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TRADE CREDIT: A BENEFIT TO GET, A "MUST" TO GIVE? MOTIVES BEHIND TRADE CREDIT USE IN POLAND

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Abstract

The paper analyses the motives behind trade use credit in the Polish enterprise sector, based on the results of the 2016 NBP Annual Survey. It verifies the conclusions stemming from trade credit theories regarding both the main motives driving supply and demand for trade credit, as well as explaining the variation in their relevance across companies. The analysis shows that trade credit supply in Poland is driven to a large extent by suppliers' desire to win and maintain their customers: allowing deferred payments creates attractive terms of sale and is often a requirement set by clients with strong bargaining power. These results indicate high willingness of customers to settle their payments on a deferred basis, which could mirror an important fact uncovered by the survey: contrary to the assumptions made in many theories, trade credit proves to be a relatively cheap form of financing for the majority of the surveyed firms. As a consequence, trade credit could be perceived by firms as an attractive, standard tool used in day-to-day business rather than an expensive form of financing used only to address specific problems or achieve other benefits that would outweigh its high costs. Survey results provide some confirmation for this explanation of trade credit demand.

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Introduction

Trade credit constitutes the most important source of short-term finance for non-financial enterprises in Poland with a value of account payables over two times higher than the value of short-term bank credit. This raises the question of why Polish firms finance their operations with credit granted by suppliers to such a great extent, despite the existence of a well-developed banking system. It is also reasonable to ask why non-financial firms provide their customers with financial resources, thus engaging in activity beyond the scope of their core business.

Neither the theoretical literature, nor empirical studies give an unambiguous answer to these questions. Regarding the theoretical literature, a number of different, not mutually exclusive theories have been put forward to explain why firms have been granting and taking trade credit. The empirical studies do not give a clear-cut answer as to the significance of individual motives behind trade credit use, let alone their relative importance for corporate decisions concerning their payment practices.

The aim of this article is to gain more insight into the reasons behind the use of trade credit by Polish firms, both on the supplier as well as the receiver side. Based on a 2016 NBP Annual Survey covering a large group of Polish enterprises, the study assesses the importance of the main, theoretically-grounded motives behind trade credit use in Poland. It follows with the verification of trade credit theories' predictions regarding the factors differentiating the relevance of individual motives across participating firms.

The remainder of the paper is organized as follows. Section 2 presents the main explanations of trade credit existence put forward in theoretical literature and empirical tests of potential motives behind trade credit. Section 3 presents the dataset and main stylized facts regarding trade credit in Poland. Section 4 presents the results of the survey. Section 5 concludes.

Motives behind trade credit use - review of the literature

The use of trade credit creates costs for both sides of the arrangement. The receivers of trade credit forgo a rebate for early payment, which makes this form of external financing – as indicated by some studies (eg. Ng, J. Smith & R. Smith, 1999; Peterson & Rajan, 1994) – expensive relative to the alternatives. In turn for the suppliers, granting trade credit involves not only opportunity costs – i.e. costs of foregoing alternative, more beneficial use of the financial resources – but also costs of managing the accounts receivable. Considering these observations, it seems reasonable to ask why trade credit exists at all. Broadly speaking, the existence of trade credit is explained as resulting from imperfections in both the goods and financial markets (Ingves, 1984). There are several, mutually non-exclusive theories pointing to 4 major motives behind trade credit use:

Financing motive.

Trade credit constitutes one of several forms of financing purchases of goods and services. Even if the firms have access to a well-developed banking system, information frictions in the credit market might leave some of them with unsatisfied demand for finance. As these credit-rationed firms often are also unable to secure financing in capital markets, trade credit becomes the only option to alleviate the financing constraint. A corollary of this view is that trade credit acts as a substitute of bank credit (Schwartz, 1974). However, trade credit could also improve access to financing indirectly. This would be the case, if banks believed that suppliers had private information about their customers and perceived extension of trade credit as a signal of their good financial standing that would induce banks to upgrade their assessment of the buyer's quality and agree to lend (Bias & Gollier, 1997). At the same time suppliers might be willing to provide financing to their credit-rationed clients, if they expect to earn a profit from the sales to this customer in the future. Peterson and Rajan (1997) argue that the present value of expected profits on sales to the customer constitute an "implicit equity stake" and trade credit can be perceived as a means to protect this value.

Element of competitive strategy.

From the supplier's point of view trade credit can serve as a means of reinforcing their competitive position and preserve or even expand their customer base. Trade credit constitutes a non-price factor allowing the supplier to differentiate its offer from competitors and attract additional demand for his product. Improving the sales' conditions by offering trade credit could also be

perceived as a strategic investment that could facilitate the establishment of long-term trading relation with key customers (Nadiri, 1969; Blazenko & Vandezande, 2003). Alternatively, the supplier may be forced to extent trade credit by customers with high bargaining power.

Transaction cost reduction.

Trade credit could also be used as a cash management tool that enables companies to better match cash inflows with outflows. In this way, trade credit could limit the transaction costs of both suppliers and customers. In the case of cash payments, the customer's uncertainty regarding timing of deliveries may induce the firm to hold cash reserves in order to avoid the need to liquidate assets at the time of delivery. This however creates opportunity costs of forgone interest rates. In turn, trade credit allows the customer to cover the obligation at the specified point in time thus reducing the need for precautionary cash holdings (Ferris, 1981). Similarly, for suppliers, trade credit transforms the uncertain cash inflow into a more predictable stream of payments and facilitates liquidity management.

Quality control/signaling.

Trade credit usage might also be motivated by the existence of information asymmetry regarding product quality between supplier and buyer. The customers do not have full information on the quality of the inputs before the delivery, and when paying cash, they take the risk of the inputs proving to be inadequate. Although in case of poor input quality they could enforce replacement of the products or termination of the agreement, this creates costs related inter alia to delays in the production process (van Horen, 2007). Trade credit – by deferring the payment to a moment after the quality check – reduces this kind of risk (Long, Malitz & Ravid, 1993). At the same time trade credit might be used by some firms – especially the younger ones – to signal the high quality of their products and to establish reputation (Lee & Stowe, 1993).

The theories described above, although fragmented, allow us to construct the following picture of motives behind the use of trade credit:

1) the supply of trade credit is driven to a great extent by the desire of firms to secure current and future sales of their products, be it through offering attractive terms of sale, providing an implicit product quality guarantee or supporting customers facing problems with access to finance;
2) the demand for trade credit could be driven by the necessity to gain access to any form of external financing by credit rationed firms or by a desire to reduce risk related to poor quality of purchased goods;
3) both the supply and demand of trade credit could be additionally influenced by the desire to reduce a firm's transaction costs.

Unfortunately, the empirical studies do not provide a clear confirmation of this picture. The results of empirical analyses remain mixed in terms of importance of these broad-defined motives, let alone the more detailed explanations of trade credit use (Table 1).

Considering the prevailing ambiguity as to the main motives driving the demand and supply of trade credit among Polish firms, it seems warranted to further analyze this problem. In the following sections of the study, the author offers additional insight into this matter using – unlike the majority of existing studies – a survey-based approach.

Table 1: Trade credit motivations - empirical results

	Confirmed	Not confirmed
Financing motive	Atanasova & Wilson, 2003; Danielson & Scott, 2004; Nilsen,	Gertler & Gilchrist, 1993; Lemmon & Roberts, 2010; Love & Zaidi, 2010
Firms' competitive strategy	Cheng & Pike, 2003; Das, Kale & Nanda, 2015; Marotta, 2000; Van	Fabbri & Klapper, 2011; Hyndman & Serio, 2010; McMillan &
Transaction motive	Rodriguez-Rodriguez, 2006; Wilson, Singleton & Summers, 1999	Ge & Qui, 2007; Wei & Ze, 1997
Quality control/signaling	Bodt, Lobez & Statnik, 2008; Long et al., 1993; Ng et al.,1999	Wei & Ze, 1997

Source: Own elaborations

Motives behind trade credit use among Polish firms

Data source

The analysis of motives behind trade credit use among Polish enterprises was based on the individual data from the NBP Annual Survey conducted in 2016 Q2. The survey covered non-financial enterprises representing all sections of the Polish Classification of Activity except forestry and fisheries. For the analysis of trade credit, the sample was limited to firms representing 4 sectors: manufacturing, construction, trade and transport and communications, totaling 1152 firms. The assessment of the relevance of theoretical motives for trade credit supply and demand were performed only for firms that extended or used this type of financing to some extent, which limited the samples to 772 and 745 firms respectively.

In the context of this study the most important information provided by the survey is assessment of the significance of specific motives for decisions to offer and accept trade credit. Additionally, the firms were asked about the scale of their trade credit use and the main features of deferred payment arrangements. Apart from information concerning trade credit use, the survey provided basic data on structural features of the analyzed companies, including: the sector of operations, company age, number of employees, market position, size of input imports/product exports, etc. Although the survey does not include any detailed financial data, it provides some information that could serve as a proxy for financial standing, such as the assessment of its current economic situation and future growth prospects as well as assessment of liquidity needs and need for external financing. The author supplemented the data with information regarding product characteristics applying Burkart, Ellingsen & Gianetti's (2011) division into standardized goods (relatively simple, homogenous products), differentiated goods (more complicated goods, likely to address specific needs of customers) and services (remaining sectors). This classification was also used to describe the input characteristics: based on the World Input-Output database the author computed the proportion of standardized/differentiated goods and services used in the production process.

Trade credit among Polish enterprises – basic facts

The NBP Annual Survey provides information regarding the extent of trade credit use among Polish enterprises, as well as the main arrangements for deferred payment. The initial inspection of the survey results produces the following stylized facts:

1) Polish enterprises make extensive use of trade credit. 76% of surveyed firms indicate that they purchased part of their inputs on a deferred payment basis. Moreover, the firms that make use of a supplier's financing do it to a large extent: 70% of these companies finance over 90% of their purchases with trade credit, and the average share of inputs bought with payment deferral amounts to 84%. On the supply side the situation is very similar: the dominant part of surveyed companies (81%) provides financing to their customers and offers deferred payments on a very large part of goods sold: firms extending trade credit receive on average 82% of sales proceeds with deferral and 56% of them allow deferral on over 90% of sales.

2) As evidenced by survey data, a large part of Polish firms act simultaneously as providers and receivers of trade credit. Among firms that receive trade credit only 3% do not finance their suppliers to any extent, while 84% of firms that pay for their orders on the spot do not allow their customers to defer payments for deliveries. This results in a relatively strong, positive correlation (0.81) between the extent to which companies finance their customers and use deferred payments[1].

3) The share of goods sold on credit and inputs bought with deferred payments vary considerably across companies. Existing literature on trade credit indicates that the differences in a firm's propensity to use trade credit could be partly related to their structural features as well as financial and economic standing (Marotta, 2005). The initial inspection of data confirms significant differences in average scale of trade credit use among Polish enterprises depending on:

a) **Firm size2.** Average shares of transactions with deferred payments in a firm's sales and purchases are higher in the case of big enterprises than among SMEs (Table 2, column I). On the demand side this result contests the financing motive behind trade credit use, but

1 However, among firms with non-zero trade credit this relationship is somewhat weaker (correlation coefficient equal to 0.56).
2 The division into big enterprises and SMEs was based on employment levels, with firms employing over 249 people assigned to the first category.

is consistent with transaction cost theory. It might also mirror a high ability to negotiate payment terms by big firms thanks to their strong bargaining position. On the supply side such a situation could be driven both by the financial motive (i.e. big firms supporting small, credit-rationed customers) or transaction motive.

b) **Sector of operations.** Manufacturing firms use on average significantly more trade credit – both on the supply and demand side – than remaining companies, with the opposite being true for service, trade and construction firms (Table 2, column II-V). The different extent of trade credit use across industries could be driven by existing sectoral variations in several factors: the length of the product inspection process (eg. related to product technological advancement), the level of competition in the supplier and customer markets, the salvage value of products for their suppliers or the ease of their diversion to alternative uses by customers (see eg. Burkart & Ellingsen, 2004; Frank & Maksimovic, 1998; Marotta, 2005).

c) **Capital and organizational ties.** Firms with capital or organizational ties to other entities prove to have significant higher use of trade credit than the companies without any links (Table 2, column VI). The existing ties reduce a firm's credit risk, thus making suppliers more willing to grant trade credit to such company (Marotta, 2005). Deferred payments could also constitute an element of common financial strategy in a capital/ organizational group, with firms with liquidity surpluses financing other group members (Deloof & Jegers, 1999).

d) **Economic situation.** The inspection of data points to more intensive use of trade credit among companies in a good economic situation (Table 2, column X). A relatively high share of deferred payments in sales could be explained by better financial standing of these companies, enhancing their ability to grant trade credit. In turn, a high share of inputs bought on credit probably does not stem from a company's high demand for external financing, but is rather supply-driven and mirrors suppliers' willingness to secure sales to these firms.

In turn, there are no significant differences in shares of purchases and sales with deferred payment across firms grouped according to their age: despite informational opaqueness limiting access to bank credit and lack of established market reputation, young firms neither receive nor grant more trade credit then older entities (Table 2, column VII). Simple means comparison also casts doubt on a financial motive behind trade credit demand: neither credit-rationed firms nor those with insufficient liquidity to cover current needs received more financing from their suppliers than the remaining firms (Table 2, column VIII-IX). Despite their unfavorable financial standing these firms also do not sell significantly fewer products on deferred payment basis.

4) Trade credit constitutes a source of financing, but only for the very short term. Close to 50% of enterprises were allowed to defer payments for 30 days or less, and in the case of 86% of firms the credit period in no longer than 60 days.

5) Contrary to the assumptions made in the theoretical literature, for the majority of surveyed firms trade credit does not constitute an expansive source of financing. Quite the opposite: 64% of enterprises using trade credit do not receive discounts for early payment at all, which means that within the contractual credit period suppliers' financing is cost-free. As for the remaining firms, the early payment discounts are offered – on average – only on a small part (18%) of deliveries with a deferred

Table 2: Differences in mean share of purchases and sales with deferred payments

		Structural features:							Financial and economic standing:		
		Big	*Manufacturing*	*Construction*	*Trade*	*Service*	*Capital group*	*Young*	*Bank credit rationed*	*Liquidity restricted*	*Economic_sit_good*
		I	II	III	IV	V	VI	VII	VIII	IX	X
Trade credit taken	1	76.3%	71.8%	53.5%	56.0%	43.9%	72.3%	57.0%	62.2%	62.2%	67.7%
	0	57.7%	53.7%	64.7%	66.7%	65.1%	49.2%	64.2%	63.9%	63.8%	51.9%
	difference	18.7%	18.2%	-11.2%	-10.7%	-21.1%	23.1%	-7.2%	-1.6%	-1.7%	15.7%
	ttest (p)*	6.83***	6.76***	-2.44**	-3.49***	-3.68***	8.33***	-1.10	-0.33	-0.44	5.03***
Trade credit given	1	74.5%	72.5%	53.9%	53.2%	46.6%	72.2%	56.0%	61.8%	61.5%	67.3%
	0	58.6%	52.3%	64.4%	67.5%	64.6%	48.7%	63.8%	63.5%	63.6%	52.1%
	difference	15.9%	20.2%	-10.5%	-14.3%	-18.0%	23.5%	-7.8%	-1.7%	-2.0%	15.2%
	ttest (p)*	5.78***	7.62***	-2.14**	-4.83***	-3.20***	8.61***	-1.16	-0.34	-0.53	4.92***

Notes: Reported t-test statistics: statistics for two-group mean-comparison test with unequal variances across groups. Stars denote estimates significance at 1% (***), 5% (**), 10% (*) levels.

Source: Author's computations based on NBP Annual Survey results

payment option, leaving the dominant part of vendors financing free of charge. As a consequence, only 6% of trade credit transactions – assuming payment occurring after a discount period –generate high costs for clients, with an average implied annualized interest rate of 34%.

Supply of trade credit – main theoretical motives

In order to assess the importance of the main motives put forward in the theoretical literature for Polish enterprises, the firms were asked to rate on the 5-point Likert-type scale[3] the significance of the following factors for their decisions to grant trade credit:

1) ensuring attractive terms of sale (terms of sale motive);
2) acquiring/keeping customers with strong market position which require deferred payments (customer pressure motive);
3) signaling high quality of products (quality signaling motive);
4) securing sales by providing financing to credit-rationed customers (financial assistance motive);
5) reducing transaction costs (transaction motive).

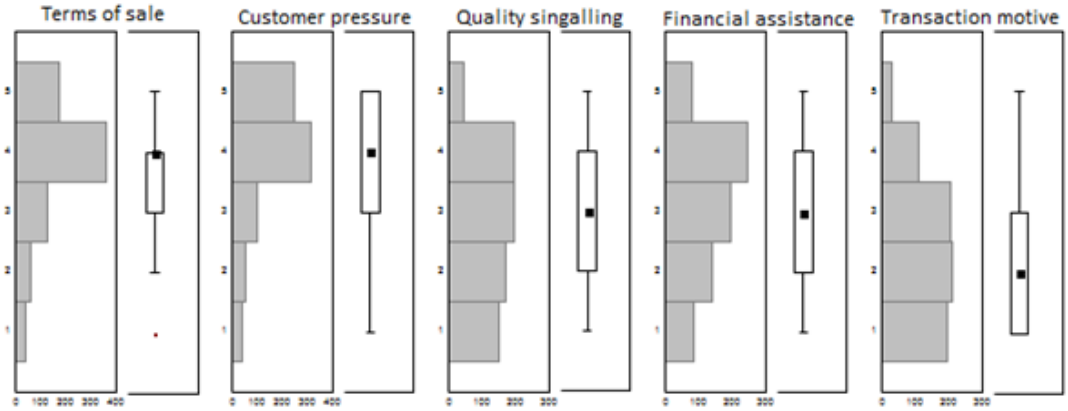
The survey results clearly indicate that for the majority of Polish firms, the most important reasons for granting trade credit are: creating attractive terms of sale and adhering to requirements of important customers (Figure 1). These factors were pointed out as important or very important by respectively 70% and 74% of surveyed companies, with only 5% of firms assessing them as not significant and a further 7% - as of little importance. The median score for these motives equals 4.

3 1 meaning – "of no importance"; 2- "of little importance"; 3- "of moderate importance"; 4- "important"; 5- "very important".

As for the other elements of firm competitive strategy, the survey's results are less clear-cut, with more firms pointing to the moderate importance of the analyzed factors (in both cases circa 26% of participants). With regards to provision of financing to customers with no access to bank credit the share of firms assessing it as an important or very important factor still exceeded the share of those claiming that this issue was of little or no significance (43% vs 30%). In the case of the quality signaling motive the situation is the opposite: the share of firms rating this factor's importance at 1 or 2 on the Likert scale exceeds the share of firms choosing the two highest-score categories (43% vs 32%). Still, each of the motives related to competitive strategy drives the supply of trade credit to a greater extent than the transaction motive. Over ¼ of surveyed firms claimed that the desire to reduce transaction costs did not have any impact on their decisions regarding payment arrangements with their customers, with another 28% assessing this impact as low and a further 28% - as moderate.

The survey results showed not only which motives were of most importance for the enterprise sector as a whole, but also that managers' assessments regarding individual motive relevance were far from unanimous. However, simple inspection of the results tells us nothing as to the reasons of this heterogeneity. The theoretical literature suggests that variation in assessment of individual motives might be partially driven by some of the firm's structural features and financial and economic situation. More precisely, the literature suggests that providing trade credit as a means of improving terms of sale attractiveness should be relevant mainly for suppliers with a weak market position. Moreover, the importance

Figure 1: Motives behind trade credit supply – no of answers (bar charts), median, 25% and 75% percentile, minimum and maximum value (box-plot charts)



Source: Author's elaborations based on NBP Annual Survey results

of this motive could be to some extent sector-specific, mirroring the need to at least match the existing standard payment terms. The same factors should influence the importance of adhering to customers' requirements in terms of deferred payment arrangements. As for quality signaling, this motive should be especially relevant for young firms without established reputation, as well as firms whose product quality assessment is more time consuming[4]. In turn, the transaction motive could be of more importance for firms with higher sales. Transaction motive relevance might also be influenced by a firm's links (capital/organizational) with other companies. In the case of all of the analyzed motives their relevance could also mirror their ability to extend deferred payments, i.e. be dependent on their size as well as financial and economic conditions. In order to check whether the indicated factors have predicted the assessment of an individual motive's importance – and hence provide additional verification of main trade credit theories - 5 ordinal logistic models have been estimated. The sets of explanatory variables differ across models (Table 3).

The estimation results provide some confirmation of theoretical assumptions regarding the factors driving the relevance of terms of sale and customer pressure motives: these motives are more important for firms with less bargaining power (being one of many similar producers in the market), as opposed to those with important or monopolistic positions (Table 4, column I-IV)[5]. This effect is somewhat more pronounced in the case of customer pressure: the odds ratio amounts to 1.494 and firms with weak market position are more likely to choose "very important" (by 9 pp.) and less likely to choose any of the lower categories[6]. Moreover, customer pressure is less of an issue for big firms (odds ratio of 0.695), which could also be due to their stronger bargaining power compared to SMEs[7]. In turn, customer pressure relevance does not vary significantly across firms in different economic and financial situations or operating in different sectors.

In the case of terms of sale motive, firms acting as one of many similar players in the market are more likely to assess this motive as more relevant (odds ratio of 1.270), with probability of choosing "important" and "very important" being respectively 1 pp. and 4 pp. higher than for the remaining firms. However, the relevance of trade credit as a means to improve terms of sale is reduced by liquidity issues (odds ratio of 0.593). Firms with liquidity insufficient to cover their current needs are on average 3pp. more likely to assess this motive as either of no or of little importance than companies not

4 This could be mirrored by higher importance of quality signalling for firms selling differentiated goods as opposed to standardized goods. In turn, this motive should be of little relevance for service providers, as even in the case of quality complaints, services could not be "returned" to the producer (see Burkart et al., 2011).

5 However, there were no significant differences in relevance of the analysed motives between monopolists and important producers.

6 The detailed results on marginal effects for all analysed motives are available upon request.

7 The likelihood of assessing customer pressure with a score of 1-3 was higher in the case of big companies by 3 pp., 3 pp. and 2 pp. respectively.

Table 3: Explanatory variables definition

Variable	Code	Definition	Variable	Code	Definition
Big	*Big*	Dummy: 1- employment over 249 people/0-otherwise	**Monopolistic position**	*Mon_pos*	Dummy: 1- monopolistic position in domestic market/0-otherwise
Young	*Young*	Dummy: 1- operating 10 years of less/0-otherwise	**Weak market position**	*Weak_pos*	Dummy: 1- one of many similar producers/0-otherwise
Manufacturing	*Man*	Dummy: 1- operating in manufacturing/0-otherwise	**Standarized goods**	*Stand*	Dummy: 1- sector producing standarized goods (Burkart et al., 2011)/0-otherwise
Construction	*Cons*	Dummy: 1- operating in constructions/0-otherwise	**Differentiated goods**	*Different*	Dummy: 1- sector producing differentiated goods (Burkart et al., 2011)/0-otherwise
Trade	*Trade*	Dummy: 1- operating in trade/0-otherwise	**Standarized inputs**	*Inp_stand*	Share of standarized inputs in sector's production
Services	*Services*	Dummy: 1- operating in services/0-otherwise	**Differentiated inputs**	*Inp_diff*	Share of differentiated inputs in sector's production
Capital	*Cap*	Dummy: 1- with capital or organizational links/0-otherwise	**Nonsufficient liquidity**	*Liq_nonsuf*	Dummy: 1- cash not sufficient to cover current liquidity needs/0-otherwise
Economic situation good	*Ecosit_g*	Dummy: 1- economic situation assessed as very good or good/0-otherwise	**Bank credit denied**	*Bc_den*	Dummy: 1- bank credit denied in last 12 months/0-otherwise
Favourable perspectives	*Persp_fav*	Dummy: 1- firm expected to develop in near future/0-otherwise			

Table 4: Ordered logistic models' estimation results: motives behind trade credit supply

	Dependent variable:									
	Terms of sales		Customer pressure		Quality signaling		Client's financial support		Transaction motive	
	Coeff.	*Odds ratio*	*Coeff.*	*Odds ratio*	*Coeff.*	*Odds ratio*	*Coeff.*	*Odds ratio*	*Coeff.*	*Odds ratio*
	I	II	III	IV	V	VI	VII	VIII	IX	X
Ecosit_g	0.000	1.000	0.113	1.119	0.282	1.326	0.082	1.086	-0.116	0.890
	(0.174)	(0.174)	(0.175)	(0.196)	(0.171)	(0.227)	(0.172)	(0.187)	(0.172)	(0.153)
Liq_nonsuf	-0.522**	0.593**	0.096	1.100	-0.211	0.809	0.203	1.225	-0.257	0.773
	(0.208)	(0.123)	(0.209)	(0.230)	(0.203)	(0.164)	(0.211)	(0.259)	(0.202)	(0.156)
Big	-0.205	0.815	-0.364**	0.695**	-0.161	0.851	-0.144	0.866	-0.069	0.933
	(0.154)	(0.126)	(0.153)	(0.106)	(0.149)	(0.126)	(0.141)	(0.122)	(0.144)	(0.134)
Young					0.359*	1.432*				
					(0.200)	(0.286)				
Man	-0.398	0.672	0.192	1.211						
	(0.332)	(0.223)	(0.312)	(0.378)						
Cons	-0.598	0.550	-0.324	0.723						
	(0.401)	(0.221)	(0.383)	(0.277)						
Trade	-0.068	0.934	0.272	1.313						
	(0.346)	(0.323)	(0.327)	(0.430)						
Cap									0.097	1.101317
									(0.150)	(0.165)
Mon_pos	-0.112	0.894	-0.385	0.680						
	(0.769)	(0.688)	(0.768)	(0.522)						
Weak_pos	0.239*	1.270*	0.401***	1.494***						
	(0.140)	(0.177)	(0.140)	(0.209)						
Different					0.207	1.230				
					(0.160)	(0.197)				
Standard					0.251	1.285				
					(0.182)	(0.233)				
N	729		724		702		721		720	
LR chi2	20.55		22.08		11.40		1.97		2.36	
Prob > chi2	0.001		0.005		0.077		0.578		0.670	
Pseudo R2	0.011		0.011		0.005		0.001		0.001	

Notes: Standard errors in parentheses. Stars denote estimates significance at 1% (***), 5% (**), 10% (*) levels.
Source: Author's computations based on NBP Annual Survey results

facing similar problems. The remaining factors indicated in the literature do not have any significant impact on this motive relevance.

As for the quality signaling motive, consistently with predictions put forward in the literature, it is more important for young companies i.e. those still in the process of establishing their reputation (Table 4, column V-VI). However, this effect is relatively weak. The odds of firms assessing quality signaling as "important" or "very important" versus perceiving it as of no/little/moderate relevance are 1.432 times higher for young firms than for the more mature ones[8]. All in all, quality signaling is moderately important for the whole enterprise sector, with slightly higher relevance among more informationally opaque firms.

In the case of transaction and financial assistance motives, the data provides no confirmation of any expected relations between their relevance and structural, economic and financial factors (Table 4, column VII-X). These results – together with low median scores assigned by firms – show that these motives explain the supply of trade credit in Poland to a very limited extent.

Demand for trade credit – main theoretical motives

The assessment of relevance of main motives driving trade credit demand suggested in the theoretical literature was performed by asking firms to indicate to what extent they use trade credit as:

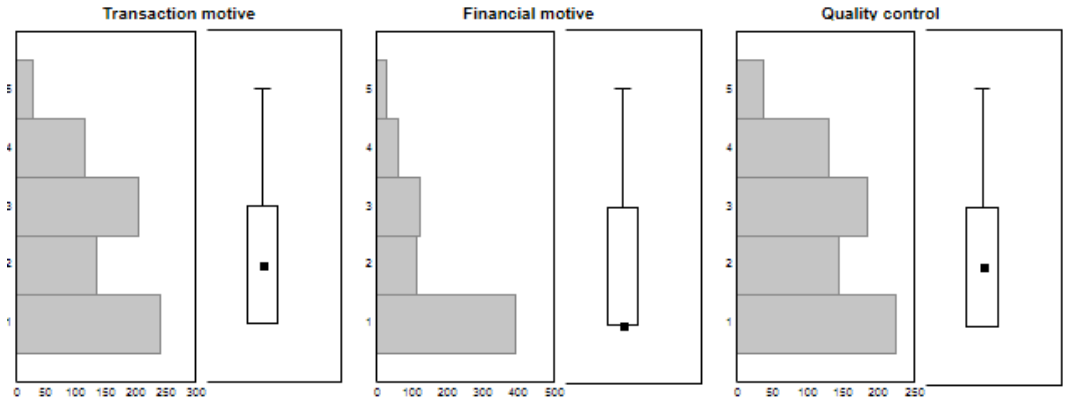
1) a source of financing in case of no access to bank credit (i.e. financial motive);
2) means of operating cost reduction (i.e. transaction motive);
3) an element of input quality control process (i.e. quality control motive)[9].

The survey results indicate that the analyzed theoretical motives are of limited importance for the

8 Looking at the marginal effects, young companies were more likely than older firms to assess quality signaling as a very important or important motive by respectively 3 pp. and 6 pp.

9 Firms assessed the applications of trade credit using the following scale: 1- "not at all", 2- "to a small extent", 3- "to a moderate extent", 4- "to a large extent", 5- "a dominant application"

Figure 2: Motives behind trade credit demand – no of answers (bar charts), median, 25% and 75% percentile, minimum and maximum value (box-plot charts)



Source: Author's elaborations based on NBP Annual Survey results

majority of Polish enterprises that use supplier financing, with a median score of 1 for financial motive and 2 for the remaining motives (Figure 2).

Close to 1/3 of enterprises indicate that transaction and quality control issues do not play any role in their decisions to defer payments to suppliers. Another 20% of firms assess that these motives drove their trade credit use only to a small extent. As for the bank credit rationing it has been dismissed as a motive behind trade credit use by over 50% of surveyed firms, with another 15% assessing it as a factor of little importance for their decisions.

Although looking from the perspective of the whole sample of enterprises, the analyzed motives prove to be of limited relevance, the assessments vary across firms with some entities pointing to a high importance of the considered factors. As in the case of trade credit supply motives, these variations could be driven by differences in structural or financial factors. Financial motive could be of high relevance for firms with limited access to bank credit and insufficient liquidity, especially if they have a high need for financing eg. due to expected rapid development. The importance of the transaction motive should increase with firm size, used as a proxy for its sales value. It could also be influenced by a firm's capital or organizational links. As for the quality control motive it could be especially important for firms using differentiated inputs in their production process and least important for those using a lot of services. In order to formally verify this hypothesis, 3 ordinal logistic models have been estimated (explanatory variables definitions in Table 3).

The estimation results confirm that the relevance of the financial motive is driven to a significant extent by a firm's financial standing and economic conditions (Table 5, column III-IV). The firms with not enough liquidity to cover their current needs had much greater odds (4.225 times) of assigning a high score to this motive (4 or 5 as opposed to any lower score) and the probability of such firms to assess the financial motive as having no relevance for their trade credit use was 33 pp. lower than for remaining companies. The impact of a firm being rejected for a bank loan on its assessment of the analyzed motive is even stronger, with an odds ratio as high as 6.421 and the likelihood of such a firm indicating financial issues as of no or little importance being lower by respectively 39 pp. and 5 pp.

These estimation results suggested that among companies facing problems with liquidity or access to bank credit – as opposed to the enterprise sector as a whole – gaining access to any sources of external financing had been an important driver of trade credit demand. This is especially true if these problems are not related to firm's unfavorable economic perspectives, as indicated by a positive and significant coefficient *Persp_fav* variable. All in all, the low relevance of the financial motive in the whole sample of firms might mirror relatively easy access to bank credit and a good liquidity situation in the sector at the time of the survey.

As far as quality control is concerned, its relevance is influenced by the character of inputs used in a firm's production process (Table 5, column V-VI). The odds of a firm assessing quality control as "important" or "very important" versus perceiving it as of no/little/moderate relevance were 3.498 times higher for firms using only standardized inputs as opposed to those not using this

Table 5: Ordered logistic models estimation results: motives behind trade credit demand

	Dependent variable:					
	Transaction motive		Financial motive		Quality control motive	
	Coeff.	*Odds ratio*	*Coeff.*	*Odds ratio*	*Coeff.*	*Odds ratio*
	I	II	III	IV	V	VI
Big	0.292**	1.340**	-0.228	0.796		
	(0.1460)	(0.196)	(0.163)	(0.130)		
Young			0.154	1.167		
			(0.225)	(0.262)		
Cap	-0.225	0.798				
	(0.150)	(0.120)				
Persp_fav			0.293*	1.341*		
			(0.160)	(0.214)		
Liq_nonsuf	-0.210	0.811	1.441***	4.225***		
	(0.197)	(0.160)	(0.220)	(0.930)		
Bc_den			1.860***	6.421***		
			(0.429)	(2.752)		
Inp_stand					1.252***	3.498***
					(0.459)	(1.605)
Inp_diff					0.430	1.538
					(0.661)	(1.017)
N	698		619		720	
LR chi2	5.92		79.22		7.96	
Prob > chi2	0.116		0.000		0.019	
Pseudo R2	0.003		0.050		0.004	

Notes: Standard errors in parentheses. Stars denote estimates significance at 1% (***), 5% (**), 10% (*) levels.

Source: Author's computations based on NBP Annual Survey results

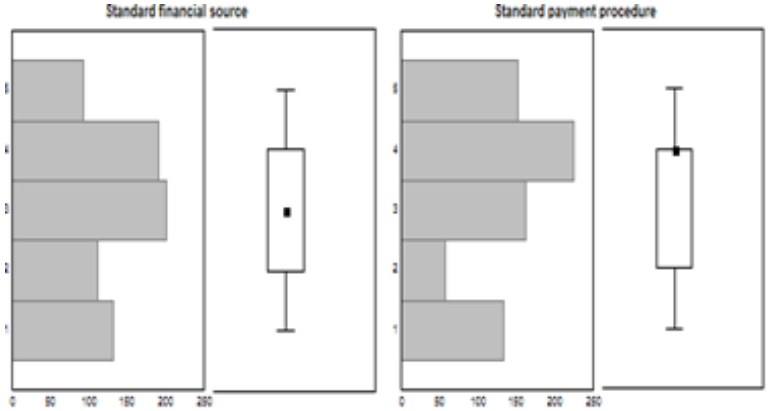
type of goods in their production process at all[10]. The potential interpretation of this, somewhat unexpected, result is that differentiated inputs – i.e. those tailored to a firm's specific needs – can be supplied by a limited number of producers, possibly under long-term contracts which might ease a customer's concerns about input quality. In turn, standardized inputs might be bought from many different sources that do not have long-term relations with the customer and hence, product quality has to be checked more thoroughly. It is worth noting, that as the composition of inputs used by firms is not prone to dynamic changes, this motive will probably remain of little relevance for the Polish enterprise sector.

In the case of the transaction motive the set of factors put forward in the literature does not explain the differences in its importance among firms to any significant extent (Table 5, column I-II), confirming very limited impact of transaction factors on decisions to buy products on credit.

All in all, the analysis of the survey results does not give a satisfactory answer as to why - despite a favorable situation in enterprise sector - firms take trade credit or exert pressure on suppliers to be granted a deferral of payment. The most plausible explanation is that firms simply make use of a supplier's financing because, contrary to assumptions put forward in theoretical literature, trade credit has proven to be a cheap – or *de facto* free – source of financing for the majority of surveyed enterprises. For these companies there might be no explicit motive for using trade credit other than its low cost relative to other forms of external financing. As such, the extent to which

10 The probability of assessing quality control as an "important" and "very important" motive was respectively 17.1 pp. and 11.1 pp. higher for firms using only standardized inputs as compared to those not using this kind of input to any extent.

Figure 3: Alternative explanations for trade credit demand – no of answers (bar charts), median, 25% and 75% percentile, minimum and maximum value (box-plot charts)



Source: Author's elaborations based on NBP Annual Survey results

firms finance their purchases with trade credit could be determined by the supply-side, rather than demand-side factors. In such a case, firms could perceive trade credit not as an answer to specific needs or problems – as suggested by the theoretical literature - but rather as a standard solution used in their operations. Companies could assess supplier credit either as one of the standard sources of financing of a firm's day-to-day business or as a standard payment procedure in a given industry. Survey results provide some support for both of these options (Figure 3).

The adherence to standard, sector-specific payment procedures is a significant or dominant factor behind trade credit use for 52% of surveyed firms. In turn, only ¼ of companies indicate that they did not use trade credit in this manner at all or did it only to a small extent. It is worth noting that deferred payments seem to constitute a standard solution especially in wholesale trade[11]: the proportion of firms pointing to a high relevance (score 4 or 5) of this factor is significantly higher than in the remaining sectors, while the proportion of companies assessing it as of little impact (score 1 or 2) – significantly lower.

As for the use of trade credit as a standard source of financing of their operations, the answers are less supportive of the author' hypothesis, with a median score of 3. However, firms assessing this factor as important or dominant (4 or 5 on the Likert-scale) amount to 40% of surveyed firms and dominate those claiming that they did not use trade credit in the stated manner at all (18%) or used it only to a small extent (15%). Although these results point to the moderate importance of the proposed motives for trade credit demand among Polish enterprises, they seem to be somewhat more relevant than traditional explanations put forward in the literature.

Conclusions

Theoretical literature on trade credit has put forward 5 main, mutually non-exclusive motives behind trade credit supply, namely ensuring attractive terms of sale, acquiring/keeping customers with strong market position, signaling high quality of products, securing sales by providing financing to credit-rationed customers and reducing transaction costs. A survey carried out among Polish enterprises confirmed the relevance of some of these motives. The results indicated that selling products on a deferred payments basis is part of a firm's competitive strategy, serving mainly as means of creating attractive terms of sale and adhering to the requirements of important customers. These motives played an especially significant role for firms with little bargaining power. The importance of quality signaling and supporting customers facing financial problems proved to be somewhat lower, with scores more evenly distributed among all categories. Yet the differences in their relevance across firms were poorly explained by factors consistent with trade credit theories. In turn, the transaction motive proved to be of relatively little importance for Polish firms' decisions to grant trade credit.

The fact that trade credit serves to a large extent as a competitive tool for suppliers suggests that from the point of view of their clients, receiving this form of financing is perceived as more attractive than instant payment.

11 Section 46 of Polish Classification of Activity.

This situation could be explained by an important fact uncovered by the survey results, namely that trade credit – contrary to assumptions made in the literature - constitutes a cheap, not expensive, source of financing for the majority of surveyed enterprises. Consequently, trade credit might not be used to address any specific issue faced by firms but rather serves as a standard tool in business operations. The survey results did not provide direct verification of this hypothesis. However, they showed that firms use trade credit as a standard source of financing and standard sector-wide payment procedure to a greater extent than in any manner pointed out by traditional trade credit theories, which is consistent with the explanation of trade credit demand put forward in the article.

In turn, the hypotheses regarding trade credit demand put forward in the theoretical literature – i.e. financial motive, transaction motive and quality control motive – received only limited support in the survey. In the case of all motives - transaction, quality control and financial – a large part of the firms assessed them as of no or little relevance, though financial motive proved to be highly relevant for firms facing problems with liquidity and access to bank credit. Still, theoretically-based motives seem to poorly explain the high use of trade credit at the current juncture, i.e. in the time of a favorable financial situation in the enterprise sector.

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