts can increase their reliance on trade credit, thus making up for the higher credit risk with the relationship of trust with the supplier. Conversely, firms that rely on intermediated finance (formal contracts) are likely to be squeezed by the credit contraction, since the higher credit risk and the lack of a credit history, will discourage suppliers from extending them credit.

¹¹ Reference in Euromoney Seminars (2009).

¹² Calomiris (1995) and Love *et al.* (2007) for example show that in the U.S. and emerging markets respectively the extension of trade credit increases during financial crisis.

3.3 *The role of institutions*

One factor of crucial importance in determining the availability of international trade finance is the legal system in which trading countries operate. Inefficiency of the legal system, in the form of inadequate contract law or bankruptcy law, or inefficient judicial system, increases enforcement costs and thus commercial risk. This affects the cost and the availability of financing, thus hampering international trade.

Which is the effect of the legal system on inter-firm credit? A number of papers (Demirgüç-Kunt and Maksimovic, 2001; Beck *et al.*, 2008) find evidence that trade credit is relatively more prevalent in countries with worse legal institutions and lower investor protection. This may seem puzzling as one may expect that better legal institutions facilitate all types of borrowing, including trade credit. It can nevertheless be explained with the fact that, unlike financial intermediaries, trade creditors may be able to more effectively enforce contracts without resort to the legal system by stopping future supplies (this may be particularly relevant when the good supplied is specific or when it is hard to find alternative suppliers).¹³ This intuition seems to be confirmed by Johnson *et al.* (2002), who, based on survey data collected in transition countries in 1997 for small and medium-sized manufacturing firms, find that ongoing relationships are more likely to be preserved when goods are complex and assets are specific and when it is difficult for customers to resort to alternative suppliers.

According to some studies (La Porta *et al.*, 1998), the differences in the efficiency of the legal system observed across countries might be related to their different legal origin. More precisely, countries belonging to the common law tradition are found to have a more efficient judicial system, and thus lower enforcement costs, as compared with those belonging to the civil law tradition. Djankov *et al.* (2003) provide an example of the importance of the legal system in shaping the efficiency of judicial systems by constructing for a variety of countries an index of *procedural formalism of dispute resolution*.¹⁴ The authors find that judicial formalism is systematically greater in civil law countries than in common law countries and that higher formalism is a strong predictor of poorer enforceability of contracts and longer duration of dispute resolution.

Another expression of a country's legal system is the bankruptcy law, and debtor-creditor law more generally. Its formal structure, actual effectiveness, length and practical operation differ greatly across countries. A measure of efficiency of the bankruptcy regimes is provided by Djankov *et al.* (2008) for 88 high and middle-

¹³ In line with Cuñat (2007).

¹⁴ This index is constructed describing the exact procedures used in 109 countries by litigants and courts to evict a tenant for nonpayment of rent and to collect a bounced check. It measures the extent to which regulation causes disputes resolution to deviate from a benchmark of a third party informally resolving the dispute on fairness grounds.

income countries. The authors consider the benchmark case of a business which is about to default on its debt due to a temporary downturn. In such circumstances, the economically efficient outcome would be to turn the business over to the main creditor, and to let it run or sell it as a going concern. The results show that this efficient outcome is reached only in 36% of the countries. The cases take on average 2.64 years to resolve with a worldwide average loss of 48% of the business' value. Efficiency of debt enforcement is shaped by per capita income and legal origins. High-income countries and common law countries achieve higher efficiency than middle income and civil law countries respectively.

The diversity of codes and procedures may thus introduce extra elements of uncertainty in the buyer-seller relationship, which parties should take into account when choosing trading partners and deciding whether to extend them credit. One recent study (Powell, 2006) provides some evidence showing that the legal origin of the trading countries constitutes indeed an important determinant of cross-border transactions. In particular, focusing on bilateral trade flows, it shows that common law dyads have more trade than any other dyad, namely common law-civil law dyads, and civil law dyads.

Given the documented greater prevalence of trade credit in countries with weaker legal institutions and investor protection, how does uncertainty in enforcement affect the supply of credit to suppliers? Johnson *et al.* (2003) find that, although inter-firm credit does occur even under a poor enforcement of contracts thanks to relational contracts, efficient courts are nevertheless important at the start of a trading relationship, encouraging firms to take on new partners and thus promote future long lasting relationships.¹⁵ Thus, workable courts have positive external effects since, by facilitating new trading relationships, they improve on relational contracting and boost overall productivity. This role may be even more important in times of crisis, as increased uncertainty may increase the perception of the risk underlying a trading relationship and induce suppliers to refrain from extending credit.

The institutional framework plays therefore a direct role in favoring inter-firm trade finance. There are however alternative channels through which legal institutions may affect inter-firm trade finance. For example, an effective use of structured financing schemes, whereby the lender extends a loan to the borrower by securitizing its assets, or the possibility of exploiting the supplier's better ability in liquidating the goods supplied and not yet transformed in case of default, may both be jeopardized by the poor quality of the legal system.

¹⁵ More specifically, the authors find that entrepreneurs who perceive courts to be effective grant 5% more trade credit on average. These results are robust to the introduction in the sample of export customers and import suppliers.

4. Implications for policy

The analysis conducted so far has highlighted some factors that may affect the provision of inter-firm trade finance, trying to stress those that raise greater concern in times of crisis. This section will focus on some policy instruments which could be devised to address these concerns.

4.1 Improving information sharing

Some literature – both theoretical (Biais and Gollier, 1997) and empirical (MacMillan and Woodruff, 1999; Johnson *et al.*, 2002) – has rationalized the use of trade credit with an information advantage the supplier has over other creditors regarding the buyer's creditworthiness. This advantage may descend from existing business relationships or from prior investigations on the customer's reliability, for example through mechanisms of information sharing.¹⁶

In a crisis scenario in which banks are more concerned about credit risk and less willing to extend credit, these two factors may be crucial to limit potential damage and prevent that the shortage in trade finance adds to the downturn in demand. In particular, relevant benefits may be gained from improving cross-country information sharing mechanisms, for example by extending public credit registries and voluntary exchange mechanisms to developing countries, where these systems are often still being designed, and promoting the sharing of this information across trading countries.

4.2 Exploiting traded goods characteristics

The discussion in Section 3.1 has confirmed that inter-firm trade financing presents some advantages over other lending relationships related to the characteristics of traded goods. These may prove important as they may suggest specific segments for intervention in the current credit crunch.

The literature has in particular provided some empirical support for the moral hazard hypothesis. This predicts that firms selling (buying) standardized goods should offer (receive) less trade credit. The intuition is that defaulting on suppliers of these goods may involve low costs, as the suppliers are easy to replace, or high benefits, as the traded goods have high diversion value.

It is therefore plausible that the problems brought about by the financial crisis be particularly exacerbated for these firms that are not shielded from moral hazard problems. Raising credit may be harder for them, more so during a financial crisis.

¹⁶ By acquiring information about repayment history of the customer across a range of suppliers, the seller increases the information on which to base its credit extension decision. Kallberg and Udell (2003) show that trade credit history in Dun&Bradstreet reports improves default predictions relative to financial statements alone. For the role and effects of information sharing in credit markets, see Jappelli and Pagano (2005, among others).

An implication of this is that different firms operating along a supply chain may “suffer” differently the effects of a credit crunch. Commodities, for instance, are sold by suppliers to manufacturers to process them in intermediate inputs or directly into finished goods. Having a high resale value, they can be classified as standardized goods. In times of crisis, suppliers of such type of goods may be reluctant to extend credit against them to downstream firms. Intermediate inputs, instead, tend to be much more customized to their intended buyers than commodities or even final goods and hence have a low resale value that mitigates moral hazard problems. A similar argument can be made for suppliers of offshore services.

The consequences of a credit crunch may thus be different for different firms along the chain and this analysis may provide some useful indication regarding the candidate “weak” links along the chain. Possible ways of dealing with them are discussed in section 4.3.

As regards the liquidation advantage, although the literature has provided some evidence in support of it (Petersen and Rajan, 1997; Burkart *et al.*, 2008), it is generally true that trade credit is a junior claim and that in an international trade scenario the chances for the supplier to repossess the goods supplied are extremely low, especially when the trading countries operate in different legal environments. Thus, in the absence of the ability to repossess goods, suppliers may not be willing to supply goods on credit and require cash payments, with a subsequent efficiency loss. One way to preserve this advantage would be for the supplier to secure the goods. By so doing, in the event of default the supplier might reclaim any good not yet transformed into output. This implies that not all types of good can be secured, as some of them can be easily hidden or diverted, and therefore subtracted from the bankrupt’s estate. Other goods, such as equipment or heavy machineries, may be less easily diverted and can thus become the object of a secured claim.

The willingness to extend credit may therefore be boosted by encouraging the creation of liens on the goods supplied so as to avoid actions from other creditors in case of default. Whether this is a viable option depends of course on the specific provisions of the trading countries’ bankruptcy codes,¹⁷ and on their efficiency in enforcing creditor’s rights (thus again on institutional factors). This issue will be further elaborated in section 4.4.

¹⁷ Several business laws do actually allow trade creditors to include specific liquidation rights in the sale contract. However, the degree of legal protection guaranteed to secured creditors can differ across countries. In some bankruptcy codes, secured creditors can enforce their contractual rights and recover the collateral outside the ongoing insolvency proceedings. In this way they are exempted altogether from insolvency proceedings. In other bankruptcy codes, secured creditors are included in the bankruptcy process, generally for a specified short period of time during which the administrator can either sell the firm as a going concern or sell assets piece-meal. In this second case, secured creditors are first in the order of priority.

4.3 Rejoining the “broken chains”

One of the downsides of interfirm trade finance is that it may be a mechanism of propagation and amplification of shocks. However, the evidence in favor of the existence of trade credit default chains that stop when they reach large, liquid firms with access to financial markets (Boissay and Gropp, 2006) suggest that there is some room for intervention.

In these circumstances it would be “ideal” to identify breaking points in the chain, i.e. firms in the chain that are more exposed to the risk of insolvency and more likely to start the chain of defaults - based on the discussion in section 3.1, sellers of commodities or of final goods - and devise interventions to prevent disruptions in the chain. However, depending on the type of intervention designed, a whole lot of new issues arise. First, it may be difficult to discriminate between a firm which is facing a temporary liquidity shock from one that is insolvent and for which a targeted intervention only postpones the decision to shut down. Moreover, moral hazard problems may arise in adopting schemes of financial support for vulnerable firms, as these might divert the financing obtained to other uses rather than strengthen the credit chain.

A way to overcome these problems might be to design schemes aimed at extending the maturity period of trade credit while not challenging the financial health and ongoing viability of other firms along the supply chain, i.e. ensuring that suppliers can collect payment as soon as possible. For example, receivables backed finance programs are normally used to finance exports, allowing firms to get the receivables off their books and promote a greater extension of trade credit.¹⁸ A similar scheme largely used to finance imports is the payables backed supplier finance, also known as reverse factoring, by which the buyer delegates to a bank or to other financial intermediaries the handling of its payables. It allows the buyer to extend payment terms, and suppliers to receive early payment or payment at maturity, according to their actual working capital needs. It can be particularly important to finance the working capital of risky exporting firms in emerging countries with little access to credit and to reduce the processing costs of the buyer who can make fewer payments to a single creditor, the factor, rather than various payments to multiple suppliers. The extension of the maturity period of trade credit that this arrangement permits would, at least temporarily, relax buyers’ financial constraints, and possibly allow to screen

¹⁸ Being off balance sheet, this financing instrument would not reduce the exporter’s existing credit limits. Moreover, it would allow overcoming the problems created by banks reluctance to lend against receivables, especially in emerging markets, when a large percentage of these is international.

viable firms, facing occasional liquidity shocks, from distressed ones. More importantly, the possibility for the supplier to receive early payment, rather than payment at maturity, would inject fresh liquidity in the chain and possibly absorb negative shocks.

Some of these schemes are already effectively in use in many supply chain finance programs (GBI, 2007),¹⁹ but in times of uncertainty and lack of confidence and with their own access to finance drying up, many financiers may be more reluctant in providing them. In these circumstances, the response of public-backed institutions may prove important to mitigate risk and encourage the implementation of such measures.

Recently, the supply-chain finance group at the International Finance Corporation (IFC) is attempting to boost short-term trade finance by creating a temporary secondary market for receivables. Programs for short-term lending of working capital and credit guarantees aimed at Small and Medium Enterprises (SMEs) are being implemented by ECAs.²⁰

4.4 Promoting institutional reforms

The above discussions have highlighted the importance of institutional factors for the provision of inter-firm trade finance. By increasing uncertainty for traders, the existence of heterogeneous and/or inefficient institutional structures gives rise to legal or administrative barriers that can strongly hamper cross-border transactions. In particular, poor or uncertain creditors' rights protection may limit the willingness to extend credit and worsen the conditions at which this is granted.

The enormous cross-country variability in the index of procedural formalism developed by Djankov *et al.* (2003) witnesses the great degree of uncertainty trading firms may face over disputes resolution. In newly established relationships, in which it is not possible to base the credit extension decision on a previous credit history or on trust, this may discourage trading parties to extend credit altogether and jeopardize future potentially profitable trading relationships. This is especially harmful for developing countries needing export-financing or seeking to finance their imports.

¹⁹ The reverse factoring, for instance, is used in various countries by large international retailers with supermarket chains to support their suppliers' cashflows, while optimizing their own working capital management. Finance is structured so that trade payables on the retailers' balance sheets is classified as trade credit, rather than bank debt, thereby avoiding a reduction in their credit limits. Similarly, being structured as receivables purchase from the supplier, which is without recourse, this finance is off balance sheet for the supplier as well. It has therefore positive effects for both the retailers and their suppliers.

²⁰ Actually more frequently ECAs are doing something more than just insuring loans. The U.S. Exim Bank is lending money directly to non-American buyers of American products. Similar measures have been adopted also by other governments (France, Germany, Canada, Japan). At the last G20 meeting in London a new scheme has been approved that demands that agencies provide direct co-financing to banks to underwrite trade.

A harmonization of the rules, as well as an improvement in the efficiency of judicial systems, is therefore imperative to keep international trade financing going and possibly growing. For example, bilateral or multilateral agreements might be encouraged in an attempt to provide a more even playground for firms in developing countries seeking to export to developed countries.²¹ To this aim, the Djankov *et al.* (2003) index of formalism might be used to target the countries on which to intervene. Although this index concerns two specific domestic disputes arising across several different countries, it may notwithstanding provide a qualitative assessment of the “distance” in terms of judicial efficiency between trading countries and inform about the dyads or groups of countries for which such interventions are more needed.

Similarly, Djankov *et al.* (2008) index of efficiency of bankruptcy procedures might inform about the countries where bankruptcy regimes are less efficient and which more urgently call for reforms. This issue is clearly important *per se*, as a good bankruptcy regime maximizes the total value available to be divided between debtor and creditors and thus allows reducing the ex-ante cost of credit. However, the issue is also important for the implications that the crisis may have for corporate failures. From the last section, it has emerged that, especially for firms along supply chains, distress may have self-reinforcing effects and cause systemic defaults. There is therefore an issue of whether existing bankruptcy regimes can adequately deal with situations of this type or rather some reforms are needed to alleviate the effects of the crisis. The issue is taken up by Djankov (2009), who discusses a menu of possible reforms designed to deal with situations of distress following a crisis: the super-priority of fresh capital, prepackaged bankruptcy, super bankruptcy.

Particularly interesting in the light of the discussion on inter-firm finance as a mechanism of propagation of shocks is the super-priority of fresh capital. As argued in section 4.3, in times of crisis it is important that financing be available along the chain to absorb negative shocks and prevent inefficient liquidation. One possible solution is to reform the bankruptcy code and allow new capital to take priority over all old creditors, including secured ones. This gives an extra incentive to lend to distressed businesses allowing an injection of fresh capital in the chain.

With a prepackaged bankruptcy a firm negotiates a reorganization plan with its creditors prior to filing for bankruptcy. Given the advance negotiation with creditors, a court hearing can be scheduled quickly, leading to a quick exit from bankruptcy.

Another approach, so far untested, is the adoption of “super bankruptcy,” a temporary tool to be used when a country faces systemic bankruptcy. It consists in keeping in place the management, so as to exploit its better knowledge of the firm, and forcing a

²¹ It is worth to notice that letters of credit were actually introduced to deal with this problem and ensure enforceable contract.

debt-to-equity conversion, so as to prevent too many liquidations. In a systemic crisis this can preserve the going concern value of the firm.

5. Conclusions

The paper has focused on inter-firm international trade finance, trying to identify theoretical economic rationales that could underpin policy actions in favor of this form of financing in times of crisis, with a focus on constraints faced by developing countries.

To this aim, it has identified some of the main features of this form of financing, trying to highlight the specificities that distinguish it from other sources of funding and understand under which circumstances they constitute an issue of concern in times of crisis or rather a “shield” for financially squeezed firms.

It has in particular outlined three specific issues which may influence the provision of inter-firm credit: 1. the lower incentive problem its use may involve, due either to an outright information advantage or related to the characteristics of the traded goods; 2. the interconnection among firms along credit chains; 3. the institutional setting in which trading firms operate.

The two main and opposing aspects that emerge from the analysis are on one side that inter-firm trade finance may be a way to overcome informational problems associated to other sources of funding; and on the other side that it may be a mechanism of propagation of shocks, especially in times of crisis, due to the financial links among firms.

As far as the first aspect is concerned, it has been argued that there are circumstances in which the advantages of inter-firm trade finance are not fully exploited, for example because of poor legal institutions. As regards the second aspect, it has been argued that firms located in emerging countries may be more exposed to a default chain, due to their larger reliance on trade credit, as well as to its disruptive effects, because of their dependence on orders from developed firms.

In these circumstances it is important to identify the market participants which are more likely to be exposed to market failures and/or to be at the heart of the transmission of shocks. Moreover, it is also important to create among the trading partners all the conditions to exploit the advantages of inter-firm trade finance, like removing the obstacles that might create inefficiencies. For example, structured financing schemes might be a valuable instrument to secure export financing to firms located in low-income countries. However, this may be turn out to be costly and

complicated without an efficient legal and economic environment effectively supporting trading partners.

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