



Supplier/customer considerations in corporate financial decisions



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Abstract Earlier research focussed on firm characteristics and the interests of financial stakeholders (shareholders and bondholders) as determinants of corporate policies. Subsequent research recognized that corporate policies are determined in a broader environment that includes nonfinancial stakeholders such as suppliers, customers, labour etc. In this paper, we summarize the theoretical and empirical research that includes supplier/customer considerations in the determination of corporate policies such as capital structure, dividends, takeovers, earnings management, and product quality. We highlight the significant effect that the inclusion of supplier/customer interests has on these corporate policies.

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Introduction

Most of the research in corporate finance, particularly the earlier works, developed theories and empirical tests in a framework that implicitly assumed that a firm's financial decisions reflect the characteristics of the firm and its financial stakeholders, namely, shareholders and bondholders. The underlying theme in these papers is that a firm

is a nexus of explicit contracts (Jensen & Meckling, 1976). More recently, however, researchers recognize that a firm's financial decisions affect and are affected by considerations pertinent to nonfinancial stakeholders. These nonfinancial stakeholders are entities/agents that are economically linked to the firm and include the firm's suppliers, customers, rivals, and labour. The relationships with these agents are governed by explicit as well as implicit contracts. The analyses of corporate financial decisions of a firm, that is a nexus of both explicit and implicit contracts, yield several new theoretical predictions. A number of papers in the last decade or so have provided significant empirical support for many of these predictions. Our objective in this paper is to offer a summary of the theoretical and empirical research on how nonfinancial stakeholder interests enter corporate financial decisions.

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For space considerations, we will focus attention only on the nonfinancial stakeholders from product markets, that is, a firm's suppliers and customers. In doing so, we will ignore other important nonfinancial stakeholders such as labour and rivals, but note that financial decisions are also significantly affected by the labour force and by competition.

At an intuitive level, it is easy to see why product market considerations should be related to corporate financial decisions. The decision maker in the firm, the manager, considers firm characteristics, for example the firm's asset structure and cash flow volatility, when making financial decisions such as the debt level or dividend payment. However, the manager is also likely to be well aware of the conditions in the firm's product markets, for example, the upstream and downstream firms in the supply chain. [Fig. 1](#) illustrates the position of the firm in its product market environment. Since optimal relationships with suppliers and customers have significant value implications, it stands to reason that the manager will take into account, conditions in the supplier/customer industries in making financial decisions. Put simply, in this paper we will try to show how these product market considerations can affect the firm's financial decisions and then present supporting empirical evidence.

The paper is organized as follows. The following section describes the role of supplier/customer considerations on the firm's capital structure. Then, we describe the research on how management decisions affect and are affected by investment decisions of suppliers/customers. The next section describes studies on how shocks are transmitted along the supply chain. We then examine the role of suppliers and customers in monitoring the firm and the role of information in these relationships. The last section offers some concluding remarks.

Supplier/customer considerations in capital structure decisions

The relationships between firms along the supply chain are governed by both explicit and implicit contracts.² As such, supplier and customer considerations can impact a firm's capital structure decision through two channels. The first relates the firm's debt level to the investment decisions of suppliers and customers. The second is bargaining, which postulates that the firm's debt level is determined as a strategic response to the relative bargaining power of its suppliers/customers – an increase in debt level reduces the surplus that is available for sharing with the suppliers/customers and, thus, increases the firm's bargaining power in negotiations. The seminal paper by [Titman \(1984\)](#) argues that the customers of a firm manufacturing durable goods expect the firm to provide parts and service in the future. A bankrupt firm that is in liquidation will clearly not be able to do so and customers will have to obtain parts and

² For example, [Williams \(2013\)](#) finds that the duration of (explicit) purchase contracts firms enter into is usually one year even if there is an understanding (implicit contract) with regular suppliers to continue purchases in the foreseeable future.

The firm and its product market environment

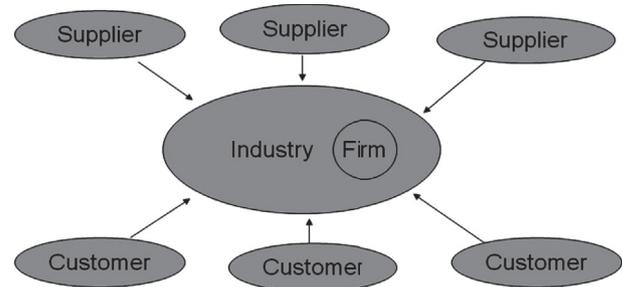


Figure 1 The firm and its product market environment.

services from alternate suppliers at a greater cost. If the likelihood of bankruptcy and subsequent liquidation of a firm is high, customers will factor in the costs of obtaining parts and services from alternate sources, and reduce the price that they will be willing to pay for the firm's products. [Titman \(1984\)](#) demonstrates that firms can commit to reducing the likelihood of liquidation by carrying lower debt than they otherwise would have.

[Maksimovic and Titman \(1991\)](#) carry this argument further and show that a consumer may be reluctant to buy a product from a firm near bankruptcy even if she incurs no financial costs in case of liquidation. The reason is that a firm in financial distress is less likely to honour implicit contracts such as, for example, product quality.³ Thus, if firms in financial difficulties have fewer incentives to supply high-quality products, a consumer might decide not to buy the product or buy it only at a reduced price when the firm is near bankruptcy. The main theme in [Titman \(1984\)](#) and [Maksimovic and Titman \(1991\)](#) is that when a firm produces a unique product, its suppliers and customers may have to undertake investments that lose value if the firm is in financial distress or if the firm liquidates. Thus, high leverage reduces suppliers' and customers' incentive to make relationship specific investments (RSI). The relationship specific investment theory posits that a firm can attract customers' and suppliers' RSI by maintaining a low leverage, thus committing to avoid default and liquidation.

Later research uses bargaining theory to explain the effect of a firm's customers and suppliers on capital structure decisions.⁴ [Hennessy and Livdan \(2009\)](#) developed a theoretical model to analyse the optimal leverage of a firm that relies on implicit contracts with its suppliers. They

³ [Bae, Kang, and Wang \(2011\)](#) investigate the effect of a different type of stakeholder, the firm's workers, on capital structure. Specifically, they study the role of employee treatment on capital structure. Consistent with the hypothesis in [Maksimovic and Titman \(1991\)](#) that firms in financial distress are less likely to honour implicit contracts, they find that firms that adopt more employee-friendly policies, as measured by the Employee Treatment Index, maintain on average a lower debt level.

⁴ In an influential paper, [Bronars and Deere \(1991\)](#) use the bargaining theory to model the firm's relationship with labour unions. They demonstrate that firms can use debt to reduce the surplus that labour unions can extract, thus increasing their bargaining power.

show that debt has two effects: while it increases the bargaining power of the firm, it also reduces the bilateral surplus that is available for discretionary payments to the supplier, such as bonuses and rebates, thus reducing the supplier's incentives to make relationship specific investments. The optimal capital structure is a tradeoff between the benefit of debt and the cost in term of efficiency. The model predicts that the firm will maintain a higher level of debt when the supplier has more bargaining power. [Chemla and Faure-Grimaud \(2001\)](#) analyse the case when buyers have private valuation for the supplier's product in a two-period setting. In this case, the informed buyer has the incentive to postpone revealing information. In such a setting with dynamic adverse selection, the authors show that the supplier has the incentive to increase debt in order to induce information revelation. The authors also show that such incentives would be greater for manufacturers of durable goods. The model developed by [Chu \(2012\)](#), on the other hand, analyses the relation between firm leverage and the market structure of the supplier's industry. The main result of the paper is that competition in the supplier's industry and firm's leverage are substitutes, since both increase the firm's bargaining power and reduce the supplier's incentives to make relationship specific investments with the firm.

Extant empirical research supports both the relationship specific investment and the bargaining power theories. [Kale and Shahrur \(2007\)](#) empirically investigate the effect of the customer-supplier relation on capital structure. They build on the intuition in [Titman \(1984\)](#) and [Maksimovic and Titman \(1991\)](#) and hypothesize that a firm uses low debt levels to induce customers and suppliers to undertake relationship specific investments. Further, they hypothesize that since a higher debt level increases the management bargaining power, firms maintain a higher debt level when customers or suppliers have more leverage in the negotiation. They measure relationship specific investments with two variables: the customer and supplier R&D expenses and the presence of a strategic alliance or joint venture with a customer/supplier.

Consistent with their first hypothesis, they find that a firm's leverage is decreasing in the R&D of its customer/supplier industries. Additionally, they find that when a firm operates in an industry characterized by the presence of strategic alliances and joint ventures with firms in the customer/supplier industry, the firms maintains a lower debt level. In support of the second hypothesis on the bargaining power of debt, [Kale and Shahrur \(2007\)](#) find that firms whose customers/suppliers operate in more concentrated industries – and thus have more bargaining power – have higher levels of debt.

[Banerjee, Dasgupta, and Kim \(2008\)](#) reach conclusions that are similar to those in [Kale and Shahrur \(2007\)](#). They find that a supplier that is dependent on a major customer that accounts for the majority of its sales maintains lower debt levels. The rationale is that suppliers try to reduce the financial distress costs they would incur in case the customer liquidates its assets. They also find that firm leverage is decreasing in the importance of purchases from dependent suppliers for firms in durable goods industries, supporting the hypothesis that a firm tries to attract RSI by

suppliers by reducing the likelihood of liquidation/bankruptcy. The empirical analysis in [Chu \(2012\)](#) finds that leverage decreases with the level of competitiveness in the supplier's industry, as measured by the elasticity of substitution among suppliers.

[Kale, Meneghetti, and Shahrur \(inpress\)](#) examine the effect of a specific contract between a firm and its customers, the product warranty, on capital structure. A warranty is a contract between the producer and the consumer of a product that specifies the conditions under which the firm guarantees service and maintenance. Since the warranty loses value if the firm is liquidated, it is reasonable to expect the consumer to account for the firm's probability of financial distress or liquidation ([Titman \(1984\)](#), and [Maksimovic and Titman \(1991\)](#)). Consistent with the hypothesis that a firm can attract investments by committing to avoid actions such as liquidation that are detrimental to its customers, the authors find that firms that offer higher levels of product warranties have, on average, lower debt levels.

Customer and supplier RSI and firm management decisions

There are several papers that examine the effects of product markets on a variety of management decisions such as risk taking, dividend policy, earnings management, and aggressiveness in accounting practices. In this section, we briefly describe the intuition underlying these effects and the associated empirical evidence.

Product market considerations and managerial risk taking and compensation

Relationship specific investments are risky for a supplier or a customer because their value is significantly lower outside the relationship with the firm. Therefore, when a customer (supplier) makes the RSI decision, it should take into account the possibility of financial distress and bankruptcy of the firm. Building on this intuition, [Kale, Kedia, and Williams \(2013\)](#) hypothesize that if the high-power incentives such as stock options in the firm CEO's compensation are high, the CEO may have the incentive to undertake excessive risk. Higher risk increases the likelihood of financial distress and, as a result, the firm's customers and suppliers will choose lower levels of RSI. Consistent with this hypothesis, the authors find that RSI by customers significantly declines in the firm CEO's risk taking incentives.

Dividend policy

A firm's dividend policy may also be affected by the firm's relations with its customers and suppliers. [Wang \(2012\)](#) tests two hypotheses on the relation between RSI and dividend policy. The financial distress hypothesis predicts that firms that rely on RSI are more likely to experience financial distress and, therefore, will optimally pay lower dividends in order to reduce the likelihood of financial distress. [Johnson, Kang, and Yi \(2010\)](#) provide a different explanation for the negative relation between RSI and dividends.

They propose that since large customers have more information about the supplier than the average investor, customer monitoring is a substitute for dividend payment as a governance mechanism. A customer that makes greater RSI will monitor more and, as a result, the firm will need to pay lower dividends.

Wang (2012) finds that firms that rely more on customer-supplier relationships indeed pay significantly lower dividends. Consistent with the financial distress hypothesis, the author finds that the results are stronger for firms more likely to be in financial distress. Contrary to the prediction of the certification hypothesis, the author finds that there is no difference in the relation between RSI and dividend payments across firms that differ in terms of free cash flow or governance as measured by the G-Index developed in Gompers, Ishii, and Metrick (2003).

Earnings management and accounting conservatism

Raman and Shahrur (2008) examine the role of RSI by customers and suppliers on a different firm policy, earnings management. A firm can attract RSI by customers and suppliers by improving the informational content of its earnings. This can be achieved by removing the earnings' transitory component. Alternatively, a firm can attract RSI by increasing revenues through accounting manipulation. Consistent with both hypotheses, Raman and Shahrur (2008) find a positive relation between industry-level measures of customer and supplier RSI and the firm's discretionary accruals. At the firm level the result holds only for the suppliers, while high level of customer RSI is related to lower earnings management activities. A potential explanation for this result is that firms prefer to report lower earnings when they have a bargaining disadvantage with the customer. Further, the authors find that the levels of customer and supplier RSI are negatively associated with measures of income smoothing, suggesting that firms manipulate earnings in order to boost revenues rather than to improve earnings' informational content.

Customers and suppliers can also affect a firm's accounting policies. Hui, Klasa, and Yeung (2012) find that firms are more conservative in their accounting practices and recognize losses more quickly when their customers and suppliers have more bargaining power. Supporting the hypothesis that the result is driven by the relative bargaining power of the firm against its suppliers and customers, the positive effect of customers' and suppliers' bargaining power on the firm's accounting conservatism is stronger if the firm operates in a material intensive industry, one that uses relatively more material than labour input, and if it produces unique goods. It is weaker when the firm operates in an industry with high barriers to entry and when its customer operates in a material intensive industry.

Spillover effects along the supply chain

A supply chain implies that firms are economically linked to each other and these economic linkages become more binding when up- and downstream firms make significant levels of RSI. It then stands to reason that the effect of an event or an exogenous shock to a firm will have significant

effects on firms that are economically linked to it, and that this effect should be reflected in these firms' stock prices and operating performance.

Shocks to supplier/customer and firm's stock returns

Rational investors should be aware of the supplier-customer link and, therefore, should immediately respond to news about a linked firm. If, however, limited attention on the part of investors results in this link being ignored, a firm's stock price will react to the shock to the supplier/customer firm's stock price, only with a lag. This delay in information transmission will result in predictability in the firm's stock returns. Cohen and Frazzini (2008) find that the strategy of buying shares of firms whose customers had the most positive stock returns and short-selling shares in firms whose customers had the most negative returns yields economically significant positive abnormal returns. The authors also find that when investors are likely aware of a firm's supply-chain links, as in the case of institutional investors holding both customers and suppliers shares, the return predictability is significantly less. These results support the investors' limited attention hypothesis. Cohen and Frazzini (2008) do find that the lag is significant only in the stock price reactions of upstream firms. Along similar lines, Menzly and Ozbas (2010) use the customer-supplier links to test the gradual diffusion of information hypothesis. They find that stocks in related customer and supplier industries cross predict each other's returns and that stock predictability is lower when analyst coverage is extensive.

Huang and Kale (in press) examine the effects of economic linkages in the context of mutual fund performance. Almost all mutual funds have one industry, which they call the "main" industry, in which their investment is the highest. Fund managers may concentrate investment in an industry either because of superior information/ability/effort or because of speculation or herding motives. Huang and Kale (in press) present a theoretical model which predicts that "better" mutual fund managers will invest more in industries that are economically linked to the main industry because they will likely have lower costs of obtaining information on these related industries. The model, therefore, predicts that funds with greater investments in these related industries will exhibit better return performance. The authors then provide empirical evidence which supports this prediction.

Brown, Fee, and Thomas (2009) investigate the effect of a firm's leverage buyout (LBO) on its suppliers. They find that around an LBO announcement, suppliers experience a negative abnormal return, and that the stock returns are even more negative for suppliers that are more economically dependent on the firm. Finally, they also show that the suppliers' operating margins decline after their customer's LBO. Taken as a whole, these results suggest that an LBO gives a firm more bargaining power in its relations with the supplier.

Johnson, Kang, Masulis, and Yi (2011) investigate how a supplier's financing decisions, specifically a seasoned equity offering (SEO), affect supplier-customer relations. The hypothesis is that an SEO sends a negative signal about the

reliability of the supplier, which reduces the customer's incentives to cooperate. Consistent with the hypothesis, they find that a firm's SEO announcement is characterized by negative customer and supplier cumulative abnormal returns (CARs) around the event, a decline in relationship specific investments (RSI) and importance of customer sales, and a significant reduction in the duration of the relationship. This effect is more severe when bankruptcy costs are high, the relation is characterized by high RSI, information asymmetries are significant, and when the supplier's product requires post-sales support.

Financial distress and bankruptcy

When a firm experiences financial distress or has to file for bankruptcy, it is likely that all the firm's stakeholders will be affected. For example, the wealth effects of a firm's bankruptcy will ripple along the supply chain and affect the firm's customers and suppliers. [Baranchuk and Rebello \(2011\)](#) present a model which predicts that a firm's bankruptcy affects firms along the supply chain because of the spillover from the restructuring of a distressed firm to rivals, suppliers, and customers.

[Hertzel, Li, Officer, and Rodgers \(2008\)](#) empirically investigate this claim, and study the wealth effects of financial distress and bankruptcy filings for customers and suppliers of the filing firm. They find significant evidence of linkages and contagion among firms along the supply chain. They find that the suppliers of filing firms experience negative abnormal returns during bankruptcy filing and in the pre-filing distress period. However, they do not find evidence of contagion to the customers of the filing firms. They also find that contagion to suppliers is more severe when the filing firm industry also experiences negative abnormal returns.

[Kolay, Lemmon, and Tashjian \(2012\)](#) examine the effect of a firm's Chapter 11 filing and pre-filing financial distress on its suppliers and customers. They find that suppliers experience a negative abnormal return around the pre-filing distress date, and that the CAR is even more negative when the filing firm has a low probability of reorganization. The authors show that the negative CARs are a prelude to a deteriorating operating performance. Interestingly, results show that the suppliers continue to extend credit to their distressed customers, which suggests that suppliers indeed have an incentive to avoid the firm's liquidation.⁵

When firms enter financial distress, they may also alter their product quality decisions ([Maksimovic and Titman \(1991\)](#)). [Phillips and Sertsios \(2013\)](#) investigate the relation between financial distress, bankruptcy, and product quality in the airline industry. They find that product quality, measured in terms of mishandled baggage and on-time performance, declines when airlines are in financial distress and increases when airlines are in bankruptcy.

⁵ Suppliers can take some precautionary measures to limit the negative effect of their customers' financial distress or bankruptcy. [Itzkowitz \(2013\)](#), for example, shows that suppliers with important customers hold, on average, higher levels of cash as a precaution against the loss of the customer.

[Hortaçsu, Syverson, Matvos, and Venkataraman \(2013\)](#) examine the effect of financial distress on the provision of services such as maintenance and warranties, which customers receive along with the main product, in the auto manufacturing industry. Consistent with the intuition that a firm's financial difficulties can disrupt the provision of these services and thus reduce the price a customer is willing to pay for the product, they find that an auto manufacturer's financial distress is followed by a drop in the car prices, especially for cars that still have a long service life and thus are more likely to require maintenance and parts.

CEO turnovers

[Intintoli, Serfling, and Shaikh \(2013\)](#) investigate the effect of a CEO's replacement on the firm's suppliers. They find that suppliers experience lower sales in the years following the customer's CEO replacement. The effect of CEO replacement is weaker when a large percentage of the firm's inputs come from the supplier and when the firm has been working with the supplier for many years. This suggests that when the supplier has more bargaining power, it can mitigate the firm's efforts to cut costs or renegotiate the implicit contract that governs the relationship. The authors also find that the negative effect on the suppliers' sales is worse when the CEO departure was forced and when the new CEO is an outside appointment.⁶

Customers and suppliers as firm monitors and certifiers

[Cremers, Nair, and Peyer \(2008\)](#) propose that customers and suppliers can closely monitor the firm, for example, by regularly requiring financial information. As a result, competition and the presence of strong supplier-customer relations can be a substitute for the market for capital control as governance mechanisms. These authors find that firms that operate in a competitive environment and have strong supplier-customer relations tend to have more takeover defences than firms that operate in a less competitive environment or firms that do not have strong supplier-customer relations.⁷

The empirical findings in [Patatoukas \(2012\)](#) are consistent with the intuition that a customer can efficiently monitor the supplier. [Patatoukas \(2012\)](#) finds that firms that rely on a few big customers experience a higher accounting rate of return, and operate more efficiently in terms of selling, general, and administrative expenses, cash conversion cycle, and inventory turnover. Furthermore, the change in customer concentration is a leading indicator of changes in rate of return, profit margins, and asset turnover. These findings support the hypothesis that customer

⁶ This result is consistent with extant literature suggesting that firms on average experience an increase in operating performance with a forced CEO departure or an outside appointment.

⁷ Unlike previous research [Cremers, Nair, and Peyer \(2008\)](#) categorized industries in relationship and non-relationship industries at the 2-digit SIC code level in order to measure the supplier-customer relation.

concentration can increase the efficiency in the supplier-customer relation through more information sharing, and more collaboration in marketing and advertising efforts.

Johnson et al. (2010) develop the idea that large publicly traded customers have a certifying role in their supplier's initial public offering (IPO). The intuition is that large customers are likely to have access to the supplier's proprietary information and operations, even more so if there are other contractual links between the two firms, such as customer's equity ownership in the supplier, long-term purchasing agreements, or strategic alliances.⁸ The main result of the study is that, consistent with the hypothesis, IPO firms with large customers experience a higher IPO valuation and exhibit better long term operating performance. These effects are stronger when there are inter-firm arrangements, and when the product is unique. The results also tend to be stronger if there are no other certifying mechanisms such as a venture capitalist or a highly competitive market.

Cen, Dasgupta, and Sen (2011) argue that a hostile takeover can adversely affect a firm by disrupting its long term relationships. Thus, when there is a high threat of a hostile takeover, it can be hard for a firm to establish relations with customers and suppliers, and it can become more difficult to attract necessary levels of RSI.⁹ Consistent with the hypothesis that the threat of a hostile takeover imposes ex-ante costs on the firm, the authors find that the threat of a hostile takeover is detrimental to the performance of firms that have a major customer. They also find that a reduction in the takeover threat is associated with a higher number of principal customers, an increase in the percentage sales to those customers, and an increase in the probability that the relation with the customer will continue in the future.

Along similar lines, Johnson, Karpoff, and Yi (2013) investigate the role of takeover defences as a bonding mechanism between the firm and its customers and suppliers. Relationship specific investments are regulated, at least in part, by implicit self-enforcing contracts. Extant research (Telser (1980) and Bull (1987)) suggests that the parties to such an agreement have the incentive to abide by the contract if a contract breach results in loss of reputation. Moreover, the manager's personal commitment, and thus her reputation, loses value if the manager is replaced in a takeover. Thus, the bonding hypothesis proposed by Johnson, et al. (2013) suggests that takeover defences make the implicit contracts between the firm and its customers and suppliers feasible by protecting the manager from takeover threats, thus preserving the value of the manager's commitments. The authors test this hypothesis on a sample of IPOs; and consistent with the bonding

hypothesis they find that not only do IPO firms employ, on average, more takeover defences when they have major customers or suppliers, but also that, in those cases, the value of the IPO increases with the number of takeover defences.

Summary and concluding remarks

Jensen and Meckling (1976) described the modern corporation as a nexus of contracts. Most subsequent literature implicitly assumed that a firm makes its financial decisions to reflect firm characteristics as well as the interests of those stakeholders, such as shareholders and bondholders, who are bound to the firm by explicit contracts. In developing a rationale for the importance of indirect bankruptcy costs to a firm's capital structure decision, Titman (1984) theoretically motivated the role that the interests of a firm's customers and suppliers play in the determination of the firm's capital structure decision. In a thought-provoking paper, Zingales (2000) outlines how a firm's financial decisions are affected when we consider not only those with whom there are explicit contracts, but also those entities with whom the firm is bound by implicit contracts. Since then, there has been a considerable amount of theoretical and empirical literature that has examined how relationships governed by implicit contracting affect corporate policies regarding capital structure, dividends, investment, and others.

In this paper, the focus is on the role of one class of agents with whom the firm's relationship is governed primarily by implicit contracts. We have tried to provide an overview of the basic theoretical framework that generates the relations between a firm's policies and such economically linked entities. One general theme is that economically linked agents bear costs if the firm enters financial distress and, therefore, actions on the part of the firm, such as greater leverage, that increase the likelihood of distress result in supplier/customer firms taking a more conservative approach in the relationship. The other general theme is that relations between economically linked firms generate a surplus, and the sharing of this surplus depends on the relative bargaining strengths of the firm and those that are linked to it. Because a firm's financial decisions can significantly affect the magnitude of this surplus and alter its relative bargaining power, there will be an association between corporate financial policies and the behaviour of its economically linked firms. We then describe several empirical studies that lend strong support to the predictions of these theories.

The value of a firm crucially depends on the efficiency of its relations with firms and entities that are economically linked to it. These linkages can cover a firm's labour, rivals, suppliers, and customers. The research that we describe in this article focuses on suppliers and customers and identifies the various channels through which a firm affects and is affected by the characteristics of the up- and downstream firms in the vertical supply chain. To the extent that a firm's value is affected by its relations with suppliers and customers, obtaining a better understanding of the effects of these relations should help managers to manage their firms better and maximize value.

⁸ Partial equity ownership is an organizational form alternative to explicit and implicit contracting between customers and suppliers. Fee, Hadlock, and Thomas (2006) find that customers' equity stakes in their suppliers are rare, and seem to be driven by both contractual frictions and suppliers' financial constraints.

⁹ Ex-post hold-up problems and opportunism can reduce a firm's incentive to attract relationship specific investments (Grossman & Hart, 1986). Long-term implicit contracts can reduce these agency costs.

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