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Inter-Firm Linkages and Finance in Value Chains

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Abstract

The literature on small and medium-sized enterprise (SME) finance highlights linkages with large firms in value chains as a possible way to enhance access to credit. However, much of the literature on value chains emphasizes issues of coordination and governance of those linkages and their effects on industrial upgrading with little mention to the financial implications for SMEs. This paper explores this gap by looking for evidence on the impact of SMEs' access to finance of inter-firm linkages and specifically interactions with large firms. Using original enterprise-level data in three different Latin American and Caribbean sectors and countries (agro-industry in Argentina, furniture in Brazil, and information and communications technologies in Costa Rica), a comparison between the different sources and instruments of finance used by SMEs is presented. A distinction is made between arm's length financial mechanisms based on "hard data" and relationship finance based on "soft data." Findings suggest that chain governance matters for the type of role large firms can play in enhancing SMEs' access to finance. Policies should take into account the type of chain governance between large firms and SMEs across industries and countries when providing incentives to increase the role of large firms as direct financiers or guarantee providers for SMEs.

JEL Classification: F23, G21, O14, O16

Keywords: Global Value Chains; Finance: Small and Medium-sized Enterprises; SMEs; Relationship Finance; Brazil; Costa Rica; Argentina.

Acronyms

ACA	Access to Credit for Agriculture program
BNDES	The Brazilian Development Bank (Banco Nacional de Desenvolvimento Econômico e Social)
BRDE	The Regional Development Bank in Rio Grande do Sul, Brazil (Banco Regional de Desenvolvimento do Extremo Sul)
CAMTIC	Costa Rican Chamber of Information and Communication Technologies (La Cámara de Tecnologías de Información y Comunicación)
CAPROSOFT	Chamber of Software Producers of Costa Rica (Cámara de Productores de Software de Costa Rica)
CINDE	Costa Rican Investment Promotion Agency (Coalición Costarricense de Iniciativas de Desarrollo)
COMEX	Costa Rican Ministry of Foreign Commerce (Ministerio de Comercio Exterior)
DCA	Development Credit Authority
FDI	Foreign Direct Investment
FIERGS	Federation of Industries of Rio Grande do Sul, Brazil
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
IDB	Inter-American Development Bank
IFC	World Bank's International Finance Corporation
IMF	International Monetary Fund
IT	Information Technology
LAC	Latin America and the Caribbean
LGA	Loan Guarantee Association
MDF	Medium Density Fibreboard
MDP	Medium Density Particleboard
MNE	Multinational enterprise
MOVERGS	Association of Furniture Makers of the State of Rio Grande do Sul, Brazil

NAFIN	Nacional Financiera de Mexico
OSB	Oriented Strand Board
PROCOMER	Costa Rican Agency for Promotion of the International Commerce (Promotora del Comercio Exterior de Costa Rica)
PROFIT	Production, Finance and Improved Technology Program
PROSIC	Programa de la Sociedad de la Información y el Conocimiento de la Universidad de Costa Rica
SGR	Mutual Guarantee Company (Sociedades de Garantía Recíproca)
SINDMOVEIS	The Association of Furniture Makers of Bento Goncalves, Brazil
SME	Small and Medium Enterprises
TNC	Transnational Corporations
USAID	United States Agency for International Development
ZACA	Zambian Agricultural Commodity Agency

1. Introduction

Access to finance remains one of the critical obstacles for economic development and growth, especially for small and medium-sized enterprises (SMEs) in developing countries (see, for instance, Nichter and Goldmark, 2009; de la Torre et al., 2010; Baas and Schrooten, 2005). Thus, Nichter and Goldmark (2009) point to the constraints posed by lack of credit at start up and subsequently for investment and upgrading, and Beck and Demirgüç-Kunt (2008) argue that this credit constraint is especially binding on the growth of SMEs.

Financial system lenders (i.e., banks, mostly) look for two conditions when lending money. The first one is some idea of whether the borrower is likely to be able to repay. The second is some form of collateral so that the money lent is protected even in case of default, or at the very least that the borrower has a strong incentive to pay back the loan. Large firms more easily provide both conditions: more information is available about large firms, and they have more assets to offer as collateral.

SMEs have none of these advantages. It is more difficult and expensive for banks to assess the risk profile of potential SME borrowers, and these borrowers are less able to provide the collateral that banks would demand. Arguably, many SMEs are creditworthy since they grow over time and become large firms themselves, but the formal banking system is not well structured for distinguishing between high and low risks related to SME credit provision. These problems could be mitigated if banks had access to better information about the SME's performance or if these SMEs were able to obtain assurances about their financial viability and future prospects.

At the same time, in the present world of open international markets, SMEs are increasingly relying on larger firms for their access to markets, and larger firms find it convenient and profitable to outsource and fragment their activities into a chain of many functions that are carried out by many different actors and in different locations. Networks of firms with dense inter-firm linkages, such as value chains and agglomerations of firms with horizontal and vertical inter-firm linkages, have become increasingly common forms of industrial organization. Do the linkages built within value chains and networks facilitate SME access to credit? Could they play such a role? If so, under what circumstances?

1.1 How Might Inter-firm Linkages in Value Chains Help Access to Finance?

There is a broad literature on inter-firm linkages and agglomerations in value chains. In value chains, financial flows might be facilitated by two mechanisms: (i) the large firm offers direct financing to SMEs (e.g., trade finance or materials and machinery acquisitions); (ii) the link to a large firm strengthens the SME's capacity to obtain credit, either because of the reputational effect of working for a larger company, or because this link provides future cash flow and orders, or because the large firm may be prepared to offer guarantees. However, access to finance may also improve in firm networks due to: (i) reputation effects, which are important and increase the cost to an SME of default (this could be thought as a kind of collateral); and (ii) the easier diffusion of information in firms' agglomerations and networks, which would reduce the information asymmetry about a local SME's financial situation.

The present study seeks to explore whether inter-firm linkages (and particularly value chain relationships between SMEs and large firms) can improve access to financing for SMEs. We find evidence for their existence across different industries in Latin America, often eased by the presence of a third party, and highlight some opportunities for public policies.

The paper begins with a review of the available literature on SME finance in developing countries, with a particular emphasis on inter-firm finance. Links to the value chain literature are made in particular with reference to the issues of coordination and governance. The research design is then explained, including the rationale behind the selection of case studies. Next, the paper presents findings from three case studies based on primary data collected on 41 firms from the Argentinean agro-industry, Brazilian furniture, and Costa Rican IT sectors, supplemented by more than 20 interviews with key informants (banks, SME finance experts, business associations, and consultants), as well as secondary sources. The key findings are then discussed, opening the way for implications and conclusions for stakeholders.

1.2 Research Questions and Research Design

This paper addresses the question of whether and how inter-firm linkages, and especially linkages with larger firms, improve SMEs' access to finance. Moreover, it explores the issue of what are the best forms of inter-firm institutional arrangements (including value chain

governance) that are most likely to influence SME financing and possible ways of promoting them. In particular, the study looks for evidence of:

- Large firms providing supplier or buyer credit to SMEs
- SMEs obtaining finance that is conditional upon their linkage to large firms
- Loan guarantees provided by other firms to benefit SMEs
- SMEs using different financial instruments involving inter-firm linkages
- Third parties intervening to promote SME finance that exploits the presence of inter-firm linkages.

In order to gather examples from a range of industries, this study focuses on three different types of industry with different models of engagement with larger firms.

- Processing of agricultural produce (dairy production): Buenos Aires, Argentina
- Traditional manufacturing (furniture making): Serra Gaucha, state of Rio Grande do Sul, Brazil
- Knowledge-intensive products and services (IT industry-software): San Jose, Costa Rica

The evidence was gathered in fieldwork carried out during November and December 2010, making use of an original survey questionnaire.

2. Literature Review

2.1 Lack of Credit: A Serious Obstacle for SMEs' Development

Over the last 20 years a large number of studies have pointed to the problem of lack of access to finance by SMEs and presence of credit constraints.¹ Moreover, SMEs are much more credit constrained than larger firms (Atieno, 2009, Schiffer and Weder, 2001; Beck and Demirgüç-Kunt, 2006).² Reasons for the lack of access to credit can reasonably be related to characteristics

¹ Levy (1993) finds this to be true in Sri Lanka's leather industry and Tanzania's forest industry, Meyanathan (1994) and Meier and Pilgrim (1994) do so in Indonesia, Malaysia, Nepal, the Philippines, Singapore, and Thailand; Banerjee and Duflo (2004) show that firms in India are heavily credit constrained. In a survey of various sectors in Ghana and South Africa, Abor and Quartey (2010) have recently confirmed that together with technology, market access, managerial skills, and business environment, finance is what most firms are lacking.

² A recent study covering 10,000 firms in 80 countries worldwide reports not only that lack of finance is one of the most pressing issues for SMEs, but also that small firms report this more frequently than large enterprises (Nichter and Goldmark, 2009).

that are specific to SMEs. These finance gaps should worry policymakers. Entrepreneurs need capital to start up their businesses, expand and run them profitably, and start a process of “creative destruction” à la Schumpeter. Access to credit is also key for SMEs as it enables them to scale up their production, adapt new technologies, and thus increase profitability (Beck and Demirgüç-Kunt, 2008). From a value-chain angle, firms at the lower end of the value chain need credit to finance upgrading strategies in order to get involved in more value-added activities.

Why is it difficult for SMEs to access credit? One explanation may be that information asymmetries make the market outcome inefficient. Financial institutions do not know whether the borrowing firm will or will not default on a loan (Biais and Gollier, 1997) because they mainly rely on hard information to assess the creditworthiness of a potential borrower (Cole, Goldberg, and White, 2004; De Haas, Ferreira, and Taci, 2010). Hard information is quantitative, is easily verifiable, and tends to be taken from financial statements or credit ratings. Most SMEs cannot offer hard information and are therefore considered not bankable by large banks. As a result, many SMEs do not even consider large financial institutions as a viable partner (Schmitz, 1982), so they face a vicious circle: they accumulate assets slowly because of lack of finance, making banks reluctant to give credit and, in turn, worsening the SMEs’ difficulty in providing collateral.

In developing countries, the relative weakness of institutions, which results in more information asymmetries and lack of enforcement of anti-default measures, further worsens the SMEs’ difficulty in accessing credit. If information on SMEs and their creditworthiness were more easily available, large banks would be more willing to expand traditional financial services to include small firms (Beck et al., 2009; Laeven and Woodruff, 2007). Furthermore, access to reliable information on creditworthiness (hard information) would be improved by a functioning institutional environment and formalized processes. It has been proven empirically that registration of firms and credit information sharing, in particular, can improve access to finance for SMEs (Love and Mylenko, 2003). Well-functioning contract enforcement mechanisms and even small improvements in the legal system can increase the availability of finance both from traditional as well as nontraditional sources (Johnson et al., 2002). However, institutional reforms that would improve access to credit are highly political and often take decades to be implemented successfully, if they are at all. Because of their political nature and a time horizon that is much larger in scope than that of policymakers, such reform initiatives result in

considerable costs and are highly volatile. If a market failure leads to inefficiencies or even to the complete absence of a certain service, non-market institutions may act as a substitute mechanism. Public interventions are not without risks as they can be poor long-term replacements for market mechanisms, and they are subject to the same political economy issues as institutional reforms.

An approach called ‘relationship lending’ suggests an alternative way of finance under unfavorable circumstances when financial institutions base their creditworthiness estimations on "soft information" (Udell, 2008). This information is usually qualitative and is acquired through a long-term relationship with the borrower (Stein, 2000), which involves a long and costly process of building trust and credibility.

2.2 What is Known about Financial Innovation and the Role of Inter-firm Linkages

Do SMEs have to choose between no credit at all and very expensive credit? The recent and growing literature suggests that some transaction lending technologies (e.g., factoring, purchase order finance, etc.) can foster SME lending, challenging the claim that only relationship lending would be suitable for SME credit (Beck and Demirgüç-Kunt, 2008; Uchida et al., 2007; Klapper, 2006).

The following paragraphs aim to disentangle the different ways of providing finance to SMEs, classifying finance mechanisms into two categories: (a) **arm’s length finance** and (b) **relationship finance**. The principle behind these categories is that hard data makes arm’s length finance possible by allowing banks to check for creditworthiness from a distance without having to invest in developing close-knit relationships with SMEs (or other customers). Basing finance decisions on soft data can take place only when a bank and an SME have a close relationship, hence the name “relationship finance.” Table 1 lists the different inter-firm finance instruments grouped into these two categories.

Table 1. Inter-firm Finance Agreements

Arm's length finance	Relationship finance
Leasing Warehouse receipt finance Factoring Reverse factoring Purchase order finance	Trade credit or advanced payment Loan guarantees

Source: Authors' elaboration.

2.2.1 Arm's Length Finance

Arm's length finance mechanisms tend to be based on hard information, such as balance sheets or availability of collateral (e.g., mortgages). Such agreements rely heavily on two main aspects that are often weak in developing countries: (i) the availability of hard information and (ii) contract enforcement mechanisms. While the former serves financial institutions in calculating the risk of lending to a specific customer, the latter enables the institution to recoup its losses by making a claim on the asset presented as collateral when the borrower is unable to meet loan repayment terms. In developing countries, as will be seen below, the information, assurances, and guarantees may be provided in some cases by specialist agencies such as international donors, but they may also come from suppliers and customers; or they may be based on contracts that the SME has with these suppliers and customers.

2.2.2 Leasing

Leasing agreements work by lending assets instead of cash, and therefore are less risky (Fletcher et al., 2005). They usually require much less collateral than borrowing and are available at much lower rates than cash credit (Nair et al., 2004). Leasing has successfully been used for various transactions and by a range of financial institutions in Africa and South Asia, most notably the Grameen Bank in Bangladesh (Gallardo, 1997).

Leasing itself is not necessarily tied to value chains, but—as a case study from Pakistan reports—leasing arrangements are used successfully within value chains (Gallardo, 1997). A case study from Zambia exemplifies this success. The USAID-backed Production, Finance, and Improved Technology (PROFIT) Program has been active in five value chains: cotton, beef, honey, high value horticulture, and retail input services (USAID, 2007b). Farmers had been mainly complaining about lack of access to tractors due to missing capital. PROFIT developed a

model that produced leasing agreements between equipment suppliers and farmers by involving banks as providers of leasing agreements. A local Zambian project officer provided technical assistance to all three parties and facilitated cooperation. As a result, farmers gained access to tractors, equipment suppliers increased sales, and banks extended their client base. The coordination failure previous to the intervention explains why leasing is still only rarely used, and the coordination failure was addressed through a third-party facilitator to activate the potential of inter-firm linkages in value chains.

2.2.3 Warehouse Receipt Finance

Following PROFIT's model, similar projects were developed in Zambia and Uganda, setting up a network of privately managed warehouses that could issue warehouse receipts. The Ugandan model also features an arm's length, self-financing regulatory agency, while in the Zambian case, a farmers' association manages interaction among the different actors involved (Onumah, 2003).

In the latter case, the Zambian Agricultural Commodity Agency (ZACA) was responsible for certifying and inspecting warehouses in order to ensure that issued warehouse receipts were correct and to eventually establish trust between the parties involved. In the case of Uganda, a local bank offers farmers the option to use warehouse receipts as collateral for a loan of 80 percent of the current grain value (USAID, 2006). This variant of warehouse receipt finance worked within a vertical set of inter-firm linkages in a value chain; though it did not link buyer and suppliers (SMEs) directly, it ensured that two links of the value chain (buyer and SME) had access to the funds essential to continue operations along the chain. In addition, the form of finance in these examples did not appear spontaneously in developing countries, but required the intervention of a third party (a donor or specialized agency).

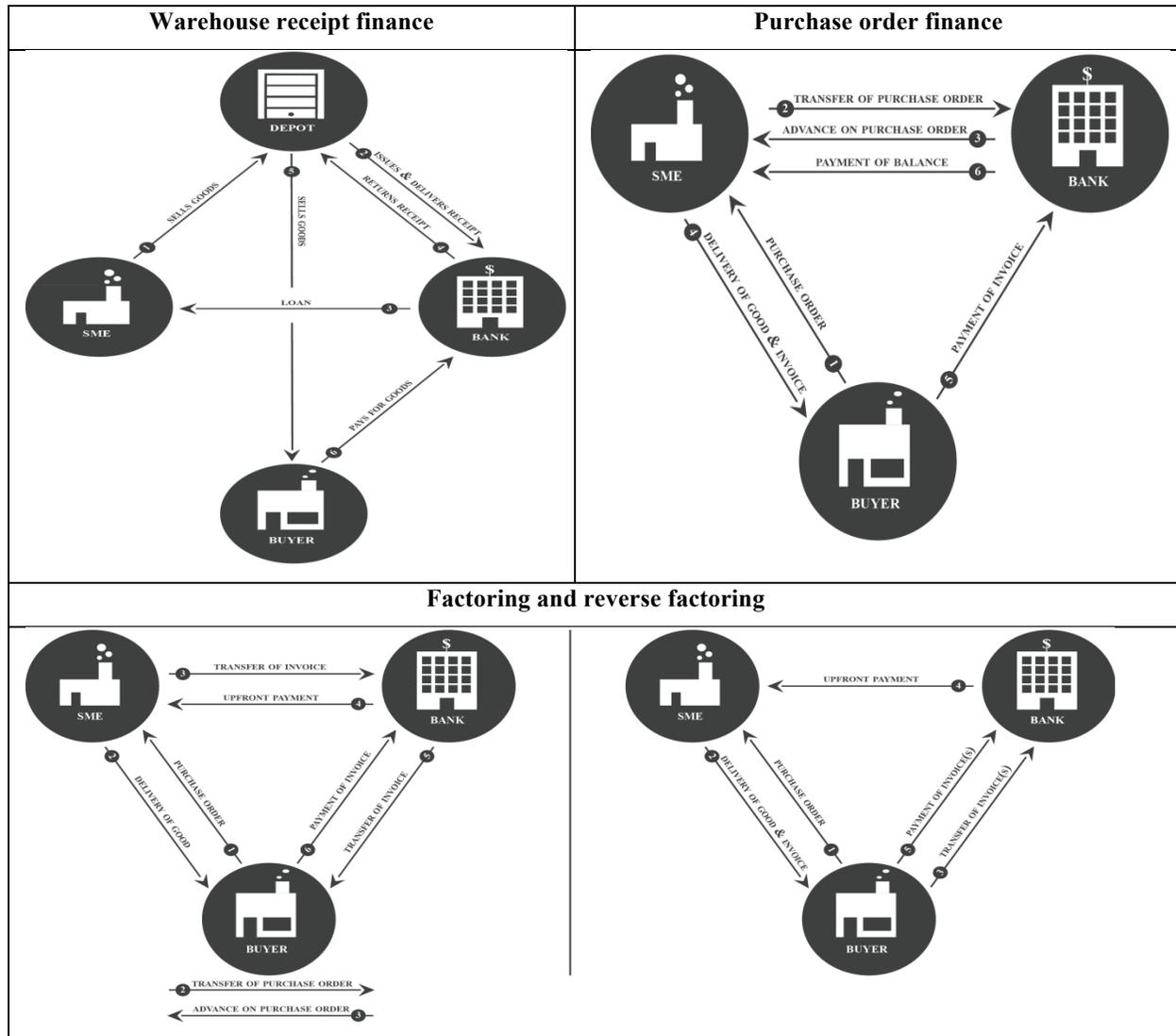
2.2.4. Factoring and Reverse Factoring

Factoring, reverse factoring, and purchase order finance are means of realizing cash from invoices based on future purchases (Figure 1). For SMEs, standard factoring presents two problems: (i) the factor must have confidence that invoices are genuine; and (ii) the factor must believe that outstanding invoices will be paid. Unless the SME has a strong track record that supports such confidence, use of this measure is limited.

This problem is addressed through **reverse factoring** (Figure 1). In reverse factoring, a bank or factoring company makes prompt payment to a supplier based on invoices that a single buyer

has “qualified,” that is, has provided assurances that invoices are genuine. If the buyer is a large company, the factor is likely to have more confidence that the invoices will be paid.³ As reverse factoring deals with the payables of one well-known buyer,⁴ SMEs benefit from the customer’s greater credit worthiness.

Figure 1. Arm’s Length Finance



Source: Authors' elaboration.

³ This discussion of reverse factoring is based on the description at <http://asyx.com/how-it-works>.

⁴ Traditional financing will, on average, provide financing of about 70 percent of invoice value, while reverse factoring can provide up to 100 percent of invoice value (minus interest and service fees). Where traditional factoring is not suitable (e.g., in environments with weak contract enforcement, incomplete credit information, or frequent fraud), reverse factoring could be a solution.

An example of reverse factoring is a program of the Mexican state-owned development bank, Nacional Financiera (NAFIN), called *Cadenas Productivas*⁵ (Klapper, 2006). Large—and low-risk—buyers register with NAFIN, submitting a list of their small suppliers, who are then invited to register with the program. Using an electronic platform to handle transactions between the actors involved reduces transaction costs and increases security. Additionally NAFIN provides technical assistance to the businesses involved and encourages large buyers to take part in the program. *Cadenas Productivas* has enjoyed remarkable outreach so far: by 2010 it reported having provided factoring credit to 70,000 SMEs, involving 580 value chains and more than 13 billion dollars in loans (NAFIN, 2011).

2.2.5. Purchase Order Finance

In a "purchase order finance" agreement, a firm (an SME) sells a purchase order it has received from a buyer to a financial institution (a bank) in order to get the capital necessary to fill the purchase order (USAID, 2007a). The main advantage of purchase order finance is that it may enable a small firm to take on much larger purchase orders than if it relied on its own assets. Once again, the SME's creditworthiness is enhanced by the link to the larger company.

USAID introduced a purchase order finance model to two regions in Bolivia (Landa, 2009). Cooperation between value chain and non-value chain actors was facilitated and technical assistance was provided, but without financial support. One case involved a coffee producer and the other a farm cooperative, within the coffee value chain, a large buyer and a 260-member farm cooperative agreed to work together with two local banks in establishing a purchase order finance model. As collateral for the loan, the cooperative transferred savings from its accounts, along with board members' personal guarantees, to the local bank. As a result, the cooperative obtained a 90-day loan from the bank for raw materials and other inputs. From July 2007 to December 2008, banks issued 4,600 of these loans with a total value of US\$ 13.7 million.

2.2.6. Relationship Finance

Unlike the previously described financial services, **relationship finance** contracts are based on soft information and require a certain level of trust between lender and borrower. While arm's length finance is based on the exchange (and discount) of documents that can be verified

⁵ <http://www.nafin.com/portalfn/content/home/cadenas-productivas.html>

externally by any actor (such as receivables between actors in a value chain), relationship finance takes the much simpler forms of loans, trade credit, and provision of guarantees on the basis of deep knowledge and trust that have developed between firms that have a history of working together. Soft information about a borrower's creditworthiness and the probability of default, which cannot be verified externally, becomes more easily available with long-term, close commercial relationships between two entities (Jain, 2001). A simple example of relationship finance that is particularly popular in developing countries that have inefficient formal financial markets is informal lending. Trust between borrower and lender—often due to shared social identities—enables lending even in the absence of formal contracts, while enforcement mechanisms tend to be of a social or personal nature (e.g., the prospect of being ostracized or losing face in the community for defaulting on a loan). Applied to inter-firm linkages, these models therefore do not necessarily switch the responsibility of loan payback to a more reliable firm within the value chain, but rather replace hard information with soft information and formal contract enforceability with trust and social sanctions.

2.2.7. Trade Credit or Advanced Payment

Besides informal lending, one of the most common examples of relationship finance is trade credit or advanced payment. Companies extend credit to each other when buyers delay or advance payments to suppliers. Such credit can be in the form of cash payments, when buyers make partial payments before receiving a product; it can also take the form of advances in kind, such as raw materials for suppliers' production (e.g., seeds or fertilizer in the case of agriculture). In-kind payments are less risky, as transaction-specific items such as inputs are not as easily diverted as cash (Burkart and Ellingsen, 2004). In a trade credit agreement (Figure 2) a firm (a vendor) allows the buyer (SME) to delay payment for goods received. Advanced payment simply works the other way around. Both mechanisms rely heavily on trust.

Trade credit is the most widely discussed form of inter-firm finance (Mian and Smith, 1992; Peterson and Rajan, 1997). Trade credit is, in fact, a means of spreading finance from companies that are good credit risks to other companies, and the lending firms are better able than the banks to assess risks posed by their suppliers, or at least some of them (Love et al., 2007).

This dependence on credit arrangements between buyer and supplier, which are often informal, is found most frequently in underdeveloped financial markets (Fisman and Love,

2003)⁶, where hard information and a proper contractual environment are absent (Uchida et al., 2007; Demirgüç-Kunt and Maksimovic, 2001).⁷

A common form of trade credit is found in agricultural value chains when a large buyer supplies seeds and fertilizers to farmers on trade credit before the season starts. Once the farmers deliver their yield to a buyer, the value of the credited materials is discounted from the value of the delivery. However, with prices of credited materials being set at 10 percent above market price, this option is the very last resort for most subcontractors. (Hayami et al, 1998).⁸

2.2.8. Loan Guarantees

The asymmetric information that characterizes financial markets is one of the main limitations for SMEs' access to credit. Loan guarantees are relationship finance arrangements that involve more than two actors, with at least one in the form of a financial institution (Figure 2). A firm (BUYER) that can document creditworthiness provides a loan guarantee to a partner-firm (SME) that has no access to finance; because it has a direct knowledge of the SME, the BUYER can punish the SME if it defaults by excluding it from the supply chain. The loan guarantee gives the partner-firm access to financial services, and, in case of credit default, the issuer of the loan guarantee will be held responsible for any liabilities. This model somewhat combines the features of arm's length finance and relationship finance, while shifting the responsibility of payback to the large firm providing the guarantee.

Some recent empirical evidence does document a loan guarantee model with a donor or development agency acting as guarantor. In Malawi, USAID used development credit authority (DCA) guarantees as a tool to grant SMEs access to affordable credit (USAID, 2009). The key objective in Malawi was to overcome information asymmetries by offering DCA guarantees—covering 50 percent of loan volume in case of default—and initiating indirect inter-firm financing by local banks that had previously lent only to larger, mostly urban clients.

This logic increasingly induces governments and donors to help create guarantee systems to support SME development. The key idea is that “engaging stakeholders in both the value chain

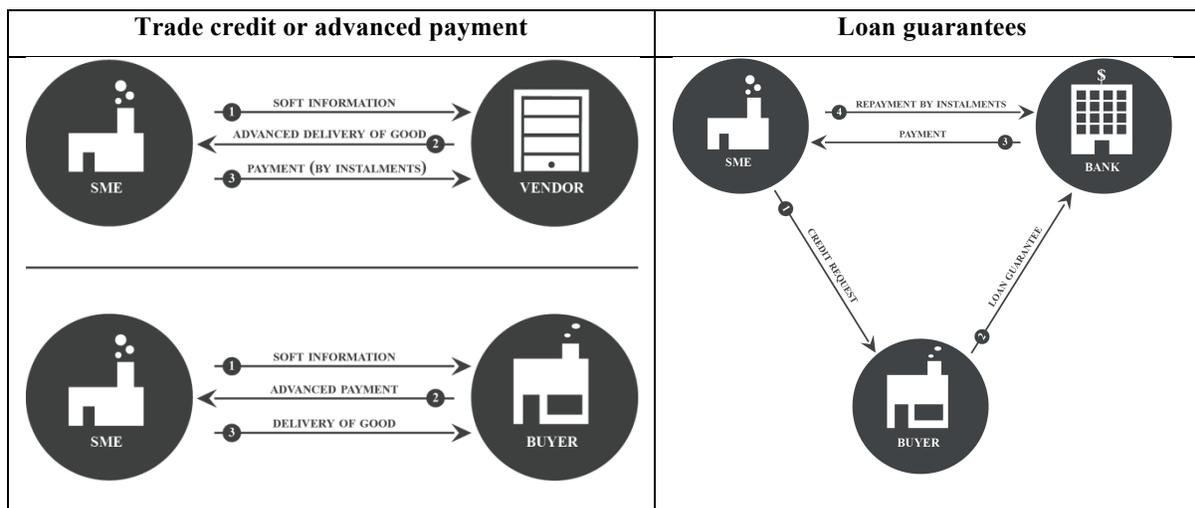
⁶ Ruan and Zhang (2009) argue that industrial clusters enabled SMEs in China to overcome credit constraints.

⁷ A case study from Vietnam (McMillan and Woodruff, 1999) and a study based on a panel of 37 industries in 44 countries show that eligibility for trade credit increases with the strength and duration of the linkage between firms, which makes it difficult for start-ups to obtain this type of credit (McMillan and Woodruff, 1999; Fisman and Love, 2003).

⁸ Hayami, et al. (1998) present an example from the metal craft industry in the Philippines: upon receiving an order, the subcontractor can ask the contractor for the supply of materials as in-kind trade credit.

and the financial sector in a variety of ways can reduce information asymmetries, help identify profitable opportunities, and contribute to advancing needed legal and regulatory reforms” (USAID, 2009). Loan guarantee associations (LGAs) are a specific kind of guarantee system. They are formed by SMEs that need financing and members that provide supporting funds, such as natural or legal public entities or private persons. LGAs can be open, permitting access to any SME regardless of geographic location or activity, or closed (Kulfas, 2008).

Figure 2. Relationship Finance



Source: Authors' elaboration.

LGA and other guarantee systems are widely used in Argentina in certain industries (e.g., dairy, poultry, stockbreeding, and wine).⁹ In these value chains, a large leading firm (or cooperative) needs a critical input that is generally provided by SMEs and is therefore interested in strengthening its SME suppliers.

Finally, explicit loan guarantees may not even be necessary to signal an SME’s creditworthiness to financial institutions. Thus, a trade credit arrangement between buyer and seller—sometimes strengthened by technical assistance provided by the buyer—already signals a buyer’s creditworthiness to an observing financial institution (Biais and Gollier, 1997).¹⁰

⁹ The agreement between the largest public LGA (Garantizar SGR) and a private-public entity that represents wine producers (CoViAr) is directed toward strengthening the wine value chain by supporting SME financing.

¹⁰ Empirical microeconomic evidence shows that firms in central Eastern Europe that participate in inter-firm networks have better access to bank loans (Owolabi and Pal, 2009).

2.3. Is There Potential for Greater Uptake of these Financial Innovations by SMEs?

As promising as these solutions may sound, indeed few businesses make use of these technologies (de la Torre et al., 2010; Rocha et al., 2010). Most traditional banking services still regard their clients as insulated entities, although inter-firm linkages may enable financial agreements between firms within a value chain or they may facilitate finance from outside the value chain, such as by providing necessary guarantees for a third-party financial institution. Financial development literature has generally not picked up value chain models, although donors and international development agencies have increasingly used inter-firm linkages within value chains as funnels of technical assistance to SMEs (see Humphrey and Navas-Alemán, 2010, for a recent review). If trust is lacking and risk is high in the absence of a proper regulatory environment, inter-firm networks along value chains can function as a substitute mechanism, playing a role similar to that of social networks (Banerjee and Munshi, 2004; Fisman and Khanna, 2004). Indeed, Biggs and Shah (2006) show that networked SMEs are much more likely to receive credit than other firms.¹¹

2.4. What Does the Value Chain Literature Say about Inter-Firm Linkages and SME Finance?

Just as the financial literature has not picked up on value chain models to support innovative financial instruments, the literature on value chains usually emphasizes issues of industrial organization and upgrading, with little attention to issues of value chain or SME finance.¹² For example, the literature points to different ways in which firms choose to manage relationships with suppliers and customers, such as focusing on the role of new types of global buyers that promote outsourcing and offshoring (Gereffi, 1994, 1999). This literature discusses coordination in value chains and the institutional mechanisms that make possible such coordination as governance of the value chain (Gereffi, 1999; Gereffi et al., 2005; Humphrey and Schmitz, 2000;

¹¹ They also explain their results with the cohesion of ethnic identity between economic actors, rather than with conventional business linkages.

¹² The authors refer here to the academic literature on value chains. Donors and international development agencies such as USAID have written papers and manuals based on their experience with VC interventions in developing countries (USAID, 2009). However, even GTZ's ValueLinks manual has not completed its section on value chain finance, which is promised for its second edition.

Pietrobelli and Rabellotti, 2007). Gereffi et al. (2005) developed a taxonomy that identifies five governance categories based on three factors: the complexity of inter-firm transactions; the ability of participating firms to codify such transactions; and the capacity of suppliers to meet buyer requirements. Pietrobelli and Rabellotti (2011) used the taxonomy of value chain governance created by Gereffi et al. (2005) to explore the learning potential that different forms of governance offer to local firms. The main characteristics of value chain governance are described in Table 2.

Table 2. Value Chain Governance Indicators

Type of chain governance	Explanation	Indicators
Market	<ul style="list-style-type: none"> • Arm's length relations between firms • No governance 	<ul style="list-style-type: none"> • Low buyer concentration and low producer concentration • No buyer or market dependency • Buyer not involved in product definition • Repeat transactions are possible, but information flows are limited • No technical assistance
Network	<ul style="list-style-type: none"> • Coordination of activities between firms, but mutual interdependence • Typical of strategic alliances and division of competences between firms 	<ul style="list-style-type: none"> • No buyer or producer dependency (producer may have various buyers, but if only a few, buyer is likely to have few producers) • Few exit options on both sides • No asymmetry in knowledge (producer's knowledge is valuable to buyer and hard to substitute, and vice versa)
Quasi-hierarchy	<ul style="list-style-type: none"> • Producer is subordinated to one or a few buyers • Strong power asymmetries and long-term relationships • One firm exerts a high degree of control over other firms even if they are formally independent from each other 	<ul style="list-style-type: none"> • High buyer dependency (main buyer takes more than 30 percent of producer's output) • High buyer concentration • Buyer sets production parameters for the producer • Few direct sales from producer to buyer. Intermediaries keep producers away from final markets. • Producer's performance is tightly audited/monitored by buyer • Producer's exit options are more restricted than buyer's • Buyer provides technical assistance • Information asymmetry (buyer knows more about producer's costs and capabilities than producer knows about buyer's) • "Antagonistic cooperation" • Buyer's competence in essential chain activities is higher than producer's

Source: Navas-Aleman (2011), adapted from Humphrey and Schmitz (2000).

In the specific area of financial support, buyers may advance credit (in money or kind) to ensure that suppliers are capable of meeting their requirements. Advancing credit is also a means of tying supplier to buyer; one goal might be to ensure that investments in the supplier (e.g., training or development of buyer-specific production quality systems) are not lost when a supplier switches to another customer.

These issues are particularly relevant when large buyers are working with SMEs without the experience and systems to work with demanding customers. In such a situation, buyers have the potential to assist suppliers and also ensure the continued provision of credit.

Despite the scarce research on relationships between value chain governance and SMEs' access to finance, one could argue that types of governance to which an SME is exposed are important to provide SMEs access to different sources and instruments of finance. Drawing on both SME finance and value chain literature, the causal model linking value chain governance to SME finance can be explored with some of the following working hypotheses.

In quasi-hierarchical chains, one would expect to see a clear role for the chain governor in providing both arm's length finance and relationship finance to suppliers for expansion of existing activities or access to affordable finance without providing the collateral required by commercial banks. The literature suggests that a chain leader may facilitate access to finance through reverse factoring, trade credit, and loan financing/loan guarantees. In addition, strong signaling mechanisms about inclusion or exclusion from a lead firm's supply chain—and hence about the ability and creditworthiness of the supplier—may be offered to external third parties.

In value chains with **network governance**, the relationships between firms may facilitate access to relationship finance, which is based on soft information, trust, and the ability to monitor network members. Joint projects to access finance may also emerge. To some extent, this interdependence may also provide a signaling mechanism to external third parties about the financial reliability of network members. In **market-based** chains, the emergence of inter-firm relationships in facilitating financial access should follow the same logic that governs market relations.

2.5. Summary of Literature

Three main aspects may be highlighted from the literature review. First, evidence from experiences with arm's length and relationship-based inter-firm financing is very scarce and

tends to focus on the agricultural sector. In this study, in-depth interviews and qualitative methods are used to research causal models in order to generate hypotheses and indicators to be explored in larger, more quantitative studies.

Second, complex financing arrangements involving inter-firm linkages have not emerged organically, but generally have been initiated by a third-party facilitator. Firms in value chains apparently are not aware of innovative lending technologies and/or are mistrustful of other firms to the extent that only a third party would be able to increase trust so that financial transactions could take place.

Third, despite the lack of empirical research on the relationship between value chain governance and types of financing arrangements, some theoretical expectations may be advanced. Thus, in value chains headed by strong lead firms, relationship-based mechanisms involving more than two actors yield much potential for SMEs. The literature suggests that a lead firm may facilitate access to finance through multiple means, including reverse factoring, trade credit, and loan financing/loan guarantees. The present study innovates by explicitly testing some of these expectations derived from thus far separate branches of the literature with case-based evidence from Latin America.

3. Case Studies

3.1. The Agro-food Industry in Argentina

The study of the agro-food industry in Argentina focuses mainly on two sectors: dairy cattle and broiler chickens.¹³ In these sectors, processing companies source inputs from small farms that specialize in very specific segments of production, for example fattening broiler chickens. Also the food-processing sector has been studied, with a focus on flour-based products, such as biscuits, pasta, cereals, and the like (see Table 3 on page 21).

In dairy and poultry production, processors outsource to independent farmers, but they also coordinate and supervise the farmers closely for a number of reasons. First, processors may wish to drive improved production processes along the chain. Scientific approaches to feeding and rearing may require provision of special food and expert guidance on management of farm units.

¹³ This section summarizes evidence from a case study developed by Juan O'Farrell and Anabel Marin (CENIT) based on the authors' questionnaire.

Second, in order to increase the value chain's efficiency as a whole, processors promote improved quality, productivity, and consistency in these feeder units. Third, the reliability of supply is crucial to the efficiency of processing plants that run continuously (Lawrence et al., 1997).

Consequently, processors depend upon maintaining a reliable group of input providers who can produce the required volumes and make the investments necessary for improving production. Processors, therefore, are motivated to invest in improving supplier capacity and struggle to reap the benefits of these investments. Thus, through value chain financing, processors both support their suppliers and tie them into their supply networks. This tying in of suppliers is a characteristic of quasi-hierarchical forms of value chain governance (see Table 2).

In the case of the dairy industry, one of the value chains analyzed in this study is led by LS, the largest dairy company in Argentina. The company has 5,000 employees and annual sales of 2.3 million Argentine pesos. In 1999 the company founded a Loan Guarantee Association (LGA), explicitly "to strengthen its value chain." This LGA now has 1,046 participant partners (all LS suppliers) that represent approximately one third of its total suppliers: almost 65 percent of them are dairy farms, 27 percent are firms involved in transport, and 8 percent supply ambulance and medical services.¹⁴

This LGA provides commercial and financial guarantees and financial and technical assistance. It started by obtaining credit lines with financial institutions and offering them to its suppliers. To encourage the creation of LGAs, the Argentine government has provided tax exemptions to large firms, whereby those firms are guarantors and SMEs benefit from the guarantees. However, according to top LS managers, "The key is not the tax break but to improve the quantity and quality of the raw materials purchased by the company" (Interview with LS's LGA, 2010):

The 2001 Argentinean economic crisis particularly affected the dairy industry, and the 2002 devaluation of the currency did not help to reactivate the sector, which is oriented toward the domestic market. In this context, LS designed a program to increase its suppliers' productivity, including providing technical and management assistance, financing input acquisition, and offering financial assistance for liability structuring. The LGA supported this program by

¹⁴ Information for this section comes from an interview with the president of the LS LGA and an unpublished report from the company: "LS LGA History Report."

offering guarantees to participant partners, resulting in a notable increase in volume and range of services. While in 2002 the LGA provided 743 guarantees for a total of US\$1.8 million, in 2009 it provided 1,345 guarantees for a total of US\$5.5 million.

Because it knows much more about firms to which it is lending, and it has the implicit collateral of suppliers' loss of contracts should default occur, the LS LGA works as a communication channel, giving its lead company an advantage over specialist finance providers. Its staff is “directly and continuously” connected with agricultural engineers who “have in-depth knowledge of the farms” and who regularly produce reports on each farm’s conditions. Overall, these practices improve information on a farmer’s capacity to repay.

Some similar processes were observed in the **poultry value chain** in Argentina. Once again, this is a classic example of large firms strengthening their capacity to control and direct activities along the value chain by increasing the financial opportunities of their SME providers. Although large poultry firms have traditionally provided financial services to strategic suppliers, this function has been substantially strengthened through the activities of public and private LGAs.

Total production in the sector has increased from 764,000 tons in 2003 to 1,680,000 tons in 2010. The sector’s expansion generated the need to increase productive capacity of all firms within the value chain, from farms to transporters; for example, small farms, which especially suffer from limited access to credit, needed financing for expansion in areas such as broiler growers and fattening units.

The Argentine poultry value chain follows a model known as the “global role model,” also used in the United States and Brazil, which is characterized by strong vertical coordination in the value chain. Such vertical coordination occurs when a single firm, known as an integrator, exercises close control over all or most aspects of production from “farm to fork” (Leibler et al., 2008). The integrators contract out to farmers the raising of chicks and the fattening of chickens. Hence, farmers act as true service providers for the large firms governing the whole chain.

3.1.1. Access to Sources of Finance within Value Chains

The dairy and poultry chains provide examples in which large firms facilitate suppliers’ financing through trade credit, input and machinery acquisitions, and short-term loans. However, indirect assistance through the provision of guarantees also deserves mention. Thus, linkages with large firms may both directly and indirectly improve an SME’s access to finance.

Large firms facilitate SME financing on an individual basis an agreement between the large firm and the SME, or between the firm and a financial institution, as well as through the creation of LGAs. In Argentina, LGAs have expanded significantly over the past 10 years, especially in the agro-food sector (IDB, 2006). LGAs are thought to overcome credit market imperfections by allowing lenders to shift part of the loan recovery risk to the guarantor, the LGA (Camino and Cardone, 1999).

Overall, it has been observed that SMEs have much more access to finance through relationships with larger firms in the poultry and dairy chains than in other sectors of the food industry. This difference in chain governance and in SMEs' access to finance can be explained by the nature of inputs the SMEs provide: flour and other ingredients can be stored for a long time, and lead firms in this sector do not fear their key input getting spoiled (as in the dairy sector), growing beyond the standard selling size (as in the poultry sector), or requiring strict traceability (as in both sectors).

Box 1. The Loan Guarantee Associations in Argentina

In Argentina many large firms are founding members of closed and semi-closed LGAs, and contribute capital to give guarantees and sometimes direct financing to SMEs.

The strong private capital presence is a peculiar characteristic of Argentinean LGAs that makes this system unique in the world. It was created with Law 24.467, which determines tax benefits for founding members of LGAs, with the goal of stimulating investment of private capital in the guarantee system. Hence, large firms now have a double incentive to engage in LGA: a fiscal incentive (tax exemptions for capital contributions to the LGA constitution) and an incentive to improve the conditions of its small and medium-sized suppliers.

Because of the fiscal incentive, private actors actively participate in LGAs in Argentina: of the 20 LGAs in 2007, 17 were privately owned (IDB, 2006). The presence of LGAs is especially strong in the agro-food industry, which has 7. Moreover, LGAs in Argentina rely significantly on large firms' investments, unlike many countries that have structured LGAs through public guarantee funds (notably in Latin America) or mixed systems that have strong state subsidies (e.g., Spain).

Argentinean LGAs differ from guarantee systems in Latin America that tend to reach a larger number of small enterprises, which are borrowing relatively low amounts. In contrast, Argentinean LGAs are directed to smaller numbers of SMEs that are borrowing larger amounts, mainly for working capital and equipment investment.

The evidence collected for this study shows that in some sectors, such as dairy, poultry, stockbreeding, and wine, participation of large enterprises is stronger through LGAs than through other guarantee systems. These value chains are structured so that a large leading firm (or cooperative) needs a critical input that is generally provided by SMEs. This feature gives the large firm stronger incentives to improve conditions for its SME suppliers.

Sources: IDB (2006); Kulfas (2008).

3.1.2. Access to Sources of Finance outside Value Chains

There is ample evidence to suggest that, as argued by all SMEs interviewed, SME links with large firms increase their creditworthiness. Having a large buyer with a stable demand is a clear advantage. Many also added that a positive “reputation effect” makes SMEs more attractive to financial institutions: supplying to a large firm is a good credential. However, many bank managers interviewed repeatedly stated that although they consider this effect important, it is not the main factor determining the Argentine model’s success.

Table 3. Summary of Financial Instruments and Guarantees Observed in the Argentinean Agro-food Value Chains

Instruments	Dairy value chain	Poultry value chain	Food processing value chain
Self financing			
Self financing	Frequently observed. 75 percent of interviewees declare that they finance almost 100 percent with own resources; 50 percent use resources from another owned agricultural business.	Frequently observed	Frequently observed
Inter-firm financing			
Arm's length finance			
Factoring or reverse factoring	Not observed	Not observed	Not observed
Leasing	Occasionally Transporters frequently; farmers occasionally.	Occasionally Particularly transporters and distributors.	Occasionally
Purchase order finance	Occasionally. Purchase agreements between LS and input and machinery suppliers; get better financial terms.	Not observed	Not observed
Warehouse receipt finance	Not observed	Not observed	Not observed
Relationship finance			
Trade credit	Frequently Capital advances from producer to its suppliers, later deducted from product supply. Occasionally LS's LGA buys inputs and sells them to its partners at better financial terms than the market.	Frequently A large firm (integrator) buys equipment (e.g., generator) and sells it to farms; the price is deducted from product supply; common financing of smaller amounts, such as fencing; smaller amounts than dairy because inputs are provided by the integrator.	Not observed
Deferred payment checks (discounted)	Frequently observed SMEs cash deferred payment checks with support provided by LS's LGA.	Occasionally observed Thanks to LGAs, SMEs can cash checks with better discount rates.	Occasionally observed Used by micro and small firms; some have better interest rates with support of a large firm or LGA, and others lack collateral and cash their checks, using informal financial entities.
Other			
Angel investors	Not observed	Not observed	Not observed
External financing			
Commercial bank	Frequently observed SMEs use credit cards, leasing, regular loans, and overdrafts.	Frequently observed Regular loans and leasing.	Occasionally observed Interviewed SMEs were mostly 100 percent self-financed.
Microcredit	Not observed	Not observed	Not observed
Public bank	Frequently observed Subsidized loans.	Frequently observed Subsidized loans.	Not observed
Other			
Buyer/supplier technical assistance	Frequently observed The producer offered financial assistance for liabilities restructuring after 2001 crisis; LS's LGA provides assistance on financial management.	Frequently observed Large firms provide veterinary and maintenance assistance to farms, especially at initial stages.	Not observed

Source: Authors' elaboration.

3.2. The Furniture Value Chains in the Serra Gaucha Cluster, Brazil

The Brazilian furniture industry is the largest in Latin America, with an output exceeding US\$8 billion (of which US\$968 million are exports)¹⁵; the industry comprises almost 17,000 firms spread all over the country (ABIMOVEL, 2010). The industry is clustered in various locations, and this study focuses on value chains in the Serra Gaucha cluster in Rio Grande do Sul, Brazil's southernmost state. One of the most successful furniture clusters in Brazil, it is the country's largest producer, the second largest exporter, and the leader in technological attainment (Gorini, 1998; Roese, 2003, MOVERGS, 2010). Serra Gaucha producers are mostly SMEs that make all types of furniture for domestic and foreign markets, mainly using particleboards (MOVERGS, 2010; Sindmoveis, 2010).

The furniture industry in Rio Grande do Sul emerged out of skills brought by Italian immigrants from Piedmont, Lombardy, and Veneto in the second half of the 19th century. Until the 1940s, most furniture production took place in small, mostly informal, carpentry establishments; but the 1950s and 1960s saw the establishment of formal firms, some of which still operate, with registered employees and mass production technologies (Lunelli, 2010).

In the 1970s, an expanding domestic market caused fast growth in the Serra Gaucha furniture agglomeration. The market's internal absorption capacity was so high that firms did not target export markets until the 1980s. At that point, the Brazilian economy's hyperinflation and slow growth made many firms look outside for alternative outlets or agents to facilitate commercialization. This process accelerated during the 1990s, when the Brazilian economy opened up. These trends induced a remarkable "modernization process" of Brazil's furniture sector (Vargas and Alievi, 2000), which was particularly marked among the Serra Gaucha's leading producers, who invested heavily in acquiring machinery and technology. These investments were often self-financed but also financed by the increasing subsidized credit offered by Brazilian government banks (e.g., Banco do Brasil, Caixa Federal, and Banrisul). The majority of micro and small enterprises, however, remained technologically backward (Gorini, 1998).

The intense exporting that started in the late 1990s reached its peak by the mid-2000s; at that point, several value chains emerged, selling to domestic, Latin American, U.S., and European

¹⁵ This section summarizes evidence from a case study developed by Lizbeth Navas-Alemán (IDS).

markets. Manufacturers often used their own designs and sometimes their own brands, making some Serra Gaucha furniture producers the lead firms of their own value chains (Navas-Alemán, 2006; 2011). The strength of the Brazilian currency and the weakness of the U.S. Dollar after 2005 made the growing Brazilian market more attractive to furniture firms, and this trend intensified during the 2008 financial crisis, when exporting to the weakened developed economies became riskier and less lucrative.

In 2010, most Serra Gaucha producers devoted a larger share of production to the fast-growing domestic market because of: 1) cheaper and more abundant consumer credit; 2) cash-transfer programs to low-income groups; 3) the accelerated rate of economic growth in Brazil over the last decade; 4) growth of the construction industry with its associated demand for furniture; and 5) the able negotiation of business associations (e.g., MOVERGS) that have persuaded government entities of the need to include credit for furniture purchases in housing credit packages in social programs managed by public banks, such as *Minha Casa, Minha Vida* (“My House, My Life”). Nevertheless, exports remain an important part of the Serra Gaucha business model: although volumes may be lower, the value added appears to be rising, particularly amongst the value chain’s largest firms.¹⁶

3.2.1. Main Sources of Finance for Furniture Producers in the Serra Gaucha

Two strong values that have prevailed in Serra Gaucha are self-reliance and avoiding excessive debt.¹⁷ Therefore, Sierra Gaucha’s most common sources of finance are self-finance and relationship finance. The latter consists generally of networks composed of family and friends and trade credit from other firms. Arm’s length finance in the form of public bank loans and commercial loans were also mentioned (Table 4).

¹⁶ Firms such as Todeschini, Florense, Dell Anno, SCA, Marelli, and Bontempo have their own shops in foreign markets in Latin America, the United States, Europe, and Africa, selling their own branded furniture (MOVERGS, 2010).

¹⁷ Previous studies have attributed this reluctance to debt to values of the Italian immigrants in the cluster, such as the desire to keep collective investments in local industries and to avoid losing assets that are part of what the local tight-knit community perceives as its collective resources (Roese, 2003; Lunelli, 2010).

Table 4. Main Sources of Finance for Sampled Furniture Firms in the Serra Gaucha

Source of finance	Self-finance from the firm and its partners	Family and friends network	Public banks	Commercial banks	Other firms
Percent of sample that use this source	88	88	100	50	77

Source: Authors' Survey 2010.

Self-finance essentially took two forms: (i) using a firm's profits as working capital or investments, and (ii) selling a company's assets (even buildings) to solve financial difficulties and pay debts. Among the oldest (and probably more traditional) firms in the sample, selling assets to other local entrepreneurs was preferable to taking out loans with interest. Younger firms (those founded in the early 1990s or headed by younger entrepreneurs) were more open to using loans to finance long-term investment, preferring public banks with lower interest rates. Selling assets also brings a further complication: increased tax burdens.¹⁸

When considering preferences beyond self-finance, two important distinctions emerged: short-term versus long-term finance, and SMEs versus larger firms. Results were mixed despite the expectation that we would see clear preferences for public loans for long-term investment and commercial banking or self-finance for short-term financing.

Some interviewees responded that "in an ideal world" they would prefer to use networks of family and friends (and self-finance) for short-term lending and public finance for long-term lending. Public banks were preferred because of lower interest rates and advantageous repayment conditions. Some new financial products from banks such as BNDES have become increasingly attractive because they include working capital loans attached to longer-term investment loans, for example to build a new factory or to buy a new machine. However, many of the small firms complained about public banks' lengthy and difficult process of application.

Based on interviews with bank officers and MOVERGS, it was determined that many SMEs cannot ask public banks for loans because these banks only lend to SMEs that can prove that their taxes are up to date and that no lawsuits are pending against them in any court. Since many

¹⁸ PZ, one of the SMEs in the sample, survived two processes of bankruptcy protection (*concordata*), which were apparently caused by commercial debts, paid with the sale of assets, which then incurred a high tax penalty from the State. Interest rates on tax obligations are high and this adds to problems when a firm is trying to deal with creditors (Interview with PZ, December 2010).

SMEs in the Serra Gaucha do not declare 100 percent of operations to the authorities, it becomes impossible for them to access those funds. Commercial banks, which have fewer requirements, grant the loan more quickly but also ask for hard information and documents as collateral (e.g., property titles or accounts receivable from well-known clients); and they charge high interest rates. These factors create the distorted financial patterns observed in the Serra Gaucha: SMEs using their own funds and those of family and friends to finance expansion plans and obtaining very expensive credit from commercial banks for working capital and other short-term lending.¹⁹ Finally, a large majority of firms confirmed that they receive at least 60 days of trade credit (with an interest rate between 2 and 3 percent per month) from their main suppliers of raw material.²⁰

3.2.2. Access to Sources of Finance between Firms within the Value Chains

Trade credit between firms of any size is the most common form of intra-firm finance in the Serra Gaucha, especially credit granted by large suppliers of particleboard and veneers to furniture producers. A small number of multinational corporations of Chilean, Argentinean, and Portuguese ownership, as well as two Brazilian suppliers, provide these essential materials for the industry; those suppliers wield enormous power to set prices and production parameters for Brazilian furniture producers, resulting in widespread complaints about the “dominance” exerted by particleboard suppliers (Navas-Alemán, 2006). Large producers can afford to buy materials without credit (“*a vista*”), and they often obtain a 5 to 10 percent discount.

Particleboard suppliers limit credit to firms that are in financial difficulty, and they can even stop granting it altogether if there are doubts about the producer’s ability to continue selling. Being regarded as successful in attracting buyers makes particleboard companies trust that the SME will pay for materials bought on credit. Several firms mentioned that when faced with financial difficulty, they could borrow from their peers. Most such loans are granted on the basis of family or ethnic ties and in the spirit of solidarity and reciprocity.

There was only one mention of trade credit granted by buyers to producers, a “one-off” event during the 2008 financial crisis (field interview with KP, December 2010). Buyers rarely give producers any advance because of their own need to finance the customers expected to pay for furniture in installments. Thus, an opportunity exists for many financial institutions to fulfill producers’ demand for credit to provide working capital and to purchase raw materials.

¹⁹ Interview with a financial consultant in Bento Goncalvez, December 2010.

²⁰ These results are confirmed by a much larger study supported by MOVERGS on 1,231 firms (Mattia et al., 2007).

The mere mention of the word "factoring" raised negative reactions among sampled firms: they consider factoring their last resort with its high interest rates; interviewees called the factors *agiotistas* (usurers), a term that implies an unfair, almost illegal, level of interest (at least 10 percent per month). Factors also require sizable guarantees, so firms consider factoring only when they have lost all good credit and are in a desperate situation.

3.2.3. Access to Sources of Finance outside the Agglomeration or Value Chain

Borrowers pay higher interest rates to relatives and friends than those lenders to a commercial bank savings account (0.5 percent month), but the borrower pays less than a public bank would charge for a loan (1 to 1.5 percent per month). Such loans usually occur within ethnic groups, often Italian descendants who are also active in other businesses (e.g., winemakers or large agricultural producers might lend money to relatives in the furniture business). Capital injections that imply changes in a company's ownership are formally registered. For loans, documents are drawn to record the terms of repayment, but these documents are not formally registered before any official authority. Local reciprocity ties within the community ensure that their terms are largely respected, and social sanctions also create pressure: defaulting on such a loan risks financial ruin because the borrower would be mistrusted by the entire business community on which most finance is based.

Public banks charge lower interest rates than commercial banks (3 to 7 percent a month), but the former are usually slower and more bureaucratic. Medium and large firms are likely to apply for loans from public banks such as Banco do Brasil or BNDES when planning expansion and new equipment. Guarantees for such loans and for commercial loans are usually larger than the loan itself (120 percent), and this expense clearly represents a barrier for smaller firms.

However, public banks, particularly BNDES, Caixa Federal, and Banco do Brasil, offer many other credit lines and financial products to SMEs. An array of instruments is offered for leasing, working capital financing, and innovation finance (e.g., BNDES's PSI, a credit line designed to encourage innovation among SMEs).

Table 5. Summary of Financial Instruments and Guarantees Observed in Furniture Value Chains (Serra Gaucha, Brazil)

Instruments	Brazilian furniture chain
Self-financing	
Self-financing	Frequently observed. The main form of financing in the sector, both for working capital and expansion.
Interfirm finance	
Arm's length finance	
Factoring or reverse factoring	Not observed. Firms reported its existence but it is considered an instrument of last resort due to high interest rates and substantial guarantees required.
Leasing	Frequently observed. Many public and commercial banks have developed leasing products for SMEs (e.g., FINAME from BNDES).
Purchase order finance	Not observed.
Warehouse receipts finance	Not observed.
Relationship Finance	
Trade credit	Frequently (granted by suppliers to their buyers). Guarantees are usually not required when the buyer has a good credit history and/or the two firms have been trading for some time.
Deferred payment checks (discounted)	Frequently observed. One of the most common instruments used, along with account receivables. Most commercial banks have provision for this. The guarantee is the check itself, and those from well-known/large companies are better received.
Other	
Angel investors	Occasionally observed. A “network of friends and family”: it is rare for the investor to be from outside the Serra Gaucha community.
External financing	
Commercial bank loans	Frequently observed. Properties usually required as guarantees. For short-term loans the portfolio of accounts receivable is often used. Account receivables from well-known/large firms are better received.
Public bank loans	
Special instruments for SMEs (e.g., BNDES' credit card)	Frequently observed. SMEs are defined as firms earning less than \$90 million Reais (as of August 2012 about US\$40 million) /per year. Guarantees include immaculate credit history, proof of tax payment, and no financial or environmental lawsuits in their past. Other instruments from BNDES aimed at SMEs such as PROGEREN (for working capital) and PSI (for innovation projects) were mentioned.
Special instruments for the furniture industry	Occasionally observed. The use of “Construcard” was mentioned by one firm. It is a credit card funded by the Caixa Federal Bank (a government bank), but aimed at allowing final consumers to pay for construction materials and furniture in installments.
Other	
Buyer/supplier TA	Not observed.

Source: Authors' elaboration.

An instrument mentioned by most SMEs is the cartao BNDES, which works like a credit card with a low interest rate (0.97 percent month) and can be used to pay for goods and services. The card is aimed at SMEs only, and it encourages firms to recommend each other on the card's website (hosted by BNDES) in order to be registered and make transactions. The cartao BNDES is a popular way of financing working capital in the form of rolling credit (paid up to 48 installments), in line with the Brazilian tradition of buying and selling almost everything in installments.²¹

Commercial bank loans and leasing are also very common among SMEs. Having a guarantee in the form of accounts receivable or predated checks from a large, well-known firm (e.g., Todeschini, Carraro, Multimoveis) makes it easier to obtain a loan but does not change the interest rate, which ranges between 2 and 6 percent per month.

3.3. The ICT Sector in Costa Rica

The expansion of Information and Communication Technologies (ICT) in Costa Rica has its roots in a combination of public policies in the 1970s, especially those related to technology transfer and public education, health and infrastructure, and the emergence of dynamic businesses (Vargas, 2004).²² Awareness of the increasing economic relevance of ICTs led to the creation of computer sciences and computer engineering courses, first by the University of Costa Rica in 1973 and then by the Technological Institute of Costa Rica in 1976 (PROSIC, 2006). In the 1980s, reducing tariffs on high-technology products made them more accessible and created opportunities for the development of custom software applications for local needs. This move, together with low labor costs and a considerable number of qualified graduates in computer sciences, generated the “first national entrepreneurs in the software industry aiming to satisfy the necessities of commerce, industry, law firms, among others” (PROSIC, 2006: 224).

In the 1990s, a number of local software firms were already producing for the national market and also exporting, especially to Central America (López et al., 2008). In the late 1990s,

²¹ Two interviewees mentioned also a special line of credit for the furniture sector created by BNDES a few years ago called REVITALIZA, which provided cheap finance for all types of firms. This program was terminated in 2008, apparently because it was “unsustainable” (interview with KP and financial consultancy firm IF). Beneficiary firms in the sample said that financing was so cheap under the scheme (2 percent interest per year) that they were amazed it lasted so long.

²² This section summarizes evidence from a case study developed by Carlos Alvarado-Quesada and Eduardo Trejos-Lalli based on the authors' questionnaire.

some auspicious conditions emerged that supported the growth of the software industry in Costa Rica: (i) Intel's 1996 decision to open a factory in Costa Rica; (ii) the advent of mass usage of the Internet; (iii) the "panic" linked to YK2000, which increased local demand for software patches and applications; and d) increased competition from other Latin American software hubs, which spurred budding Costa Rican entrepreneurs to become more competitive (PROSIC, 2006: 225, 234). However, the sector was not yet organized, no chamber or association represented producers, and there was anxiety about the potential shortage of qualified human resources to fulfill the growing industry's demands (IDB, 2004).

The "Intel factor" is of special relevance. By 2005, Intel had invested more than US\$770 million and created employment for 2,900 direct workers and approximately 2,000 indirect jobs (World Bank, 2006). The establishment in Costa Rica of Intel and other ICT multinational companies, such as DSC Communications Corporation and Hewlett Packard, did not result from a government-led policy, but from the strategy of the Costa Rican Investment Promotion Agency (CINDE)²³ to attract foreign direct investment (FDI). In the early 1990s, the country did not have a defined strategy for ICT, but the government adopted the CINDE policy, along with other policies for attracting FDI, after Intel's 1996 announcement (Rodriguez-Clare, 2001).

The presence of Intel and other large TNCs in the country has had positive effects on the country's FDI, GDP, exports, and employment. In 2004, FDI inflows reached US\$585 million, corresponding to 3.2 percent of GDP (World Bank, 2006: 26)

Despite this success, FDI spillovers and linkages appear to have been limited.²⁴ Ciarli and Giuliani (2005) reach a similar conclusion, pointing out the weakness of the backward linkages, which are mainly concentrated in low technology sectors.

In spite of the interest in buying inputs domestically from the many small and medium-sized TNCs that came to Costa Rica, encouraged by CINDE's promotion and the Intel example, many of these opportunities have not been exploited. One reason is limited access to credit related to required high collateral and interest rates (Cordero and Paus, 2008:18)

²³ CINDE is a private nonprofit organization founded in 1982 and declared an Institution of Public Interest by the Government on 1984. Its main goal is to attract FDI into the country.

²⁴ "Although TNC purchases of domestic goods and services have grown in absolute terms, they have declined in relative terms. Between 1997 and 2005, TNC's expenditures on national goods and services nearly quadrupled, from \$99 million to \$368 million... In relative terms, however, the picture shows very little progress: as a share of imports, national expenditures were 13 percent in 1997 and 12 percent in 2005; and as a share of exports they were 11 percent in 1997 and 10 percent in 2005" (Cordero and Paus, 2008: 16).

To address this problem, in 2008 the Legislative Assembly of Costa Rica approved a law creating the System for Development Banking,²⁵ which included a specialized strategy for granting SMEs guarantees and nonfinancial services, such as management training. The project involved public and private financial institutions, but so far, it has been ineffective, and the Legislative Assembly is already considering a new project to reform the system.

The strategy of attracting FDI in technology-intensive sectors has benefited the local software industry by giving visibility to the country, but the main obstacle is the limited pool of qualified human resources for which both local and foreign firms compete (PROSIC, 2007).

In 1998, 15 local firms created the Chamber of Software Producers of Costa Rica (CAPROSOFT), a nonprofit organization with the strategic goal of representing the country's software sector (CAMTIC, 2005b). This was a thoroughly private and firm-led initiative. In 1999, CAPROSOFT launched an initiative for a technical cooperation project granted by the IDB, called PROSOFTWARE, with its main goal to upgrade the Costa Rican software sector's competitiveness. The project had a US\$2.5 million budget, with IDB contributing a US\$1.5-million grant, and the rest coming from three national organizations: CAPROSOFT, PROCOMER²⁶ and FUNCENAT²⁷.

Although the project's execution presented some problems (IDB, 2004), different sources describe the results from PROSOFTWARE as successful (Jenkins, 2006). This project triggered two major outcomes for the industry. First, it raised awareness that the national market, although important, was small and limited and could not generate economies of scale for future growth, thereby calling for an internationalization strategy (IDB, 2004: 59). Second, in 2003 CAPROSOFT proposed a Strategic Plan for the Software Industry, which recommended a process to "create a new organization with a wider formal constitution" to include local and foreign software firms, as well as producers of electronic components, telecommunication infrastructure services, call centers, and other firms offering technical support (Nicholson and Sahay, 2009: 11, PROSIC, 2007: 169).

²⁵ "Sistema de Banca de Desarrollo, Ley 8634. Published by the Diario Oficial "La Gaceta" 87, 7 of May 2008"

²⁶ PROCOMER is a governmental agency, in charge of the promotion of Costa Rican exports. It works jointly with the Ministry of International Commerce.

²⁷ FUNCENAT is an institution directed by CONARE. CONARE gathers the rectors of the four public universities and it represented them in PROSOFTWARE.

Between 2004 and 2006, local production grew from US\$100 million to US\$121 million; exports from US\$70 million to US\$84 million; and employees from 4,500 to 6,600 (CAMTIC, 2005; PROCOMER & CAMTIC, 2006). Today, the software industry operates within an ICT agglomeration concentrated in the Central Valley of Costa Rica, with 84 percent of employees having higher education. Software produced primarily comprises Internet applications, but also includes software for business and process administration, banking, education, tourism, and health, along with custom-made applications (Ciravegna, 2008). The cluster is composed of an estimated 695 firms (PROCOMER & CAMTIC, 2006) operating in different value chains and divided into four categories:

- software producers that create and commercialize software applications and tools (250 firms estimated)²⁸
- producers of components and hardware, which design, manufacture, assemble, and/or sell IT products (35 firms)
- direct IT service providers, offering training, technical support, consulting, and other services in IT (350 firms)
- other IT-related service providers such as call centers (60 firms)

Of the four sectors, software is the most diverse in terms of firm size. The components sector is mostly made of large multinational firms, with no SMEs. Even with better organization and a common strategy at hand, this sector faces serious challenges. First, CINDE's strategy forces both local software and technology multinationals to compete for the scarce qualified human resources (PROSIC, 2007: 177). Second, local software firms struggle to become suppliers to multinational firms in the absence of proactive public policies to encourage such linkages. As Nicholson and Sahay point out, weak linkages between universities and the private sector, poor English language skills, and technical staff with inadequate management capabilities constrain the sector (Nicholson and Sahay 2008). Finally, the software industry faces stiff financial and credit constraints.

²⁸ The sample for this report was drawn from software producers only.

3.3.1. Access to Sources of Finance within the Value Chain

Costa Rica's software sector does not appear to support the idea that inter-firm linkages and especially linkages with larger firms substantially improve an SME's demand for and access to finance. However, our research shows a limited number of successful examples.

Most of the firms reported that they rely on self-financing, family resources, or angel investors for funding. Only a minority of firms reported interacting with either the financial system or agents within the value chain.

Box 2. Cases in Which the Help of a Large Firm Enabled Access to Finance

Info Costa Rica S.A. was created in 1997 as a microfirm that provided web applications. Initially it financed its operations with its profits, but mounting competition in the form of a multiuser platform for video games, caused it to seek new sources of financing. In 2007 a foreign client associated with an angel investor became interested in the product, bought shares of the company, and provided US\$1 million credit. Results included an increase in the software price. To date, Info Costa Rica S.A. still holds 33 percent of the shares of the business and is planning to expand sales to Latin America and Scandinavia.

Grupo Asesor is a software firm that develops software applications and provides ICT consultancy and training. In addition, Grupo Asesor is a supplier of British American Tobacco (BAT) in Costa Rica. BAC San José bank works with BAT, and it launched a special finance program for the suppliers of its large client. In 2006, Grupo Asesor obtained access to a special line of trust credit with no collateral required due to the relationship with BAT.

Source: Survey interviews December 2010.

Few firms acknowledged using factoring to raise credit for contracts with larger firms (in particular, public sector entities). There is however, evidence of funding by angel investors operating in a network (see Table 6); in one case, this support has been partially strengthened by collaboration between IDB and the Costa Rican Chamber of Information and Communication Technologies (CAMTIC).²⁹

Unlike other sectors, the software sector does not experience lending (or providing guarantees) through vertical inter-firm linkages as a common practice. The technology used in this industry is characterized by project-based work, which is not mass-produced; solutions can rarely be exactly repeated for different customers. A certain amount of customer-product

²⁹ One component of the Link project developed by CAMTIC with the IDB involved the establishment of a network of angel investors to support technological entrepreneurship and to provide capital for the business. One example is the firm Fair Play Labs, which provides software services for videogames and graphic design. This firm reported that in 2007 it obtained a capital of US\$150,000 through an angel investor—not part of the value chain—who contributed to finance its operations (survey interview, December 2010).

specificity makes it hard to generate value from intermediate work in progress (as manufacturing firms can do with their intermediate inputs or raw materials) or to provide physical collateral to secure finance (as agricultural and manufacturing firms do). An exception, was observed in a leasing offered by a telecommunication company, against the value of physical telecom equipment.

Table 6. Inter-firm Linkages and Financing in the ICT Sector in Costa Rica

Instruments	Costa Rican IT sector
Self Financing	
Self-financing	Frequently observed in SMEs, it is the most mentioned source of finance. Many reported to be in the process of seeking new sources of credit other than their profits, especially to expand, to venture into a new market, or to apply for an international certification.
Family finance	Occasionally observed (18 percent of the sample firms, especially in SMEs), sometimes blended with profits from the firm or funds from angel investors.
Inter-firm financing	
Arm's Length Finance	
Factoring	Not observed in any interview. Firms are familiar with the instrument, but no evidence of its use.
Reverse factoring	Not observed in any interview. Qualitative evidence shows it is not an instrument familiar to the business culture of the sector.
Leasing	Occasionally observed (9 percent of the sample firms). Leasing was observed in a medium-sized firm that works with software and finances its telecommunications hardware suppliers. This firm uses its equipment as a guarantee for its financial operations.
Purchase order finance	Occasionally observed. Even though this instrument was reportedly used in only one case, firms in the local market that have a stable contract with larger firms—especially public enterprises— mention this mechanism as an apparently viable option.
Warehouse receipt finance	Not observed in any interview. This instrument is not easily applied to the industry.
Relationship Finance	
Trade credit	Not observed.
Deferred payment checks	Not observed.
Other	
Angel investors	Occasionally observed. One case was supported through a CAMTIC-IDB project. The angel investor was part of an investor network. In the other case identified, the angel investor was also a client (Box 2) that decided to invest in the firm and provide finance at a fixed interest rate.
External Financing	
Commercial bank	Occasionally observed. Firms always reported to have used personal guarantees or property as collateral, but in one case (Box 2) linkage with a larger firm allowed the use of credit history as a guarantee. Qualitative evidence suggests that firms fear the bureaucracy associated with private and public banks.
Micro credit	Occasionally observed.
Public bank	Occasionally observed.
Other	
Buyer/supplier TA	Not observed.

Source: Survey interviews December 2010.

4. Summary of Empirical Findings

This study has sought to explore whether linkages of SMEs to large firms in value chains enhance an SME's access to finance. Evidence on inter-firm finance, mainly based on case studies, is rather limited and refers mostly to the agricultural sector. However, the literature does offer some examples of different inter-firm financing mechanisms (factoring, leasing, reverse factoring, purchase order finance, warehouse receipt finance, trade credit, and loan guarantees). Most of these mechanisms require a relationship between the SME and a large firm, because the latter enjoys higher levels of creditworthiness with financial institutions and can provide guarantees. Furthermore, large firms may offer guarantees to ease an SME's access to finance in the case of reverse factoring, trade credit, and loan financing/loan guarantees.

This study was designed to provide preliminary evidence on the presence of these inter-firm financing mechanisms. The three case studies described above illustrate a number of these mechanisms, namely trade credit, factoring, and loan guarantees. Having strong linkages with well-known large firms gives a positive boost to the SME's access to finance. However, our evidence also suggests that strong third-party intervention is needed for these mechanisms, particularly for warehouse receipt finance, factoring (and reverse factoring), purchase order finance, and loan guarantees. Table 7 summarizes the evidence. From the Argentinean agro-food industry, it is clear that value chain governance matters for SME finance. In the poultry and milk industries, perishable inputs are key to a lead firm's competitiveness (buyers in this case); therefore, there is a tendency for these chains to be governed in a quasi-hierarchical fashion. In the three Argentinean value chains mentioned (dairy, poultry, and food processing), it is clear that linkages to large firms provide enhanced access to finance. For an SME, the downside of this strong hierarchical governance is that along with finance and purchasing, the lead firm reduces options for its suppliers, locking them in a relationship with few alternatives. Most Argentinean agro-food SMEs are convinced that having large and well-known clients facilitates access to commercial credit. However, interviews with financial institutions suggest that while this factor is important during the assessment of an SME's application for finance, it is not the dominant factor.

SMEs not in a perishable products business tend to operate in value chains characterized by market-based forward linkages; for example, the furniture producers of the Serra Gaucha may

have more freedom to seek finance and clients, but usually do not benefit from a large buyer's guarantee for their loans.

Although the value chain literature tends to emphasize the role of buyers as chain leaders, they are not the sole determiners; lead firms in VCs can also supply key inputs for the production process, such as raw materials. Although furniture SMEs may have market-based linkages with most of their buyers, they experience quasi-hierarchy in the backward linkages to their input suppliers, mainly large particleboard suppliers. Trade credit from these suppliers is welcome but usually comes with conditions, from design “suggestions” (which are difficult to refuse) to minimum purchases—which are often too large for the smallest firms, forcing them to choose distributors that charge a premium for selling smaller amounts of material. Large department stores in Brazil push prices down but do not provide finance to SMEs. These buyers actually demand finance from their producers, thus squeezing them from both ends.

The ICT sector in Costa Rica appears to be a type of industry where inter-firm linkages and intra-firm finance are scarce, if they exist at all. Some limited examples exist in which linkage with a larger firm has enabled an SME to access finance; these examples highlight the possibilities, including the effect of signaling an SME's creditworthiness to financial organizations.

Self-finance remains the first and most common source for both short-term finance and working capital across all three case studies. For medium- and long-term finance (e.g., infrastructure, machines, and innovation projects), results are mixed: some SMEs tend to apply for public funding first and self-finance as a second choice, whereas others will choose self-finance first. Clearly, regardless of the type of industry (traditional or knowledge-based, tightly governed or loosely coordinated), SMEs in Latin America, even when they are part of a value chain, find it difficult to overcome the obstacles to additional finance.

The role of large firms in enhancing an SME's access to finance appears to depend on the type of chain governance, which in turn is affected by the industry context that frames relationships with suppliers and customers.³⁰ In sum, based on our empirical evidence we argue that:

³⁰ This conclusion is consistent with Gereffi et al. (2005) and Pietrobelli and Rabellotti (2011).

- In industries such as dairy and poultry, where chain governance tends to be quasi-hierarchical between buyers and SMEs, the chain leader can play the role of guarantor and facilitate access to finance.
- In industries where chain governance is looser or market-based (e.g., furniture and ICT), the role of large clients is limited to signaling reliability to financial institutions.

Table 7. Relationships between Chain Governance and Inter-firm Linkages in Accessing Finance for Three Case Studies

Market	Agro-industry (Argentina) Furniture (Brazil)	<ul style="list-style-type: none"> • Little evidence of the role of inter-firm linkages beyond the perception that larger firms or well-known customers are a potential positive signaling mechanism to third parties.
Network	ICT sector (Costa Rica)	<ul style="list-style-type: none"> • Some evidence of the role of inter-firm linkages in facilitating access to angel investors. Moreover, a widespread perception that larger firms or well-known customers are a potential signaling mechanism to third parties.
Quasi-hierarchy/ Captive	Dairy (Argentina) Poultry (Argentina) Furniture (Brazil): where the lead firm can be the oligopolistic input supplier of particle board)	<ul style="list-style-type: none"> • Clear role for lead firm (buyer) in facilitating access to finance by acting as guarantor through trade credit and loan financing/loan guarantees. • Clear role for lead firm (input supplier) in providing finance, as well as production and design parameters, leading to an increased use of particleboard by local furniture producers. • There are important signaling mechanisms to financial institutions about external third parties derived from inclusion/exclusion from the supply chain, and hence about the supplier's capabilities and creditworthiness. • The role of the chain leader in reverse factoring was not observed in the cases studied.

Source: Author's analysis, using Navas-Aleman (2011) based on Humphrey and Schmitz (2000, 2002) chain governance typology.

5. Policy Implications

Some conclusions from this study may be amenable to policy interventions. First, one of the main problems of SME seeking financing, according to interviews, is the complexity of banking applications and procedures. Some firms interviewed pointed to “paperwork” as one of the obstacles to better financing. In this sense, the role of LGAs in Argentina as financial intermediaries or networks is instructional. Their role in activities such as information gathering and assisting SMEs with applications helps bridge the gap between banks and SMEs. This example suggests a need for programs to facilitate SME applications, including financial technical assistance to reduce obstacles related to banking procedures.

Second, it is well known that a primary obstacle to obtaining a loan is the lack of guarantees. SMEs are often rejected by banks not because of the project they present, but because they lack collateral. The policy challenge here is to strengthen and improve the existing guarantee systems. Efforts of banks such as the BNDES and the Caixa Federal in Brazil provide some possible solutions, such as creating credit lines that are preapproved, have a rolling credit limit, can be paid in installments, and have lower interest rates. A key element of these lines is an acceptance of guarantees such as credit history and balance sheets to secure loans. These new products for SMEs require an excellent communication strategy to reach intended clients and a simple platform for usage. A good example is the BNDES “credit card”³¹ that SMEs can apply for through the bank’s website, which also allows them to find other registered firms with which to do business (hence increasing trust) and to recommend trusted distributors to be enrolled in the platform.

In Argentina, the government provides tax incentives to encourage large firms to form LGAs that will give guarantees to SMEs. These incentives have resulted in large firms (chain governors) facilitating increased financial access to their suppliers (usually SMEs). However, this strategy is not without risks: when large firms create LGAs, there is a potential for financial speculation; and the actors must rely on a fiscal incentive for the guarantee system.

In addition, there is often a mismatch between an SME receiving payment for its products and needing to pay for its inputs. In the Argentinean and Costa Rican cases this frequently occurring mismatch indicates a cost that tends to be underestimated. In Brazil, it is often offset by the generalized practice of offering trade credit to clients along the value chain, but it remains a

³¹ <https://www.cartaobndes.gov.br/cartaobndes/> accessed 9 January 2011.

problem. Financial instruments that would allow an SME to cash in its receivables faster would free resources that now cannot be used until final payments are made. Receivables from well-known large firms are often better accepted as collateral, indicating a potential role for large firms in working with SMEs, which could be encouraged through appropriate programs.

Finally, the role of third parties (donors, business associations, LGAs, etc.) in facilitating inter-firm finance and increasing large firms' provision of guarantees to SMEs cannot be overstated. However, the evidence from case studies suggests that government policies may need to support this role by providing the right incentives and remedying the coordination failures that are likely to emerge. Business associations such as MOVERGS and SINDMOVEIS in the Serra Gaucha and CAMTIC in the Costa Rican ICT sector have strong convening power and provide important support services to local firms. Their coordinating and bridging role can be very useful, opening the way to relevant inter-firm financing mechanisms.

Bibliography

- ABIMOVEL. 2010. "Panorama do Setor Moveleiro. 2008-2009." Available at:
<http://www.abimovel.com>.
- Abor, Joshua and Peter Quartey. 2010. "Issues in SME Development in Ghana and South Africa." *International Research Journal of Finance and Economics*, 39: 218–228.
- Atieno, R. 2009. "Linkages, Access to Finance and the Performance of Small-Scale Enterprises in Kenya." World Institute for Development Economic Research, United Nation University. Available at: <http://www.wider.unu.edu/publications/>.
- Baas T., and Schrooten, M. 2005. "Relationship Banking and SMEs: A Theoretical Analysis". Discussion Paper 469. Deutsches Institut für Wirtschaftsforschung.
- Banerjee, A., and Duflo, E. 2004. "Do Firms Want to Borrow More? Testing Credit Constraints Using a Directed Lending Program." CEPR Discussion Papers. Washington, DC: The Center for Economic and Policy Research (CEPR). Available at:
<http://ideas.repec.org/p/cpr/ceprdp/4681.html>.
- Banerjee, A., and Munshi, K. 2004. "How Efficiently is Capital Allocated? Evidence from the Knitted Garment Industry in Tirupur." *Review of Economic Studies* 71(1): 19–42.
- Beck, T.H.L., Demirgüç-Kunt, A., and Martinez Peria, M. 2009. "Bank Financing for SMEs: Evidence Across Countries and Bank-Ownership Types." Discussion Paper 2009-71. Tilburg, The Netherlands: Center for Economic Research, Tilburg School of Economics and Management. Available at: <http://ideas.repec.org/p/dgr/kubcen/200971.html>.
- Beck, T., and Demirgüç-Kunt, A. 2006. "Small and Medium-size Enterprises: Access to Finance as a Growth Constraint." *Journal of Banking & Finance* 30 (11): 2931–2943.
- Beck, T., and Demirgüç-Kunt, A. 2008. "Access to Finance: An Unfinished Agenda." *World Bank Economic Review* 22:3: 83–96.
- Berger, A., and Udell, L. 2010. "Bank Size, Lending Technologies, and Small Business Finance." *Journal of Banking & Finance* 35: 724–735.
- Berger, A.N., Udell, L., and Udell, G.F. 2007. "Does Market Size Structure Affect Competition? The Case of Small Business Lending." *Journal of Banking & Finance* 31(1): 11–33.

- Biais, B., and Gollier, C. 1997. "Trade Credit and Credit Rationing." *The Review of Financial Studies* 10(4): 903–937.
- Biggs, T., and Shah, M.K. 2006. "African SMES, Networks, and Manufacturing Performance." *Journal of Banking & Finance* 30(11): 3043–3066.
- Burkart, M., and Ellingsen, T. 2004. "In-Kind Finance: A Theory of Trade Credit." *American Economic Review* 94(3): 569–590.
- Camino B., and Cardone R. 1999. "The Valuation and Cost of Credit Insurance Schemes for SMEs: The Role of the Loan Guarantee Associations." *International Small Business Journal* 1999 17: 13.
- CAMTIC. 2005. "Estado Nacional del Software 2005: Estadísticas Sectoriales de Costa Rica." San José, Costa Rica: Cámara Costarricense de Tecnologías de Información y Comunicación (CAMTIC).
- . 2005b. "Costa Rica Verde e Inteligente: Estrategia Nacional de Tecnologías de Información y Comunicación." San José, Costa Rica: Cámara Costarricense de Tecnologías de Información y Comunicación (CAMTIC).
- Cattaneo, O., Gereffi, G., and Staritz, C. (eds). 2010. *Global Value Chains in a Postcrisis World: A Development Perspective*. Washington, DC: World Bank Publications.
- Ciarli T., and Giuliani E. 2005. "Inversión Extranjera y Encadenamientos Productivos en Costa Rica." In Cimoli, M. (ed) *Heterogeneidad estructural, asimetrías tecnológicas y crecimiento en América Latina*. Santiago de Chile: CEPAL/IDB.
- CINDE. 2008. "¿Por qué invertir en Costa Rica?" Costa Rica Investment Promotion Agency (CINDE). Available at: <http://www.cinde.org/index.php/ipor-que-invertir-en-costa-rica>
- Ciravegna, L. 2008. "Multinationals, Technological Development and the Role of Social Ties: Evidence from the Costa Rican ICT Cluster." Paper prepared for the SASE Annual Meeting 2008.
- Cole, R.A., Goldberg, L.G. and White, L.J. 2004. "Cookie Cutter vs. Character: The Micro Structure of Small Business Lending by Large and Small Banks." *The Journal of Financial and Quantitative Analysis* 39(2): 227–251.

- Cordero, J., and Paus, E. 2008. "Foreign Investment and Economic Development in Costa Rica: The Unrealized Potential." Working Group on Development and Environment in the Americas. Discussion Paper Number 13.
- Coulter, J., and Onumah, G. 2002. "The Role of Warehouse Receipt Systems in Enhanced Commodity Marketing and Rural Livelihoods in Africa." *Food Policy* 27(4): 319–337.
- de Haas, R., Ferreira, D., and Taci, A. 2010. "What Determines the Composition of Banks' Loan Portfolios? Evidence from Transition Countries." *Journal of Banking & Finance* 34(2): 388–398.
- de la Torre, A., Martínez Pería, M.S., and Schmukler, S.L.. 2010. "Bank Involvement with SMEs: Beyond Relationship eLnding." *Journal of Banking & Finance* 34(9): 2280–2293.
- Demirgüç-Kunt, A., and Maksimovic, V. 2001. "Firms as Financial Intermediaries: Evidence from Trade Credit Data." Washington, DC: The World Bank, Available at: <http://ideas.repec.org/p/wbk/wbrwps/2696.html>
- Fisman, R., and Khanna, T. 2004. "Facilitating Development: The Role of Business Groups." *World Development* 32(4): 609–628.
- Fisman, R., and Love, I. 2003. "Trade Credit, Financial Intermediary Development, and Industry Growth." *The Journal of Finance* 58(1): 353–374.
- Fletcher, M., Freeman, R., Sultanov, M., and Umaroj, U. 2005. *Leasing in Development. Lessons from Emerging Economies*. Washington, DC: International Finance Corporation World Bank Group.
- Gallardo, J. 1997. "Leasing to Support Small Businesses and Microenterprises." Washington, DC: The World Bank. Available at: <http://ideas.repec.org/p/wbk/wbrwps/1857.html>
- Gereffi, G. 1994. The Organization of Buyer-driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks. In G. Gereffi and M. Korzeniewicz (Eds), *Commodity Chains and Global Capitalism*. Westport: Praeger.
- . 1999. "International Trade and Industrial Upgrading in the Apparel Commodity Chain." *Journal of International Economics* 48(1): 37–70.
- Gereffi, G., Humphrey, J., and Sturgeon, T. 2005. "The Governance of Global Value Chains." *Review of International Political Economy* 12(1): 78–104.

- Gibbon, P., Bair, J., and Ponte, S. 2008. "Governing Global Value Chains: An Introduction." *Economy and Society* 37(3): 315–338.
- Giuliani, E., Pietrobelli, C., and Rabellotti, R. 2005. "Upgrading in Global Value Chains: Lessons from Latin American Clusters." *World Development* 33(4): 549–573.
- Gorini, A. 1988. "Panorama Do Setor Moveleiro No Brasil, Com Ênfase Na Competitividade Externa a Partir Do Desenvolvimento Da Cadeia Industrial De Produtos Sólidos De Madeira." Rio de Janeiro: Panorama Setorial 8, BNDES.
- Hayami, Y., Kikuchi, M., and Marciano, B.E. 1998. "Structure of Rural-based Industrialization: Metal Craft Manufacturing on the Outskirts of Greater Manila, the Philippines." *The Developing Economies* 36(2): 132–154.
- Humphrey, J., and Navas-Alemán, L. 2010. "Value Chains, Donor Interventions and Poverty Reduction: A Review of Donor Practice." IDS Research Report 63. Brighton, UK: Institute of Development Studies.
- Humphrey, J., and Schmitz, H. 2000. "Governance and Upgrading: Linking Industrial Cluster and Global Value Chain Research." IDS Working Paper 120. Brighton, UK: Institute of Development Studies.
- . 2002. "How Does Insertion in Global Value Chains Affect Upgrading in Industrial Clusters?" *Regional Studies* 36(9): 1017–1027.
- IDB (Inter-American Development Bank). 2004. "Lecciones aprendidas en la promoción de mercados de servicios de desarrollo empresarial: Un análisis de la experiencia del Banco Interamericano de Desarrollo en el periodo 1995-2002." Washington DC: Inter-American Development Bank.
- . 2006. "Sistemas de garantía de crédito en América Latina: orientaciones operativas." Washington DC: Inter-American Development Bank.
- Jain, N. 2001. "Monitoring Costs and Trade Credit." *The Quarterly Review of Economics and Finance* 41(1): 89–110.
- Jenkins, M. 2006. "Pro-Software: A Government-Industry-Academia Partnership that Worked." Proceedings of the 17th Conference on Software Engineering Education and Training (CSEET'04). IEEE Computer Society.

- Johnson, S., McMillan, J., and Woodruff, C. 2002. "Courts and Relational Contracts." *Journal of Law, Economics, and Organization* 18(1): 221–277.
- Joshua, A., and Quartey, P. 2010. "Issues in SME Development in Ghana and South Africa." *International Research Journal of Finance and Economics* 39: 218–228.
- Kaplinsky, R. 1998. "Globalisation, Industrialisation and Sustainable Growth: The Pursuit of the Nth Rent." IDS Discussion Paper 365. Brighton, UK: Institute of Development Studies.
- . 2005. *Globalisation and Poverty: Between a Rock and a Hard Place*. Cambridge: Polity Press.
- Kaplinsky, R., Morris, M., and Readman, J. 2002. "The Globalisation of Product Markets and Immiserising Growth: Lessons from the South African Furniture Industry." *World Development* 30(7), 1159–1177.
- Klapper, L. 2006. "The Role of Factoring for Financing Small and Medium Enterprises." *Journal of Banking & Finance* 30(11): 3111–3130.
- Kulfas, M. 2008. "Las pymes argentinas en el escenario post convertibilidad. Políticas públicas, situación y perspectivas." Working Paper. Economic Commission for Latin America and the Caribbean (ECLAC): Santiago de Chile.
- Laeven, L., and Woodruff, C. 2007. "The Quality of the Legal System, Firm Ownership, and Firm Size." *Review of Economics and Statistics* 89(4): 601–614.
- Landa, R.O. 2009. "Innovations in Financing Value Chains: Introducing Purchase Order Financing." Presentation Available at: [http://www.fsshare.org/sites/default/files/Value percent20Chain percent20Financing percent20in percent20Rural percent20Bolivia_Introducing percent20Purchase percent20Order percent20Financing.pdf](http://www.fsshare.org/sites/default/files/Value%20Chain%20Financing%20in%20Rural%20Bolivia_Introducing%20Purchase%20Order%20Financing.pdf)
- Lawrence, J., Rhodes, J., Grimes, G., and Hayenga, M. 1997. "Vertical Coordination in the U.S. Pork Industry: Status, Motivations, and Expectations." *Agribusiness* 13(1): 21–31.
- Leibler, J., Otte J., and Silvergeld, E. 2008. "Zoonotic Disease Risks and Socioeconomic Structure of Industrial Poultry Production: Review of the U.S. Experience with Contract Growing." *Research Reports RR Nr. 08-06*. John Hopkins Bloomberg School of Public Health.
- Levy, B. 1993. "Obstacles to Developing Indigenous Small and Medium Enterprises: An Empirical Assessment." *The World Bank Economic Review* 7(1): 65–83.

- Lopez L., Kundu S., and Ciravegna L. 2009. "Born Global or Born Regional? Evidence from an Exploratory Study in the Costa Rican Software Industry." *Journal of International Business Studies* 40.
- Love, I., and Mylenko, N. 2003. "Credit Reporting and Financing Constraints." Washington, DC: The World Bank. Available at: <http://ideas.repec.org/p/wbk/wbrwps/3142.html>.
- Love, I., Preve, L., and Sarria-Allende, V. 2007. "Trade Credit and Bank Credit: Evidence from Recent Financial Crises." *Journal of Financial Economics* 83(2): 453–469
- Lunelli, T. 2010. "Trajetoria do arranjo produtivo local de moveis de Bento Goncalves" Unpublished dissertation. São Leopoldo, Brazil: Universidade do Vale do Rio Sinos (UNISINOS).
- Martinez, S. 2002. "Vertical Coordination of Marketing Systems: Lessons From the Poultry, Egg and Pork Industries." Agricultural Economic Report 807. Washington DC: Economics Research Service, U.S. Department of Agriculture.
- Maskell, P. 1998. "Low-tech Competitive Advantages and the Role of Proximity: The Danish Wooden Furniture Industry." *European Urban and Regional Studies* 5(2): 99–118.
- Mattia, A., De Toni, D., Larentis, F., and Finatto, C. 2007. "Relatorio da Pesquisa Perfil da Industria Moveleira do Estado do Rio Grande do Sul." Unpublished. Bento Goncalves, RS, Brazil: Nucleo de Pesquisa Aplicada da Regiao dos Vinhedos (NUPARVI).
- McMillan, J., and Woodruff, C. 1999. "Interfirm Relationships and Informal Credit in Vietnam." *Quarterly Journal of Economics* 114(4): 1285–1320.
- Meier, R., and Pilgrim, M. 1994. "Policy-induced Constraints on Small Enterprise Development in Asian Developing Countries." *Small Enterprise Development* 5: 32–38.
- Meyanathan, S. D. 1994. *Industrial Structures and the Development of Small and Medium Enterprise Linkages: Examples from East Asia*. Washington, DC: Bank Publications.
- Mian, L., and Smith, C.W. 1992. "Accounts Receivable Management Policy: Theory and Evidence." *The Journal of Finance* 47(1): 169–200.
- Morrison A., Pietrobelli C., and Rabellotti R. 2008 "Global Value Chains and Technological Capabilities: A Framework to Study Learning and Innovation in Developing Countries." *Oxford Development Studies*, 36: 1, 39–58.
- MOVERGS. 2010. Dados do Setor Moveleiro. <http://www.movergs.com.br/numeros-setor>.

- NAFIN. 2011. Crece Cartera De Credito De Nafinsa y Bancomext En 20 y 15 Por Ciento, Respectivamente Durante 2010.
- Nair, A., Kloeppinger-Todd, R., and Mulder. A. 2004. *Leasing. An Underutilized Tool in Rural Finance*. Washington, DC: World Bank Publications.
- Navas-Aleman, L. 2006. *Opportunities and Obstacles for Industrial Upgrading of Brazilian Footwear and Furniture Firms: A Comparison of Global and National Value Chains*, Unpublished PhD thesis. Brighton, UK: Institute of Development Studies, University of Sussex
- . 2011 “The Impact of Operating in Multiple Value Chains for Upgrading: The Case of the Brazilian Furniture and Footwear Industries.” *World Development* 39(8): 1386–1397.
- Nicholson B. and Sahay S. 2008. "Human Resource Development Policy in the Context of Software Exports: Case Evidence from Costa Rica." *Progress in Development Studies* 8(2): 163–176
- Nichter, S., and Goldmark. L. 2009. “Small Firm Growth in Developing Countries.” *World Development* 37(9): 1453–1464.
- OECD (Organisation for Economic Co-operation and Development). 2010. *Measuring Globalisation: OECD Economic Globalisation Indicators 2010*. Paris: OECD Publishing.
- Onumah, G. 2003. *Improving Access to Rural Finance through Regulated Warehouse Receipt Systems in Africa*. Kent, UK: Natural Resources Institute.
- Owolabi, O., and Pal. S. 2009. "*The Value of Business Networks; an Analysis of Firm Financing in Transition Economies*." Brunel University, West London, UK: Centre for Economic Development and Institutions (CEDI). Available at: <http://ideas.repec.org/p/edb/cedidp/09-01.html>.
- Paus, E. 2007. "Inversión extranjera, desarrollo y globalización: ¿Puede Costa Rica emular a Irlanda?" San José, Costa Rica: Editorial UCR.
- Peterson, M.A., and Rajan, R.G. 1997. “Trade Credit: Theories and Evidence.” *The Review of Financial Studies* 10(3): 661–691.
- Pietrobelli, C. 2008. "Global Value Chains in the Least Developed Countries of the World: Threats and Opportunities for Local Producers." *International Journal of Technological Learning, Innovation and Development* 1(4).

- Pietrobelli, C., and Rabellotti R. 2011. "Global Value Chains Meet Innovation Systems. Are There Learning Opportunities for Developing Countries?" *World Development* 39(7): 1261–1269.
- . 2007. *Upgrading to Compete. Global Value Chains, SMEs and Clusters in Latin America*. Cambridge Ma: Harvard University Press.
- Pietrobelli, C., and Saliola, F. 2008. "Power Relationships along the Value Chain: Multinational Firms, Global Buyers, and Local Suppliers' Performance." *Cambridge Journal of Economics* 32(6).
- PROCOMER & CAMTIC. 2006. "Exportaciones de servicios de Costa Rica." Available at: www.eclac.org/mexico/noticias/paginas/4/31984/Sector_TIC_Costa_Rica_A._Mora.pdf.
- PROSIC. 2007. "Hacia la sociedad de la información y el conocimiento en Costa Rica: informe 2007." San José, Costa Rica: Programa de la Sociedad de la Información y el Conocimiento de la Universidad de Costa Rica (PROSIC).
- Rocha, R., Farazi, S., Khouri, R., and Pearce, D. 2010. "The Status of Bank Lending to SMEs in the Middle and North Africa Region: The Results of a Joint Survey of the Union of Arab Banks and the World Bank." Washington, DC and Beirut: World Bank and the Union of Arab Banks.
- Roese, M. 2003. "Problemas Globais, Respostas Locais: A Indústria De Móveis De Madeira No Brasil À Luz Dos Enfoques De Cadeias Produtivas E Sistemas Regionais De Inovação." Unpublished PhD Thesis. Sao Paulo, Brazil: Universidade Estadual de Campinas, Instituto de Geociências.
- Ruan J., and Zhang, X. 2009. "Finance and Cluster-based Industrial Development in China." *Economic Development and Cultural Change* 58(1): 143–164.
- Schiffer, M., and Weder, B. 2001. "Firm Size and the Business Environment: Worldwide Survey Results." Washington, DC: World Bank.
- Schmitz, H. 1982. "Growth Constraints on Small-scale Manufacturing in Developing Countries: A Critical Review." *World Development* 10(6): 429–450.
- . 2006. "Learning and Earning in Global Garment and Footwear Chains." *European Journal of Development Research* 18(4): 546–571.

- Schmitz, H., and Knorringa, P. 2000. "Learning from Global Buyers." *Journal of Development Studies* 37(2): 177–205.
- Scott, A. 2006. "The Changing Global Geography of Low-technology, Labour-intensive Industry: Clothing, Footwear, and Furniture." *World Development* 34(9): 1517–1536.
- SINDMOVEIS, 2010. Dados do Setor. Setor Moveleiro no Ano 2009. Available at: <http://www.sindmoveis.com.br/sindmoveis/dados-do-setor/>.
- Stein, J.C. 2000. "Information Production and Capital Allocation: Decentralized vs. Hierarchical Firms." National Bureau of Economic Research Working Paper Series No. 7705. Cambridge, MA: NBER. Available at: <http://www.nber.org/papers/w7705>.
- Sturgeon, T., and Memedovic, O. 2010. "Looking for Global Value Chains in Trade Statistics: Mapping Structural Change and Compressed Development in the World Economy." UNIDO Working Paper, Vienna, Austria: UNIDO.
- Thorsten, B., and Demirgüç-Kunt. A. 2006. "Small and Medium-size Enterprises: Access to Finance as a Growth Constraint." *Journal of Banking & Finance* 30(11): 2931–2943.
- Thorsten, B., and Demirgüç-Kunt. A. 2008. "Access to Finance: An Unfinished Agenda." *The World Bank Economic Review* 22(3): 383–396.
- Uchida, H., Udell, G.F., and Watanabe, W. 2007. "Are Trade Creditors Relationship Lenders?" Tokyo, Japan: Research Institute of Economy, Trade and Industry (RIETI). Available at: <http://ideas.repec.org/p/eti/dpaper/06026.html>.
- Udell, G. F. 2008. "What's in a Relationship: The Case of Commercial Lending." *Business Horizons* 51(2): 93–103.
- USAID (United States Agency for International Development). 2006. "Uganda: Warehouse Receipts Turn Corn Into Collateral." USAID.
- . 2007a. "Analysis of the Potential for Development of SME Purchase Order Finance Products." USAID.
- . 2007b. "Assessing the Impact of Profit in Zambia in the Cotton, Beef Cattle, and Retail Input Services Value Chains." USAID.
- . 2009. "FS Series #5: Value Chain Finance. Primer, Diagnostic, and Model Scope of Work." USAID.

- Vargas, L. 2004. "ICT Strategy in Costa Rica: The Case of the Costa Rican Software Industry." Heredia, Costa Rica: International Centre for Economic Policy, CINPE-UNA.
- Vargas, M., and Alievi, R. 2000. "Competitividade, Capacitação Tecnológica E Inovação No Arranjo Produtivo Moveleiro Da Serra Gaúcha." Unpublished. Brasilia, Brazil: Instituto de Pesquisas Economicas Aplicadas (IPEA).
- Wittlinger, B., and Tuesta, T. M. 2006. "Providing Cost-Effective Credit to Small-Scale Single-Crop Farmers: The Case of Financiera El Comercio." *Insight* 19.
- World Bank. 2003. "Modernizing Africa's Agro-Food Systems: Analytical Framework and Implications for Operations." Africa Region Working Papers 44. Washington DC: World Bank.
- . 2006. "The Impact of Intel in Costa Rica: Nine Years after the Decision to Invest." Investing in Development Series. Washington DC: The World Bank.