Trade Credit Management and Information Asymmetry in Small and Medium-Sized Businesses in an Emerging Market

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Abstract

Purpose – This study explores trade credit conditions by way of their potential for reducing information asymmetry between buyers and sellers in an emerging market context.

Theoretical framework – The theoretical line tested empirically in this article focuses on the information asymmetry between selling companies and their buying customers.

Design/methodology/approach – Based on a survey among the CFOs of more than 300 SMEs that operate in Brazil we use linear and logit regressions to test our hypotheses.

Findings – The results point to evidence of a considerable variation in policies and practices, and to the fact that part of the variation can be explained in terms of the characteristics of the firm. Support is also identified for a series of hypotheses based on arguments about ways of resolving information asymmetry between buyers and sellers, as well as price discrimination.

Practical & social implications of research – Entrepreneurs can benefit from the results of this study to manage information asymmetry, as well as to properly establish credit terms.

Originality/value – The credit period allows buyers to reduce uncertainties as to the quality of the product before they pay, and sellers can settle any uncertainties they might have about the buyer's payment intentions. This phenomenon, however, is sensitive to institutional environment issues, and according to the empirical evidence little is known about small and medium-sized enterprises (SMEs) operating in emerging markets, which are characterized by their information uncertainty and asymmetry.

Keywords: Small business, trade credit, emerging markets, uncertainty, financial management.

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1 Motivation

Among the most relevant financial decisions taken by smaller businesses, working capital certainly constitutes a special segment, especially the role played by trade credit (Emery, 1984; Bastos & Pindado, 2013). The establishment of credit terms is a field for decisions that have great potential for influencing the firm's competition strategy, which has an impact on the firm's performance, whether as a buyer or seller (Yazdanfar & Öhman, 2016). In turn, financial decisions are predominantly taken within the context of risk, uncertainty, or even ignorance, i.e. when no relevant information content is known (Gonçalves et al., 2018). Imperfect information induces uncertainty in contractual relationships, which can cause problems of a moral hazard nature, thus increasing transaction costs for the parties involved (Fabbri & Klapper, 2016).

In this paper, we examine trade credit conditions through their role of reducing information asymmetry and uncertainty for sellers and buyers in an emerging market context, which is typically characterized by information asymmetry and uncertainties in the business environment, especially for small and medium-sized enterprises (SMEs), which are the focus of this research. Specifically, we examine three main research questions: first, with regard to uncertainty for the buyer (Lee & Stowe, 1993; Long et al., 1993; Smith, 1987), based on information asymmetry and trade credit policy; second, with regard to uncertainty for the seller (Smith, 1987; Ng et al., 1999), based on information asymmetry and trade credit policy; and third, with regard to price discrimination and trade credit policy (Dana, 1998; Levine, 2002; Petersen & Rajan, 1997).

This topic is of interest not only to researchers, but also to regulators and entrepreneurs. According to Petersen and Rajan (1994), these issues are relevant for SMEs. This group of companies has a high failure rate, mainly because of their reduced ability to manage working capital (Khoo & Cheung, 2022; Murro & Peruzzi, 2022). SMEs in Brazil are also responsible for a significant portion of the employment generated, by way of which they explicitly contribute to Brazilian gross domestic product. Consultancy companies that specialize in credit in the Brazilian market, however, point out that in April 2016, of the almost 8 million companies operating in the Brazilian market, 4.4 million of them were in default, accounting for a total of more than R$ 105 billion (~US$ 40bi), with commercial companies

(45.2%) and service companies (45%) predominating, according to Serasa Experian (2016). Furthermore, Fisman and Love (2003) stress the economic importance of trade credit as a source of short-term financing, especially in developing countries.

Using cross-sectional pooled OLS and logit regressions, with data collected in a survey conducted with more than 300 CFOs of SMEs operating in Brazil, we regress credit risk control and the profile of the finance manager against the average receipt period, overdue days, cash before delivery, cash on delivery, and actual cost of trade credit offered to the firm's customers and control variables for the firm's profile.

We offer two main results. First, the results point to evidence of a considerable variation in policies and practices, and to the fact that part of the variation can be explained in terms of the characteristics of the firm. Second, support is also identified for a series of hypotheses based on arguments about ways of resolving information asymmetry between buyers and sellers, as well as price discrimination.

We make several contributions to the literature, but at least two can be highlighted. First, since the literature regarding trade credit is concentrated in mature markets and listed companies (Wilson & Summers, 2002), we contribute to the trade credit literature by providing new empirical evidence about small and medium-sized businesses. Second, we do this against a backdrop of information asymmetry in a relevant emerging market context, which at least from our point of view seems to be something that has not yet been documented in the literature, which is mostly characterized by empirical evidence from mature markets.

2 Theoretical platform and development of hypotheses

2.1 Information asymmetry and trade credit policy

The theoretical line tested empirically in this article focuses on the information asymmetry between selling companies and their buying customers. Uncertainties about product quality (Akerlof, 1970) and with regard to payment due from the buyer (Paul & Boden, 2008) constitute a fertile field for explicitly relevant research in the finance area, especially when dealing with trade credit policy. The latter is a subject on which the financial

community has concentrated its theoretical and empirical efforts in recent decades (Barrot, 2016; Breza & Liberman, 2017; Ewert, 1968; Herbst, 1974; Junk, 1962; Keehn, 1974; Lamminmaki & Guilding, 2004; Mian & Smith, 1992; Pike et al., 2005; Smith, 1987).

A range of theories has also been explored that look at the practice of trade credit (Biais & Gollier, 1997; Cowton & San-Jose, 2017; Ferris, 1981; Lee & Stowe, 1993; Long et al., 1993; Norrbin & Reffett, 1995; Petersen & Rajan, 1994; Schwartz, 1974; Smith, 1987; Wilner, 2000). There is little evidence, however, of the motivations behind why credit terms are modified and extended, especially when it comes to small and medium-sized enterprises (Barrot, 2016; Breza & Liberman, 2017; Petersen & Rajan, 1997). Paul and Boden (2008) point out ways in which the research could advance to understand this phenomenon better. With regard to information asymmetry and trade credit policy, this study addresses six hypotheses about uncertainties on both the buyer (Lee & Stowe, 1993; Long et al., 1993; Ng et al., 1999) and seller sides (Ng et al., 1999; Petersen & Rajan, 1997):

i) Solving uncertainties for the buyer

H_1: *Companies that sell high quality, technology-based products give longer credit periods to allow the quality of the products to be checked before any actual payment is made.*

H_2: *Selling companies with less reputation give longer credit periods, when reputation is measured by way of metrics involving customer size and concentration.*

H_3: *Selling companies that have a high proportion of their external sales on credit give longer credit periods.*

H_4: *Selling companies that operate in highly seasonal markets give longer credit periods.*

(ii) Solving uncertainties for the seller

H_5: *Using cash-on-delivery (CoD) or cash-before-delivery (CbD) payment conditions is more common when the seller: (a) is smaller; (b) sells mainly to end users; and (c) has a larger proportion of foreign sales on credit.*

H_6: *The use of two instalment terms is associated with: (a) fewer days' delay; and (b) selling mainly to smaller customers.*

Over and above discussing asymmetric information issues, there are possibilities for understanding trade credit policies better by way of price discrimination for the buyer. Negotiation between companies and their consumers, interference by the regulatory agent in regulated industries, or even the power of monopolies or oligopolies, have been covered in the literature. It is understood that concerning SMEs, the predominant view is that price formation is essentially the result of negotiation between the company and its customers. To stimulate sales, but at the same time protect itself against the risk of default, the firm establishes its credit terms, as discussed by Levine (2002) and Pike et al. (2005). Regarding price discrimination and trade credit policy, therefore, the following hypotheses are tested:

H_{7a}: *The actual rate of interest on immediate payment discounts is positively associated with:*

i) *the size of the selling company;*

ii) *being one of the main players in the market;*

iii) *adopting sales maximization (instead of risk reduction) as the main objective of credit;*

iv) *customer concentration;*

v) *negotiations with large customers;*

vi) *negotiations mainly with wholesale buyers.*

H_{7b}: *The actual interest rate on immediate payment discounts is negatively associated with:*

i) *negotiations, mainly with the end user;*

ii) *the proportion of foreign sales on credit.*

2.2 Trade credit in emerging economies

The literature on trade credit in emerging countries needs further investigation because the studies that are available, or that are supported by primary data (Sheng et al., 2013), have a relatively small number of either responses or variables (Carvalho & Schiozer, 2015). In this regard it might even seem surprising that subjects such as trade credit that are relatively well consolidated in the most prestigious finance textbooks require research efforts with a view to understanding the topic of working capital management better. It does not seem absurd, for example, to assume that early payments imply that discounts are offered, given the value of money over time, particularly when it comes to countries where interest rates are relatively high, as is the case with Brazil. It seems there is a lack of understanding of the topic of trade credit, which is illustrated by the fact that a specific law was passed in Brazil in 2016 authorizing the offer of discounts to those clients who wish to pay early.

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3 Method

Even though the finance literature on small and medium-sized businesses may be relevant, they have not been as widely studied as they should be, given their particular relevance to emerging economies (Hermes et al., 2007; Lazaridis, 2004; Mendes-Da-Silva & Saito, 2014). One of the difficulties most indicated when it comes to carrying out studies in finance that focus on smaller businesses is access to information about these companies. The literature also points out that studies that use surveys contribute to the development of knowledge in finance in that they offer the possibility of obtaining data that are unavailable elsewhere (Baker & Mukherjee, 2007; Neuhauser, 2007).

3.1 Data collection and variables

According to Pike et al. (2005), the research on the determinants of trade credit policies has been characterized by its use of secondary data, which greatly limits the findings arising from it because it offers few details that are relevant to the decisions made by management (Petersen & Rajan, 1997). In the present research, therefore, an adapted version of the questionnaire used by Pike et al. (2005) was employed, taking the precautions pointed out by Balbinotti et al. (2007). The questionnaire (which can be obtained on request from the authors of this study) comprises 52 questions about the firm's profile, the trade credit policy adopted by the firm, credit risk control and the profile of the finance manager.

The questions were voluntarily answered by the respective CFOs of more than 300 SMEs who took part in an event that was representative of this segment of companies and was held in the largest Brazilian city during November 2016. At the end of the collection period 298 questionnaires were considered valid. The respondent companies varied in size, but those with sales up to R$ 2.4 million predominated (37.5%), followed by companies in higher sales bands: R$ 2.4 - 16.4 million (27.03%); R$ 16.4 - 90.0 million (16.89%); R$ 90 - 300 million (9.46%); and > R$ 300 million (9.12%). Table 1 gives the descriptive statistics of the studied variables (the definition of all the variables can be found in the Appendix A).

Companies with sales above R$ 90 million (*size*) represent approximately 18% of the 298 responses considered to be valid. Regarding the activity sectors, it is noted that ~12% of the companies say they produce high tech products, 37% consider their products to be specialized and 43% are considered to be high quality. With regard to sales volatility, ~62% of the companies declare their sales are seasonal, and 32% claim to be important competitors in the industry in which they operate. Moreover, 66% of the respondent companies sell their products to end consumers, and only 6% of them sell their products to wholesale distributors. The responses collected as to the formal education of the CFOs indicate that 82% of them are at least college graduates, whereas slightly more than 13% only completed high school. Regarding the specific skills needed for managing working capital, just over 18% of the CFOs claimed to have some formal training in the credit area.

Regarding the responses collected on trade credit policy, 25% of the companies consider their customers to be significantly smaller than themselves, while ~30% of the credit sales are concentrated in their five biggest clients. Just over 30% of the companies have more than 60% of their working capital invested in credit sales, whereas in terms of credit sales to foreign markets, only 12% of the firms have more than 40% of their credit sales with foreign customers. Concerning trade credit policy, Panel C of Table 1 shows that the average number of debtor days is ~48.44, with some extreme values being identified, e.g. 950 days.

Panel C of Table 1 also shows that the average number of *overdue days* was –1.68 days. This indicates that, on average, customers paid a little before the end of the period established by way of the credit terms agreed between the seller and buyer. Only 40% of the companies claimed that they fully document their credit transactions, whereas just 45% of the firms offer extended payment periods, with a discount being offered for early payment. The average actual annual rate (*effective*) per contract is ~ 2.45%, but can reach levels of over 40% per annum.

The importance of the trade credit strategy reported by the CFOs suggests that 42% of the firms consider that the main objective of trade credit is to minimize risk, while 42% point to maximizing sales, and ~18% of the CFOs consider trade credit to be a tool for maximizing profit. Around 12% of the companies have some type of insurance for cases in which they were not paid for sales realized, while ~8% of the firms have a centralized credit department. Regarding credit control, 16% use commercial references when analyzing credit and ~16% use bank references. Only 9% produce or use some type of credit analysis report prepared by the sales department, and 5% have an internal credit analysis system. Around

Table 1
Descriptive statistics

Variable	Obs.	Average	Std. Dev.	Min	Max
Panel A: Profile of the Company and CFO					
Education2	292	.8630137	.3444232	0	1
End User	298	.6677852	.4717998	0	1
High Quality	298	.4395973	.497173	0	1
High Tech	298	.1208054*	.3264491	0	1
Important Competitor	295	.3220339	.4680499	0	1
Seasonal	296	.625	.4849428	0	1
Size	298	.1845638	.3885958	0	1
Specialized	298	.3724832	.4842793	0	1
Wholesaler	298	.0637584	.244733	0	1
Panel B: Trade Credit					
Customer Concentration	298	.295302	.4569457	0	1
Export Credit	298	.1241611	.3303199	0	1
Major Credit	298	.3187919	.4667921	0	1
Significantly Smaller	298	.2550336	.4366133	0	1
Panel C: Trade Credit Policy					
Centralized Credit	298	.0872483	.2826733	0	1
Credit Insurance	298	.1208054	.3264491	0	1
Debtor Days	287	48.4495	65.8609	0	950
Effective	171	2.4535	5.5625	.017037	42.0
Fully Documented	298	.4127517	.493157	0	1
Overdue Days	287	-1.6864	83.1825	-330	920
Profit Maximization	298	.1879195*	.3913049	0	1
Risk Minimization	298	.4295302	.4958417	0	1
Sales Maximization	298	.4295302	.4958417	0	1
Two Instalments	298	.4563758	.4989311	0	1
Panel D: Credit Risk Control					
Bank References	298	.1644295	.3712884	0	1
Charge Fixed Assets	298	.0872483	.2826733	0	1
In-House	298	.057047	.2323225	0	1
Monitoring Grant	298	.2281879	.4203703	0	1
Report Sale Dpt	298	.090604**	.287528	0	1
Third Party Guarantee	298	.0604027**	.2386321	0	1
Trade References	298	.1644295	.3712884	0	1
Panel E: Monitoring and Control					
Achieving Cash	298	.2080537	.4065982	0	1
Assign Credit Limit	298	.6677852*	.4717998	0	1
Cash Credit Staff	298	.4127517	.493157	0	1
Cash on Delivery	298	.2147651	.4113501	0	1
Debt Collector Agent	298	.0771812*	.2673277	0	1
Different Risk Classes	298	.5671141	.4963087	0	1
Direct Debt	298	.1510067	.3586577	0	1
Factoring	298	.0637584	.244733	0	1
Financial Statements	298	.0771812*	.2673277	0	1
Managing Debtor Days	298	.590604	.4925495	0	1
Other Group	298	.0939597	.2922635	0	1
Payment Discount	298	.4530201	.4986253	0	1
Payment in Advance	298	.4295302	.4958417	0	1
Profit Credit Staff	298	.4194631	.4943012	0	1
Reducing Bad Debts	298	.3288591	.4705889	0	1
Sales Credit Staff	298	.6812081	.4667921	0	1
Send Invoice within 3 Days	298	.6342282	.4824561	0	1
Send Statements within 3 Days	298	.2550336	.4366133	0	1

Note: The definition of all the variables listed can be found in the Appendix A. The independence of each variable was tested according to whether the Chief Financial Officer (CFO) has (or not) formal training in the credit area . ** $p<0.05$, * $p<0.1$.

22% regularly monitor the credit they offer, 8% ask for a real guarantee when credit is given, and 6% use a third-party guarantee in the transaction.

Regarding the monitoring and control of trade credit (Panel D of Table 1), 66% of the companies assign a credit limit to their customers, and 56% of the firms divide customers up into risk classes. Around 42% require some form of advance payment, whereas 45% give a discount for early payment in cash. On the other hand, 21% require payment on delivery, and 15% use direct debit. As for the use of factoring, 6% of the companies say they use this type of financial service, and 7% use the services of debt collection companies. In relation to targets and remuneration, 20% of the firms use the achievement of collection targets, 32% use reduction in bad debts, 59% adopt average receipt period management, 68% pay the credit department based on the level of sales, ~40% pay the credit department on the basis of profit, and 41% pay based on cash receipts.

We also observe that 63% of the companies issue the invoice within 3 days, ü⎯⎯ send accounting statements, 9% of the companies form part of other groups and 7% analyze the customer's financial statements. Table 1 also shows the result for the independence test between each variable studied and whether the CFO has or has not been formally trained in the credit area. Seven variables gave results that suggest behavior that is significantly different from that of companies whose CFO has already had some training in the credit area; among these variables are: *high tech*, *overdue days*, *report sales dept*, *third party guarantee*, *assign credit limit*, *debt coletor agent*, and *factoring*. These results suggest that the skills of the CFO may in some way be associated with the firm's trade credit strategy.

4 Results

The empirical results obtained in this research are organized as follows: i) uncertainty for the buyer; ii) uncertainty for the seller; iii) price discrimination and trade credit policy.

4.1 Uncertainty for the buyer

Tables 2 and 3 show the estimated coefficients for the regressions that use as the dependent variables those that are relevant to buyer uncertainty. These are discussed in Hypotheses **H1, H2, H3** and **H4**, which are especially supported in the work of Long et al. (1993), Ng et al. (1999), and Lee and Stowe (1993). To check the hypotheses regarding information asymmetry and trade credit policy, Models I, II and III were estimated using OLS regression, the dependent variable being the average receipt period, winsorized by 1% and 99% due to the existence of outliers.

When considering the results reported for Model I, we see that just *size* and *customer concentration* seem to be positively associated with average receipt period; in other words, companies with sales in excess of R$ 90.0 million have, on average, a receipt period that is 15 days longer than the other companies ($\hat{\beta} \cong 15.51; p < 0.05$). This result suggests that bigger companies have more ways to reduce the information asymmetry and can offer better terms to clients. Petersen and Rajan (1997) argue that larger firms can offer better terms as they are less financially constrained.

Also, 2016 was a period of credit rationing in Brazil due to a political crisis. Gonçalves et al. (2018) shows that companies with higher market power (if we think of size as a proxy for market power) may provide more liquidity to suppliers during crises, such as the covid-19 pandemic (Luo, 2022). The reduction of information asymmetry is also present in the customer concentration, as in firms that have fewer clients, the managers are supposed to know them better. Also, these customers have more bargaining power and so can obtain more trade credit (Fabbri & Menichini, 2010). On the supply side, firms are supposed to give better terms to maintain relationships with powerful customers (Giannetti et al., 2011). The results show that customer concentration is associated with an increase in the average receipt period by around eight days ($\hat{\beta} \cong 8.784; p < 0.1$).

After carrying out the regression using the stepwise procedure, considering the complete set of variables, as reported in Model III, size remains both significant and positive, as does customer concentration, which supports the argument put forward in H_2. Hypotheses H_1, H_3, and H_4 find no empirical support in the results obtained, therefore it does not seem to be the case that companies in seasonal industries, those with lower reputations, and those with more sales on credit treat their debtors differently, at least in terms of days until due.

Table 3 gives the results obtained where the dependent variable is the number of days accounts are overdue. Model IV indicates that the *size* variable is associated with a greater number of days, of around 30, when compared with smaller companies ($\hat{\beta} \cong 30.35; p < 0.01$). *Customer concentration*, on the other hand, is significant and negatively associated, i.e.

Table 2
OLS regressions for debtor days, average receipt period (N = 287)

	Model I	Error	Model II	Error	Model III	Error
Panel A: Profile of the Company and CFO						
Important competitor	0.0610	5.033			-4.671	4.498
High tech	8.564	7.568			8.693	7.157
High quality	-2.229	4.135			-6.301	4.295
Size	15.510**	7.834			14.24*	7.510
Specialized	-2.624	4.033			-7.562*	4.236
Seasonal	-1.119	4.896				
Panel B: Trade Credit						
Customer concentration	8.784*	4.629			13.05***	4.392
Export credit	-0.152	7.640				
Majority credit	3.048	4.876				
Sigsmaller	3.453	5.486				
Panel C: Trade Credit Policy						
Profit maximization					-4.254	5.762
Panel D: Credit Risk Control						
Bank references			-10.32*	5.485	-12.71**	5.822
Report sales dpt			-13.74**	6.447	-19.50***	6.082
Trade references			15.64**	6.795	19.71***	7.226
Panel E: Monitoring and Control						
Achieving cash			12.73*	6.871	7.435	6.067
Cash on delivery			-17.48***	5.744	-18.21***	5.806
Deb collection			22.64*	11.69	22.84*	11.84)
Payment discount			12.49***	4.685	13.69***	4.701
Payment in advance			12.05**	6.002	15.33**	6.096
Profit credit staff			-8.381*	4.340	-9.618**	4.236
Different risk classes					-4.607	4.513
Sales credit staff					-3.465	4.580
Constant	39.83***	-5.980	34.95***	-4.618	39.69***	6.881
F	1.43		2.34***		2.16***	
Observations	286		287		286	
R-squared	0.051		0.215		0.274	

This table presents the results obtained in the OLS regression with the debtor days dependent variable i.e. the average receipt period, which reflects the average number of days by which the firm can effectively collect payments from customers. In the column to the right of each coefficient the robust standard error is shown. *** p <0.01, ** p <0.05, * p <0.1

customer concentration tends to reduce the number of days of overdue accounts by 16 days on average ($\hat{\beta} \cong 16.28; p < 0.03$), as powerful customers are supposed to maintain a good relationship (Giannetti et al., 2011).

4.2 Uncertainty for the seller

Hypotheses **H₅** and **H₆**, which are supported by arguments and evidence obtained by Ng et al. (1999) and Petersen and Rajan (1997), deal with resolving any uncertainties for the seller. Table 4 shows the estimated coefficients for the variables regarding these hypotheses. In Model VII, only the proportion of sales proved to be significant ($\hat{\beta} \cong 13.2; p < 0.05$) for cash before delivery.

Companies with a greater proportion of sales on credit tend to be more likely, i.e. 13% more, to ask for cash payment before delivery. In the presence of other variables, however, as in Model IX, we see that companies with sales over R$ 90 million (*size*) tend to have a ~27% less likelihood of requesting payment before delivery ($\hat{\beta} \cong 29.9; p < 0.05$), reinforcing the argument that bigger firms can offer better trade terms (Petersen & Rajan, 1997), whereas companies with specialized products (*specialized*) are ~12.8% more likely ($\hat{\beta} \cong 12.8; p < 0.1$) to ask for this type of early payment.

Also, asking for trade references makes this type of payment less likely, while firms that monitor their

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Table 3
OLS regressions for overdue days (N = 286)

	Model IV	Error	Model V	Error	Model VI	Error
Panel A: Profile of the Company and CFO						
Seasonal	-8.533	7.963			-6.999	8.075
Specialized	4.711	8.360				
Size	30.35***	10.19			40.02***	10.43
Important competitor	-0.106	7.841				
High quality	10.99	7.164			10.78	6.677
High tech	-3.988	10.29			-13.02	9.609
Panel B: Trade Credit						
Sigsmaller	-26.28***	10.11				
Export credit	2.178	8.776			9.406	7.663
Majority credit	0.643	7.510				
Customer concentration	-16.28**	7.978			-13.70*	7.894
Panel D: Credit Risk Control						
Report sales dpt			-32.75**	15.34	-44.54***	14.19
Third party guarantee			49.39***	13.12	40.93***	13.40
Monitoring grant			19.56*	10.50	16.19*	9.317
Panel E: Monitoring and Control						
Cash on delivery			-22.52**	10.26	-21.31**	10.48
Credit limit			-19.46**	8.269	-23.76***	8.564
Other group			14.37	11.46	23.59**	11.89
Payment in advance			15.08*	8.520	17.97**	8.827
Constant	0.140	9.086	0.0554	8.916	15.34	12.19
F	2.13**		2.31***		2.49***	
Observations	286		287		286	
R-squared	0.091		0.133		0.198	

This table presents the results obtained in the OLS regression with overdue days as the dependent variable, i.e. the difference between the effective average debtor days and the average number of days in which the company expects to receive from its customers, according to the terms of the trade credit granted by the firm to its customers. In the column to the right of each coefficient is the robust standard error. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

debtors are more likely to have it. This mixed result suggests that $\ddot{u}$ is not uniform in credit risk control management. Almost all variables in the monitoring and control class were significant and make the firm more likely to ask for CbD, especially payment discounts and invoices. When payment on delivery (CoD) is considered, no variable proved to be significant, according to the coefficients estimated and reported in Model X of Table 5. Considering all the variables in the collection instrument used (Model XII), for firms with specialized products it is 8.44% more probable that they will request payment on delivery ($\hat{\beta} \cong 0.0844; p < 0.1$). Companies with a greater percentage of trade credit in their working capital also have a 9% greater probability of using this type of payment.

4.3 Price discrimination and trade credit policy

The results presented in Table 6 are especially relevant to the discussion of Hypotheses **H7a** and **H7b**, which are supported by the work of Levine (2002) and of Pike et al. (2005). These hypotheses deal with price discrimination and trade credit policy. The results suggest that among the variables considered, questions related to sales and market conditions are important determinants of the actual annual cost of the trade credit offered to the firm's customers, as Pike et al. (2005) found, when they studied the British and Australian markets. In Model XIII we see that a firm in which the CFO has formal instruction to at least university graduate level tends to impose an

Table 4
Logit regressions for cash before delivery (CbD)

	Model VII	Error	Model VIII	Error	Model IX	Error
Panel A: Profile of the Company and CFO						
Size	-0.0635	0.0844			-0.269**	0.119
Specialized	0.0757	0.0676			0.128*	0.0778
Seasonal	0.00112	0.0638				
Important competitor	0.0824	0.0663			0.0541	0.0795
High quality	-0.0321	0.0628				
High tech	0.0700	0.101				
End user	-0.0588	0.0680				
Panel B: Trade Credit						
Sigsmaller	-0.0726	0.0736				
Majority credit	0.132**	0.0651			0.0736	0.0792
Export credit	0.0820	0.0929				
Customer concentration	-0.0989	0.0690				
Panel C: Trade Credit Policy						
Credit insurance			-0.294**	0.126	-0.292**	0.141
Risk minimization	0.0274	0.0826			0.0620	0.0786
Sales maximization	0.124	0.0802				
Panel D: Credit Risk Control						
Monitoring debt			0.202**	0.0970	0.208**	0.101
Trade references			-0.333***	0.111	-0.323***	0.111
Panel E: Monitoring and Control						
Profit credit staff			0.142*	0.0740	0.136*	0.0746
Reducing bad debts			0.147*	0.0812	0.163*	0.0869
Assign credit limit			-0.143*	0.0747	-0.111	0.0799
Direct debit			0.183*	0.0946	0.226**	0.103
Factoring			0.219	0.185	0.169	0.184
Payment discount			0.372***	0.0704	0.360***	0.0754
Send invoice			0.226***	0.0759	0.282***	0.0881
Send statements					-0.0859	0.0868
ROC	0.5980		0.8159		0.8420	
% right	78.31		81.88		81.36	
MacFadden	0.0250		0.2217		0.2614	
LL	-150.43		-120.64		-113.96	
Observations	295		298		295	

This table presents the results obtained in the logit regression where the dependent variable is cash before delivery, i.e. the seller demands payment before delivery, as a way of reducing the uncertainty around the buyer's propensity to pay for their purchases. In the column next to each coefficient is the standard robust error. Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

effective annual rate that is reduced by approximately 5.6 percentage points ($\hat{\beta} \cong -5.665; p < 0.1$).

Additionally, companies that mainly sell to end users (*end user*) tend to impose larger effective rates when they offer their customers trade credit. Put another way, the balance between the firm and its customer, when the latter is an end user, is such that the customer seems to accept an actual rate that is 1.4 times higher than practiced by other companies ($\hat{\beta} \cong 1.401; p < 0.1$). This result seems to contradict the assumption made in Hypothesis **H$_{7b(i)}$**, according to which the actual annual rate of trade

credit granted to end users should be smaller, at least if we consider the arguments of Levine (2002) and Pike et al. (2005); in other words, the results suggest that when SMEs in Brazil sell to end users, they tend to establish dearer credit terms for their customers.

Firms that treat trade credit as a way of maximizing sales also have effective rates that are 3 percentage points lower. On controlling all the variables of the questionnaire (Model XIV), we find that larger companies (*size*) tend to operate with a rate that is 3.6 percentage points, on average, higher than the others ($\hat{\beta} \cong 3.618; p < 0.01$), which

Table 5

Logit regressions for cash on delivery (CoD)

	Model X	Error	Model XI	Error	Model XII	Error
Panel A: Profile of the Company and CFO						
High quality	-0.0409	0.0518			-0.0503	0.0424
High tech	0.00739	0.0834				
End user	0.0472	0.0536				
Size	0.0862	0.0643				
Specialized	0.0446	0.0578			0.0844*	0.0463
Seasonal	0.00868	0.0511				
Important competitor	0.0545	0.0506				
Panel B: Trade Credit						
Customer concentration	-0.0176	0.0558				
Export credit	-0.0235	0.0825			-0.0600	0.0775
Majority credit	0.0427	0.0504			0.0956**	0.0454
Sigsmaller	-0.000512	0.0595				
Panel C: Trade Credit Policy						
Credit insurance			-0.163**	0.0813	-0.177**	0.0762
Profit maximization	0.0961	0.0590	0.0897	0.0556	0.115**	0.0558
Risk minimization	0.0351	0.0546	0.0366	0.0459	0.0736	0.0479
Sales maximization	0.0432	0.0559				
Fully documented					0.102**	0.0478
Panel D: Credit Risk Control						
Bank references					-0.0938	0.0640
Trade references					0.0638	0.0590
Panel E: Monitoring and Control						
Profit credit staff			0.0913**	0.0437	0.0966**	0.0409
Cash credit staff			0.141***	0.0513	0.148***	0.0514
Assign credit limit			-0.104**	0.0467	-0.138**	0.0539
Direct debit			0.223***	0.0519	0.249***	0.0574
Reducing bad debts			0.139***	0.0462	0.140***	0.0431
Risk classes					0.0542	0.0523
Report sales dpt					0.0671	0.0714
Other group			-0.117	0.0736	-0.162*	0.0834
Payment discount			0.0879*	0.0453	0.0738*	0.0446
Send invoice			0.146***	0.0513	0.153***	0.0522
ROC	0.6290		0.8057		0.8224	
% right	60.68		73.15		74.24	
MacFadden	0.0389		0.2311		0.2552	
LL	-194.04		-156.53		-15.037.775	
Observations	295		298		295	

This table presents the results obtained in the logit regression with cash on delivery as the dependent variable, i.e. the seller demands payment on delivery, as a way to reduce the uncertainty around the buyer's propensity to pay for their purchases. In the column next to each coefficient is the standard robust error. Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

supports $H_{7a(i)}$. On the other hand, the estimated coefficient for the formal education of the CFO reduces to around 3 ($\hat{\beta} \cong -3.036; p < 0.01$). Smaller customers (*sigsmaller*) tend to reduce the actual annual rate of trade credit cost by 1.36 percentage points ($\hat{\beta} \cong -1.366; p < 0.05$), whereas the estimated coefficient of selling to the end user (*end user*) increases to ~2.46 percentage points ($\hat{\beta} \cong 2.468; p < 0.0$). In the controls, regarding the trade credit policy, firms that focus

on *profit maximization*, *risk minimization* and *sales maximization* are prone to charging smaller effective rates from customers. Also, firms that employ more active ways of monitoring debtors, ask for bank references and have their own system of monitoring credit also charge higher effective rates. The variables on monitoring and controls showed mixed results, suggesting that the treatment is not uniform regarding the effective rates.

Table 6
OLS regressions for the actual cost of trade credit offered to the firm's customers

	Model XIII	Error	Model XIV	Error
Panel A: Profile of the Company and CFO				
Seasonal			0.827	0.555
End user	1.401*	0.735	2.468***	0.705
Education2	-5.665*	-2.952	-3.036***	0.961
Size	-0.0147	0.469	3.618***	0.971
Specialized			0.649	0.561
Important competitor	-0.253	0.625		
High quality			-1.151**	0.530
Panel B: Trade Credit				
Majority credit			0.922*	0.531
Sigsmaller	-1.029	0.658	-1.366**	0.607
Customer concentration	1.193	0.911	0.778	0.563
Panel C: Trade Credit Policy				
Credit insurance			0.666	0.655
Profit maximization			-2.435***	0.784
Risk minimization			-3.079***	0.750
Sales maximization	-1.101	0.841	-3.028***	0.823
Panel D: Credit Risk Control				
Monitoring grant			1.797**	0.701
Bank references			2.681**	-1.028
Charge fixed assets			-1.893**	0.813
Inhouse			7.635***	-1.792
Panel E: Monitoring and Control				
Assign credit limit			-1.439**	0.672
Factoring			-0.998	0.856
Deb collection			-2.084**	0.910
Send statements			-0.876	0.593
Payment in advance			1.764***	0.589
Report sales dpt			-6.457***	-1.580
Other group			5.876***	-1.492
Financial statements			-4.368***	-1.363
Managing debtor days			1.601***	0.592
Risk classes			1.283**	0.640
Send invoice			-1.114*	0.650
Constant	6.954**	-2.884	4.518***	-1.317
F	1.04		1.44*	
Observations	169		169	
R-squared	0.159		0.712	

Here are the results obtained with the OLS regression that has $effective$ as its dependent variable, i.e. the actual cost of trade credit that the nth SME establishes by way of the credit terms given to its customers. The actual annual cost of trade credit was obtained from the CFOs' replies with regard to the credit terms that their firms establish for their customers, according to the procedure adopted by Ng et al. (1999). To the right of each coefficient is the robust standard error *** $p<0.01$; ** $p<0.05$; * $p<0.1$.

5 Final considerations

This article explores evidence of information asymmetry as well as price discrimination based on data taken from more than three hundred small and medium-sized companies operating in Brazil, one of the major emerging markets. We analyzed and reported the results of a significant survey of trade credit policies and practices within these SMEs. There was evidence of a considerable variation in these policies and practices, and part of this variation can be explained in terms of the characteristics of the firm. Support was also identified

for a series of hypotheses based on arguments of ways of resolving information asymmetry between buyers and sellers, as well as price discrimination.

For buyer uncertainty, bigger firms were more likely to give better terms of credit for their customers. Also, firms with concentrated customers gave almost eight more days to pay, suggesting that sellers want to maintain good relationships with buyers that have more bargaining power. In the case of seller uncertainty, firms with specialized products were more likely to employ cash-before-delivery payment from their buyers. Last but not least, CFO education was associated with smaller effective rates charged from company customers, while firms that were associated with selling to end users charged more.

The role of trade credit in conflict resolution and cost mitigation where there is uncertainty in the relationship between buyers and sellers is an important research agenda, especially when recent developments in this relationship are considered. In this respect, we can mention a list of relevant fields of research that lack investigation. The explicit growth of online commerce around the world over the last decade (Ramcharran, 2013), for example, gives trade credit a prominent place among the tools used for solving conflict and reducing uncertainties (Resnick & Zeckhauser, 2002).

The resolution of uncertainties between buyers and sellers in the context of emerging markets can sometimes find a solution in alternative and informal means of conflict resolution, as empirically discussed and tested by Mendes-Da-Silva et al. (2008), who analyzed business between friends and family. The limitations of studies based on questionnaires are recognized. We emphasize, however, the exhaustive efforts employed to minimize such limitations, as suggested by Balbinotti et al. (2007). We understand that the field of study addressed in this work offers opportunities for future research, especially in exploring information asymmetry and problems of price discrimination in trade credit, particularly in research that includes other emerging and developed countries on a comparative basis (Hantrais, 2009).

References

AKERLOF, G. A. (1970). The market for "lemons": quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, *84*(3), 488-500. http://dx.doi.org/10.2307/1879431.

BAKER, H. K., & MUKHERJEE, T. K. (2007). Survey research in finance: Views from journal editors. *International Journal of Managerial Finance*, *3*(1), 11-25. http://dx.doi.org/10.1108/17439130710721635.

BALBINOTTI, M. A. A., BENETTI, C., & TERRA, P. R. S. (2007). Translation and validation of the graham-harvey survey for the Brazilian context. *International Journal of Managerial Finance*, *3*(1), 26-48. http://dx.doi.org/10.1108/17439130710721644.

BARROT, J. N. (2016). Trade credit and industry dynamics: evidence from trucking firms. *The Journal of Finance*, *71*(5), 1975-2016. http://dx.doi.org/10.1111/jofi.12371.

BASTOS, R., & PINDADO, J. (2013). Trade credit during a financial crisis: A panel data analysis. *Journal of Business Research*, *66*(5), 614-620. http://dx.doi.org/10.1016/j.jbusres.2012.03.015.

BIAIS, B., & GOLLIER, C. (1997). Trade credit and credit rationing. *Review of Financial Studies*, *10*(4), 903-937. http://dx.doi.org/10.1093/rfs/10.4.903.

BREZA, E., & LIBERMAN, A. (2017). Financial contracting and organizational form: evidence from the regulation of trade credit. *The Journal of Finance*, *72*(1), 291-324. http://dx.doi.org/10.1111/jofi.12439.

CARVALHO, C. C., & SCHIOZER, R. F. (2015). Determinants of supply and demand for trade credit by micro, small and medium-sized enterprises. *Revista Contabilidade & Finanças*, *26*(68), 208-222. http://dx.doi.org/10.1590/1808-057x201500940.

COWTON, C. J., & SAN-JOSE, L. (2017). On the ethics of trade credit: understanding good payment practice in the supply chain. *Journal of Business Ethics*, *140*(4), 673-685. http://dx.doi.org/10.1007/s10551-016-3050-9.

DANA Jr., J. D. (1998). Advance-purchase discounts and price discrimination in competitive markets. *Journal of Political Economy*, *106*(2), 395-422. http://dx.doi.org/10.1086/250014.

EMERY, G. W. (1984). A pure financial explanation for trade credit. *Journal of Financial and Quantitative Analysis*, *19*(3), 271-285. http://dx.doi.org/10.2307/2331090.

EWERT, D. C. (1968). Trade credit management: selection of accounts receivable using a statistical model. *The Journal of Finance*, *23*(5)

FABBRI, D., & KLAPPER, L. F. (2016). Bargaining power and trade credit. *Journal of Corporate Finance*, *41*, 66-80. http://dx.doi.org/10.1016/j.jcorpfin.2016.07.001.

FABBRI, D., & MENICHINI, A. M. C. (2010). Trade credit, collateral liquidation, and borrowing constraints. *Journal of Financial Economics*, *96*(3), 413-432. http://dx.doi.org/10.1016/j.jfineco.2010.02.010.

FERRIS, J. S. (1981). A Transaction Theory of Trade Credit Use. *The Quarterly Journal of Economics*, *96*(2), 243-270. http://dx.doi.org/10.2307/1882390.

FISMAN, R., & LOVE, I. (2003). Trade credit, financial intermediary development, and industry growth. *The Journal of Finance*, *58*(1), 353-374. http://dx.doi.org/10.1111/1540-6261.00527.

GIANNETTI, M., BURKART, M., & ELLINGSEN, T. (2011). What you sell is what you lend? Explaining trade credit contracts. *Review of Financial Studies*, *24*(4), 1261-1298. http://dx.doi.org/10.1093/rfs/hhn096.

GONÇALVES, A. B., SCHIOZER, R. F., & SHENG, H. H. (2018). Trade credit and product market power during a financial crisis. *Journal of Corporate Finance*, *49*, 308-323. http://dx.doi.org/10.1016/j.jcorpfin.2018.01.009.

HANTRAIS, L. (2009). *International comparative research: theory, methods and practice.* Basingstoke (England): Palgrave Macmillan. http://dx.doi.org/10.1007/978-1-137-06884-2.

HERBST, A. F. (1974). A factor analysis approach to determining the relative endogeneity of trade credit. *The Journal of Finance*, *29*(4), 1087. http://dx.doi.org/10.2307/2978386.

HERMES, N., SMID, P., & YAO, L. (2007). Capital budgeting practices: a comparative study of the Netherlands and China. *International Business Review*, *16*(5), 630-654. http://dx.doi.org/10.1016/j.ibusrev.2007.05.002.

JUNK, P. E. (1962). Monetary policy and fluctuations in the extension of trade credit. *The Journal of Finance*, *17*(4), 677-678. https://doi.org/10.1111/j.1540-6261.1962.tb04349.x.

KEEHN, R. H. (1974). A note on the cost of trade credit and the discriminatory effects of monetary policy. *The Journal of Finance*, *29*(5), 1581-1582. http://dx.doi.org/10.1111/j.1540-6261.1974.tb03140.x.

KHOO, J., & CHEUNG, A. (2022). Managerial ability and trade credit. *Financial Review*, *57*(2), 429-451. http://dx.doi.org/10.1111/fire.12289.

LAMMINMAKI, D., & GUILDING, C. (2004). A study of australian trade credit management outsourcing practices. *Australian Accounting Review*, *14*(32), 53-62. http://dx.doi.org/10.1111/j.1835-2561.2004.tb00283.x.

LAZARIDIS, I. T. (2004). Capital budgeting practices: a survey in the firms in cyprus. *Journal of Small Business Management*, *42*(4), 427-433. http://dx.doi.org/10.1111/j.1540-627X.2004.00121.x.

LEE, Y. W., & STOWE, J. D. (1993). Product risk, asymmetric information, trade credit. *Journal of Financial and Quantitative Analysis*, *28*(2), 285-300. http://dx.doi.org/10.2307/2331291.

LEVINE, M. E. (2002). Price discrimination without market power. *Yale Journal on Regulation*, *19*(1), 1-36.

LONG, M. S., MALITZ, I. B., & RAVID, A. (1993). Trade credit, quality guarantees, and product marketability. *Financial Management*, *22*(4), 117-127. http://dx.doi.org/10.2307/3665582.

LUO, H. (2022). COVID-19 and trade credit speed of adjustment. *Finance Research Letters*, *47*(Pt A), 102541. https://doi.org/10.1016/j.frl.2021.102541.

MENDES-DA-SILVA, W., & SAITO, R. (2014). Stock exchange listing induces sophistication of capital budgeting. *Revista de Administração de Empresas*, *54*(5), 560-574. http://dx.doi.org/10.1590/S0034-759020140509.

MENDES-DA-SILVA, W., FAMÁ, R., & LILJEGREN, J. T. (2008). Effects of friendship in transactions in an emerging market: empirical evidence from Brazil. *Icfai Journal of Behavioral Finance*, *5*, 25-46. http://dx.doi.org/10.2139/ssrn.1084249.

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R. Bras. Gest. Neg., São Paulo, v.24, n.4, p.739-754, out./dez. 2022

MIAN, S. L., & SMITH Jr., C. W. (1992). Accounts receivable management policy: theory and evidence. *The Journal of Finance*, *47*(1), 169-200. http://dx.doi.org/10.1111/j.1540-6261.1992.tb03982.x.

MURRO, P., & PERUZZI, V. (2022). Relationship lending and the use of trade credit: The role of relational capital and private information. *Small Business Economics*, *59*(1), 327-360. http://dx.doi.org/10.1007/s11187-021-00537-x.

NEUHAUSER, K. (2007). Survey research in finance. *International Journal of Managerial Finance*, *3*(1), 5-10. http://dx.doi.org/10.1108/17439130710721626.

NG, C. K., SMITH, J. K., & SMITH, R. L. (1999). Evidence on the determinants of credit terms used in interfirm trade. *The Journal of Finance*, *54*(3), 1109-1129. http://dx.doi.org/10.1111/0022-1082.00138.

NORRBIN, S. C., & REFFETT, K. L. (1995). Trade credit in a monetary economy. *Journal of Monetary Economics*, *35*(3), 413-430. http://dx.doi.org/10.1016/0304-3932(95)01202-Y.

PAUL, S., & BODEN, R. (2008). The secret life of UK trade credit supply: setting a new research agenda. *The British Accounting Review*, *40*(3), 272-281. http://dx.doi.org/10.1016/j.bar.2008.05.007.

PETERSEN, M. A., & RAJAN, R. G. (1997). Trade credit: theories and evidence. *Review of Financial Studies*, *10*(3), 661-691. http://dx.doi.org/10.1093/rfs/10.3.661.

PETERSEN, M., & RAJAN, R. (1994). The benefits of lending relationships: evidence from small business data. *The Journal of Finance*, *47*(1), 3-37. http://dx.doi.org/10.1111/j.1540-6261.1994.tb04418.x.

PIKE, R., CHENG, N. S., CRAVENS, K., & LAMMINMAKI, D. (2005). Trade Credit terms: asymmetric information and price discrimination evidence from three continents. *Journal of Business Finance & Accounting*, *32*(5-6), 1197-1236. http://dx.doi.org/10.1111/j.0306-686X.2005.00627.x.

RAMCHARRAN, H. (2013). E-commerce growth and the changing structure of the retail sales industry. *International Journal of E-Business Research*, *9*(2), 46-60. http://dx.doi.org/10.4018/jebr.2013040104.

RESNICK, P., ZECKHAUSER, R. (2002). Trust among strangers in internet transactions: empirical analysis of eBay's reputation system. *The Economics of the Internet and E-commerce*, *11*(2), 23-25.

SCHWARTZ, R. A. (1974). An economic model of trade credit. *Journal of Financial and Quantitative Analysis*, *9*(4), 643-657. http://dx.doi.org/10.2307/2329765.

Serasa Experian. (2016). *Inadimplência atinge mais da metade das empresas e bate recorde, revela Serasa Experian*. São Paulo: Serasa Experian.

SHENG, H. H., BORTOLUZZO, A. B., & SANTOS, A. P. (2013). Impact of trade credit on firm inventory investment during financial crises: evidence from Latin America. *Emerging Markets Finance & Trade*, *49*(suppl 4), 49. http://dx.doi.org/10.2753/REE1540-496X4905S403.

SMITH, J. K. (1987). Trade credit and information asymmetry. *The Journal of Finance*, *42*(4), 863-872. http://dx.doi.org/10.1111/j.1540-6261.1987.tb03916.x.

WILNER, B. S. (2000). The exploitation of relationships in financial distress: the case of trade credit. *The Journal of Finance*, *55*(1), 153-178. http://dx.doi.org/10.1111/0022-1082.00203.

WILSON, N., & SUMMERS, B. (2002). Trade credit terms offered by small firms: survey evidence and empirical analysis. *Journal of Business Finance & Accounting*, *29*(3-4), 317-351. http://dx.doi.org/10.1111/1468-5957.00434.

YAZDANFAR, D., & ÖHMAN, P. (2016). The impact of trade credit use on firm profitability: empirical evidence from Sweden. *Journal of Advances in Management Research*, *13*(2), 116-129. http://dx.doi.org/10.1108/JAMR-09-2015-0067.

APPENDIX A. Definition of the variables

Variable	Definition
Achieving cash	Dummy with a value of 1 if the company uses achieving collection targets as a performance goal. 0 if not
Assign credit limit	Dummy with a value of 1 if the company assigns credit limits to its customers. 0 if not
Bank references	Dummy with a value of 1 if the company uses bank references in the credit process. 0 if not
Cash credit staff	Dummy with a value of 1 if the company gives the credit team incentives based on cash performance. 0 if not
Cash on delivery	Dummy with a value of 1 if the company demands payment on delivery. 0 if not
Centralized credit	Dummy with a value of 1 if the company belongs to a group and the group has a central credit department. 0 if not
Charge fixed assets	Dummy with a value of 1 if the company uses a real guarantee as a method for reducing credit risk. 0 if not
Credit insurance	Dummy with a value of 1 if the company takes out credit insurance. 0 if not
Customer concentration	Dummy with a value of 1 if the company sales are concentrated in up to 5 large customers. 0 if not
Debt collection agent	Dummy with a value of 1 if the company uses a debt collection agency. 0 if not
Debtor days	Variable that represents the average receipt period (in # of days).
Debtor days win	Debtor days variable winsorized by 1% and 99%
Different risk classes	Dummy with a value of 1 if the company ranks the customers in different risk classes. 0 if not
Direct debt	Dummy with a value of 1 if the company uses direct debit. 0 if not
Education2	Dummy with a value of 1 if the company manager has a university degree or higher. 0 if not
Effective	Trade credit cost offered to the firm's customers (see note in Table 6)
End user	Dummy with a value of 1 if the company sells to end consumers. 0 if not
Export credit	Dummy with a value of 1 if the company sells more than 40% on credit abroad. 0 if not
Factoring	Dummy with a value of 1 if the company uses factoring. 0 if not
Financial statements	Dummy with a value of 1 if the company analyzes the financial statements of a potential buyer before giving credit. 0 if not
Fully documented	Dummy with a value of 1 if the credit operations are all documented. 0 if not
High quality	Dummy with a value of 1 if the company classifies its main product as being high quality. 0 if not
High tech	Dummy with a value of 1 if the company classifies its main product as high tech. 0 if not
Important competitor	Dummy with a value of 1 if the company is considered to be an important player in the market. 0 if not
Inhouse	Dummy with a value of 1 the company has its own internal information system for granting credit. 0 if not
Major credit	Dummy with a value of 1 if more than 60% of the company's revenue comes from credit sales. 0 if not
Managing debtor days	Dummy with a value of 1 if the company uses managing the average receipt period as a performance target. 0 if not
Monitoring debt	Dummy with a value of 1 if the company regularly monitors the credit it gives. 0 if not
Other group	Dummy with a value of 1 if the company uses other companies in the group as a source of information for giving credit. 0 if not
Overdue days	Average period in which customers actually pay for their purchases minus the average period given to customers via trade credit.
Overdue days win	Overdue days variable winsorized by 1% and 99%
Payment discount	Dummy with a value of 1 if the company gives a discount for cash payment. 0 if not
Payment in advance	Dummy with a value of 1 if the company requires payment in advance. 0 if not
Profit credit staff	Dummy with a value of 1 if the company grants any incentive to the credit team based on profit performance. 0 if not
Profit maximization	Dummy with a value of 1 if the company believes that the objective of credit is to maximize profit. 0 if not
Reducing bad debts	Dummy with a value of 1 if the company uses reducing bad debt (non-collectables) as a performance target. 0 if not
Report sales dpt	Dummy with a value of 1 if the company uses a sales team report. 0 if not
Risk minimization	Dummy with a value of 1 if the company believes that the objective of credit is to minimize risk. 0 if not
Sales credit staff	Dummy with a value of 1 if the company gives incentives to the sales team based on sales performance. 0 if not
Sales maximization	Dummy with a value of 1 if the company believes that the objective of credit is to maximize sales. 0 if not
Seasonal	Dummy with a value of 1 if the company's sales perform seasonally. 0 if not
Send invoice within 3 days	Dummy with a value of 1 if the company sends an invoice within 3 days. 0 if not
Send statements within 3 days	Dummy with a value of 1 if the company sends financial statements within 3 days. 0 if not
Significantly smaller	Dummy with a value of 1 if the main customers are significantly smaller than the firm. 0 if not
Size	Dummy with a value of 1 if the company has annual sales figures greater than 90 million. 0 if not
Specialized	Dummy with a value of 1 if the company classifies its main product as specialized. 0 if not
Third party guarantee	Dummy with a value of 1 if the company uses third party guarantees as a way of reducing credit risk. 0 if not
Trade references	Dummy with a value of 1 if the company uses trade references in the credit process. 0 if not
Two instalments	Dummy with a value of 1 if the company offers to sell in two instalments with a discount if the second instalment if settled early. 0 if not
Wholesaler	Dummy with a value of 1 if the company sells to wholesale distributors. 0 if not

Note: The questionnaire and data collected are available at: https://doi.org/10.17632/v5k629v4dd.1

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The questionnaire used in the data collection and the complete database are publicly shared and available from Mendes-Da-Silva, Wesley (2022). The data to replicate "Trade Credit Management and Information Asymmetry in Small and Medium-Sized Businesses in an Emerging Market" are available from Mendeley Data, V2. https://doi.org/10.17632/v5k629v4dd.1

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