

T H E I M P A C T O F T R A D E C R E D I T O N B U S I N E S S O P E R A T I O N S

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Trade credit, also known as commercial credit or mercantile credit, refers to the exchange of goods or services for the promise of future payment. Such exchange, be it for merchandise or service, is between business concerns trading with the intention of resale. (Cole, 1968)

The importance of trade credit has been noted on many occasions. Cole (1968, p347) states, "...[trade credit] is the most important short term credit used and accepted by business, by virtue of the multiplicity of transactions, the policies associated with accepting it, and the accounting procedures necessary to manage it."

Thirty years later, trade credit appears to be just as critical. Peterson and Rajan (1997) call it, "the single most important source of short-term external finance in the United States." They refer to findings of an earlier study of non-financial firms, noting that accounts payable was larger than bank debts.

Thus, it is surprising that trade credit has been largely ignored by academics, and there is little agreement about its effects and desirability. This apparent lack of research is perhaps due to the complex and multidisciplinary nature of the concept. Long *et al* (1993, p117) state, "Although trade credit has long been an important source of financing for corporations, it is one of the least understood methods of doing business."

This paper falls into two parts. The first part provides a brief overview of trade credit and trade credit terms. The second part provides an evaluation of the "20th of the following month" trade credit terms, commonly offered in New Zealand. It includes an initial investigation into the impact such terms have on the business environment and considers a number of alternative approaches for alleviating the impact.

MOTIVES FOR USING TRADE CREDIT

Given that there are many sources of finance available to businesses, the motive for using trade credit is questioned. Trade credit theories can be broadly classified into two categories – financial and operational.

FINANCIAL ADVANTAGE THEORIES

Perhaps the most significant function of trade credit is its role in facilitating the movement of goods from the supplier of raw materials to the retailer of end products. It is the capacity of suppliers to finance buyers, thus eliminating the need for immediate cashflows, that facilitates such movement.

Another perspective suggests that trade credit is used simply out of necessity. Cole (1968, p350) states, "Even if businesses of all types were exclusively dependent upon bank loans and their own capital, it is doubtful that enough financial capacity could be marshalled to cover the value of goods and services handled by means of commercial credit."

OPERATIONAL THEORIES

Through the use of trade credit, payments for goods are accumulated rather than being made at each order or delivery. This allows for periodic payment, which reduces the transaction costs associated with settling accounts.

Lee and Stowe (1993) take another perspective, suggesting trade credit enables buyers to assess the quality of goods before making payment.

The prevalent use of trade credit, along with the diversity in trade credit theories, suggests that any business may utilise trade credit for any number of reasons.

THE HISTORY OF TRADE CREDIT

The historical evolution of trade credit is somewhat obscure, with no substantial evidence as an indication of its roots. Long *et al* (1993) suggest that trade credit arose as a source of finance in colonial times to facilitate the exchange of goods and services. In such times, trade credit was extended for as long as one year, perhaps representative of the frequency of merchant visits to commercial centres. However, it appears that with improved transportation and the natural development of commercial activity, the process of offering trade credit was formalised and the contractual credit period reduced.

TRADE CREDIT TERMS

It appears that over time, along with the increase in trade credit use, there has also been an increase in the variety and complexity of trade credit terms offered. However, all terms are composed of three elements: the net period in which payment is due, the discount period within which payment can be made at cash discount, and the discount rate. (Seiden, 1964)

Further, trade credit terms can take one of two forms: **day terms**, requiring payment within a fixed period after a purchase, or **date terms**, requiring payment by a specified day of the month, regardless of the date of purchase. (Kingsman, 1983)



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Note: Throughout the remainder of this paper, "20th of the following month trade credit term" is abbreviated to "M20CT"

FACTORS INFLUENCING TRADE CREDIT TERMS:

There is a tendency in many industries toward standardised trade credit terms. However, there are many other factors to consider including:

- Rate of stock turnover
- Buyers' credit rating
- Competition
- Exchange rates
- Financial resource of supplier
- Character of the goods
- Variation in lines of goods
- Economic conditions
- Cultural differences
- Location of customer and transportation

However, there is considerable variation within these forms. It is important that businesses understand these variations, as they can have a significant impact on business operations. For example, an increase in the cash discount rate offered for early payment increases the cost of trade credit to buyers not utilising the discount. This is similar to lowering the retail price of the good, which may in turn increase sales and reduce the amount of accounts receivable. (Seiden, 1964)

TRADE CREDIT TERMS IN PRACTICE**INDUSTRY TRENDS**

It is interesting to observe some of the underlying trends in industry credit periods. Bender (1996) found that, in the United Kingdom between 1985 and 1995, there was a reduction in the average credit period over all industries. However, the industries that offered the longest and the shortest periods tended to remain the same.

TERMS AROUND THE WORLD

A recent European study indicated a maximum contractual period of 75 days in Greece, and a minimum contractual period of 19 days in Finland. The European average credit period was 39 days, with an average payment period of 54 days, implying that payments were on average 15 days overdue. (Source: European Commission 1996)

It is interesting to note the introduction in the United Kingdom of the Late Payment Act. This Act, which came into effect in November 1998, arose from a joint initiative between the government and a number of leading business organisations. With its major focus on prompt payments, the Act appears to be a first step towards a change in the payment culture of the business community. (Smith, 1998)

TRADE CREDIT TERMS IN NEW ZEALAND

Although there has not been a formal evaluation of trade credit terms in New Zealand, Boxall and Green (1994, p225) refer to the normal credit terms as, "by the 20th of the month following purchase." One industry expert suggested that up to 70% of New Zealand businesses operated on such terms.

It has been suggested, however, that customers rarely adhere to contractual credit terms. Terms tend to be extended as long as possible, often without penalty by the supplier.

A member of the New Zealand Credit & Finance Institute has suggested that the practice of extended credit is embedded within the business culture to such an extent that suppliers would have difficulty enforcing their terms, even on a legal grounding.

Given the common practice of offering *M20CTs*, the maximum possible credit period is 50 or 51 days, depending on the number of days in the month in which orders are placed. However, in reality, with extended credit often assumed, buyers may not make payment until the end of the following month. In this case, the maximum credit period is effectively 60 or 61 days.

The Intended Credit Sale Process for *M20CTs***A FINANCIAL PERSPECTIVE****CASHFLOW**

Often businesses offering *M20CTs* to their buyers are also accepting such terms from their suppliers. With cash inflows and cash outflows consisting largely of accounts receivable and accounts payable, the majority of the cash received and paid by a business requires processing within the same day of the month. As such, there is increased potential for debtor/creditor problems to arise. For a given business, any delays in payments by its buyers may result in further delays of payments to its suppliers, due to lack of funds.

WORKING CAPITAL

Seiden (1964, p41) refers to the relationship between trade credit terms and working capital: "Without a cash discount, buyers are encouraged to use trade credit as a source of working capital, for it is costless." Thus it is the maximisation of a firm's working capital that appears to be the primary cause of the demand pattern induced by *M20CTs*.

However, this reference to 'costless working capital' appears flawed. Although there is no direct cost incurred for the use of this credit, there are a number of secondary costs, such as the operational inefficiencies discussed below.

AN OPERATIONS MANAGEMENT PERSPECTIVE

Operations Management focuses on the design and management of a system to most effectively and efficiently deliver the product and service outputs of an organisation.

The following discussion will focus on six management categories in which *M20CTs* have a major impact. (Pyke, 1997)

EVALUATION OF "20TH OF THE FOLLOWING MONTH" TRADE CREDIT TERMS**THE DEMAND PATTERN**

Given *M20CTs*, there is a tendency for buyers to order goods within the first few days of a month, ensuring they receive the longest possible credit period. Further, buyers are inclined to place only one order within a month. Therefore, many orders are placed within the first days of a month.

Many businesses operating with *M20CTs* experience extreme peaks within the first days of a month, followed by a steady decline throughout the remainder of the month. It is suggested that this pattern is created as a result of *M20CTs* and the ordering cycles they induce, rather than by any external forces or consumer influences. This is further supported by the inconsistency between consumer demand patterns and those demand patterns experienced by players upstream in the supply chain.

“In extreme cases, loaded trucks have been known to travel between delivery points through the morning without making any deliveries.”

MANAGEMENT LEVERS IMPACTED BY M20CTS

1. Capacity
2. Outsourcing
3. Supplier Relations
4. Human Resources
5. Quality
6. Inventory

CAPACITY

Capacity concerns the quantity and timing of resource needed to satisfy a given customer service level. There are many capacity strategies for

incorporating the peaks caused by *M20CTs*. These fall on a continuum, with the “level” strategy at one extreme and the “chase” strategy at the other.

Under a level strategy, a firm produces at a constant rate throughout the month. Excess inventories produced in the last weeks of the month are stored, ensuring stock levels at the beginning of a month are sufficient to meet peak demand. Equipment and labour capacity can be kept at an efficient level.

However, storage and distribution facilities need to be large enough to accommodate peak finished goods inventory levels towards the end of a month, even though utilisation during other times of the month will be low.

Firms operating a chase strategy produce at differing rates throughout the month, according to fluctuations in demand. In anticipation of the *M20CT* peaks, manufacturing firms may produce at a maximum rate in the last week of the month to ensure stocks are available for filling orders in the first week of the following month. Again, these capacity levels would need to be such that they supported peak inventory and production levels.

Although labour capacity could be varied through the use of temporary labour or overtime, there are a number of associated costs (discussed further below) which make it an undesirable option.

OUTSOURCING

Outsourcing concerns the assignment of operational activities to a third party. It can be used to cope with the monthly demand peaks associated with *M20CTs*. But there are a number of associated costs to consider, other than the obvious financial cost.

For example, a New Zealand warehousing and distribution company sometimes contracts drivers to cope with excessive peaks in demand. However, not only do contractors have less knowledge of a firm’s products and customers, but they do not carry the product tracking equipment of company drivers. Given that product tracking is a key function of the company’s operation, the lack of such a facility impacts their ability to meet desired customer service levels.

SUPPLIER RELATIONS

Many of a firm’s suppliers are likely to be offering *M20CTs*, so the majority of supplier accounts will be due by the 20th of a month. Thus, these accounts need to be processed and settled only once within a month.

Another example of the associated costs of outsourcing is provided by a New Zealand food distributor, which outsources its warehousing and distribution functions. When the third party contractor makes deliveries to larger customers, its drivers often have to queue up with drivers from other suppliers that also trade with *M20CTs*. Drivers may even be turned away by the customers storemen, who are already processing inventories at maximum capacity. In extreme cases, loaded trucks have been known to travel between delivery points throughout the morning without making any deliveries.

However, this may actually prove more detrimental than advantageous. At account processing time, staff responsible for this function are likely to be under considerable pressure. Given that these staff often provide the last opportunity for assessing the accuracy of supplier accounts, such pressure may increase the number of errors passing unnoticed and the frequency of errors being introduced at this stage. (Braid, 1998)

“Pressure on staff may increase the number of errors passing unnoticed and the frequency of errors being introduced.”

HUMAN RESOURCE

As discussed in regards to capacity, a firm's workforce level may be constant or variable. Where a constant level is maintained, peak demand places staff under considerable pressure. As well as being detrimental to the health of employees, this may increase costs resulting from such factors as an increased occurrence of errors, a failure to meet service levels and quality problems.

A variable level of labour will also generate costs, resulting from the substandard performance of either current staff working overtime or part-time staff with lower skill levels, the payment of wages at overtime rates, and the hiring and training of temporary staff.

QUALITY

During demand peaks the quality of operational activities may be compromised. For example, despatching as many customer orders as possible within the first few days of a month may be seen to improve customer service. However, the frequency of errors and of damage to goods is likely to have increased. There is the added cost of rectifying problems later in the month.

INVENTORY

A complex situation arises when a firm offers *M20CTs* to its buyers and is itself offered such credit terms by its suppliers. With both the firm and its customers employing the same buying pattern, the fluctuations in warehousing and distribution are amplified. This places further pressure on staff as they process both incoming and outgoing orders.

COMMON OCCURRENCES AT A NEW ZEALAND FOOD TRADING BUSINESS TRADING WITH *M20CTs* INCLUDE:

If inventory levels are low towards the end of a month, staff are encouraged not to make purchases until the first days of the following month. But, if there are any delays or inaccuracies in those purchases, the firm may run out of goods to fill customer orders.

Incoming goods need to be processed before being available for despatch. At times, goods that are physically located within the warehouse cannot be used to fill customer orders as they have not been processed on inventory records.

In such situations the customer orders are often not filled quickly or adequately. This, in turn, reduces customer service levels, creates transportation inefficiencies associated with small orders, and increases the costs of processing back orders.

A SYSTEMS PERSPECTIVE

Many authors refer to the need to take an integrated approach to trade credit terms. For example, Seiden (1964, p1) writes, “For non-financial firms the question of financial risk is secondary to their primary interest, the sale of goods and services. Trade credit policy is thus caught between the conflicting objectives of aggressive selling and sound credit practice. This conflict has its impact upon general business conditions and the survival of firms.”

“The 3% discount offered by a confectionery manufacturer to customers paying within 14 days converts to a monetary interest rate of 30%.¹”

The ‘total cost’ concept proposes that all logistical activities necessary to achieve a given customer service level be considered simultaneously, with the aim of minimising the total cost. This concept addresses the integration of a firm's internal activities.

Supply Chain Management (SCM) concerns the external integration of business processes, from end user through to the original supplier. Lambert et al (1998, p504) write that, “SCM is a systems approach that is highly interactive and complex, and requires simultaneous consideration of many trade-offs.”

An integrated evaluation of the impact of *M20CTs* on a firm's operation may give a negative assessment of the practice. That is, the costs of this practice can far outweigh the benefits, both within a business and within its supply chain. The following section considers alternatives to *M20CTs*.

ALTERNATIVES TO 20TH OF THE MONTH TRADE CREDIT TERMS

It is important to realise that it is not the *M20CTs* that cause inefficiencies as such, but the ordering pattern they induce. *M20CTs* can be retained, and there is still potential for considerable savings, through the adoption of a more efficient ordering pattern.

Given that the demand peak within the first days of a month is the primary problem, there exist many options for smoothing this peak.

DAY TERMS

Day terms require payment within a fixed period after purchase. Regardless of the timing of orders, the credit period extended remains constant. The ordering pattern induced will depend on a buyer's preference rather than any benefit gained from the credit period. Further, it is likely that orders placed from across the customer base will vary in timing.

The demand pattern facing a supplier offering day terms of trade credit will contain both random fluctuations and external influences. However, the extreme peaks of a date term ordering pattern are likely to be eliminated, along with the associated inefficiencies. A number of New Zealand suppliers employ seven-day trade credit terms without any apparent influence on demand patterns. Similar results are observed in North America, where day terms are used extensively.

A major disadvantage of day terms, however, is the lack of batching of invoices. This increases the transactional costs of making payments.

DISCOUNT TERMS

A New Zealand confectionery manufacturer employing *M20CTs* implemented a discount scheme for early payments in an effort to reduce demand within the first few days of the month. Customers that pay within the discount period gain no advantage from ordering on the first of the month.

¹ For a 50 day credit period with a 3% discount for payment within 14 days:
 • 50 - 40 = 36 days credit at a penalty cost of 3%
 • To convert to an annual rate: (365/36) x 3% = 30%

“When the customer has greater bargaining power, changes of credit terms will be at their discretion.”

The use of discount terms appears to be a common business practice. Cole (1968) explains that cash discounts for early payment can be viewed from two perspectives. The first considers the cash discount as a reward for prompt payment, while the second considers the discounted price as the actual value of the goods, with buyers effectively being penalised for payments made after the discount period.

One method of assessing discount rates is from comparisons with rates of interest. For example, the 3% discount offered by the confectionery manufacturer to customers paying within 14 days of invoicing converts to a monetary interest rate of 30%¹. From a buyer's perspective, there is considerable cost in not utilising the discount.

Cole (1968) suggests that, with bank interest rates well below 30%, businesses may even benefit from sourcing bank finance to realise the savings from paying within the discount period. However, limited availability of bank finance for stock purchases appears to restrict this possibility in New Zealand.

A large New Zealand manufacturer of car accessories uses discount terms with a slightly different approach. Recognising that it was ultimately their customer service level that suffered as a result of *M20CT* demand peaks, the company offered buyers a discount for orders placed in the last week of the month if these orders exceeded a specified amount. Although delivered in the last week of the month, these orders are not billed until the following month, allowing buyers to retain use of the maximum 50-day credit period.

This discount draws demand forward from the first week of the following month to the last week of the current month. Further, given that the discount is offered on large orders, the demand drawn forward should be of a substantial level.

PROMOTIONS

Another measure taken by the company referred to above is to offer promotions. For example, buyers placing orders within the last two weeks of the month, regardless of size, are offered free product or gifts.

Since implementing this practice, along with the discount component discussed earlier, the company has reported a fall in the proportion of orders filled within the first week of a month from 40-45% to 30%.

ELECTRONIC PAYMENTS

Electronic payment schemes allow businesses to transfer descriptive information as well as funds, both credit and debit, through an electronic medium. A major benefit of these schemes is the speed and ease with which accounts can be settled. Solely from a transaction cost perspective, this paperless system could lead to the elimination of the credit period altogether.

However, there are a number of costs to consider. First, not all suppliers to, and customers of, a business are equipped to handle electronic schemes. This means a firm will incur the fixed and operating costs of maintaining both the new electronic and the old paper payment schemes. Second, the compatibility of electronic systems and the transfer of clear and accurate information might be an issue where the electronic payment systems used by businesses differ.

CYCLE BILLING

This option splits a firm's customer base so that each half operates on separate order cycles. All buyers are offered the same terms of credit, but the timing of the payment cycles differ.² Although this split of the customer base will induce two peaks in buyers' demand patterns, neither peak will be as extreme as the single peaks of businesses offering just the one cycle of *M20CTs*. However, the increased complexity of trading with two different payment cycles should not be overlooked.

FACTORING

Factoring concerns the conversion of accounts receivable into cash by selling them to a financing firm. Perhaps the greatest advantage of factoring is the increased cashflow that results from the financing firm advancing funds on customer accounts owing. Further, the risks and responsibilities of credit collection are transferred to the financing company. However, it should be noted that although this option will decrease the extreme variations in cashflow caused by *M20CTs*, it will not change the ordering pattern induced.

FACTORS AFFECTING IMPLEMENTATION

There are a number of factors to consider that may support or hinder implementation of trade credit term changes.

RESISTANCE TO CHANGE

Organisational change of any form is likely to encounter resistance. The most obvious source of external resistance to a change of trade credit terms is the customer who is opposed to any change that reduces the credit received. Further, deviations from the industry norm may be resisted, especially by those opposed to having just the one supplier operating on an alternative credit cycle.

CUSTOMER-BUSINESS RELATIONSHIP

The balance of power in the relationship between the customer and business plays a significant role in the implementation of change. In circumstances where the customer has greater bargaining power, changes of credit terms will, in effect, be at their discretion. The greater a supplier's bargaining power, the higher the likelihood of success in the implementation of credit term changes.

INFORMATION SYSTEMS

The use of information systems to support various business operations is common in today's commercial environment. These systems, often customised to suit the user's needs, are likely to perform many functions of which trade credit terms are a significant element. For example, order processing and the scheduling of customer billing may be conditioned on the credit terms employed. Any change to these terms will require subsequent adjustments of the information system.

In some cases inflexibility within systems may prove to be a barrier to the implementation of change. On a positive note, the increasing capacity and technological advances of systems in use may assist in changes made to credit terms.

INFRASTRUCTURAL ISSUES

There are many elements of a firm's infrastructure that may have been established as a result of, or in support of, trade credit practice. Therefore, any change to trade credit terms may have to be accompanied by changes to the infrastructure.

For example, monthly reporting may have been scheduled to follow the end of each credit period, allowing for the clearance of accounts receivable and payable prior to the creation of accounts. Reporting dates and procedures may have to be altered to match changes made to the terms of trade credit.

The impact on cashflows of a change in trade credit terms is another example. Automatic payments may have been scheduled to follow the considerable cash inflows after the 20th of a month.

CONCLUSION

Trade credit appears to be a well established and necessary element in the current business environment. However, the common New Zealand practice of offering "20th of the following month" trade credit terms has a significant impact on business operations.

In particular, operational inefficiencies caused by this practice can lead to the actual system-wide costs being larger than the benefits. Companies would be wise to assess alternative forms of trade credit – although, as a general rule, any attempt to change trade credit terms will require the support of a prominent supplier or may involve a collaborative venture.

FURTHER READING

Two books (Boxall & Green, 1994, and Lambert et al., 1998) provide an overview of operations management, logistics and supply chain management and New Zealand business practices respectively. These books have been used primarily as references for basic concepts and theories. The article by Pyke (1993) was particularly useful in that it provided a framework for the evaluation of trade credit terms from an operations perspective.

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1 For a 50 day credit period with a 3% discount for payment within 14 days:

50 -14 = 36 days credit at a penalty cost of 3%.
To convert to an annual rate: $(365 / 36) \times 3\% = 30\%$

2 For example, one set of buyers may be offered M20CTs, while the other may be offered 5th of the month terms. For orders made after the 15th of a month, the credit period is extended for the remainder of the current month, all of the next month, and five days of the month following that.

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