

The Trade Credit Decision: Evidence of UK Firms

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Trade credit finance and credit management are gradually gaining the research attention an area of such importance merits. One area, still far from resolved, is why trade credit is extended by non-financial firms to customers. This paper seeks to identify the generic forces behind the trade credit offer and to explore the empirical support for 20 propositions on credit motives derived from the literature and the implications of such motives to credit policies.

The paper reports findings from a survey of senior finance officers involved in credit management in large UK companies. It assesses the degree to which theoretical explanations for granting trade credit are experienced in practice and whether observed differences attaching to credit motives among firms are associated with variations in credit policies and debtor days.

The study found strong empirical support for seven propositions linked to competitiveness, pricing, investment and financing, and weaker support for a number of other theoretically-derived motives for trade credit extension. Factor analysis suggested a more insightful approach to classifying trade credit motives, covering investment in customers, customer's operating and financial benefits, supplier's marketing/operational benefits and market pressure to conform. In addition, two factors—customer relations and pricing flexibility—were extracted as motives for varying credit terms. Consistent with our hypothesis average debtor days were found to be significantly higher for those firms emphasising the financing, investment, and pricing flexibility propositions. These findings, and implications for future research, are explored. Copyright © 2003 John Wiley & Sons, Ltd.

INTRODUCTION

Trade credit (TC) is, within most firms, seen as an essential element of business life. The practice of granting TC can be traced as far back as 1000 BC (Christie and Bracuti, 1981), yet, until recently, it has attracted relatively little research attention. One of the most basic questions still not adequately addressed concerns its very existence: Why is TC offered by non-financial firms? Are not banks better geared to such lending operations, offering greater expertise in credit matters and the

benefits of scale economies? Why should the supplier provide credit funding to its customers, incur credit management costs and accept exposure to payment default? In short, is TC something of an anachronism, a relic from a bygone age which no longer offers value-adding attributes?

At first sight, the argument for reducing, or even eliminating, TC seems appealing; yet it is clear that, in well-developed economies, the majority of businesses rely heavily upon the credit terms extended as a source of finance. The importance of TC is seen by virtue of its size. For many companies, trade debtors represent one of the largest asset categories on the balance sheet. Trade debtors, or accounts receivable, represent around 21% of total UK assets (Pike *et al.*, 1998). At the

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same time, granting TC exposes the firm to financial risks. Working capital problems from late payment and debt default are major reasons for corporate failure among UK firms (Society of Practitioners of Insolvency, 1996).¹

Although there is a growing trade credit literature, there is a pressing need for clearer understanding of *why* and *when* non-financial firms extend credit to customers. Many theories have been proposed, but there is considerable overlap and few have been empirically tested (Emery, 1988). Long *et al.* (1993) argue:

To date, however, there has been little empirical evidence explaining why and to what extent firms extend trade credit (p. 117).

This paper addresses this concern by examining the nature and role of trade credit and the empirical support for the generic forces behind the TC offer. The aims of this paper are four-fold:

- (1) to review the main theories and motives for offering trade credit,
- (2) to examine empirically the perceived relevance of these theories and motives among larger UK firms,
- (3) to provide a better classification of the motives for trade credit extension, and
- (4) to use the above classification to help explain variations in credit periods in larger companies.

TC can be defined in various ways. At its simplest, it is credit extended by a seller who allows delayed payment for its product (Mian and Smith, 1992, 1994). It is part of a joint commodity and financial transaction in which a firm sells a good or service and simultaneously extends credit for the purchase to the customer (Lee and Stowe, 1993). As such, the seller is financing the buyer's inventory and bearing the credit risk. Distinction should be made between the decision to *offer* TC and the decision to *manage* it. Firms can choose to internalise credit management activity or enter into market transactions (e.g. factoring, credit insurance, etc.) for TC to be managed by third parties (see Williamson, 1979; Smith and Schnucker, 1994; Summers and Wilson, 2000). This paper, however, focuses on the motivation for the decision to extend credit rather than the motivation to manage debtors through internal or external contractual arrangements.

In the following section, we review the extant theories on motivations for extending and varying trade credit terms. The survey design and data collection approach are then discussed leading on to the main empirical findings. Logistic regression models are developed to identify the relationship between motives and firm's characteristics. Factor analyses are conducted to create a classification of trade credit motives, and the new constructs are employed to explain variations in corporate credit periods and credit policies within the sample. The final section discusses the findings of the paper and draws conclusions.

TRADE CREDIT THEORIES

Long *et al.* (1993) observe that theories justifying TC have evolved 'in different but not mutually exclusive directions' (p. 117). The literature offers economic models (e.g. Schwartz, 1974), marketing models (e.g. Smith, 1987), and tax-based models (e.g. Brick and Fung, 1984), but they tend to be fragmented with little by way of theoretical overview, and even less in terms of empirical support for the various credit theories and motives. The following sections draw upon various positive economic theories underlying credit extension motives, including those pertaining to transaction costs, information asymmetry, valuation and market power.

The literature argues that the economic arguments for granting TC primarily on imperfections in product, information and financial markets. These motives can be summarised under five broad headings:

Information asymmetry: To bridge credit risk information asymmetry between financial and non-financial markets, and to incur credit-granting transaction costs to reduce information asymmetries between buyer and seller.

Efficiency: To create cost and operating efficiencies through separating exchange of goods from exchange of cash.

Financing: To exploit and manage imperfections in financial markets.

Investment: To make wealth-creating investments in accounts receivable.

Marketing/competitiveness: To aid promotional and pricing decisions, and maintain/enhance competitiveness and corporate image.

Information Asymmetry Motive

Information asymmetry concerns the borrower's/buyer's payment intentions. The lender/supplier does not know whether the borrower/buyer intends to pay on time. For a non-financial firm, offering two-part payment terms involving prompt payment incentives can be used as a screening device to identify the default risk of prospective buyers. Buyers reveal their poor access to finance markets when they forgo an attractive cash discount for early payment and choose to pay in full later. Prompt payment discount policies incur transaction costs to help identify earlier than otherwise customers with cash flow problems and signals the need for stronger monitoring and control effort.

The second form of information asymmetry results from imperfect information in product markets between the two parties where the seller has a much clearer idea as to the quality of the goods shipped than does the customer and where poor quality may not become obvious on initial inspection. The credit period provides opportunity for reducing asymmetries in product quality awareness. In this sense, TC signals product quality. Long *et al.* (1993) and Ng *et al.* (1999) found that firms with established quality reputations extended less TC than smaller or younger firms, which demonstrated quality through the longer credit period offered. Similarly, firms producing 'unique' products, or producing products requiring more time to verify quality (e.g. high-tech companies), tended to offer longer credit periods. TC can also be interpreted as an implicit warranty guaranteeing product quality (Lee and Stowe, 1993; Long *et al.*, 1993; Deloof and Jegers, 1996). Selling firms, with little by way of reputation or with financial difficulties, may offer product warranties but be unable to honour them in the event of insolvency. For this reason TC may be viewed by customers as a more valuable warranty period and, to this end, Lee and Stowe (1993) suggest that such firms may be expected to offer longer credit periods.²

Three propositions arise from the above:

IF1. The supplier does not know whether the customer intends to pay on time. Attractive cash discounts can help identify financially distressed firms (i.e. those choosing not to claim the discount).

IF2. The supplier is better informed on the quality of the product/service offered. The credit period allows the buyer to verify product/service quality before making payment.

IF3. Firms producing goods where product quality is difficult and time-consuming to ascertain will extend trade credit over longer periods.

Efficiency Motive

In much the same way that money creates transaction economies by avoiding the need for the coincidence of wants prescribed by barter exchange, TC produces reduced payment transaction costs by separating the exchange of goods from the exchange of money (Ferris, 1981). Such separation creates a number of operating efficiencies and cost improvements (Emery, 1984). Payment on delivery is an extremely inefficient practice for most firms, particularly when deliveries are frequent. Many firms operate Just-in-Time stock policies, sometimes requiring twice daily deliveries. Operating inefficiencies would arise, particularly for larger firms, were the buyer to make separate payment transactions for each delivery rather than deal with the whole month's delivery in a single payment transaction.

The selling-delivery-collection process is governed by a series of *costly contracts*, both formal and informal, each with associated costs for negotiation and enforcement. TC can reduce contracting costs to both the selling and buying firms because separating delivery from payment reduces monetary theft risk, thereby reducing the need for costly employee monitoring and bonding (Stowe and Gehr, 1985). TC is therefore a valuable instrument both for supply chain management and for reducing payment transaction costs. This leads us to suggest the following:

E1. Cost efficiency can be achieved by separating shipment of goods from payment routines, i.e. payment on delivery is costly to monitor.

Financing Motive

While the efficiency motive may explain relatively short periods of credit, the financing motive has greater relevance for longer credit terms

(Schwartz, 1974). Ferris (1981) argues that trade credit becomes less an instrument of trade and more an instrument of finance as the length of credit period increases, with the seller firm acting as a financial intermediary granting an 'interest-free' loan.³ Credit extension becomes a type of short-term loan between seller and buyer that is tied to the exchange of goods in terms of value and timing (Ferris, 1981; Franks *et al.*, 1985).

In perfectly competitive markets, a customer can borrow in financial markets, using the goods as collateral, at the same rate of interest as the seller. In such markets, TC becomes an irrelevance, customers being indifferent to trade or bank credit (Lewellen *et al.*, 1980). However, in practice, differences in transaction costs and information asymmetry often make trade credit more attractive than bank credit to both the buyer and seller. Collection and bad debt costs may be lower for the seller firm offering credit than a bank because information obtained as a by-product of the selling process gives the seller specialist knowledge of, and contact with, customers. Customers find bank borrowing to finance small purchases relatively expensive, preferring the seller to raise finance to cover the total credit extended to customers. Schwartz (1974) argues that profit-maximising firms with relatively easy access to money markets are financially motivated to 'sell' the monetary resource, through generous credit terms, to firms that have productive investment opportunities but are restricted in their ability to acquire funds, thereby easing the market size constraint by financing the customer growth. These arguments are consistent with Laffer's (1970) suggestion that trade credit is considered a part of money supply and provide explanations for granting/extending credit to smaller firms who are most likely categorised as the higher risk group by financial institutions. TC becomes a convenient mechanism for transferring money from organisations that have idle cash balances to those which are cash deficient. Therefore, economic conditions and accessibility to financial markets will influence the amount of credit demanded and offered (Nadiri, 1969).

The precautionary motive has been suggested by the literature as a reason for firms holding liquid reserves (Pringle, 1974). The unpredictability of stochastic cash flow patterns found in a strictly cash-based business can be reduced through offering credit to customers because

the uncertainty in daily sales is transferred to the uncertainty in cash receipts from customers. If the firm knows from experience the payment behaviour of its customers it can forecast more accurately its future cash flows, thereby reducing the precautionary cash balance requirements. Ferris (1981) views this as a kind of hedging mechanism whereby buyers and sellers can pool the trading risk present in stochastic cash flows, allowing them to operate on lower cash inventories.

The foregoing arguments for trade credit extension lead us to derive five financing propositions:

- F1. TC is perceived as equivalent to granting an 'interest-free' loan to customers who see this as a cheap source of finance compared with borrowing from financial institutions to make the purchase.
- F2. TC is particularly attractive to the seller firm where the firm can raise finance more cheaply than some of its customers and these benefits are passed on to the customer firms.
- F3. TC is an important source of intermediate finance to buyer firms, especially those with limited access to financial markets.
- F4. Monitoring costs of existing customers are lower for the suppliers of TC than for a bank unsecured loan because the supplier has more regular contact and is more informed regarding the customers' trading position.
- F5. The flexibility for customers to delay payment to suppliers reduces the need for customers to carry large cash balances for unexpected short-term emergencies.

Investment Motive

Closely linked with the financing motive, the investment motive rests on the desire to create shareholder value by investing in wealth-creating selling opportunities.⁴ Much of the conventional TC literature views each sale of goods or services as an isolated transaction, thereby taking a *short-term* asset management perspective. However, Copeland and Khoury (1980) argue that receivables should be treated as an investment rather than the passive consequence of sales. The investment motive becomes particularly important if the seller can charge a higher price by offering credit terms, generating an implicit interest income for delayed

rather than immediate payment. TC therefore creates present-value revenue when the implicit interest income exceeds the seller's cost of capital including credit screening and monitoring costs (Neale and Shipley, 1985; Emery, 1988). Firms should invest in TC if the net present value of the revenue receivable with TC is greater than the NPV arising without it (Schwartz, 1974; Atkins and Kim, 1977; Kim and Atkins, 1978; Ferris, 1981).

The TC decision can also be viewed from a *longer-term* perspective, looking beyond the accounts receivable figure on the balance sheet. Sellers seek to establish *long-term* trading relationships with key customers (Ng *et al.*, 1999), and the true value created by a new customer is the present value of the first—and all subsequent—orders fulfilled. In this sense, the TC offer is viewed as a strategic investment in seeking to retain customers, creating a more stable customer base and generating a future income stream. Studies suggest that customers become more profitable to the supplier as the relationship matures, when delivery and price expectation are fulfilled, rate of repeat orders increase and new customers are attracted (Jacob, 1994). However, Reichheld and Sasser (1990) found that it is not uncommon for businesses to experience customer defection rates of 15–20% each year. Generous credit terms can therefore prove a valuable tool for reducing defections and rewarding customer loyalty.

Offering TC signals the seller's investment intentions in a willingness to enter into a continuing relationship with the buyer (Smith, 1987). It is common practice within many firms to demand cash with order or on delivery for new, untried customers and to go through extensive credit screening procedures (e.g. references, agents reports, etc.) prior to granting credit. Granting trade credit is a powerful signal to the customer that the supplier seeks a mutually beneficial longer-term trading relationship.

The foregoing discussion leads us to suggest four investment-driven motives for the TC offer.

11. TC is an investment in improving product competitiveness.
12. TC is viewed as a short-term investment in the customer's business.
13. TC is viewed as an opportunity for a continuing, longer-term investment in the buyer's business.

14. Granting TC signals an investment intention to develop an on-going relationship with customers.

Marketing and Competitiveness Motives

TC can also be viewed as the lubricant that eases the selling process. It can aid marketing and sales in a number of ways. First, it forms part of an integrated package of measures which can be employed to stimulate demand (Ingves, 1984), providing further opportunity for the seller to differentiate its product-finance offering from the competition. Kaplan (1967) was one of the first writers to argue that the credit function should be regarded as a promotional tool, not purely a financial tool. Shipley and Davis (1991) offer empirical support for this argument in their finding that TC provision is an important supplier selection criterion, especially when suppliers offer an identical mix of variables such as price, quality and delivery. The TC offer can extend flexible payment terms to support customer needs.

Where demand is irregular, due to uncertainty or seasonality, the seller may temporarily relax the credit terms or standards to stimulate sales in slack demand periods (Nadiri, 1969; Emery, 1984, 1988). This has the effect of smoothing demand, thereby reducing the seller's capacity and stock-holding requirements. Seasonal dating, where credit is extended during off-peak demand to permit extended customer purchases, is a regular practice in some industries.

TC can also be viewed as part of the firm's pricing policy. Lengthening a credit period or increasing a cash discount is equivalent, in economic terms, to a price reduction. Where customers have different elasticities of demand for the seller's products, prices can be manipulated through the credit terms offered. This may occur in a variety of ways. The seller can operate standard credit terms for all customers but relax the effective credit period for selected customers by allowing them to pay well after the due date (Schwartz and Whitcomb, 1978, 1979). In this way, a subtle form of price discrimination is possible, giving the seller a more flexible approach to pricing without fear of competitor retaliation and enabling it to evade price restrictions. Such an approach is only possible where the seller has sufficient market power to discriminate; the greater the return from exploiting market power through

price discrimination, the more likely that TC is extended (Mian and Smith, 1992). Price restrictions in oligopolistic markets give the seller an incentive to find ways of offering a price slightly below the administered price. Emery (1988) suggests that unofficial extension of TC enables the seller surreptitiously to violate price restrictions. The use of prompt payment discounts can also be used in this fashion as part of the firm's pricing policy. US surveys (Hill *et al.*, 1981; Ng *et al.*, 1999) however, found that credit policy was not generally viewed as part of pricing policy.

Two further propositions are added relating to external competitiveness and corporate image. First, is the need to remain competitive by matching normal industry credit terms (Banner, 1957). In highly competitive industries, failure to match the generous payment terms offered by alternative sources of supply can lose business and thereby diminish shareholder value. This motive is likely to be most strongly pursued by smaller, less influential firms who cannot afford to be out of line with larger players. Hill *et al.* (1981) found that US firms were much more likely to alter credit terms to match those of competitors (i.e. market pressure) than to reflect changes in the underlying economy.

Second, the credit period granted and taken provide opportunity to enhance corporate image, build goodwill and improve customer loyalty. Corporate guidelines and procedures on debt monitoring and collection have direct impacts on customer satisfaction therefore should be properly established. This is important in that firms with a reputation for being 'bad payers' can find that this tarnished image has far wider consequences than credit management alone.⁵ Customers may choose alternative supplies, due to overall corporate image, when quality of products and services are indifferent.

The above literature on marketing and competitiveness motives suggests seven propositions.

- M1. TC forms part of a package of different product characteristics offered to stimulate demand.
- M2. For seasonal businesses, TC can be relaxed to help customers and stimulate sales.
- M3. Lengthening the credit period is equivalent to a price reduction.
- M4. Offering a cash discount is equivalent to a price reduction.

- M5. Varying the trade credit offer to customers gives the supplier a more flexible approach to pricing.
- C1. Firms operating in competitive markets are 'compelled' to offer normal industry credit terms.
- C2. TC provides an opportunity to a firm to demonstrate and reinforce its corporate image through its payment behaviour, credit terms and collection procedures.

RESEARCH DESIGN AND DATA COLLECTION

The previous section reviewed the TC literature and derived five motive categories and 20 associated propositions for granting trade credit. In this section, we describe the research design and data collection process employed to:

- (i) observe empirically the extent to which large UK companies support these propositions. We use the Spearman test to identify the firm size and respondent effects, and logistic regression models to examine firm's characteristics;
- (ii) confirm, or provide a better classification of, these motives using factor analysis;⁶ and
- (iii) examine whether the credit period, offered or taken, varies according to the emphasis placed by firms on the various motives.

In calling for empirical testing of TC theories, Emery (1988) identified two particular problems. First, lack of secondary data means that researchers will have to draw upon non-traditional sources; and secondly, firms probably extend credit for multiple reasons, making it difficult to distinguish between alternative theoretical explanations. Recognising such research difficulties, it was decided to develop a research design which focused on both the credit management practices of large firms or active trading subsidiaries of large firms and the perceptions of senior trade credit managers and finance executives within them, employing a postal survey approach, supported by selected in-depth interviews. Although the questionnaire was sent to large companies, its responding firms could be the smaller active trading subsidiary within the group of which the top management views it to be the more appropriate

candidate for the survey than the holding company with little active trading. This provides a wider range of firm size in our sample with turnover ranging between less than £10 million and more than £500 million.

This paper draws upon the findings of a two-stage survey distributed to heads of trade credit management, one covering credit management practices and context and the other addressing TC motives. The first postal survey drew on a sample of 296 large UK companies randomly selected from the top 800 firms, in sales terms, within the FAME database.⁷ A total of 154 usable questionnaires were received, an effective response rate of 52%. This survey provides the credit management practices and corporate contextual variables, some of which are employed in the present study. The second stage of the survey focused on the credit motives of respondents. From the 135 questionnaires distributed to directors/credit managers responding to the first survey, 94 responses were obtained, a response rate of 70%.⁸ Tests for non-response bias were conducted by comparing the responses of the first 30 respondents against the last 30 respondents for the two surveys. One-way ANOVA and Mann-Whitney tests were performed which revealed that responses of early and late adopters were not significantly different.

Drawing on their experience, respondents were asked to rate their level of agreement to the twenty propositions on credit motives derived from the literature, according to a five-point Likert-type scale from zero ('no agreement') to 1 ('totally agree').⁹ Any motive propositions receiving a rating of 0.5 ('moderate agreement'), 0.75 ('strongly agree') or 1.0 ('totally agree'), were interpreted to have been awarded sufficient support to have an impact on the credit offer decision.

Recognising the problems inherent with postal surveys¹⁰ follow-up interviews were conducted with credit managers from four responding firms to explore, in greater depth, TC practices and motives. These interviews, each of which lasted approximately 3 hours confirmed the reliability of the postal surveys for the four companies in question, and provided additional insights into the motives for granting credit by non-financial firms. The four companies interviewed are in different industries (Oil, Electronics and Computing, Manufacturing and Chemicals) and sizes (with one from smaller, two from larger and one from

major firms)¹¹ in order to provide a better representative of the sample.

In this paper, all analyses are based on the 94 firms responded in the second survey. Analysis of respondents by job title revealed that 70% were credit managers responsible for granting and managing credit, the remainder being directors (12%) or financial controllers (18%) with credit responsibilities. The suitability of the sample for this study is evidenced by the heavy use of TC by most firms, with 78% of responding firms offering nearly all (over 90%) of sales on credit, and the remaining firms offering the majority of sales on credit. Debtor days for the sample averaged 34 days, but had a very wide range, from 5 to 60 days. While it is not the purpose of this paper to report the credit management practices and identify the main determinants of the variation in debtor days (see Pike and Cheng, 2001), we will later examine the extent to which variations in reliance on specific credit motives is associated with the credit period and debtor days of firms.

RESULTS

Respondents were asked to indicate the importance they attached to each of the causally named motive categories¹² extracted from the literature. These answers not only provide the evidence for confirming the internal reliability of the answers in the questionnaires¹³ but also reveal the perceptions of the respondents before they read the detailed hypotheses. Summary statistics of responses, together with a correlation matrix, for the *perceived* importance of these motives are summarised in Table 1.

The use of TC to aid *Marketing and Sales* was the major motive for the majority of the responding firms (mean, $\mu = 0.65$, median = 0.75), with the *long-term investment* and *market pressure* motives receiving good support. On the other hand, most companies rated enhancing *corporate image* as a relatively unimportant motive for offering trade credit ($\mu = 0.30$, median = 0.25).

Although firm size does not have significant impact on the credit terms offered to customers, it is associated with the average debtor days reported ($\rho < 0.05$). The average debtor days is 54 days for our *smaller* sample firms compared with 48 days for *larger* firms and 40 days for *major* firms.

Table 1. Motives for Offering Trade Credit (*n* = 94 firms)

In your organisation, how important are the following motives when offering trade credit to customers	Mean ^a	Median	Standard deviation	Firm size effect (Spearman coefficient)	Respondent effect (Spearman coefficient)	Pearson Correlation Matrix					
						1	2	3	4	5a	5b
1. To aid the marketing & sales decision	0.649	0.75	0.282	0.088	0.111	1.0					
2. To invest in longer term wealth-creating selling opportunities	0.548	0.50	0.275	0.184	0.264*	0.52**	1.0				
3. To provide finance to customers to fund purchases	0.431	0.50	0.341	0.129	0.170	0.35**	0.23*	1.0			
4. To create operating efficiencies in sales-cash collection cycle	0.468	0.50	0.309	0.270**	0.303**	0.08	0.13	0.23*	1.0		
5. To resolve competitiveness issues:											
a. To respond to market pressure	0.535	0.50	0.283	-0.286**	-0.244*	-0.16	-0.18	0.16	-0.09	1.0	
b. To enhance corporate image	0.298	0.25	0.289	-0.244*	0.078	0.04	0.12	0.341**	0.40**	0.20	1.0

^a 5-point scale where 1 is the most important and 0 not at all important. [all mean values are significant at 1% using one sample *t*-test and one sample Kolmogorov-Smirnov test (i.e. rejected $H_0 = 0$).

* Significant at 5% level.

** Significant at 1% level.

Table 1 shows that firm size plays an important role for three of the motives—market pressure, corporate image and operating efficiency. Market pressure to conform to industry credit terms is more acutely experienced among the smaller firms sampled (Spearman coefficient = -0.286 , $\rho < 0.01$). While 24% of major firms regarded market pressure to conform to industry credit terms as being highly important, this percentage increases to 61% for smaller firms. It would seem that larger and major firms, with greater market power, feel less compelled to adhere to industry terms. Moreover, they are *less* likely to experience corporate image problems ($\rho < 0.05$) but *more* likely to appreciate the operating efficiency benefits that TC offers ($\rho < 0.05$). Analysis by respondent title finds that while finance directors tended to view offering credit more as a response to market pressure ($\rho < 0.05$), credit managers viewed it more in terms of a longer-term investment ($\rho < 0.05$) offering operating efficiencies ($\rho < 0.01$).

The correlation matrix in Table 1 confirms that there is considerable inter-correlation between credit motive variables, particularly between marketing and investment variables. This suggests that factor analysis of the 20 credit propositions (shown in Table 2) supporting these six main variables may identify other underlying constructs which better explain credit motives. These potential constructs are discussed in a later section of the paper.

Important Motives for Offering/Extending Trade Credit

While the findings in Table 1 indicate that most of the credit motives categories are perceived as being at least moderately important in the TC extension decision, further probing is called for. Table 2 summarises the level of support and summary statistics for the 20 propositions flowing from the main motives in the literature. Table 3 summarises the results of the logistic regression analysis seeking to explain how motives are associated with five corporate characteristics relating to selling channel, industry sector, and strategy. In each case the regression model chi-square is significant (at 1% level). The findings from Tables 2 and 3 are summarised below.

Table 2 suggests reasonable support for most propositions, with 13 of them having means of 0.5 ('moderate agreement') or better. We will focus on

Table 2. Level of Agreement on Trade Credit Motives ($n = 94$ firms)

Propositions	Strongly Agree %	Median	Mean ($\bar{\mu}$) ^a	Standard deviation	Firm size Spearman coefficient	Respondent Spearman coefficient
Information motives						
IF1. Cash discounts help signal financially-distressed firms ^b	35.8	0.50	0.449	0.329	-0.192	-0.063
IF2. TC allows buyers to verify product quality (information asymmetry)	41.1	0.50	0.532	0.324	-0.006	-0.053
IF3. Longer TC granted where product quality is hard to verify ^b	25.2	0.25	0.356	0.331	-0.212*	-0.064
Efficiency motive						
E1. Cost savings from separating shipment from payment	47.4	0.50	0.545	0.317	0.128	0.075
Financial motives						
F1. Interest-free loan	72.6	0.75	0.718	0.267	0.083	0.020
F2. Supplier can raise finance more cheaply than buyer	37.9	0.50	0.516	0.306	0.073	0.069
F3. Source of intermediate finance	69.2	0.75	0.720	0.255	-0.016	0.024
F4. Monitoring costs lower than a bank	25.6	0.50	0.395	0.296	-0.008	0.034
F5. Providing information to allow firms to reduce precautionary cash balances	41.0	0.50	0.524	0.302	0.010	0.118
Investment motives						
I1. Improving product competitiveness	22.1	0.50	0.412	0.286	-0.032	0.126
I2. Short-term investment in customers	22.1	0.25	0.391	0.327	0.026	0.210
I3. Long-term investment in customers	43.2	0.50	0.582	0.287	0.057	0.308**
I4. Encourage on-going relationship	68.4	0.75	0.726	0.282	0.094	0.257*
Marketing and pricing motives						
M1. Part of product packages	46.3	0.50	0.566	0.300	0.122	0.170
M2. Seasonal businesses receive more relaxed terms ^b	42.5	0.50	0.497	0.339	0.062	0.007
M3. Longer TC equivalent to price reduction ^b	70.5	1.00	0.742	0.329	-0.192	-0.043
M4. Cash discounts equivalent to price cut ^b	65.2	0.75	0.691	0.356	-0.059	0.040
M5. TC allows more flexible pricing	37.9	0.50	0.492	0.314	-0.158	-0.043
Competitiveness motives						
C1. Firms in competitive markets must meet industry terms	79.8	0.75	0.747	0.272	-0.025	-0.105
C2. Opportunity to enhance/reinforce corporate image	50.5	0.75	0.596	0.287	-0.194	0.043

^a All mean values are significant at 1% using one sample t -test and one sample Kolmogorov-Smirnov test (i.e. rejected $H_0 = 0$). A five-point scale of agreement was employed from 0 (no agreement) to 1 (total agreement).

^b Motives for varying credit terms.

* Significant at 5% level.

** Significant at 1% level.

Table 3. Logistic regression for firm's characteristics

	Main selling channel: end-users	Food & Beverage Industry	Electronic & Telecom Industry	Strategy: low cost	Strategy: better product (giving rise to a premium price)
	Coefficient (t value)	Coefficient (t value)	Coefficient (t value)	Coefficient (t value)	Coefficient (t value)
Financing motives					
F1. Interest-free loan	-0.020 (-0.015)	4.176 (1.578)	-6.556 (-2.158)*	-3.513 (-0.807)	-1.805 (-1.300)
F2. Supplier can raise finance more cheaply than buyer	1.378 (1.024)	-1.529 (-0.584)	-3.049 (-1.326)	4.653 (1.159)	1.735 (1.327)
F3. Source of intermediate finance	-0.820 (-0.543)	0.467 (0.194)	-1.769 (-0.770)	-6.555 (-1.038)	-1.323 (-0.865)
F4. Monitoring costs lower than a bank	-1.065 (-0.861)	-1.130 (-0.480)	0.604 (0.384)	-3.550 (-1.243)	2.134 (1.610)
F5. Providing information to allow firms to reduce precautionary cash balances	-1.259 (-0.899)	2.690 (0.845)	4.069 (1.412)	-5.670 (-1.574)	0.241 (0.168)
Investment motives					
I1. Improving product competitiveness	1.146 (0.841)	10.336 (2.446)**	0.090 (0.035)	6.532 (1.526)	-0.364 (-0.262)
I2. Short-term investment in customers	2.586 (2.111)*	0.554 (0.188)	3.346 (2.054)*	-18.055 (-1.651)	2.072 (1.799)
I3. Long-term investment in customers	-2.484 (-1.572)	3.682 (1.235)	1.180 (0.484)	-8.114 (-1.729)	1.726 (1.146)
I4. Encourage on-going relationship	0.041 (0.030)	-5.109 (-1.370)	7.473 (2.407)*	-0.168 (-0.060)	-0.029 (-0.022)
Marketing and pricing motives					
M1. Part of product package	-2.482 (-1.606)	-2.321 (-0.632)	-5.798 (-2.213)*	-0.510 (-0.157)	-0.257 (-0.176)
M2. Seasonal businesses receive more relaxed terms ^a	-2.261 (-1.924)*	-2.888 (-1.340)	4.561 (2.245)*	3.893 (0.988)	1.909 (1.579)
M3. Longer TC equivalent to price reduction ^a	0.263 (0.203)	-2.567 (-0.934)	-4.717 (-1.884)	0.950 (0.244)	0.019 (0.013)
M4. Cash discounts equivalent to price cut ^a	0.106 (0.089)	-3.576 (-1.635)	5.792 (2.353)*	13.180 (1.931)*	0.804 (0.657)
M5. TC allows more flexible pricing	0.831 (0.739)	-2.379 (-1.050)	1.630 (0.867)	-2.347 (-0.846)	-3.516 (-2.431)*
Information motives					
IF1. Cash discounts help signal financially distressed firms ^b	-0.488 (-0.429)	-4.305 (-1.458)	-0.491 (-0.321)	-1.760 (-0.198)	-0.592 (0.198)
IF2. TC allows buyers to verify product quality (information asymmetry)	2.352 (2.005)*	3.560 (-1.235)	3.113 (1.714)	-1.295 (-0.386)	-1.815 (-1.460)
IF3. Longer TC granted where product quality is hard to verify ^a	3.948 (2.771)**	-1.878 (-0.740)	-2.779 (-1.520)	6.506 (1.531)	-1.811 (-1.379)

Efficiency motive					
E1. Cost savings from separating shipment from payment	-1.810 (-1.708)	9.515 (2.276)*	2.397 (1.566)	2.241 (0.627)	-0.938 (-0.739)
Competitiveness motives					
C1. Firms in competitive markets must meet industry terms	2.286 (1.872)	-0.421 (-0.226)	-0.297 (-0.161)	5.287 (1.258)	-1.551 (-1.203)
C2. Opportunity to enhance/reinforce corporate image	-0.273 (-0.227)	-1.843 (-0.671)	-3.595 (-1.653)	-3.859 (-1.024)	3.314 (2.164)*
Constant	0.016 (0.011)	-2.377 (-0.905)	-5.297 (-1.793)	-4.567 (-3.464)	1.496 (1.013)
Pseudo-R ²	0.487	0.634	0.594	0.694	0.468
Model Chi-Square	40.283**	37.879**	43.040**	42.201**	36.592**

* Significant at 5% level.

** Significant at 1% level.

* Motives for varying credit terms.

the top seven propositions, all of which have a median value of 0.75 or above, and received 'strong agreement' from more than half of the respondents.

1. Firms operating in competitive markets are 'compelled' to offer normal industry credit terms (Proposition C1, $\mu = 0.747$).
2. Lengthening the credit period is equivalent to a price reduction (M3, $\mu = 0.742$).
3. Granting TC signals an investment intention to develop an on-going relationship with customers (I4, $\mu = 0.726$).
4. TC is an important source of intermediate finance to buyer firms, especially those with limited access to financial markets (F3, $\mu = 0.720$).
5. TC is perceived as equivalent to granting an 'interest-free' loan to customers who see this as a cheap source of finance when comparing with borrowing from financial institutions to make the purchase (F1, $\mu = 0.718$).
6. Offering a cash discount is equivalent to a price reduction (M4, $\mu = 0.691$).
7. TC provides an opportunity to a firm to demonstrate and reinforce its corporate image through its payment behaviour, credit terms and collection procedures (C2, $\mu = 0.596$).

The highest mean score relates to the *competitiveness* motive. Firms operating in competitive markets experienced pressure to offer terms at least as favourable as the standard industry credit terms (C1). This helps explain the similarity of credit terms offered to customers among our sample firms, with almost half of them (46%) offering 30 days net as their standard credit term.

Respondents generally recognise that corporate image (C2, $\mu = 0.60$) can be enhanced through appropriate credit policies and practices. It is no surprise to find that companies adopting a product quality/price premium strategy rate corporate image more highly than firms with other strategies (see Table 3). One interviewee provided further confirmation of this:

Most firms had developed reputations within industry sectors for credit granting and debt collection together with their own payment behaviour. (Credit Manager)

The survey also asked whether firms operated an ethics code extending to credit management.



One-half of the firms analysed (56%) had a documented ethics code referring to credit policy and practice. Somewhat surprisingly, no significant association was found between the corporate image motive and use of credit management ethics code.

Most respondents typically view variations of credit terms, such as lengthening the credit period (M3) or offering cash discounts (M4), as equivalent to a price reduction when comparing with the list price. Most responding firms view trade credit as equivalent to an interest-free loan (F1) and a source of intermediate finance (F3) that can encourage an on-going relationship between supplier and customer (I4). As Schwartz (1974) proposed, TC provides an important source of intermediate finance, especially to those firms with limited access to financial markets. The majority of firms surveyed were net credit providers and it seems that such firms recognise the role of TC in providing finance where customers might otherwise experience difficulty. This, in turn, relates back to the credit motive that providing a source of finance encourages a continuing and close relationship (I4). Customers seeking to extend the period of interest-free finance through late payment, however, jeopardise the quality of the supplier–customer relationship, which may well prove counterproductive. That may explain why the Electronics and Telecommunications industry tends to rate this motive lower than others sectors.

Other Motive Propositions

In addition to the seven propositions receiving strongest agreement from respondents, many of the remaining propositions were generally recognised as being relevant.

Information motive. A reasonable level of support (see Table 2) was found for the Product-Quality-Guarantee proposition (IF2, $\mu = 0.53$), especially from firms selling directly to end-users (see Table 3), to minimise the potential moral hazard problem. The seller can signal confidence in the quality of its products by granting trade credit, enabling the buyer to verify product quality prior to payment (Smith, 1987). Although Long *et al.* (1993) found that smaller firms, with little by way of reputation, and firms producing products requiring longer to verify product quality (IF3)

extend longer credit, this motive received relatively little support ($\mu = 0.35$). However, consistent with literature, support is more pronounced in smaller firms (Kendall's tau-b = -0.186 , $\rho < 0.05$) and firms mainly selling to end-users (see Table 3).

As previously explored, imperfect information and information asymmetry are hypothesised to impose transaction costs on both buyer and seller, giving rise to moral hazard (Smith, 1987). From the seller's perspective, some buyers may be attracted to TC because they have little intention of paying on time, if at all. In such cases, those firms refusing to take up generous cash discounts for prompt payment may well be financially distressed or financially delinquent customers, requiring closer credit management scrutiny. Similar to the result found in the Ng *et al.* (1999) study, this argument was not generally accepted (IF1, $\mu = 0.45$) by the sample. However, further analysis revealed that firms offering generous prompt payment discounts (typically with APRs in excess of 50%) rated the motive significantly more highly,¹⁴ thus supporting the view that generous prompt payment discounts are, for some firms, important screening devices in identifying financially distressed customers. The average debt-or days for firms offering prompt payment discounts/rebates reduced to 43 days while those not offering such option stand at 47 days, showing the marginal effect on offering prompt payment discounts/rebates.

Efficiency motive. The cost efficiency motive (see Emery, 1984; Stowe and Gehr, 1985) enjoyed moderate support from respondents (E1, $\mu = 0.545$). Those firms most supporting the view that cost efficiencies emanate from the separation of shipment from payment were found, typically, to operate in the Food and Beverage sector (Table 3), or in highly competitive or seasonal markets, with wholesalers/distributors as customers. This accords with expectations in that many of these firms are more likely to have a high number of deliveries each month or each peak seasonal period.

Financing motive. The comparative cost advantage argument of customer credit over bank lending in terms of gathering and monitoring customer information (F4, $\mu = 0.35$, median = 0.50) received less generous support, suggesting that many credit managers are not convinced by

the argument that better quality, low-cost credit screening information is generated as a by-product of the selling process (Smith and Schnucker, 1993). Moderate support, however, was found for the notion that TC allows the buyer to operate with lower precautionary cash balances (F5, $\mu = 0.524$) as suggested by Pringle (1974), by informally extending the credit period without seller retaliation.

Investment motive. Referring to the earlier section (Important Motives for Offering/Extending Trade Credit), the most strongly-held investment proposition was that TC encourages an on-going relationship between supplier and customer (I4). Closely related to this, is the view that TC is a long-term investment in customers (I3, $\mu = 0.582$), this proposition receiving significantly greater support than the proposition (I2, $\mu = 0.391$) that TC is a short-term investment in customers. This challenges the conventionally-held view that the credit function is essentially concerned with controlling the accounts receivable figure on the balance sheet. Interviewees confirm that:

in practice, credit function forms part of a more strategic, longer-term value-adding activity. While the seller firm may not have any shareholding in the buyer firm, the 'permanent capital' tied up in accounts receivable, as a form of revolving credit, can be considerable (a Credit manager and a Treasury manager)

Analysis by respondent category revealed that credit managers rated long-term investment and on-going relationship as significantly higher than finance managers/directors (see Table 2). This implies that credit managers, many of whom are not within the finance function, tend to agree that offering trade credit provides a means for establishing profitable repeat business from their valuable customers providing a stable customer base which become more profitable to the supplier when the relationship matures (Jacob, 1994).

Although the proposition received relatively little support (I2, $\mu = 0.391$ and median = 0.25), Table 3 shows that offering TC is more likely to be seen as a short-term investment in customers' businesses where companies sell directly to end-users or operate in the Electronic and Telecommunications industry (see Table 3 and Analysis by Firm Characteristics section).

The survey also found that firms in the Food and Beverage industry tends to rate the proposition that TC is an investment improving product competitiveness (I1, $\mu = 0.412$) more highly than other industries (Table 3) because firms in this industry offer significantly (at 5% level) lower credit periods (on average 29 days) than other industries (on average 33 days). This finding seems to be consistent with the information asymmetry proposition (IF3) that when product quality is easier to verify, shorter credit periods should be in operation (also see Analysis by Firm Characteristics section).

Marketing and Pricing Motives. Although there was only 'moderate' support for the view that TC forms an integral part of the product offer (M1, $\mu = 0.566$) (Ingves, 1984), the proposition is less supported by firms operating in the Electronic and Telecommunications industry. Further analysis reveals that companies operating in largely undifferentiated product markets rate this motive significantly higher.

Extending TC periods to aid customers with highly seasonal businesses in order to stimulate demand and ease customer cash flow (Nadiri, 1969; Emery, 1988) only received moderate support (M2, $\mu = 0.497$). Companies in the Electronics and Telecommunications industry more strongly support this motive (M2), while firms selling directly to end-users tend to give it less prominence.

The proposition of trade credit allowing more flexible pricing (M5, $\mu = 0.492$) received moderate support and was more lowly rated by firms pursuing a product quality/premium price strategy (Table 3).

Analysis by Firm Characteristics

Firms selling mainly to end-users. The logistic regression models in Table 3 indicate that companies selling mainly to *end-users* strongly agree that TC provides a means to bridge the information asymmetry gap, allowing customers to verify product quality before making their payment (IF2) and granting longer TC periods where product quality is hard to verify (IF3). These firms also strongly agree that TC is a short-term investment in customers (I2). The above findings are supported by the actual credit collection procedures. Although these firms offer the same

average credit period (34 days) as other sample firms, they are more relaxed about collection, having average debtor days (50 days) significantly greater than the sample average. Further analysis reveals that the majority of these firms do not modify their standard credit terms for the purposes of promoting slow moving or declining products ($\rho < 0.01$) or rewarding loyal customers ($\rho < 0.05$).

Industry differences. Firms in the Food and Beverage industry normally require regular delivery to their customers and therefore strongly agree that TC both provides cost savings, by separating shipment from payment (E1), and improves competitiveness (I1). Earlier discussion suggested that such motives required relatively short credit periods. This is supported by the finding that such firms offer, on average, significantly shorter credit terms (29 days) and operate with significantly lower debtor days (36 days).

Although most respondents strongly agree that offering TC to customers is equivalent to offering an interest-free loan to customers (F1) (see Table 2), firms in the Electronic and Telecommunications industry tend to give this motive less prominence (Table 3). They prefer to support investment and marketing propositions such as investment in customers (I2) and fostering customer relationship (I3), and relaxing TC for seasonal businesses to help customers (M2). Therefore, it is not surprising to find that they are more relaxed in their collection procedures, with average debtor days slightly longer than the general average, yet the average credit period offered shorter for the sector. They also strongly agree that offering cash discount is equivalent to a price reduction (M4), which may explain why no firm in the sample offered prompt payment cash discount.

Firms competing primarily on quality or cost. From a strategic viewpoint, firms competing primarily on product quality strongly agree that TC provides an opportunity to reinforce corporate image (C2) but do not support the proposition that TC gives the supplier a more flexible approach to pricing (M5). Therefore it is not surprising to find that they are less likely to vary credit terms to retain existing customers compared with companies operating in other industries ($\rho < 0.05$).

Firms competing primarily on *cost* strongly agree that offering cash discount is equivalent to a price reduction (M4), which helps explain the low proportion of firms in this group offering prompt payment discount or rebate to customers.

FACTOR ANALYSIS

We have shown in Tables 1 and 2 that some of the literature-derived motives and associated propositions for granting trade credit are strongly recognised by the majority of the respondents as partial explanations for the credit offered/extended within their firms, while others received weak support from practitioners. Previous studies have not attempted a structural classification of the motives to reduce the considerable inter-correlations among credit motives identified in Table 1. We therefore seek to establish whether more meaningful constructs of the main TC motives can be derived from the empirical data. Factor analyses were performed on the propositions within each motive category to assess the construct validity of the main motive categories. In an attempt to improve classification of the propositions, separate factor analyses were conducted after dividing propositions into those relating to the *granting* of TC and the *variation* in credit period, as summarised in Tables 4 and 5.

For the granting of TC, five factors¹⁵ with eigenvalues above one, explaining a total of 62% of the variance, were extracted as shown in the pattern matrix in Table 4. These factors, although not inconsistent with those derived from the literature discussed earlier, do have certain differences. The factor labels suggested by the analysis are:

- (1) investment in customers,
- (2) customer operational benefits,
- (3) customer financial benefits,
- (4) supplier marketing/operational benefits, and
- (5) market pressure.

It will be observed that much of the overlap between credit motives identified earlier in the paper (e.g. between marketing and investment motives) is now eliminated. The reclassification is also consistent with modern performance measurement

Table 4. Factor Analysis of the Items for Offering Credits

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Investment in customers					
I3 Opportunity for long-term investment	0.830				
M1 Part of a product package to stimulate demand	0.796				
I1 Improve product competitiveness	0.596				
Customer operational benefits					
F5 Reduces precautionary cash balances		0.813			
F4 Lower monitoring costs than banks		0.646			
IF2 Allows buyers to verify product quality		0.626			
F2 Customer benefits from suppliers' cheaper source of finance		0.563			
Customer financial benefits					
F3 Importance source of finance for buyers			0.790		
F1 Equivalent to interest-free loan			0.750		
Supplier marketing/operational benefits					
M5 Enables more flexible pricing				0.724	
C2 Reinforces corporate image				0.701	
E1 Cost efficiency by separating shipment from payment				0.641	
Market pressure					
C1 Pressure to offer normal industry terms					0.868
Eigenvalue					
	3.66	1.79	1.40	1.18	1.04
% variance (total variance explained = 60.4%)	24.37	11.92	9.31	7.86	6.96
Reliability alpha	0.68	0.62	0.64	0.54	N/A
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy = 0.665					
Bartlett test of sphericity = 311, significance < 0.001.					
Only items loading uniquely on one factor are listed (i.e. with factor loadings > 0.50)					

Table 5. Factor Analysis of Items for Varying Credit Terms

	Factor 1	Factor 2
Customer relations		
M2. Seasonal businesses receive more relaxed terms	0.804	
IF3. Longer TC granted where product quality is hard to verify	0.787	
IF1. Cash discounts help signal financially distressed firms	0.655	
Pricing flexibility		
M4. Cash discounts equivalent to price cut		0.897
M3. Longer TC equivalent to price reduction		0.880
Eigenvalue		
	1.94	1.40
% variance (Total variance explained = 62.7%)	38.8%	27.9%
Reliability alpha	0.62	0.76
KMO measure of sampling adequacy = 0.581		
Bartlett test of sphericity = 78.5 (significance < 0.001)		

approaches, such as balanced scorecard, which place strong focus on customer perspectives.

The main difference is the clearer focus on customer and supplier benefits. This confirms the finding from interviews with credit managers where TC was found to form a major element of customer service. Customers adjust their payment patterns to ease cash flow pressures, and use the credit period to verify product quality prior to payment. The seller, on the other hand, can

maintain a standard pricing policy but operate a flexible TC terms for customers, rather than adjusting prices, can capture the cost and operating efficiencies from separating shipment from payment, and can reinforce corporate image through 'fair' and 'sympathetic' credit granting and collection policies.

Turning to the motives for varying the credit terms for selected customers, we find that the five propositions reduce to two factors¹⁶ (see Table 5).

Customer relations is the first factor, with the credit period being relaxed to assist buyers whose products are highly seasonal or where product quality is hard to verify. Pricing flexibility is the second factor, whether through relaxing the credit period or offering prompt payment discounts. For both sets of factors the reliability alpha scores were acceptable.¹⁷

IMPACT ON DEBTOR DAYS

Finally, we consider whether the underlying motives arising from the above classification may influence the credit period offered or taken. For example, one might expect that firms offering strong support for the motive of customer financial benefits would be more generous in their credit provision than firms giving this motive a low rating. Similarly, longer credit is expected where the seller pursues an investment in customers motive.

The hypothesis to be tested is that greater trade credit is granted (either in terms of the credit period offered or actual credit taken) where firms give higher priority to:

1. customer financial benefits,
2. investment in customers, and
3. using trade credit as a pricing tool.

Factor scores were computed and, together with the original propositions, correlated with the credit period and debtor days for each firm. These data were obtained through the questionnaire to firms. It is reasonable to expect that credit period outstanding may be affected by firm size and industry sector. Further analysis found that firm size and the Food and Beverage industry were indeed highly correlated with debtor days. Accordingly, it was deemed appropriate to compute partial correlations between credit motive factors and credit period, controlling for the variables of firm size and the industry (e.g. Food and Beverage and Electronic and Telecommunications), as summarised in Table 6.

The correlations and partial correlations in Table 6 lend clear support for our hypothesis. Regarding the formal credit period offered to customers, it seems that firms offer more attractive terms where they believe that TC forms an essential part of a product package to stimulate demand (M1) or where it can be used to enhance

corporate image (C2). Debtor days, but not credit period, were strongly associated with pricing flexibility motives, despite of the high correlation found between the credit period and debtor days. The above results imply that, in pursuit of some credit motives, firms unofficially permit TC extension beyond normal terms. In particular, longer debtor days are observed where customer financing (F3), price reduction (M3, M4) and product package (M1) arguments are strongly held. These findings offer further validity to the results in that the weightings placed on the various TC propositions are generally consistent with corporate behaviour in terms of the length of credit extended to customers.

CONCLUSION

This paper has sought to review the main motives in the literature for offering trade credit, gauge the degree to which practising credit managers recognise these motives as applicable to their firms, classify the motives for offering trade credit, and assess how these motives influence the actual customer credit period. In so doing, it addresses the call by Emery (1988) and Long *et al.* (1993) for empirical testing of the motives for trade credit extension.

The literature review guided the development of 20 trade credit propositions explaining why non-financial firms extend credit to customers. These propositions formed the basis of a survey to senior credit managers in large UK companies.

Most propositions were recognised as applicable to firms although considerable variation in responses was observed. The leading propositions were:

- (a) Firms operating in competitive markets are 'compelled' to offer normal industry credit terms.
- (b) Lengthening the credit period is equivalent to a price reduction.
- (c) Granting TC signals an investment intention to develop an on-going relationship with customers.
- (d) TC is an important source of intermediate finance to buyer firms, especially those with limited access to financial markets.
- (e) TC is perceived as equivalent to granting an 'interest-free' loan to customers who see this as a cheap source of finance when

Table 6. Correlation Coefficients for Credit Extended and Credit Motives

		Correlations		Partial correlations (controlling for size & industry)	
		Credit period	Debtor days	Credit period	Debtor days
Motives for offering credit					
Factor 1	Investment in customers	0.220*	0.130	0.212	0.192
I3	Long-term investment	0.128	0.109	0.133	0.195
M1	Part of product package	0.246*	0.138	0.265*	0.224*
I2	Short-term investment	0.032	0.144	0.014	0.130
Factor 2	Customer operational benefits	-0.121	0.066	-0.116	0.090
F5	Reduces precautionary cash	-0.090	0.125	-0.079	0.152
F4	Lower monitoring costs	0.066	0.059	0.053	0.082
IF2	Verify product quality	-0.067	0.067	-0.079	0.078
F2	Pass on benefits of cheaper finance	-0.040	0.012	-0.050	0.038
Factor 3	Customer financial benefits	0.038	0.122	0.062	0.191
F3	Importance source of finance	0.124	0.231*	0.124	0.284*
F1	Equivalent to interest-free loan	-0.039	0.070	-0.008	0.156
Factor 4	Supplier marketing/operational benefits	0.180	0.096	0.149	0.099
M5	Flexible pricing	0.020	0.115	-0.039	0.037
C2	Corporate image	0.290**	0.219*	0.270*	0.187
E1	Cost efficiencies	0.060	-0.024	0.080	0.131
Factor 5 C1	Market pressure				
	Pressure to offer normal industry terms	0.022	0.147	0.003	0.118
Motives for varying credit terms					
Factor 1	Customer relations	0.009	0.079	-0.022	0.100
M2	Seasonal business	0.041	0.046	0.017	0.099
IF3	Product quality difficult to verify	-0.031	0.116	-0.063	0.103
IF1	Cash discounts help screen firms	0.030	0.071	0.005	0.061
Factor 2	Pricing flexibility	0.047	0.286**	-0.008	0.230*
M4	Cash discounts equivalent to price reduction	0.109	0.297**	0.073	0.262*
M3	Longer credit equivalent to price reduction	-0.024	0.218*	-0.088	0.169

*Significant at 0.05 level.

**Significant at 0.01 level.

comparing with borrowing from financial institutions to make the purchase.

- (f) Offering a cash discount is equivalent to a price reduction.
- (g) TC provides an opportunity to a firm to demonstrate and reinforce its corporate image through its payment behaviour, credit terms and collection procedures.

Recognising the overlap among motives identified from the literature, five factors were derived explaining the main variation in the responses to the propositions. These were investment in customers, customer operational benefits, customer financial benefits, supplier marketing/operational benefits and market pressure to conform. More-

over, a further two factors—customer relations and pricing flexibility—were extracted for the motives for varying the credit period. Broad empirical support was found for the trade credit extension theories covering pricing (Schwartz and Whitcomb, 1978), long-term relationship (Smith, 1987), efficiency (Emery, 1984), transaction costs (Ferris, 1981), and information signalling (Smith, 1987; Lee and Stowe, 1993; Long *et al.*, 1993). Many companies were prepared to change their standard credit terms to win new customers and to gain large orders.

Four credit policies were identified in logistic regression models for the examination of the relationship between the motives and policy

choice. Consistent with our hypothesis, it was found that the average debtor days was significantly higher for those firms emphasising the financial, investment, and pricing flexibility motives. Interviews with credit managers in four firms generally confirm the survey finding that credit managers extend credit for a wide variety of reasons. In particular, these interviews confirm that credit/finance managers are very aware of the importance of developing long-term customer relationships and regard TC and credit management as part of their after-sales service. It would therefore seem that TC is not a carry-over from a bygone age, but offers clear value-adding benefits and can be employed to enhance a firm's competitive edge.

This paper has sought to shed light on why trade credit is offered by firms. The answer is not a simple one. Non-financial firms appear to offer credit for a wide variety of reasons, the emphasis placed on each motive varying between firms. Despite the fact that most supplier firms experience market pressures to conform to industry credit terms, the majority also feel that trade credit provides opportunity to reinforce corporate image and strengthen the relationship with customers. While supplier firms may attach greater importance to using trade credit to differentiate their product offering and establish customer loyalty, the buyer firm is more attracted to the financial benefits of TC. Overall, both parties gain value from the product-finance transaction.

A broad-based study, such as that outlined in this paper, cannot hope to do much more than provide an overview of the theories for granting trade credit and their empirical support as found in large UK companies. However, the results of this study, including the re-classification of trade credit motives, should help inform managers, as they seek to establish the appropriate credit policy for their firms, and researchers, as they seek to further develop trade credit theory. Future research could usefully extend the work to smaller firms where the motive weightings could well be different.

NOTES

1. Considerable debate has taken place on how to manage the late payment problem, giving rise in the UK to the Late Payment of Commercial Debt (Interest) Act 1998 and the right for small businesses to charge interest on overdue accounts.
2. On the other hand, Lee and Stowe also suggest that producers of low-quality products tend to offer higher cash discounts in order to induce buyers to take more product risk while producers of high-quality products tend to offer lower cash discounts.
3. One may argue that interest on financing trade credit is factored in the list price, indicating that trade credit offered to customers may not be an interest-free loan. This is true only if the seller is free to set its own selling price but it may not be the case when firms operate in competitive markets in which most firms are price takers. If credit grantors have monopoly power and are free to set selling prices, their borrowing costs tend to be lower than their customers. Therefore, they may behave in accordance with Schwartz's (1974) suggestion by offering more generous credit to customers and then extracting economic rents by adjusting the price of the goods. This investment motive will be discussed in a later section.
4. Although this is closely allied to the marketing and competitiveness motives, discussed later, it draws on valuation theory and is therefore discussed here separately.
5. For example, the CBI operates a prompt payment code to which it invites companies to declare their adherence.
6. It is self-evident that some of the motives identified in the previous section overlap, for example, competitiveness embraces the marketing, investment and efficiency motives, while investment and finance are interwoven. We therefore attempt to offer an alternative, empirically generated classification, eliminating much of the overlap by adopting factor analysis on the underlying hypotheses.
7. The original sample of 400 firms reduced to 296 after eliminating firms from the retailing and financial services sectors in which business trade credit offered is rare, and firms with a standard policy not to respond to any academic questionnaires.
8. Nineteen firms did not provide sufficient details for further contact for our second survey. The effective response rate, based on the original 296 firms is 36%.
9. Likert scales are increasingly being treated as having the data qualities of interval scales (Bryman and Cramer, 1990).
10. See for example, Wallace and Mellor (1988).
11. The distribution of firm size from our respondent firms is normal. Smaller firms: turnover < £75m; Larger firms: £75m < turnover < £500m; Major firms: turnover > £500m.
12. Given the difficulty in explaining the information asymmetry argument, it was decided to omit the variable at this stage.
13. Comparison of Tables 1 and 2 permits assessment of internal reliability of responses. Cronbach alphas were computed for motives and their related propositions. All except two received acceptable values.

14. The most common discount term was 2.5% within 30 days. Based on the typical payment period for the sample, this suggests that the effective cost of interest is in excess of 50% p.a.
15. For factor extraction, principal components analysis was used for the initial statistics. The KMO measure of sampling adequacy was 0.665 and the Bartlett test of sphericity was 311 ($p = 0.001$). These figures proved that the variables selected were suitable for factor analysis. The extracted factors were then rotated using the oblique method to allow for correlations among factors. Variables with factor coefficient of less than 0.3 were excluded from the analyses in order to eliminate multiple contributions to various factors from a single variable. Final results proved that none of the factors extracted had high correlation with other factors.
16. Similar to the five factors in offering trade credit, the two factors were extracted by using principal components analysis. The KMO measure of sampling adequacy was 0.58 and the Bartlett test of sphericity was 79 ($p < 0.001$).
17. Further logistic regression models were constructed to examine the association between the propositions and credit practices, controlling for variables such as size, selling channel, sector and strategy. While some significant associations were obtained they were of limited relevance to this study.

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