Another Five C’s for the Determination of Credit Terms

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Corporate finance textbooks typically list the five C’s of credit as character, capital, capacity, conditions, and collateral. Although these five C’s provide a framework for developing credit standards and for credit investigation at the customer or micro-level, they do not provide any guidance for strategic use of credit policy like setting credit terms at the corporate or macro-level. In this paper, another five C’s of credit are considered: clientele, competition, contribution margin, capital costs and cycles. These other five C’s provide a framework primarily for setting credit terms. After the concept of each C is explained, its development in the extant literature is reviewed and empirical evidence presented. Functional implications are also suggested.

Field of Research: Corporate Finance, Working Capital Management.

Introduction

Corporate finance textbooks [e.g., Brealey, Myers and Marcus, 2004, p.567] typically list the five Cs of credit as:

1. The customer’s character.
2. The customer’s capacity to pay.
3. The customer’s capital.
4. The collateral provided by the customer.
5. The condition of the customer’s business.

As Maness and Zietlow [2005] note, the above five C’s provide a framework for developing credit standards and for credit investigation. However, they do not provide any guidance for strategic use of credit policy like setting credit terms at the corporate or macro-level. Credit terms specify when invoiced amounts are due and whether a cash discount could be taken for earlier payment. The credit period is the length of time allowable for payment of the invoice amount. The cash discount is the percentage amount that can be subtracted from the invoice if the customer pays within the discount period. In this paper, another five C’s for credit policy are considered: Clientele, Competition, Contribution margin, Capital costs and Cycles. These five C’s provide a framework primarily for setting credit terms. After the concept of each C is explained, its development in the extant literature is reviewed and empirical evidence presented in the following sections with functional implications suggested. Although the literature and evidence applies more to trade credit policy, these other five C’s may also be useful for

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setting consumer credit as part of a strategic marketing policy. The last section discusses pedagogical uses for these other five C’s taken together.

1. **Clientele**

1.1. **Concept of Clientele Effects.**

Schwartz and Whitcomb [1980], Brennan, Maksimovic and Zechnner [1988] and Petersen and Rajan [1994, 1997] suggest price discrimination as a motive for the provision of trade credit. In short, they recognize that the provision of more generous credit terms is equivalent to a reduction in the (net) price of the product for some customers. From microeconomic theory, we know that if the product price is set in the price-inelastic range of the demand curve, revenues would be increased by increasing (and not reducing) the price. Therefore, if trade credit is to price discriminate, it must be that the pre-discount price is found in the price elastic range of the demand curve, where the provision of trade credit would increase sales to certain customers. The **Clientele** effects then refer to the setting of credit policy based on the characteristics of customers which would (i) optimize the sales increase to these customers and/or (ii) reduce the bad debts and/or collection expenses from these customers.²

In addition, the empirical findings of Petersen and Rajan [1997] and Ng, Smith and Smith [1999] show that credit terms set by a vendor firm are stable over time. A similar pattern has been observed with respect to the dividend payout ratios of corporations. According to Miller and Modigliani [1961]: “Each corporation will tend to attract to itself a clientele consisting of those preferring its particular payout ratio” The preferences of clients may be based on their characteristics. With respect to credit terms, we similarly postulate that a particular set of buyer characteristics will necessitate establishing a particular set of credit terms.³

1.2. **Development.**

With respect to one of the credit terms, the determination of the optimal cash discount rate from a theoretical perspective originated with Lieber and Orgler [1975]. They developed expressions for the expected net present value of accounts receivable and an implicit-form solution of the optimal cash discount rate. Later, Hill and Riener [1979] derived an explicit form solution in a situation where the firm had no bad-debt exposure and the fraction of customers discounting was known. Both these studies focused on the time value gain, a positive effect of the provision of a discount on sales, cash discount expense and variable cost of production in the determination of an optimal discount rate. Recognizing that the provision of a cash discount was equivalent to a (net) price reduction, Rashid and Mitra [1999] linked the cash discount rate to the price elasticity of demand. More recently, Lim and Rashid [2002] extended the Rashid and Mitra analysis by introducing two pricing variables, the cash discount rate
and the product price, into this framework. With this integration, an increase in the cash discount rate is no longer a general subsidy to all customers to promote sales, but rather a differential subsidy.\(^4\) A general subsidy is now represented by a reduction in the product price that is available to all customers.

Integrating a firm’s credit policy with its product pricing approach is an important area of research recognized by Kim and Atkins [1978], who state “it is conceptually incorrect to analyze credit programs in isolation of pricing schemes.” With this in mind, Lim and Rashid [2002] show that optimal levels of the cash discount rate and the product price are simultaneously and significantly affected by the cash discount elasticity and the product price elasticity. However, the optimal cash discount rate is much more affected by its own cash discount elasticity and the optimal pre-discount price is much more affected by its own product price elasticity.\(^5\)

Lim and Rashid [2004] extend Lim and Rashid’s [2002] analysis to incorporate rigorous analysis of behavioral specifications of buyers and sensitivity analysis, and investigate how the optimal cash discount and product price are affected by varying clientele effects. They confirm that there is a simultaneity effect between the optimal levels of the cash discount rate and the pre-discount price (i.e., both move in the same direction), although the cash discount elasticity affects the optimal cash discount rate more significantly while the product price elasticity affects the optimal pre-discount price more significantly. An increase in the cash discount elasticity is shown to result in a higher optimal cash discount rate while an increase in product price elasticity is shown to lower the optimal cash discount rate. Similarly, an increase in the product price elasticity is found to lower the optimal pre-discount price while an increase in the cash discount elasticity is found to raise the optimal pre-discount price. Most importantly, for different pairs of elasticities, Lim and Rashid [2003] have derived the effects of variations in the bad debt loss ratio (measuring a buyer’s credit quality)\(^6\) and the fraction of customers who take the cash discount on the optimal levels of the cash discount rate and the pre-discount price.

Next, we look at how clientele effects could be used to mitigate bad debt loss. According to Smith [1987], a buyer’s behavior in the context of available credit terms serves as a signal about the buyer’s credit risk. For example, a buyer’s inability to take the cash discount, knowing that there is a high effective cost of foregoing the cash discount, signals that the buyer may be in financial difficulties. The value of this signal rises if there is more information asymmetry, and this will be more intense when the buying firm is small. The rationale is that smaller firms will have no or lesser publicly available information about them. Therefore, in order to make the cash discount a stronger signal, the vendor firm will set the cash discount rate higher for a smaller firm. Firm size could also proxy for cash discount elasticity. If larger firms have the resources to pay within the discount period and thereby enjoy the cash discount, an increase in the cash discount rate is no different from a general reduction in the product price of the same
magnitude. However, if smaller firms do not currently pay within the discount period, a larger cash discount may entice them to buy the product as the effective price of the product falls by a larger magnitude than the increase in the cash discount rate.\textsuperscript{7}

Finally, Ng, Smith and Smith [1999] note that clientele effects may also affect credit terms because some products, like those sold to Original Equipment Manufacturers (OEMs) and wholesalers, are likely to be consumed or resold quickly and thus have less collateral value than final goods sold to retailers. Hence, suppliers of OEMs and wholesalers are likely to offer shorter credit periods than are suppliers to retailers. Ng, Smith and Smith also suggest that a more widespread customer base (e.g., international customers) should marginally increase the likelihood of longer credit terms (to facilitate transactions and signals of product quality) and larger discount rates (to facilitate the monitoring of the buyer's credit quality).

1.3. Empirical Evidence.

From the extant literature on the development of clientele effects, a motivation for an empirical study would then be to determine the proxies for the cash discount elasticity and the product price elasticity from firm-level financial data that financial managers use to establish trade credit policies. In this regard, using data from the 1998 National Survey of Small Business Finances (NSSBF), Lim, Rashid and Mitra [2006] tested whether the buyer's firm size, credit quality, variable product demand, trade credit and cash discount utilization and demand (all of which could proxy for the buyer's cash discount elasticity of demand) and the buyer's industry (which could proxy for the product price elasticity of demand) affected the size of the cash discount rate offered.\textsuperscript{8} The NSSBF targeted non-financial, non-farm small businesses that had been in operation for at least a year. Financial data were collected only for the fiscal year in which the survey was conducted. Of particular interest is Section L of the survey, which collected data on trade credit usage. Trade credit data were only available for the firm as a buyer, that is, the data only reported the trade credit terms offered to the firm. The 1998 NSSBF contained data on the book value of assets, the percentage of purchases made on account, the accounts payable, inventory, the two-digit SIC code, the discount period \(N_1\), the credit period \(N_2\), the cash discount rate \(d\) and the percentage of cash discounts used.

There were 3561 firms in the sample. Of these firms, cash discounts were only offered to 728 firms for early payment.\textsuperscript{9} The longest discount period offered was 240 days, while the shortest was for cash on delivery. The median and mode discount periods were 10 days and the mean was 14.16 days. The minimum cash discount was less than one percent while the maximum cash discount was 40 percent. The median and mode discount rates were 2 percent while the mean discount rate was 2.40% with a standard deviation of 2.56%. A credit period was offered to 2338 firms, although only 728 of these were offered a cash discount.
The responses here were categorical, with the response number increasing in the length of the credit period. The longest credit period was 91-240 days (response 11), while the shortest was 7 days or less (response 2). The mean, median and mode credit periods were 21-30 days.\textsuperscript{10} We would examine Lim, Rashid and Mitra’s [2006] empirical results for each of their independent variables next, except for variable product demand (which would be examined under the “C” for Cycles).

(i) Firm size: In the presence of information asymmetry between the vendor firm and the buyer, the failure of the buyer firm to take a cash discount could provide a strong signal about the buyer’s credit risk and increase the firm’s bad debts. This information asymmetry might be more intense for smaller firms due to less publicly available information about them. Following Petersen and Rajan [1997], firm size is proxied by the natural logarithm of the book value of total assets. Our earlier hypothesis would predict that the coefficient of this variable would be negative. Lim, Rashid and Mitra [2006] found this coefficient to be negative and highly statistically significant. The negative coefficient also corroborated the hypothesis of setting credit terms (like the cash discount rate) to increase sales to smaller firms as explained earlier.

(ii) Credit Quality of Buyers: With an assumption that lower credit quality customers have a higher price elastic demand, Petersen and Rajan [1997, p.664] argued that the provision of more generous trade credit terms to these customers would permit them to express their demand. Credit quality is measured by the Dunn-Bradstreet credit score with a lower score indicating lower risk. Therefore, a firm with a higher Dunn-Bradstreet credit score has higher risk, or lower credit quality. The estimated coefficient of the Dunn-Bradstreet score was found by Lim, Rashid and Mitra [2006] to be positive and highly statistically significant. The positive sign of the coefficient corroborated the argument that a higher cash discount was offered to firms of higher risk, or lower credit quality, to permit them to express their highly elastic demand.

(iii) Utilization and Demand for Trade Credit and Cash Discounts: Following Petersen and Rajan [1997], Lim, Rashid and Mitra [2006] proxied the utilization and demand for trade credit by the percentage of purchases made on account and the accounts payable over assets ratio. Unfortunately these coefficients were found to be statistically insignificant. The percentage of cash discounts used might be the best proxy for cash discount elasticity, and here, Lim Rashid and Mitra [2006] found the estimated coefficient to be positive and highly statistically significant. The positive sign on this coefficient confirmed that firms that utilize cash discounts more (i.e., have higher cash discount elasticity) were offered higher cash discounts.

(iv) Buyer's Industry: As explained earlier, the optimal cash discount rate is also affected by the product price elasticity of demand. The classic analysis of product demand by Houthakker and Taylor [1970] showed that product price
elasticities differ across industries. The two-digit SIC code is therefore commonly used as a variable to control for the effect of the product price elasticity. If the cash discount rate is affected by the product price elasticity of demand, this should be reflected simply by a statistically significant coefficient for the two-digit SIC code, with either a negative or a positive sign. The estimated coefficient of the two-digit SIC code was found by Lim, Rashid and Mitra [2006] to be positive and statistically significant. This provided only weak support for the hypothesis that price elasticity of demands affected the cash discount, and confirmed Lim and Rashid’s [2002] theoretical result that the cash discount is more affected by its own cash discount elasticity (as evident from the higher t-values of firm size, credit quality and percentage of cash discounts utilized) than by the product price elasticity.

Earlier, using data from the 1993 National Survey of Small Business Finances (NSSBF), Lim, Rashid and Mitra [2005a,b] tested whether the buyer’s firm size, credit quality, variable product demand, trade credit utilization and demand and the buyer’s industry affected the size of the cash discount rate offered. Their independent variables were similar except for credit quality, as 1993 data only had a survey question asking buyer firms whether they faced credit market problems, and categorized these problems as serious, moderate or no problems. They also omitted the percentage of cash discounts utilized as this variable was categorical in the 1993 NSSBF dataset. A statistically significant negative coefficient was found on the log of the book value of assets, as was found in 1998 data. The credit quality of a buyer was measured by its response to survey questions about serious, moderate and no credit market problems faced in raising funds in the 1993 NSSBF data. The effect of serious credit market problems on the level of the cash discount rate was found to be negative, for these firms would not be creditworthy in the first place (to minimize bad debt expense). The evidence on trade credit utilization and demand affecting the cash discount rate were mixed from the 1993 NSSBF data. The percentage of purchases made on account significantly affected the cash discount rate, but the accounts payable over assets ratio did not, and both coefficients had different signs. The 1993 results might be consistent with Burkart and Ellingsen’s [2004] theoretical result that the relationship between the cash discount rate (or what they call the trade credit interest rate) and trade credit utilization and demand was indeterminate. Finally, based on the premise that the buying firms belonging to different industries would buy products with different product price elasticities of demand, a statistically significant coefficient of the 2-digit SIC code was found in the 1993 NSSBF data, and, similar to 1998 NSSBF data, this coefficient was found to be less significant than other coefficients reflecting cash discount elasticity.

Finally, with respect to reducing bad debts, Ng, Smith and Smith [1999] found that credit terms were significantly lower when firms sell to OEMs and wholesalers than when they sell to retailers, consistent with the rapid turnover and consumption rates typical of wholesalers and OEMs. They also found that
longer discount periods were offered to international customers. Wilson and Summers [2002] found from a survey of small businesses in the United Kingdom that responders show a greater willingness to vary credit terms for customer related reasons. In their responses, the highest scoring categories were those relating to credit being used as a marketing tool. They also found results consistent with Ng, Smith and Smith [1999] that discount rates, discount periods and credit periods were significantly lower when firms sell to OEMs and wholesalers than when they sell to retailers. In short, these other studies also found results consistent with clientele effects being a significant factor in the setting of credit terms.

1.4. Functional Implications.

The main implication of Clientele Effects is that a firm must set credit policy based on the characteristics of customers which would optimize the sales increase to these customers or reduce bad debts and/or collection expenses. For example, from the empirical evidence presented, a firm facing a customer who is of lower credit quality or higher credit risk (implying more price-elastic demand) will set a higher cash discount rate or more generous credit terms to get the customer to buy more. However, as Lim, Rashid and Mitra [2005] note from 1993 NSSBF data, no credit is extended to firms facing very serious credit market problems to avoid bad debts. Higher cash discounts or more generous credit terms would be offered to smaller firms (to get them to buy more and also to increase the signal from their behaviour as to whether or not they take the cash discount) and international customers, and higher cash discounts would be offered to firms which utilize cash discounts more. However, discount rates, discount periods and credit periods are significantly lower when firms sell to OEMs and wholesalers than when they sell to retailers. The empirical evidence does not reject Lim and Rashid’s [2002, 2004] theoretical result that the higher is the buyer’s cash discount elasticity of demand, the higher is the cash discount rate offered, nor does the empirical evidence reject Smith’s [1987] theory that cash discounts could be used to get information on customers to reduce bad debts expense.

Next, the effect of the product price elasticity of demand is mainly on the level of the pre-discount product price and the effect of the cash discount elasticity is mainly on the cash discount rate. This is shown from the empirical results where the industry coefficient is not as significant as, say, the credit quality coefficient. Between two firms with the same variable cost per unit, where everything else is the same, the firm with more product price-elastic demand will set a lower pre-discount product price. Now suppose we know that a customer is facing credit market problems which would make generous credit terms more attractive; in this case, we might want to increase the cash discount rate and/or the discount/credit period offered to get this customer to buy even more of our product. Alternatively, suppose we have two new entrants in the product market which would increase competition and thereby increase the product price elasticity; in this case, our
firm might want to reduce the product price to maintain its market share. In short, a firm would need to determine which of its elasticities is higher. If the product price elasticity were higher, then a 2 percent product price cut would have a larger impact on sales than a 2 percent cash discount. This would explain studies of firm practices which found that “Companies do not think a 2 percent cash discount is equivalent to a 2 percent price cut, with the latter thought to have a greater impact on sales” [Maness and Zietlow, 2005, p.174].

This separation of buyers (into those which are more credit-elastic and those which are more product price-elastic) is similar to Frank and Maksimovic’s [2004] separation of firms that are “financially-distressed” and “economically-distressed”. Financially-distressed buyers are those which are undervalued by the stock market and therefore have higher costs of capital. These buyers would be more credit-elastic and should respond more to changes in credit terms. Economically-distressed buyers are those that are suffering from falling sales (perhaps due to falling demand for their products). These buyers are looking to increase the profit or contribution margin from each sale and should respond more to changes in the product price.

Finally, I suggest that Clientele Effects could also be useful for setting consumer credit as part of a strategic marketing policy. For example, we might have heard of used car advertisements on television or radio where a used car salesman shouts: “Bad Credit, No Credit, No Problem!” Regardless of the motive to get customers of low credit quality to purchase used cars, when such customers go to the dealership, they would be offered consumer credit that they would be unable to receive elsewhere. For such customers, receiving credit would be more important than, say, getting a $500 cash rebate or lower price on the used car as their main problem is getting financing to purchase the vehicle (i.e., their credit elasticity is higher). Other customers of higher credit quality might be enticed by cash rebates or simply a lower price on the used car as their product price elasticity, relative to their credit elasticity, would be higher.

2. Competition

2.1. Concept of Competition.

The concept of competition affecting credit terms is similar to a Bertrand Equilibrium in microeconomic theory. As discussed before, the provision of more generous credit terms is generally equivalent to a reduction in the (net) price of the product. Therefore, if one firm offers more generous credit terms in order to maintain market share, the other firm or firms must match the more generous credit terms. The Credit Research Foundation [2002] and Christie and Bracuti [1986] state the influences of competition on credit terms as follows: “(1) Meet terms of competition. Less need to do so when the seller has a large market share or is able to price its output measurably lower than the competition. (2) Offer longer terms in a buyer’s market.”
2.2. Development.

According to Maness and Zietlow [2005], competition may be the most important “C” influencing the setting of credit terms. They observe: “Credit terms are often set based on competitive conditions and are rarely challenged, being taken as “givens” to most sellers. Note, however, that sellers with large market shares and/or a “low price” market position have greater latitude to unilaterally change terms.” [pp. 170-171] The first exception to competition influencing credit terms is when there is little or no competition (“sellers with large market shares”). The second exception has been discussed in the previous “C” (Clientele effects) section as follows: Lim and Rashid [2002, 2004] have demonstrated the simultaneity effect in their theoretical model of the cash discount rate, that is, the optimal cash discount rate and optimal product price always move in the same direction. Thus a lower product price implies a lower cash discount rate, for more generous credit terms imply a decrease in the (net) product price. If the firm’s product is already priced lower than its competitors, it would not have to reduce its price even further by offering credit terms as generous as its competitors.

Competition also affects the buyer’s market. As Maness and Zietlow [2005, p.171] point out: “Large customers may use market power and low gross margins to unilaterally challenge and change the seller’s terms to fit their preferences – lengthening the seller’s credit period to the buyer’s liking. Wal-Mart, Kmart, and Sears have each pursued such a strategy in recent years.”15 Maness and Zietlow [2005, p.174] also cited other studies of trade credit practices which found that companies change the cash discount if competitors do, but do not change the cash discount when inflation, interest rates, or economic conditions change. In addition, as it takes time for a new industry to become competitive (with sufficient new entrants), a firm should face more competition as it ages until such time when the industry matures and consolidates.

A recent development is to examine whether or not credit terms move in opposite directions (i.e., increasing the cash discount rate but reducing or keeping the same the discount period or credit period) or move in the same direction (i.e., the cash discount rate, discount period and credit period are increased simultaneously). The issue is whether a vendor firm trades off one credit term against others or moves them simultaneously. If the motive were to get the buyer to make payment earlier (i.e., reduce the DSO or Days Sales Outstanding), the vendor firm may set the cash discount rate at a higher level and correspondingly keep the credit and discount periods at the same levels or may even lower one or both of them. As Wilson and Summers note [2002, p.346], cash discounts could be used to generate information about buyer default risk through shorter discount periods and higher cash discount percentages. This is the trading-off approach. Or if the firm wanted a clear reduction in the (net) price of the product to stay competitive, it would increase the cash discount rate, give more time for buyers to take the cash discount (i.e., increase the discount period) and give more time
for buyers who do not take the cash discount as well (i.e., increase the credit period). This will represent a simultaneous change in credit terms. With competition, it would appear that firms prefer the simultaneous approach as the vendor firm desires for unambiguous communication of a price reduction to the buyer. Biais and Gollier [1997] observe that corporation managers often claim that if they had not extended trade credit they would not have been able to sell, that is, trade credit is used as a marketing tool. As such, the movement of credit terms should not be ambiguous. Alternatively, due to competitive pressures, a firm may be forced to increase its cash discount rate. This would increase the cost of “borrowing” for buyers who do not take the cash discount. This firm would then have to increase the credit period to mitigate the effects of a higher cash discount rate for these buyers, as well as the discount period to decrease the probability of these buyers missing out on the cash discount.16

2.3. Empirical Evidence.

Lim, Rashid and Mitra [2005a,b] examined firm-level data from the 1993 National Survey of Small Business Finances (NSSBF), and found that 2% was the median and mode cash discount rate offered to 1132 firms where a cash discount rate was offered (the mean being higher at 2.84%). Many of these firms were in industries with more than 10 firms, with credit terms within an industry largely similar and very highly correlated (i.e., in the SIC two-digit industrial classification, they found significant pair-wise positive correlations among three key credit policy terms). It was mentioned earlier that 2% was the median and mode (the mean being higher at 2.4%) cash discount rate offered when the 1998 NSSBF dataset was used instead. The NSSBF provided data on buyer firms. Ng, Smith and Smith [1999] examined supplier firms and found that 2% was the mode cash discount for a dataset of suppliers as well. Maness and Zietlow [2005, Chapter 6] presented an excellent overview of cash discount practices consistent with competitive suppliers offering a 2% cash discount for payment in 10 days. With credit terms so consistent across firms, it could only be concluded that cash discounts are determined, not by lack of competition, but rather by competition among suppliers to promote sales.

To test whether credit terms are changed simultaneously or traded off, Lim, Rashid and Mitra [2005a,b] looked at the cash discount rate, d, the length of the discount period, N₁, and the net credit period, N₂-N₁. They analyzed these credit terms in two ways: (a) finding out whether there was any pattern of liberal or conservative credit terms in industry-wise comparisons, and (b) testing the signs and statistical significance of the discount period, N₁, and the credit period, N₂-N₁, in a multiple regression of d. In the industry-wise comparison, they found that in most industries, frequent credit terms were 2/10, Net 30. This finding was similar to those of Ng, Smith and Smith [1999]. However, comparing the means of d, N₁ and N₂-N₁ for all these industries at the SIC 2-digit level for which the number of firms in the industry was at least 10, Lim, Rashid and Mitra [2005a,b] found that, on average, industries with higher d also had higher N₁ and N₂-N₁.
There were also significant correlations between the means of industry-wise \( d \) and \( N_1 \), \( d \) and \( N_2 - N_1 \), and \( N_1 \) and \( N_2 - N_1 \), which confirmed the pattern of simultaneous changes. With credit terms found to be relatively uniform within an industry, this meant that simultaneously higher/lower levels of \( d \), \( N_1 \) and \( N_2 - N_1 \) could be treated as evidence of simultaneous credit policy changes. In the multiple regression of the cash discount rate with the length of the credit period and the length of the discount period being two of several explanatory variables, the estimated coefficients of both credit policy variables were found to be positive and statistically significant. This meant that the higher were \( N_1 \) and \( N_2 - N_1 \), the higher was \( d \) — a finding that supported simultaneous changes in credit terms to promote sales, rejecting the hypothesis that a vendor firm might trade-off one credit term against the other credit terms to get the buyer to make earlier payment (and reduce the DSO)\(^{17} \). The Pearson correlation coefficients for pairwise correlations of the three credit terms for all firms across all industries in the 1998 and 1993 National Survey of Small Business Finances are shown in Tables 1 and 2 respectively. The significant positive correlation tells us that in setting up or changing credit terms, a supplier does not trade-off but rather changes credit terms simultaneously in the same direction in order to remain competitive.

### Table 1. 1998 NSSBF Data

**Pearson Correlation Coefficients. (Significance levels in Parentheses.)**

<table>
<thead>
<tr>
<th></th>
<th>Discount Rate d</th>
<th>Credit Period N&lt;sub&gt;2&lt;/sub&gt;</th>
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</thead>
<tbody>
<tr>
<td>Discount Period N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>0.15218 (0.0001)</td>
<td>0.56281 (0.0001)</td>
</tr>
<tr>
<td>Discount Rate d</td>
<td></td>
<td>0.07411 (0.0456)</td>
</tr>
</tbody>
</table>

### Table 2. 1993 NSSBF Data

**Pearson Correlation Coefficients. (Significance levels in Parentheses.)**

<table>
<thead>
<tr>
<th></th>
<th>Discount Rate d</th>
<th>Credit Period N&lt;sub&gt;2&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount Period N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>0.0926 (0.0018)</td>
<td>0.42687 (0.0001)</td>
</tr>
<tr>
<td>Discount Rate d</td>
<td></td>
<td>0.1158 (0.0001)</td>
</tr>
</tbody>
</table>

Next, with respect to firm age, Petersen and Rajan [1997], Ng, Smith and Smith [1999] and Wilson and Summers [2002] found that credit terms were a function of the age of the company. The generosity of credit terms peaked when a firm was about 9-20 years old [Wilson-Summers] or 19 years old [Petersen-Rajan], suggesting that it took an industry about 20 years to mature (competition increased) before it began to consolidate (and competition stopped increasing). Finally, Wilson and Summers [2002] reported that industry norms and specific customer demands were highly significant factors influencing choice of credit terms (more significant than factors like cash flow and business conditions),
suggesting the importance of competition and clientele effects in setting credit terms.

2.4. Functional Implications.

The main functional implications of competition have been stated by the Credit Research Foundation [2002] and Christie and Bracuti [1986]18 earlier: (1) Meet terms of competition. Less need to do so when the seller has a large market share or is able to price its output measurably lower than the competition. (2) Offer longer terms in a buyer’s market. More recently, it has been found that competition requires credit terms to be changed simultaneously and not traded off against each other to communicate an unambiguous change in the (net) price.

Finally, let me suggest that Competition may also be useful for setting consumer credit as part of a strategic marketing policy with two examples:

(A) Meeting terms of competition: Many consumers would regard gasoline as perfectly substitutable across gas stations (i.e., most motorists think gas from Shell is no different than gas from Exxon). Therefore it is no surprise that gas stations compete primarily on price. When one gas station lowers its price, other stations in the vicinity are forced to lower their price.19 As consumer credit reduces transactions costs and therefore the effective price of gas, it should also be no surprise that when one gas station starts accepting a credit card, the other gas stations are forced to accept the same credit card such that at present, many, if not all, gas stations accept all major credit cards.

(B) Less need to do so when the seller is able to price its output measurably lower than the competition: Discount grocery stores (for example Food Basics or No Frills in Canada) typically do not accept credit cards as payment. However, they do accept debit cards as the transaction charges are paid by the customer. However, due to competition from Wal-Mart, No Frills now accepts its parent company’s MasterCard while Food Basics now accepts Visa/MasterCard. It used to be that fast-food chains only accepted cash or debit. Now, due to competition, they take all major credit cards.

3. Contribution Margin

3.1. Concept of Contribution Margin.

As discussed earlier, in the NPV framework, making credit terms more generous would result in a positive NPV only if (i) sales increased, (ii) bad debts and/or collections expenses decreased and/or (iii) the cost of capital was sufficiently high such that there was sufficient time value gain of earlier payments. For (i) to work, it must be the case that the contribution margin is high enough such that the increase in total contribution margin from the increase in sales is large enough to offset the increased cost of more generous credit terms. Consider an
extreme example: holding bad debts constant and the cost of capital reasonable, suppose the contribution margin is 2%. Then an introduction of a 2% cash discount would reduce the contribution margin to zero if all customers took the cash discount, and no matter what the sales increase, the fixed costs would result in a negative NPV. To summarize, the Credit Research Foundation [2002] and Christie and Bracuti [1986] state the influence of the contribution margin on credit terms as follows: Higher profit margins allow for longer terms. However, competition may force the seller to offer longer terms even though output prices are depressed, yielding negligible profits or even losses.

3.2. Development.

In a theoretical model that links information-motivated trade credit and information-motivated bank credit rationing, Biais and Gollier [1997] find that sellers with greater ability to generate cash flows (through higher contribution margins) provide more generous trade credit. Using the more traditional NPV framework, Lim and Rashid [2004] show theoretically that at a given cash discount elasticity, a higher product price elasticity lowers the optimal cash discount rate. This occurs due to the simultaneity effect (discussed earlier). As a consequence, the dollar value of the marginal gain (arising from the demand due to the cash discount) declines, requiring the optimal cash discount rate to decline. With the variable cost fixed, a lower pre-discount price is equivalent to a lower contribution margin. Therefore, a lower contribution margin requires a lower optimal cash discount rate, or less generous credit terms.

In a model that integrates capital budgeting policy with credit policy, Lim, Elahee and Rashid [2005] find that the optimal credit period declines as the profit or contribution margin decreases. In order to remain profitable, a firm has to provide a shorter credit period to decrease the overall cost. They note that the credit period is particularly sensitive to the contribution margin. This is because the contribution margin has a larger impact on NPV relative to the cost represented by the choice of the credit period. Hence the credit period has to decrease to a larger extent to compensate when the contribution margin becomes just a little smaller. They also perform sensitivity analysis with different costs of capital, and find that as the cost of capital increases, the effect of the contribution margin on NPV becomes less important due to the increased importance of the time value gain or loss on NPV. Finally, and somewhat surprisingly, they find in their simple model that the expected contribution margin (affecting the expected operating cash flows) is an important factor in capital budgeting decisions as well, perhaps equally important as the cost of capital if the cost of capital is not too high.

3.3. Empirical Evidence.

Lim and Rashid's [2004] and Lim, Elahee and Rashid's [2005] theoretical results are consistent with the empirical results of Sartoris and Hill [1988]. Sartoris and Hill [1988] find that the industry groups with the lowest contribution margins are
the most likely to reduce or even eliminate a cash discount. They also find that the cash discount is positively related to the contribution margin. Lim, Mitra and Rashid [2000], using accounts receivables/sales as a proxy for the generosity of credit terms (and as the dependent variable), find from 1993 NSSBF data that the generosity of credit terms is positively (and extremely significantly) related to the contribution margin. These results are consistent with Petersen and Rajan’s [1997] finding that trade credit is positively related to a firm’s gross profit margin.

3.4. Functional Implications.

The main functional implications of Contribution Margin have been summarized by Maness and Zietlow [2005, p.173] as follows: “The optimal cash discount depends on a product’s variable cost – the lower a product’s variable cost, the higher the feasible discount. There is some evidence that companies with lower gross margins are the most likely to reduce or eliminate their cash discount.” Although Maness and Zietlow [2005, p.174] later cite other research which find some practices inconsistent with this functional implication, like credit terms not changing even when contribution margins are changing due to changing business conditions, or companies having higher contribution margins not being more prone to respond to competitive changes in discounts even though such should be the case, these contrary findings do not hold other “C’s” constant. For example, even though a firm’s contribution margin is high, if their clientele’s cash discount elasticity is low, then there is no reason why this firm should be more prone to respond to competitive changes in cash discounts.22

Finally, with respect to implications for consumer credit, recall the previous examples of gas stations and discount grocers in Canada. Canadian gas stations typically put a pie chart at the pumps indicating the various components of the price of gas. Only a small fraction (less than 10 percent) of the price of gas goes to the gas station, with most of the cost going towards oil production, refining and taxes. With gas stations forced by competition to accept all major credit cards and to price competitively, it is no surprise with the extremely low margins that the independent gas station in Canada is becoming a distant memory, with most gas stations now owned by major oil companies like Shell, which uses its higher contribution margins from oil production and refining to finance the costs of consumer credit at the pump.23 Considering discount grocers, another reason why they did not initially accept major credit cards was that their lower contribution margins were an impediment (until Wal-Mart came along).

4. Capital Costs

4.1. Concept of Capital Costs.

As discussed in the previous “C” (contribution margin), in the NPV framework, making credit terms more generous results in a positive NPV only if the cost of funds is sufficiently high such that there is sufficient time value gain of earlier
payments. Maness and Zietlow [2005, p.173] state that analysis of the optimal cash discount has led to the conclusion that the cash discount offered should be based on the offering company's cost of funds. This is related to Emery's [1984] financial explanation of trade credit where, due to imperfect financial markets, the borrowing rate is higher than the lending rate. Therefore, if the seller can negotiate with the buyer a trade credit interest rate (implicit in the cash discount rate and net credit period) between the borrowing rate and lending rate, the seller can earn a surplus of the difference between the trade credit interest rate and the lending rate, and the buyer can earn a surplus of the difference between the trade credit interest rate and the borrowing rate. This implies that credit terms are affected by the cost of funds. However, the 2001 Credit Research Foundation survey finds that only 19 percent of companies change the cash discount when the opportunity cost of funds change. This finding is consistent with the seminal work of Meltzer [1960], where he argued that trade credit provides a cushion through which the seller (firm) insures the buyer (firm) against the consequences of a tight monetary policy (resulting in higher short-term interest rates). In addition, larger capital expenditures usually result in greater production. With more goods to sell, a firm may have to lower prices, or offer more generous credit terms. Lim, Elahee and Rashid [2005] postulate a theoretical model integrating capital budgeting with trade credit where numerical simulations show that the level of capital expenditure is directly related to the credit period, or the generosity of credit terms in general.

4.2. Development.

Using an NPV framework, Lim and Rashid [2004] find, in their numerical simulations, that the optimal cash discount rate, \( d^* \), should change as the cost of capital, \( k \), changes for different pairs of the cash discount elasticity and product price elasticity of demand. Their results are shown in Table 3 (which is taken from Table 4 of Lim and Rashid, 2004). From Table 3, for any pair of the two elasticities, an increase in \( k \) raises \( d^* \), and this is due to an increase in the time value gain of prompt payments. However, the increase in \( d^* \) is much lower in magnitude than the increase in \( k \). For example, when the cash discount elasticity is 0.005 and the product price elasticity is -1.5, when \( k \) increases from 0% to 20%, \( d^* \) increases from 1.6% to only 2.4%. This is consistent with Meltzer's [1960] argument that trade credit (here the optimal cash discount rate \( d^* \)) provides a buffer against changes in macroeconomic conditions reflected in changes in the cost of capital \( k \). It is also consistent with Wilner's [2000] model's predictions that the trade credit interest rate is higher and rises with the cost of capital, but the interest rate differential decreases as the cost of capital rises. Wilner also shows the change in the trade credit interest rate to be less than the change in the credit market rate. This implies that trade creditors dampen the effects of macroeconomic interest rate fluctuations.
Table 3
Effect of Variations in Cost of Capital, k, on the Optimal Cash Discount, d*,

<table>
<thead>
<tr>
<th>k (%)</th>
<th>Cash discount elasticity, Product price elasticity</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005, -1.5</td>
<td>0.016, 0.018, 0.0198, 0.022, 0.024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.02, -1.5</td>
<td>0.028, 0.030, 0.032, 0.034, 0.036,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.005, -3</td>
<td>0.012, 0.014, 0.017, 0.019, 0.021,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Next, Lim and Rashid [2004] note that at a given product price elasticity, an increase in the cash discount elasticity leads to a similar increase in d* at various levels of k. This is due to the fact that k is basically a scale factor in the net present value of credit policy as it does not interact with the cash discount elasticity. In addition, at a given cash discount elasticity, an increase in the product price elasticity lowers d*, and this decline in d* is about uniform at different levels of k. This uniform decline is due to the simultaneity effect and a complete lack of interaction of k with the product price elasticity. Finally, in a model that integrates capital budgeting policy with credit policy, Lim, Elahee and Rashid [2005] find that the optimal credit period declines as the contribution margin decreases. When they perform sensitivity analysis with different costs of
capital, they find that as the cost of capital increases, the effect of the contribution margin on NPV becomes less important due to the increased importance of the time value gain or loss.

4.3. Empirical Evidence.

Nilsen [2002] tests the argument of Meltzer [1960] and finds evidence that trade credit provides a buffer whereby the seller (firm) insures the buyer (firm) against the consequences of monetary contractions (i.e., higher short-term interest rates).\textsuperscript{25} A corollary is that the cash discount rate varies less than short-term interest rates, consistent with the numerical simulations of Lim and Rashid [2004] using an NPV framework. Using 1993 and 1998 NSSBF data, the median and mode cash discount rate offered to all firms was 2% (as mentioned earlier). The prime lending rate in 1993 (from the Fred2 database of the Federal Reserve Bank of St. Louis) was 6\% while the prime lending rate for most of 1998 was 8.5\%. This implies that while the prime lending rate rose by 2.5\% (in absolute percentages), the cash discount rate held steady. From Table 3, for changes in $k$ of 2.5\%, the optimal cash discount rate should change by about 0.1\% (in absolute percentages) across all three pairs of elasticities. Given that the menu costs\textsuperscript{26} probably outweigh the benefits of making such a small change, it is not surprising that most firms decided to keep their cash discount at 2\% from 1993 to 1998.

4.4. Functional Implications.

Given the empirical evidence above and the results of the 2001 Credit Research Foundation survey finding that only 19\% of companies change the cash discount rate when the cost of capital changes, it may appear that cost of capital is ignored by financial managers when setting credit terms. However, this is largely due to historically low interest rates in the past decade and small gradual changes in short-term interest rates. In short, it may as well be that the Federal Reserve has managed monetary policy so well that there need not be any effect on credit terms. From Lim and Rashid [2004], an increase in the optimal cash discount rate of 1\% (in absolute percentage) requires an increase in the cost of capital by more than 20\% (in absolute percentages). In addition, the results of Lim, Elahee and Rashid [2005] suggest that when firms expand, they should offer more generous credit terms. Several independent grocery chains (that started with just one store) now accept Visa and MasterCard when they once only accepted cash.

5. Cycles

5.1. Concept and 5.4. Functional Implications of Cycles.

The Credit Research Foundation [2002] and Christie and Bracuti [1986]\textsuperscript{27} state the influences of cycles on credit terms as follows:
Operating Cycle: Terms should match length of time for customer to process material, sell it, and collect funds from sale, but in practice, some of that cycle is usually funded by the customer. For example, more expensive items, such as diamonds and jewelry (which have longer operating cycles) are given four- to six-month terms; relatively inexpensive items have shorter terms.

Production Cycle: 1. Raw material sold to manufacturers on shorter terms than intermediate or finished goods; 2. Terms generally would not exceed sum of manufacturing plus storage time.

Turnover Cycle: 1. Short shelf life is associated with rapid turnover and short selling terms, that is, more rapidly selling products are accorded shorter terms because of rapid turnover. Trademarked goods have higher consumer acceptance and sell more rapidly than unknown brands and therefore could have shorter terms; 2. Canned goods and processed food products, with longer turnover periods, have longer terms.

Demand Cycle: 1. When demand is seasonal, longer terms are given during the off-season, as compared with the active sales period; 2. Supplier trades off financing costs related to these terms with the more even production this policy allows and the lower storage costs during the off-season.

5.2 Development.

The concepts of and conclusions regarding the operating cycle, production cycle, and turnover cycle were derived by Smith [1997], Mian and Smith [1992], Long, Malitz and Ravid [1993] and Kluger [2001]. The concept of the demand cycle where trade credit could be viewed as an optimal financial response to variable demand was proposed by Emery [1987]. Emery [1987] developed a positive theory of trade credit based on its use as a financial response to variations in demand and showed that the extension of credit partitioned the buyer’s inventory cost and allowed specialization at incurring components of this cost. This specialization was economical when the seller had an advantage at incurring the financial cost but did not have an advantage at incurring the operating cost of accommodating variable demand.

5.3 Empirical Evidence.

Ng, Smith and Smith [1999] found that, besides eliciting information about buyer credit quality (in that not taking the discount signaled higher risk of customer default), cash discounts were for shorter periods when the buyer was able to sell the merchandise quickly. Cash discounts were for longer periods for international customers (who needed longer time to inspect the goods and to arrange payment) and were a higher percentage when product value was fast-changing (due to uncertain demand and doubtful collateral value). Lim, Rashid and Mitra [2005a,b; 2006] found that the coefficient on the inventory to assets ratio was positive and statistically significant, confirming the theory postulated by Emery [1987], and confirming Lim and Rashid’s [2002, 2004] hypothesis that the higher
cash discount elasticity of a firm which forward buys made its quantity demanded more sensitive to the cash discount.

Conclusion

In this paper, another five C’s for credit policy are considered: *Clientele, Competition, Contribution margin, Capital costs and Cycles*. These other five C’s provide a framework primarily for setting credit terms. Although these other five C’s were considered in alphabetical order (after the “C”), we might be asking which of these five C’s would be most important to a financial manager when setting credit terms? Here, I agree with Maness and Zietlow that *Competition* is probably the most important “C”. That is, the financial manager should, first and foremost, meet the terms of the competition. As Wilson and Summers [2002] note, trade credit contracts are by their nature incomplete and often established between suppliers and buyers with asymmetric bargaining positions, which make enforcing credit terms a problem particularly for small firms. So in meeting the terms of the competition, there is less need to do so when the seller has a large market share or is able to price its output measurably lower than the competition. However, more generous credit terms have to be offered in a buyer’s market. 

*After Competition*, the financial manager should consider *Clientele effects* and *Cycles*. As empirical research has shown that recent costs of funds changes have not been large enough to generate changes in credit terms, and changes in *Contribution margins* have recently had little effect on credit terms, the financial manager should put these two C’s in lowest priority, but still be mindful of larger changes in these two C’s which may occur at a future date. Also as a firm expands, it should offer more generous credit terms (which are related to *Capital costs*).

In conclusion, what are the pedagogical uses of these five other C’s used primarily for setting credit terms? Besides the ease in memorization from the use of alliteration,28 these five other C’s could help the student realize that credit policy or receivables management should be part of a marketing strategy as postulated by Maness and Zietlow [2005, p.129]. In other words, a firm’s credit policy should be integrated with its product pricing approach as recognized by Kim and Atkins [1978] who state that “it is conceptually incorrect to analyze credit programs in isolation of pricing schemes.” This is most evident from *Competition* and *Clientele* effects. The *Cycles* “C” could also help students realize the importance of inventory management in relation to credit policy. Finally, *Capital costs* and *Contribution margin* could help students realize the importance of industry factors and business conditions in the setting of credit terms.
References


1 For example, see Tirole [1988, p.66] or Diamantopoulos and Matthews [1995].
2 If sales did not increase or bad debts and/or collection expenses did not decrease with an introduction of or increase in the cash discount, or extension of the credit period, the NPV of making credit terms more generous would be negative at a reasonable cost of capital. This is because if sales did not respond to price changes, the firm would maximize profit by continually increasing the product price till sales fell. In the absence of a sales increase (again assuming a reasonable cost of capital), bad debts and/or collection expenses must decrease. Numerous NPV exercises in Maness and Zietlow [2005] confirm this microeconomic theory, e.g.: chapter 3, p.86, problem 9; chapter 5, p.177, problem 3; chapter 6, pp.224-225, problems 1-3.
3 An implication of this postulate is that suppliers within an industry face similar clientele effects given the empirical finding of Ng, Smith and Smith [1999] that credit terms show little variation within industries, due to competition.
4 The explanation is as follows. If a supplier increases the cash discount rate from 1% to 2%, it represents a 1% subsidy from the gross product price for those customers already taking the cash discount. These customers would be indifferent to a reduction in the gross product price of 1%. However, for those customers not already taking the cash discount, an increase in the cash discount rate may then cause them to take the cash discount. For those customers, the 1% increase in the cash discount rate represents a 2% subsidy from the gross product price, and is thus more attractive than a reduction in the product price of 1%.
5 Cash discount elasticity of demand is defined as the percentage change in quantity demanded divided by a given percentage change in the cash discount rate. The magnitude of this elasticity is generally affected by factors in the financial market, whereas the magnitude of the product price elasticity of demand is generally affected by factors in the product market. Lim and Rashid [2002] show that variations in borrowing costs, information asymmetry and other financial market factors are the main determinants of the size of the cash discount elasticity of demand. On the other hand, the product price elasticity of demand depends on factors such as the nature of the product (luxury or necessity), the availability of substitutes/complements, the price structure of substitutes/complements, the fraction of budget spent on the product, income uncertainty, expected inflation, etc.
6 Since the provision of trade credit to the buyer is a financial function, it is obvious that credit quality of the buyer firm determines whether it is eligible for trade credit, and if eligible, determines the limit on trade credit.
7 See endnote 4.
8 It would be established later that all three credit terms – the cash discount rate, discount period and credit period, move in tandem. That is, all are significantly positively correlated. Therefore if clientele effects are significant on the cash discount rate, it is likely that they would be significant on the other two credit terms as well.
9 This was consistent with Wilson and Summers’ [2002] survey of trade credit terms offered by small businesses in the U.K., where only 20% of firms were offered cash discounts for early payment.
10 This was also consistent with Wilson and Summers’ [2002] results in Table 2 [p.328] for U.K. small businesses.
11 Only two-digits SIC codes are provided in the National Survey of Small Business Finances (NSSBF) data.
12 I thank Scott Besley for pointing out that some car dealerships may have the motive of getting low credit quality customers to make a relatively large down payment to purchase cars, and later repossess these cars when the customer fails to make a payment on time and keep the relatively large down payment as well.
13 For example, see Tirole [1988] or Diamantopoulos and Matthews [1995].
14 As cited by Maness and Zietlow [2005].
15 The Canadian example here would be Chapters bookstore (the only chain of bookstores in Canada). It has been reported that Chapters would not only unilaterally lengthen the publisher’s credit period, but also the discount period by almost a year!
I thank Hamid Rahman for pointing out this alternative explanation. Beranek [1991] found theoretically that the optimal discount rate \(d^*\) has to be directly related to the time interval between the discount period and the credit period as well.

Maness and Zietlow [2005, p.173] reported a 2001 Credit Research Foundation survey where only 19 percent of sellers had measured the impact of the cash discount on DSO. It appeared that even though many sellers thought that introducing or increasing a cash discount would improve (i.e., reduce) DSO, their primary motive might have been just to remain competitive. Also, an examination of Table IV in Ng, Smith and Smith [1999, p.1122] showed that the sign of the coefficients of the statistically significant independent variables with the cash discount rate as the dependent variable was exactly the same with the discount period as the dependent variable (in two separate multiple regressions). This suggested that the cash discount rate and discount period were positively correlated and rejected the trading-off approach to setting credit terms.

Maness and Zietlow [2005, p.579] note that credit cards are just an example of nonrecourse factoring of accounts receivables.

As cited by Maness and Zietlow [2005].

In Canada, it has been reported that long lines form at a gas station that simply prices its gas two cents (per litre) below its competitors in the vicinity.

Maness and Zietlow [2005, p.173] reported a 2001 Credit Research Foundation survey where only 19 percent of sellers had measured the impact of the cash discount on DSO. It appeared that even though many sellers thought that introducing or increasing a cash discount would improve (i.e., reduce) DSO, their primary motive might have been just to remain competitive. Also, an examination of Table IV in Ng, Smith and Smith [1999, p.1122] showed that the sign of the coefficients of the statistically significant independent variables with the cash discount rate as the dependent variable was exactly the same with the discount period as the dependent variable (in two separate multiple regressions). This suggested that the cash discount rate and discount period were positively correlated and rejected the trading-off approach to setting credit terms.

As cited by Maness and Zietlow [2005].

It is the author’s opinion that the decline in academic and professional interest in credit terms in recent years has more to do with historically low contribution margins in recent years (due to the rise of discount retailers like Wal-Mart) than with historically low interest rates in recent years.

Linda Leatherdale reported in the TorontoSun.com [column titled “New year, old gouging” on Friday, January 6, 2006] that “for example, Canada’s Big Four (Shell, Esso, Petro-Canada and Suncor) now own more than 90% of the refinery business, and in Ontario, up to 85% of the retail market”.

Note that the cash discount elasticity reflects the time value considerations of marginal customers while \(k\) reflects the short-term borrowing costs of the firm (seller). Although systematic factors make the cash discount elasticity and \(k\) not completely independent, there exist idiosyncratic factors (for example, exogenous credit quality of borrowers, propensity to pay cash, etc.) which cause the cash discount elasticity and \(k\) to be sufficiently independent that they do not interact.

Mateut [2005, p.665] surveyed the literature and concluded that “the trade-credit channel is likely to dampen the effects of contractionary monetary policies and more generally to make the recessions that generally follow these policies less severe”.

See McCallum [1988, pp.409-411].

As cited by Maness and Zietlow [2005].

I also acknowledge my Advanced Corporate Finance students’ suggestion that each “C” be elaborated in alphabetical order beginning with C for Concept, D for Development, E for Empirical Evidence and finally F for Functional Implications.