CAPITAL STRUCTURE IN SMEs: PECKING ORDER VERSUS STATIC TRADE-OFF, BOUNDED RATIONALITY AND THE BEHAVIOURAL PRINCIPLE.

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Abstract

In this paper, we scrutinize financing decisions in small and medium-sized firms. In the finance literature, two competing models – the static trade-off theory and the pecking order theory – try to explain the financing decisions in firms. Given the special cognitive style of management in SMEs, characterized by bounded rationality and intuition, we investigate whether the behavioural principle has a higher explanatory power than the two traditional competing theories in relation to financing behaviour in SMEs. Our analysis is conducted on a sample of 899 firms, of which financial data are collected over a 10-year period from 1993 – 2002. All firms in our sample fit the three criteria: 1) privately-owned, 2) SME criteria of the European Commission and 3) primary activity in manufacturing, wholesale or retail industry. To study the empirical significance of the behavioural principle, the static trade-off and the pecking order theory, we use several partial adjustment models. The regression results support the predictions provided by the pecking order theory that firms decrease or increase their financial debt in correspondence to the availability or lack of internal funds.

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1 INTRODUCTION

In corporate finance there exists a large body of literature that examines the financing behaviour of firms, reflected by their capital structure. Research in the capital structure field is dominated by two theories: the static tradeoff theory and pecking order theory. The static tradeoff theory emerged in the streamline of the path-breaking work of Modigliani and Miller (1958). Modigliani and Miller assume perfect and frictionless capital markets to prove their irrelevance theorem, which was later generalized by Stiglitz (1974). According to the irrelevance theorem the firm's financing policy should not affect the firm's value or its cost of capital. The firm's value is solely determined by its investment decisions. This obviously implies that there are no interactions between corporate finance and investment decisions. A logical conclusion is that firm's financing and investment decisions can be analysed separately. The M&M irrelevance theorem of capital structure, though based on the unrealistic assumption of perfect capital markets, shows that market imperfections are a requisite for capital structure to matter. By introducing market imperfections, firms seem to get an optimal, value-maximising debt-equity ratio by trading off the advantages of debt against the disadvantages. On the other side, the pecking order theory (Myers, 1984; Myers and Majluf, 1984) contradicts the existence of financial targets, and states that firms follow a financing hierarchy: internal funds are preferred above external financing and if the latter becomes necessary, safe debt is preferred over risky debt and equity issues are at the lowest end of the pecking order. In spite of ongoing debate, there are still no clear-cut answers as to how firms make their financing decisions.

Empirical studies have focused on studying determinants, identified by theoretical studies as potentially important, to make inferences about the predominance of one of the capital structure theories (e.g. Titman and Wessels, 1988; Rajan and Zingales, 1995; Graham, 1996). In most of these studies, firm's adjustment to these financial targets was considered to be instantaneous and costless. In a perfect market, adjustment to these long run targets would be instantaneous and complete. However, market imperfections such as transaction and adjustment costs and constraints prevent firms from changing their debt level or ratio the way they desire (Marsh, 1982; Jalilvand and Harris, 1984). Due to these market imperfections firm's financial decisions should be viewed as a two-phase process. The first phase consists of the target formation and the second phase consists of the adjustment towards the debt level set out in the first phase. Therefore, the firm's financial behaviour is best characterised by a partial adjustment model (Spies, 1974; Taggart Jr., 1977; Jalilvand and Harris, 1984; Ozkan, 2001).

In the literature, target-adjustment models usually have been used to provide more direct evidence that firms adjust towards a target capital structure (Taggart, 1977; Marsh, 1982; Jalilvand and Harris, 1984). Target adjustment models can also be used, however, to test the empirical validity of the trade-off theory and pecking order theory (Durinck, Laveren, Van Hulle and Vandenbroucke, 1998; Hovakimian, Opler and Titman, 2001; Fama and French, 2002). Most of the studies concerning capital structure dynamics have focused on large quoted firms. These firms that are assumed to have unlimited access to well-developed capital markets.

This paper scrutinizes the financing behaviour of private small and medium-sized firms by using a target adjustment model. Small firms are interesting because unlike large firms, they do not have access to well-developed capital markets. Due to information asymmetries and agency problems, external financing is limited and banks become the primary source of funds for small firms because they are better equipped to assess small business quality and address agency and information problems (Berger and Udell, 1995, 1998). Another difference between small and large firms is that small firms might not have the knowledge or financial capabilities to determine the optimal target for their firm. According to the behavioural principle (Emery, Finnerty and Stowe, 2004) these firms might use the industry average debt ratio as a guiding point for their financing decisions.

Based on these observations, the aim of this study is to investigate the underlying theoretical drivers behind the financing decisions in small and medium-sized firms. This paper extends the empirical literature on capital structure decisions in SMEs in several ways. First, it is one of the first papers to use a target adjustment model on a sample of SME. Second, given the special cognitive style of management in SMEs (Sadler-Smith, 2004) characterized by intuition and bounded rationality, we investigate if the behavioural principle explains more of the financing behaviour in SMEs than the traditional static trade-off and pecking order theories. Hence, a target consistent with the behavioural principle is analysed within a static trade-off and pecking order framework.

The rest of the paper is organised as follows. In the next section the theoretical background and hypothesis are presented. Section 3 and 4 describe the data and the variables used in the study. In section 5 descriptive statistics are discussed before presenting the model in section 6. In section 7 the results and in section 8 the conclusions are presented.

2 THEORY AND HYPOTHESES

In this section we discuss the static trade-off theory of capital structure, the pecking order theory and the behavioural principle and formulate the hypotheses that will be tested.

2.1 Static trade-off theory

The static trade-off theory, which focuses on the benefits and costs of issuing debt, predicts that an optimal target financial debt ratio exists, which maximizes the value of the firm. The optimal point can be attained when the marginal value of the benefits associated with debt issues exactly offsets the increase in the present value of the costs associated with issuing more debt (Myers, 2001). The benefits of debt are the tax deductibility of interest payments. The tax deductibility of corporate interest payments favours the use of debt. This simple effect however, can be complicated by the existence of personal taxes (Miller, 1977) and non-debt tax shields (DeAngelo and Masulis, 1980). Another benefit of debt is that it mitigates the manager-shareholder agency conflict. Corporate managers have the incentive to waste free cash flow on perquisites and bad investment. Debt financing limits the free cash flow available to managers and thereby helps to control this agency problem (Jensen and Meckling, 1976). The costs associated with issuing more debt are the costs of financial distress (Modigliani and Miller, 1963) and the agency costs triggered by conflicts between shareholders and debtors (Jensen and Meckling, 1976). Costs of financial distress are likely to arise when a firm uses excessive debt and is unable to meet the interest and principal payments.

We try to determine if firms exhibit trade-off behaviour by using a target-adjustment model. The trade-off theory implies a target-adjustment model (Taggart, 1977; Jalilvand and Harris, 1984; Ozkan, 2001). In this model firms have a target debt ratio to which they gradually adjust. The debt is adjusted by comparing the actual level or ratio of debt in the previous period with the predetermined target debt level or ratio. The adjustment, though, is only partial due to market imperfections such as transaction costs (Marsh, 1982), adjustment costs and constraints (Jalilvand and Harris, 1984). If firms are above the target debt ratio the value of the firm is not optimal because financial distress and agency costs exceed the benefits of debt. Therefore, we expect firms that are above their target debt ratio, to decrease their debt in the current period. Firms that have a debt ratio below the target debt ratio can still increase the value of the firm because marginal value of the benefits of debt are still greater than the costs associated with the use of debt. Therefore, we expect firms whose debt in the previous period was situated below the target level, to increase their debt. The cost and benefits of debt make that firms that are below the target debt ratio increase their debt and firms that are above the target debt ratio decrease their debt, although the speed of these adjustments could differ (Durinck, Laveren, Van Hulle and Vandenbroucke, 1998).

According to the trade-off theory of capital structure:
$\mathbf{H_{1A}}$: Firms with a debt ratio below the target ratio adjust their debt upward towards the target debt ratio.
$\mathbf{H_{1B}}$: Firms with a debt ratio above the target ratio adjust their debt downward towards the target debt ratio.

2.2 Pecking order theory

The pecking order theory developed by Myers (1984) is an alternative capital structure theory. According to the pecking order theory, a firm's capital structure is driven by the firm's preference to finance with internally generated funds instead of with external financing. If external financing is required, debt is preferred over equity. The pecking order theory can be explained from the perspective of asymmetric information and the existence of transaction costs.

Asymmetric information costs arise when a firm chooses not to use external financing and therefore pass up a positive NPV investment. Managers (firm's insiders) have access to better information than outside investors have. This induces opportunistic behaviour by managers. Managers will issue securities when the market price of the firm's securities is higher than the real firm value. The deviation between the market price of the firm's securities and the real firm value arise, because investors, having inferior information about the value of the firm's assets, can misprice equity (Myers and Majluf, 1984). Sophisticated investors are aware of the fact that firms have the incentive to issue new shares when the market overvalues the existing shares. Therefore, investors will rationally adjust the price they are willing to pay, causing new securities to be underpriced in the market. If firms have to finance new projects by issuing equity, underpricing may be so severe that new investors capture more of the NPV of the new project, resulting in a loss to existing shareholders. If this is the case than the project will be rejected even if its NPV is positive, because managers act in favour of the existing shareholders. This underinvestment can be avoided by financing the new project with security that is not so severely undervalued (Myers, 1984; Myers and Majluf, 1984).

The pecking order theory can also be explained by the existence of transaction costs. Transaction costs associated with external finance play an important role in selecting financing sources. Firms will first use internal equity financing, followed by external debt financing and finally external equity financing. Debt financing precedes equity issues because transaction costs for debt are lower than for equity issues (Baskin, 1989). Baskin (1989) found that costs for raising debt in the U.S. markets may be as low as 1% of the amounts of funds raised but similar costs for raising equity range between 4% and 15%. Only after exhausting other financing possibilities, new equity, which is characterised by high transaction costs, is issued.

The reliance on internal finance can also be a byproduct of the desire of managers to avoid external financing because it subjects them to the discipline of the market (Myers, 1984). Especially the owner-manager of the company does not like to lose control over the firm (Holmes and Kent, 1991; Hamilton and Fox, 1998). Therefore managers are very reluctant to accept new shareholders and will try to finance their activities as much as possible with internal funds. If the firm's retained earnings do not suffice, management will choose the financing source without control restrictions. Therefore management will opt for short-term debt because no collateral is required and no covenants are imposed, followed by long-term debt and finally equity issues.

Myers (1984) suggests that asymmetric information and transaction costs overwhelm the forces that determine optimal leverage in the trade-of models. To minimize these financing costs, firms prefer to finance their investment projects first with internal cash flows. Only if there is a residual financing need they will use external capital in following order; first safe debt, then risky debt and finally equity issues. So, contrary to the trade-off theory, the pecking order theory predicts no long run target capital structure. There is no optimal debt-equity mix because there are two kinds of equity, retained earnings at the top of the pecking order and the issue of new shares at the bottom (Myers, 1984). To test if firms follow the pecking order, we use the target-adjustment model with the target defined by the trade-off theory. If firms exhibit pecking order behaviour, they should ignore the target and base their financial decisions on the availability of internal funds or their free cash flow.

H_{2A}: If firms have a positive free cash flow, the debt ratio below the target debt ratio moves further away from the theoretical target, while the debt ratio above the target moves towards the target debt ratio.

H_{2B}: If firms have a negative free cash flow, the debt ratio above the target debt ratio moves further away from the theoretical target, while the debt ratio below the target moves towards the target.

The pecking order theory states that firms prefer to finance with internal funds. Ideally, a firm would have a debt ratio equal to zero. However, only firms that have enough internal funds can reach this long run equilibrium. Firms that are most likely to achieve a well-established source of internal equity are older, mature firms. Small, young or growing firms, that lack own resources, will have to rely on debt (and equity) financing. So in the short run, the debt ratio tends to deviate from zero.

In the short run, Myers' (1984) *simple pecking order theory* suggests that firms increase or decrease their debt ratio if they have a negative free cash flow respectively a positive free cash flow. Implicitly, this implies a period-by-period debt ratio equal to the actual level or ratio of financial debt in the previous period corrected with the free cash flow of the current period. A company's real debt-equity ratio, therefore, varies over time, depending on its need for external finance. A profitable firm generating slow growth will end up with a low debt ratio. It makes no sense for such firms to borrow just to bring themselves into line with for example the theoretical target or an industry average. Unprofitable firms or firms with relative high growth can exhibit high debt ratios.

Firms, however, are not able to borrow indefinitely. A firm will eventually reach full debt capacity. Once that the reserve borrowing power is exhausted, firms are forced to finance their positive NPV projects with equity issues or forgo these positive NPV projects. The full debt capacity level, however, cannot be observed. The only thing that could be observed is a different financing behaviour of firms with relatively more debt as opposed to firms with relatively low debt.

According to the simple pecking order:
H_{3A}: Firms with a positive free cash flow use this cash flow to lower their debt ratio.
H_{3B}: Firms with a negative free cash flow increase their debt ratio to respond to the lack of internal funds. The percentage adjustment is smaller for firms with relatively more debt than for firms with relatively low debt.

In a more *complex view of the pecking order model*, firms are concerned not only with current but also with future financing costs (Myers, 1984). Firms climbing up the pecking order, face two increasing costs. The firm has a higher probability of incurring financial distress costs and a higher chance of having to surpass future positive NPV projects, because the firm is unwilling to finance with common stock. If firms are not only concerned with the current investments but also with future growth opportunities, then they will favour a low debt ratio. Myers (1984) argues that a firm may issue new common stock, even if it has not reached its debt capacity, because reserve-borrowing capacity is valuable. If their debt ratio is below their debt capacity, the likelihood of having to surpass future profitable investments is lower (Myers, 1984). Opposite to the simple pecking order, the complex pecking order predicts that firms, with future growth opportunities, will try to maintain reserve-borrowing capacity for future projects.

H_4: Firms with a negative free cash flow and relatively more future growth opportunities increase their debt more slowly than firms with a negative free cash flow and fewer growth opportunities.

2.3 Static trade-off versus pecking order in small firms

A basic assumption of the capital structure theories is that decision-making processes are based upon rational economic behaviour. They assume that managers exhibit rational human behaviour, which leads to economic shareholder wealth maximization. In the literature, numerous empirical studies have focused on studying the determinants of capital structure as predicted by the static trade-of theory of capital structure. Various firm-specific characteristics are identified as important in determining the optimal target capital structure, such as asset structure, firm size, growth opportunities, profitability, …(e.g. Rajan and Zingales, 1995; Chittenden, Hall and Hutchinson, 1996; Jordan, Lowe and Taylor, 1998; Titman and Wessels, 1988). However, instead of determining their target with this laborious time-consuming process, firms might use the industry average as their optimal target. The underlying rationale is that the optimal point for firms in the same industry is approximately the same.

Lev (1969) found that various financial ratios, amongst which the equity to total debt ratio, converge to the industry averages. Ratios that involve short-term items (e.g. current ratios) and are under the control of management adjust more rapidly than ratios involving long-term items (e.g. long-term debt, equity) and variables which are not under the complete control of management (Lev, 1969). According to Bowen, Daley and Huber (1982), firms exhibit a statistically significant tendency to adjust the debt and equity ratios toward their industry mean over both five and ten year time periods. Martin and Scott (1974) find that when financial leverage is low in comparison to the industry norm, the firm would tend to issue debt rather than equity. With higher debt levels the firm is less likely to issue more debt because of the threat of bankruptcy. The use of industry averages as desired financial values is also in line with evidence that the industry class is an important determinant of corporate financial structures (Martin and Scott, 1975; Ferri and Jones, 1979).

However, when managers are dealing with limited information, time constraints, limited cognitive abilities and subjectivity, the decision-making process is no longer completely rational (March, 1978). Furthermore, the business environment in which managers operate is complex, unstable and unpredictable, which makes other decision-making models more suitable (Sadler-Smith, 2004). The bounded rationality model seems to be more appropriate to describe organizational decision-making processes. Within the concept of bounded rationally March (1978) developed alternative rationalities, such as limited rationality. The idea of limited rationality appears to be relevant to the small firm. According to the idea of limited rationality, individuals simplify decision-making problems because they have difficulties in considering all alternatives and all relevant information (March, 1978). Hence, many small firms owner-managers lack understanding of the various financing sources available and the skills in accessing them (Hutchinson, 1999). They do not have a full range of managerial expertise and often lack a fully equipped management team (Ang, 1991), which leads to inadequate knowledge to make well-substantiated optimal decisions. Consequently, entrepreneurs might not have the financial capabilities to choose an optimal target. Therefore they have to look for some guidance and reference points. A possibility is to look at other similar firms for guidance. This is called the behavioural principle (Emery, Finnerty and Stowe, 2004). According to the behaviour principle, SMEs could use industry averages as financial targets because they have a limited understanding on the subject of capital structure (Emery, Finnerty and Stowe, 2004). So, instead of determining their optimal debt level or ratio by a trade-off between the costs and benefits of borrowing as predicted by the trade-off theory, small and medium-sized firms might blindly use the industry average.

The static trade-off theory predicts that firms adjust their debt ratio towards a predetermined target. So, when the desired financial value is set equal to the industry average debt ratio, firms with a debt ratio below the industry average debt ratio will increase their debt ratio, while firms with a debt ratio above the industry average will decrease their debt. It is immaterial whether the firm decides to use the industry average, as their target, based on rational thinking or by blindly following other firms.

H_{5A}: Firms with a debt ratio below the average industry debt ratio adjust their debt upward towards the industry debt ratio.
H_{5B}: Firms with a debt ratio above the average industry debt ratio adjust their debt downward towards the industry debt ratio.

If firms look upon the industry debt ratio as a standard optimal target debt ratio, they will adjust their debt ratio towards the industry debt ratio. However, firms might also be aware of the industry debt ratio, without thinking of it as the optimal ratio. Firms might consider the industry debt ratio to be important because banks might evaluate a firm's credit application by comparing the financial situation of the firm with other firms in the same sector. In this case the industry average debt ratio plays a role, but not a primordial one. The pecking order will still be of superior importance when making financing decisions. According to the simple pecking order, firms will decrease their debt ratio if they have a positive free cash flow, thereby moving towards the industry average in they were operating above it or moving further away from the industry debt ratio if they were operating below it. The latter have no reason to get in line with the industry average. If the firm has a negative free cash flow, then it will increase its debt ratio whether their debt ratio is below or above the industry debt ratio. However, because banks compares the firm's debt ratio to the industry average debt ratio when deciding on granting loans. Firms that are operating with a debt ratio above that of the industry might be confronted with a higher cost of debt financing. This cost might exceed the cost of increasing their capital, due to agency problems.

When the complex pecking order applies, firms with more growth opportunities increase their debt more slowly than firms with fewer growth opportunities. Firms that have a negative free cash flow and a debt ratio above the industry average will find it hard to receive more financial debt from banks, while firms with debt ratio below the industry average will increase their debt ratio but less than firms with no future growth opportunities.

Previous empirical studies have found evidence of the pecking order theory in the way firms adjust to the average industry debt ratio. Claggett, Jr. (1991) finds support that firm's long-term debt to total assets ratio tend to move toward the most recent previous industry mean within one year. However, he finds notable exceptions to the basic pattern. In general, firms with long-term debt ratios above that of the industry average adjust more towards the mean than firms with below average ratios. When the pooled data are segmented by year and SIC group, much of the significance is lost (Claggart Jr., 1991). This could be interpreted as evidence of the pecking order theory. Cat and Ghosh (2003) find no significant difference between the probability that a firm's debt level is moving toward the industry's mean and the probability that it is moving further away from the industry mean.

H_{6A}: Firms with a positive free cash flow and a debt ratio below the industry average debt ratio, move their debt ratio further away from the industry average. If they have a debt ratio above the industry average debt ratio, their debt ratio moves towards the industry average.
H_{6B}: If firms with a negative free cash flow have a debt ratio below the industry average, they move their debt ratio towards the industry average. Firms with future growth opportunities move more slowly towards the industry average debt ratio than firms with no future growth opportunities.
H_{6C}: If firms with a negative free cash flow have a debt ratio above that of the industry, they are expected to increase their capital while the debt ratio will decrease or stay constant.

3 DESCRIPTION OF THE DATABASE

The data source for our analysis is the Bel-first CD-rom, which provides detailed financial information on 320,000 Belgian companies and 4,000 Luxembourg firms, collected by the National Bank of Belgium. The enterprises included in our sampling frame are **private Belgian small and medium-sized limited enterprises** that disclose (unconsolidated) **complete financial statements**. Firms are classified as small and medium-sized according to the criteria for small and medium-sized firms, adopted by the European Commission[1]. From this sample we selected unquoted firms with their primary activity being manufacturing (Nace-Bel activity code 15 to 36), wholesale (Nace-Bel activity code 50 and 51) or retail (Nace-Bel code 52). The firms that disclose an abbreviated financial statement are excluded because these statements do not contain all financial data required for our analysis. This leads to a selection of 1322 firms.

From the Bel-first CD-rom we have data available over a 10-year-period, from 1993 to 2002, which allows us to use cross-sectional time-series or panel data. Panel data has the advantage that it offers a large number of data points, increasing the degrees of freedom and reducing the collinearity among explanatory variables, providing coefficients that are more efficient (Hsiao, 2003). Because

[1] The European Commission formulated a first definition (recommendation 96/280/EC) for small and medium-sized enterprises in 1996. The enterprises were categorized on the basis of their staff headcount and financial ceilings: turnover and balance sheet total. In addition the enterprise has to be independent; which means that less than 25% of the enterprise may be owned by one or more enterprises that do not comply with the same criteria. On 6 May 2003 the recommendation 2003/361/EC provides for an increase of the financial ceilings, as a result of inflation and productivity increases since 1996. Small and medium-sized enterprises are now defined as independent privately held companies with fewer than 250 employees, which have a turnover below 50 million € or total assets under 43 million €. This new definition applies as of 1 January 2005.

variables are calculated over this period, we only maintain firms that provide data over the whole 10-year-period. This excludes newly founded firms and firms that have ceased to exist between 1993 and 2002. Firms with missing values, necessary to calculate our variables are also rejected from the sample. This leaves us with a sample of 943 firms.

Before checking for outliers we merge several related sectors into larger groups to be able to calculate meaningful averages. The wholesale sector, on the other hand, is very large and heterogeneous and therefore split up into smaller, more homogeneous groups. We end up with 22 sectors. (For details see appendix 1) After calculating the necessary variables, we checked for outliers within each industry by winsoring. We used $\mu + 3\sigma$ as the upper limit and $\mu - 3\sigma$ as the lower limit. Firms with outliers on the total financial debt ratio and the long-term financial debt ratio were removed from the sample because extreme values could bias our test results. Firms with a very low or very high debt ratio might exhibit different financing behaviour (Shyam-Sunder and Myers, 1999; Chirinko and Singha, 2000). Outliers for the explanatory variables are replaced by the calculated upper and lower limit. We end up with a sample of 899 firms of which 397 are active in the manufacturing sector and 502 belong to the wholesale and retail trade sector.

4 MEASURING THE VARIABLES

In this paragraph we discuss our dependent variables, independent variables and control variables. The applied measures for the variables are summarized in Table 1.

< Insert Table 1>

4.1 Dependent variable

The largest sources of finance for small businesses are the principal owner, commercial banks and trade creditors (Berger and Udell, 1998). The reason is that small firms face two fundamental problems that limit the access to external financing: information asymmetries and agency problems. Information asymmetries make it difficult for the providers of external financing to evaluate the quality and value of the firm's investment opportunities. Agency problems arise because managers might have the incentive to misallocate their funds and to act counter the interest of creditors (Dennis, 2004). In small firms these agency problems tend to be very serious because these firms are confronted with high information asymmetries (Petit and Singer, 1985). First there is the familiar information problem where insiders are expected to have more information about the prospects of the firm. The reason is that small firms are characterized by their 'close' nature and that they have fewer disclosure requirements (Petit and Singer, 1985). A second information problem concerns the quality of the data that is generated by small firms. Small firms do not have audited financial statements to present to outside investors (Berger and Udell, 1998). Outsiders prefer such statements but small firms generally find it expensive to supply audited financial statements and may find it difficult to overcome this deficiency with other information (Petit and Singer, 1985). Small firms may not have the managerial talent and staff to come up with useful data (Ang, 1991). Beside the significant costs associated with public equity and debt issues, informational opacity is a major reason why small firms cannot issue publicly traded securities (Berger and Udell, 1998). Therefore, small firms are much more dependent on private financing sources. Banks are a primary source of funds for small firms because they have special mechanisms at hand to assess small business quality and address agency and information problems such as screening, contracting and monitoring (Berger and Udell, 1995, 1998). Therefore our study focuses on the total financial debt ratio and the long-term financial debt ratio. Long-term financial debt is equal to the financial debt payable after one year plus current portions of debt payable after one year. Total financial debt is the aggregate of short and long-term financial debt. Total financial debt is, therefore, the composite of financial debt payable after one year, plus financial debt payable within one year plus current portions of debt after one year. In our regression we use the changes in total and long-term financial debt ratio as dependent variable. The difference between the total, respectively long-term financial debt levels of two successive periods is related to the total assets of the beginning period. This specification alleviates the problem of heteroskedasticy that might be present in our sample data. The change in total financial debt ratio, *Δ TFDT* and long-term financial debt ratio, *Δ LFDT* for firm *i* in year *t* are:

$$\Delta TFDT_{i,t} = \frac{TFDT_{i,t} - TFDT_{i,t-1}}{TA_{i,t-1}} \quad ; \quad \Delta LFDT_{i,t} = \frac{LFDT_{i,t} - LFDT_{i,t-1}}{TA_{i,t-1}}$$

4.2 Target financial debt ratio

To test all our hypotheses we need to define target financial debt ratios. We define the target ratio as the debt ratio predicted by the static-trade off theory, the debt ratio as predicted by the pecking order theory and the industry averages.

4.2.1 Target financial debt ratio as predicted by the static-trade off theory

To test our hypotheses H_1 till H_4, we need to calculate the target total and long-term financial debt ratio as predicted by the static trade-off theory. Following Fama and French (2002) and Hovakimian, Opler and Titman (2001), we regress the financial debt ratios on the variables that are assumed to determine the target leverage and then use the fitted values from equation (1) and (2) as proxies for the target total financial debt ratios and target long-term financial debt ratio respectively. In the pecking order model firms do not have a target financial debt ratio. So it is possible that equation (1) and (2) simply describes how the financial debt ratios vary as a function of the explanatory variables. The total and long-term financial debt ratios for firm *i* at time *t* are respectively:

$$TFDT_{i,t} = \alpha_i + \beta_{ki,t} X_{ki,t} + u_t \quad (1) \quad ; \quad LFDT_{i,t} = \alpha_i + \beta_{ki,t} X_{ki,t} + u_t \quad (2)$$

where $X_{ki,t}$ are the explanatory variables.

The explanatory variables used in the regression are taken from the set of variables used in earlier empirical studies of capital structure. Numerous empirical studies (e.g. Titman and Wessels, 1988; Rajan and Zingales, 1995; Graham, 1996) have focused on studying determinants of capital structure as predicted by the static trade-off theory of capital structure. Empirical determinants that have been identified are age, asset structure, firm size, growth opportunities, liquidity, profitability and earnings volatility (e.g. Titman and Wessels, 1988; Rajan and Zingales, 1995). Most of these studies have focused on large, public firms, which try to maximize the economic shareholders' wealth. The empirical implications of capital structure for small firms are seldom discussed and tested. One of the reasons is that small firms are assumed to follow the same management principles as large firms, another reason was the lack of available financial data of small firms (Van der Wijst and Thurik, 1989). More recently, studies try to explain small firm financing decisions using modern financial theory. Determinants that appear to be most important in small firms are asset structure, firm size, growth opportunities and profitability (Van der Wijst and Thurik, 1993; Chittenden, Hall and Hutchinson, 1996; Jordan, Lowe and Taylor; 1998; Michaelas, Chittenden and Poutziouris, 1999; Voordeckers, 1999). In this paper it is not our intent to measure the relative importance of the distinct trade-off determinants, just to detect whether firms exhibit static trade-off behaviour. Therefore we calculate our target ratios based on the determinants deemed important in small firms: asset structure, firm size, growth opportunities and profitability.

The proxies to measure asset structure are tangible fixed assets scaled by total assets (AssStr1). As proxies for firm size we use the natural logarithm of total assets (S1). As a proxy for growth opportunities (growthopp) the ratio of intangible assets to total assets is chosen and as a proxy for profitability (prof) the ratio of pre-tax profits to total assets for a period of two years is chosen.

Given the nature of the data, we expect individual firm-specific heterogeneity to exist within the model. Firms can vary systematically in terms of management, structure, operations, etc.

Consequently the use of ordinary least squares would produce estimates that are biased. Therefore, the use of panel data analysis is more appropriate.
The cross-sectional parameter heterogeneity can be captured using fixed or random effects models. To test which model is most appropriate, a hausman tests has been performed. The hausman tests checks whether the firm-specific random error is uncorrelated with the explanatory variables, which is a requirement for using the random effects model. Using the random effects model when the orthogonality assumption is violated results in less consistent estimates. The hausman test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results. The hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects model are the same as the ones estimated by the consistent fixed effects estimator (i.e orthogonality). The test statistic is asymptotically distributed as $\chi^2(4)$. The calculated test statistic for the regression of the total financial debt ratio as well as for the regression of the long-term financial debt ratio results in significant p-values, rejecting the null hypothesis of orthogonality.

<Insert Table 2>

Based on the result from the hausman test, the fixed effects model was used to estimate our regressions[2]. The results are given in table 2. Considered jointly, the calculated F-statistic shows that the coefficients are significant. When using the logarithm of sales as a proxy for firm size and/or tangible assets fixed assets expanded with accounts receivable and inventories scaled by total assets, the model does not ameliorate. We now use the fitted values of equation 1 and 2 as the proxy for the total and long-term financial debt ratio repectively. In the trade-off model, firms have a target total and long-term financial debt ratio towards which they adjust every period.

4.2.2 Financial debt ratio as predicted by the pecking order theory

In the simplest form, the pecking order states that if the internal cash flow of the firm is insufficient for its real investments, the firm issues debt. To determine if the firm has a surplus or a deficit we calculate the free cash flow. We define the free cash flow, FCF, of firm *i* in period *t* as follows:

$FCF_{i,t}$ = Operating cash flow after taxes at the end of period *t* – gross investment in operating fixed assets in period *t* – net increase in working capital in period *t*.

The operating cash flow after taxes is defined as the operating profit/loss of the current period plus any non-cash adjustments minus income taxes. The gross investment in operating fixed assets in period *t* is the change in operating fixed assets from the end of period *t-1* to the end of period *t* + recorded depreciation and amounts written down on operating fixed assets – the depreciation and amounts written down taken back – revaluation surpluses on operating fixed assets. Operating fixed assets are all fixed assets except the financial fixed assets.

The net increase in working capital in period *t* is defined as the working capital at the end of the current period *t* – the working capital at the end of the previous period *t-1*. Working capital is defined as all current assets that do not pay interest minus all current liabilities that do not charge interest.

We define the 'target' total and long-term financial debt ratio as the total respectively long term financial debt of the previous period minus the free cash flow for every firm *i* in any period *t* over total assets of the previous period.

[2] Using the random effects model, however, leads to the same conclusions, for both our descriptive statistics as our estimated results for the equations 3 to 12.

4.2.3 Industry averages

We will also use the most recent industry average as the target value for our financial components. The industry mean in year *t* is measured by averaging the values of the total (and long-term) financial ratio of period *t* for all the firms *i* in that specific industry class present in our sample.

4.3 Control variables

In our adjustment model control variables are included as proxies for things that could cause deviations from the target financial debt ratios. These variables are firm size, return on investment, historical growth and a dummy variable for expected growth opportunities. As a proxy for firm size we use the natural logarithm of total assets. Return on investment, which reflects the possibility of retained earnings, is measured as current profit/losses before taxes over total assets. As a proxy for historical growth we use the growth rate of total assets over a period of two years: $\left(TA_t - TA_{t-2}\right)/TA_{t-2}$. As a proxy for expected growth opportunities we use the ratio intangible assets to total assets and create a dummy variable equal to one if the firm has expected growth opportunities and zero otherwise.

5 DESCRIPTIVE STATISTICS

Table 3 presents summary statistics of the sample. The average debt ratio in our sample is 62.85%, of which 19.26% is financial debt. A large portion of the debt component therefore contains accounts payable, taxes and other non-financial debt.

< Insert Table 3 >

Tables 4 to 8 indicate some differences in the financing behaviour of firms in distinct classes in our sample. Our aim is to explain differences in terms of the one of the two capital structure theories under investigation: the static trade-off theory and the pecking order theory. Table 4 shows some characteristics when the firms are allocated to two classes based on dummy variable $T_{i,t}$. Dummy variable $T_{i,t}$ is equal to 1 if the total (long-term) financial debt ratio at the end of the previous period (beginning of the current period) is below the target ratio of total (long-term) financial debt, and 0 otherwise. Presented mathematically, this gives the following:

$$T_{i,t}^{T}\left(T_{i,t}^{L}\right)= \begin{cases} 1 \text{ if } TFDT_{i,t}^{*} - TFDT_{i,t-1} \left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) > 0 \\ 0 \text{ if } TFDT_{i,t}^{*} - TFDT_{i,t-1} \left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) \leq 0 \end{cases}$$

< Insert Table 4 >

A closer look at table 4, reveals that firms that operate below the target during the previous period are, counter to what the static trade-off theory of capital structure predicts, as a percentage, more likely to decrease their total and long-term financial debt ratio. These findings are in line with the results of Durinck, Laveren, Van Hulle and Vandenbroucke (1998). The decrease of total and long-term financial debt is even more pronounced for firms operating above the target. This is in line with the predictions of the trade-off theory. Striking though is that a very large percentage of firms operating above the target, does not move down towards the target, but increase their total financial debt ratios even further. It seems that firms that are above the target ratio are more decisive about the changes of their total and long-term financial debt. Finally, changes in equity capital are not significantly different for firms operating above and below the target and unchanged capital is the most frequent. This could be a logical consequence of the fact that small firms do not have unlimited access to well-developed capital markets and usually depend on bank financing (Berger and Udell, 1998). However, it could also be a first indication for the pecking order theory.

Therefore, in table 5 we assign firms to two distinct classes based on dummy variable $P_{i,t}$. Dummy variable $P_{i,t}$ is equal to 1 if the free cash flow of the firm is positive (cash surplus) and equal to 0 when the firm has a negative or zero free cash flow (cash deficit).

< Insert Table 5 >

Table 5 seems to provide evidence for the pecking order theory. Firms with a negative free cash flow are more likely to increase their total financial debt ratio than firms with a positive free cash flow. The latter are more likely to decrease their total financial debt ratio. For the long-term financial debt ratio the results are similar for firms with a positive free cash flow. However, for firms with a negative free cash flow, the pattern of the total financial debt ratios cannot be recognized in the long-term financial debt ratios. For firms with a negative free cash flow, the percentage that increases the long-term financial debt ratio (34.94%) is smaller than for the total financial debt ratio and not significant different from the percentage that decreases the long-term financial debt ratio (36.75%). Table 5 shows that the proportion of increases in equity capital is higher for firm that have a deficit of internal funds. But mostly equity capital remains unchanged. These conclusions are in line with the pecking order theory that predicts that firms with insufficient internal finance (negative free cash flow) increase their dependence on external finance, first their short-term debt, then long-term debt and finally equity financing.

For firms with a negative free cash flow, the changes in long-term financial debt ratios do not exhibit the same pattern that is found for the changes of total financial debt ratios. This could suggest that firms are not able to increase their long-term debt the way they please and that short-term financial debt is used to pick up the slack, which would be in line with findings of Taggart Jr. (1977) who estimates a simultaneous equation model with equity, long-term and short-term debt and liquid assets as dependent variables and finds that the adjustment to the long-term capital targets is fairly slow, and liquid assets and short-term debt pick up this slack.

To get a better understanding of the difference between changes in total and long-term financial debt ratio, we examine how the changes in the total financial debt ratios are composed; is it long-term debt or short-term debt that changes? Table 6 shows that for 45.39% (14.59% + 30.80%) of the observation with a negative free cash flow and an increase in the total financial debt ratio, it is not the long-term financial debt ratio that increases but the short-term financial debt ratio that increases enough to lead to an increase in the total financial debt ratio. When firms have a positive free cash flow, total financial debt decreases in 57.75% of the cases (table 5). Firms seem to prefer to decrease long-term financial debt before short-term financial debt. This is the case for 43.58% (15.30% + 28.28%) of the observations while only for 20.89% (*8.13%* + *12.76%*) of the observations short-term financial debt decreased while long-term financial debt is not.

< Insert Table 6 >

Table 7 (for the total financial debt ratio) and 8 (for the long-term financial debt ratio) show the financing behaviour between firms, when they are distributed across four distinct classes, based on the four possible combinations of the dummy variables $T_{i,t}$ and $P_{i,t}$. The four classes of observations are as follows:

$T_{i,t} = 1$ and $P_{i,t} = 0$ means below the target and a negative free cash flow
$T_{i,t} = 1$ and $P_{i,t} = 1$ means below the target and a positive free cash flow
$T_{i,t} = 0$ and $P_{i,t} = 0$ means above the target and a negative free cash flow
$T_{i,t} = 0$ and $P_{i,t} = 1$ means above the target and a positive free cash flow

< Insert Table 7 >

The increases in the total financial debt ratio as well as in equity capital are most frequent when the firm has insufficient internal funds, despite of whether the firm is below or above the target financial debt ratio. The number of increases in the total financial debt ratio when the firm is above the target is significantly greater than when the firm is below the target. The same can be said for increases in equity capital. The decreases in the total financial debt ratio are also determined by the amount of free cash flow of the firm and not by the deviation from the total financial target debt ratio, although the percentage decrease is significantly higher for firms above the target than for firms below the target. As in table 4 the percentage of unchanged total financial debt ratios is very low for firms operating above the target. For the changes in equity capital, unchanged equity capital is dominant in each of the classes and no significant differences are present between the classes at a 1% significance level, as is the case for decreases in equity capital.

< Insert Table 8 >

When classifying the firms based on the relation between the long-term financial debt ratio of the previous period and the long-term financial target debt ratio, the same financial behaviour is found. Yet, for firms below the target ratio with a negative free cash flow, unchanged long-term financial debt is more frequent than increases or decreases of debt, which indicates again that long-term financial debt adjusts slowly to the firm's financing need. For observations below the target with a positive free cash flow the long-term financial debt ratios mostly remain either unchanged or they decrease. So, in some cases the free cash flow is used to decrease long-term financial debt, in other cases long-term financial debt seems to be maintained to meet possible future financing needs. Only in 15.71% we see the increase that is predicted by the trade-off theory. Mostly firms operating above the long-term financial debt ratio, decreases their long-term financial debt ratio. There where table 7 showed an increase in total financial debt for firms operating above the total financial target debt ratio with a negative free cash flow, table 8 shows that long-term financial debt is more likely to decrease.

When using the industry average total and long-term financial debt ratio as targets, the results are the same as when the target was determined by firm-characteristics such as firm size, asset structure, profitability and historical growth. These tables suggest that the financing behaviour in firms is not characterised by a partial adjustment towards the industry average.

< Insert Table 9, Table 10, Table 11>

Because we find evidence for the pecking order, we also distribute our observation into two classes based on the desired debt ratio based according to the pecking order $PTFDT_{i,t}^{*}$ ($PLFDT_{i,t}^{*}$), which we defined as the total (long-term) financial debt of the previous period minus the free cash flow of the current period over total assets of the previous period for every firm *i* in any period *t*. In any given year the firm can be operating above or below the target. Therefore we create a dummy variable $I_{i,t}$ for the total financial debt ratio and for the long-term financial debt ratio. Dummy variable $I_{i,t}$ is equal to 1 if the total (long-term) financial debt ratio at the end of the previous period (beginning of the current period) is below the target ratio of total (long-term) financial debt, and 0 otherwise. Presented mathematically, this gives the following:

$$I_{i,t}^{T}\left(I_{i,t}^{L}\right)= \begin{cases} 1 \text{ if } PTFDT_{i,t}^{*} - TFDT_{i,t-1} \left(PLFDT_{i,t}^{*} - LFDT_{i,t-1}\right) > 0 & \text{(thus negative free cash flow)} \\ 0 \text{ if } PTFDT_{i,t}^{*} - TFDT_{i,t-1} \left(PLFDT_{i,t}^{*} - LFDT_{i,t-1}\right) \leq 0 & \text{(thus positive free cash flow)} \end{cases}$$

The findings from table 5 are confirmed in table 12. When we compare with table 4 we find that firms that are below the pecking order 'target' are more likely to increase their financial debt ratio, while firms above the pecking order 'target' are more likely to decrease their financial debt ratio.

The proportions that decrease and increase are significantly different except for the long-term financial debt ratio if $I^{L}_{i,t}$ = 1 (34.96% versus 36.71%).

< Insert Table 12 >

From the descriptive data the pecking order theory seems to be superior to the trade-off theory. This conclusion is confirmed in table 13 where we check how firm's financing behaviour relates to the firm's profitability. The percentage of observations where the total financial debt ratio decreases rises when profitability increases, while the percentage of observations where the total financial debt ratio increases drops. Less profitable firms seem to appeal to equity capital.

< Insert Table 13 >

So far we have looked at the percentage of observations that satisfy the conditions of the various classes. The evidence found is in favour of the pecking order theory. Firms with a negative free cash flow seem to increase their financial debt ratio. In table 14 the average change in the total financial debt ratio in the current year is related to the total financial debt ratio in the previous period. For firms with a positive free cash flow the average change of the total financial debt ratio is significantly different between the various classes and the average decrease of the total financial debt ratio is higher for firms, the higher their total financial debt ratio in the previous period as could be expected. Firms with a negative free cash flow increase their total financial debt ratio but there is no negative relationship between the total financial debt ratio in the previous period and the average change in the current period over the whole line. The negative relationship emerges when the total financial debt ratio of the previous period is around 45% (see table 14b and figure 1). This indicates that firms with a negative free cash flow take into consideration their debt capacity when deciding on further loans.

< Insert Table 14 >

<Insert Figure 1>

The results from table 15 suggest that firms do not follow the complex pecking order. They do not take into consideration future growth opportunities when making their financing decisions. The average change of the total financial debt ratio is not significantly different at a 1% significance level, between observations with future growth opportunities and without future growth opportunities. The average change in the total financial debt ratio is only significantly different between observations with a negative free cash flow and a positive free cash flow, confirming the simple pecking order.

< Insert Table 15 >

6 MODEL SPECIFICATION

We test our hypotheses using a target-adjustment model for firm *i* at time *t* (equations 3 to 12). This partial adjustment model indicates that the change of the financial debt ratio from period *t-1* to *t* depends both on the target financial debt ratio for period *t* and the previous actual financial debt ratio for period *t-1*. The change of the financial debt ratio is a function of the difference between the target financial debt ratio and the current financial debt ratio. As target for total financial debt ratio we use the fitted values from equation 1 in equation 3 and the average industry total financial debt ratio in equation 5. As target for the long-term financial debt ratio we use the fitted values from equation 2 in equation 4 and the average industry long-term financial debt ratio in equation 6.

By introducing the dummy variables $T_{i,t}^{T}$ and $T_{i,t}^{L}$ in the equations 3 and 4 respectively and the dummy variables $IAT_{i,t}$ and $IAL_{i,t}$ in equations 5 and 6 respectively, we allow the speed of adjustments to differ between observations that are below the target and those that are above the target.

$$\Delta TFDT_{i,t} = \alpha + \delta_1 T_{i,t}^{T}\left(TFDT_{i,t}^{*} - TFDT_{i,t-1}\right) + \delta_2\left(1 - T_{i,t}^{T}\right)\left(TFDT_{i,t}^{*} - TFDT_{i,t-1}\right) \quad (3)$$

$$\Delta LFDT_{i,t} = \alpha + \delta_1 T_{i,t}^{L}\left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) + \delta_2\left(1 - T_{i,t}^{L}\right)\left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) \quad (4)$$

$$\Delta TFDT_{i,t} = \alpha + \delta_1 IAT_{i,t}\left(INDAVT_{i,t} - TFDT_{i,t-1}\right) + \delta_2\left(1 - IAT_{i,t}\right)\left(INDAVT_{i,t} - TFDT_{i,t-1}\right) \quad (5)$$

$$\Delta LFDT_{i,t} = \alpha + \delta_1 IAL_{i,t}\left(INDAVL_{i,t} - LFDT_{i,t-1}\right) + \delta_2\left(1 - IAL_{i,t}\right)\left(INDAVL_{i,t} - LFDT_{i,t-1}\right) \quad (6)$$

with $$T_{i,t}^{T}\left(T_{i,t}^{L}\right) = \begin{cases} 1 \text{ if } TFDT_{i,t}^{*} - TFDT_{i,t-1}\ \left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) > 0 \\ 0 \text{ if } TFDT_{i,t}^{*} - TFDT_{i,t-1}\ \left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) \leq 0 \end{cases}$$

and $$IAT_{i,t}\left(IAL_{i,t}\right) = \begin{cases} 1 \text{ if } INDAVT - TFDT_{i,t-1}\ \left(INDAVL - LFDT_{i,t-1}\right) > 0 \\ 0 \text{ if } INDAVT - TFDT_{i,t-1}\ \left(INDAVL - LFDT_{i,t-1}\right) \leq 0 \end{cases}$$

The predictions for the trade-off theory concerning changes in debt ratios can now be translated into expected values for the coefficients δ_k where k= 1,2. According to the trade-off theory, firms have the tendency to move their debt ratio towards the target debt ratio, whether they are above or below the target. The adjustment to the target is only gradual due to costs and constraints. Therefore, the coefficients δ_k have to be strictly positive and smaller than 1.

From the equations 3 to 6 we cannot determine if firms operating under/above the target behave differently depending on whether they have a positive free cash flow or a negative free cash flow. To take the cash situation of firm i at time t into consideration we introduce the dummy variable $P_{i,t}$ into our equation. Thereby dividing our observations into four distinct classes.

$$\Delta TFDT_{i,t} = \alpha + \delta_1 T_{i,t}^{T} P_{i,t}\left(TFDT_{i,t}^{*} - TFDT_{i,t-1}\right) + \delta_2\left(1 - T_{i,t}^{T}\right)P_{i,t}\left(TFDT_{i,t}^{*} - TFDT_{i,t-1}\right) + \delta_3 T_{i,t}^{T}\left(1 - P_{i,t}\right)\left(TFDT_{i,t}^{*} - TFDT_{i,t-1}\right) + \delta_4\left(1 - T_{i,t}^{T}\right)\left(1 - P_{i,t}\right)\left(TFDT_{i,t}^{*} - TFDT_{i,t-1}\right)$$

(7)

$$\Delta LFDT_{i,t} = \alpha + \delta_1 T_{i,t}^{L} P_{i,t}\left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) + \delta_2\left(1 - T_{i,t}^{L}\right)P_{i,t}\left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) + \delta_3 T_{i,t}^{L}\left(1 - P_{i,t}\right)\left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right) + \delta_4\left(1 - T_{i,t}^{L}\right)\left(1 - P_{i,t}\right)\left(LFDT_{i,t}^{*} - LFDT_{i,t-1}\right)$$

(8)

$$\Delta TFDT_{i,t} = \alpha + \delta_1 IAT_{i,t} P_{i,t}\left(INDAVT_{i,t} - TFDT_{i,t-1}\right) + \delta_2\left(1 - IAT_{i,t}\right)P_{i,t}\left(INDAVT_{i,t} - TFDT_{i,t-1}\right) + \delta_3 IAT_{i,t}\left(1 - P_{i,t}\right)\left(INDAVT_{i,t} - TFDT_{i,t-1}\right) + \delta_4\left(1 - IAT_{i,t}\right)\left(1 - P_{i,t}\right)\left(INDAVT_{i,t} - TFDT_{i,t-1}\right)$$

(9)

$$\Delta LFDT_{i,t} = \alpha + \delta_1 IAL_{i,t} P_{i,t}\left(INDAVL_{i,t} - LFDT_{i,t-1}\right) + \delta_2\left(1 - IAL_{i,t}\right)P_{i,t}\left(INDAVL_{i,t} - LFDT_{i,t-1}\right) + \delta_3 IAL_{i,t}\left(1 - P_{i,t}\right)\left(INDAVL_{i,t} - LFDT_{i,t-1}\right) + \delta_4\left(1 - IAL_{i,t}\right)\left(1 - P_{i,t}\right)\left(INDAVL_{i,t} - LFDT_{i,t-1}\right)$$

(10)

with $$P_{i,t} = \begin{cases} 1 \text{ if the free cash flow is positive (surplus)} \\ 0 \text{ if the free cash flow is negative or zero (deficit)} \end{cases}$$

When the trade-off model applies to our data, the coefficients δ_k, where k = 1, 2, 3, 4 have to be strictly positive and smaller than 1. When the pecking order applies to our data, we expect that firms with a positive free cash flow to decrease their debt ratio, whether they are below the target or above the target. This implies that we expect the coefficients δ_1 to be negative and δ_2 to positive. If, on the other hand, firms have a negative free cash flow, δ_3 is expected to be positive and δ_4 is expected to be negative, because firms with a deficit are expected to increase their debt ratio, whether they are above or below the target ratio.

Because our descriptive statistics seem to favour the pecking order, we also estimate equations 11 and 12. In these equations we do not include a trade-off target, but the debt ratio we would expect firms to change to following the pecking order.

$$\Delta TFDT_{i,t} = \alpha + \delta_1 I^T_{i,t}\left(PTFDT^*_{i,t} - TFDT_{i,t-1}\right) + \delta_2\left(1 - I^T_{i,t}\right)\left(PTFDT^*_{i,t} - TFDT_{i,t-1}\right) \quad (11)$$

$$\Delta LFDT_{i,t} = \alpha + \delta_1 I^T_{i,t}\left(PLFDT^*_{i,t} - LFDT_{i,t-1}\right) + \delta_2\left(1 - I^T_{i,t}\right)\left(PLFDT^*_{i,t} - LFDT_{i,t-1}\right) \quad (12)$$

with $$I^T_{i,t}\left(I^L_{i,t}\right) = \begin{cases} 1 \text{ if } PTFDT^*_{i,t} - TFDT_{i,t-1}\ \left(PLFDT^*_{i,t} - LFDT_{i,t-1}\right) > 0 \\ 0 \text{ if } PTFDT^*_{i,t} - TFDT_{i,t-1}\ \left(PLFDT^*_{i,t} - LFDT_{i,t-1}\right) \leq 0 \end{cases}$$

and $PTFDT^*_{i,t}\left(PLFDT^*_{i,t}\right)$ is the total (long-term) financial debt of the previous period minus the free cash flow over total assets of the previous period.

7 ESTIMATION RESULTS

Before we start with the discussion of our estimation results, recall that the targets used in equations 3, 4, 7 and 8 are calculated from the fitted values of equation 1 and 2 using the fixed effects model. That decision to use the fixed effects model was based on the hausman chi-squared statistic. However, it is important to note that using the random effects model would not have changed the findings from either the descriptive analysis or the regression analysis.

The models are estimated using both the fixed effects model and the random effects model. The estimation results differ substantially when using the fixed effects model or the random effects model. There where the fixed effects model seems to support the trade-off theory, the random effects model seems to support the pecking order theory. Here, the choice between the two models is not as straightforward. The hausman specification test suggests that the fixed effects model should be used, because the calculated test statistic rejects the null hypothesis of orthogonality at the one percent significance level. However, when explanatory variables do not vary much over time, fixed effects can lead to imprecise estimates (Wooldridge, 2002), because they will be highly collinear with the fixed effects. Based on the findings from our descriptive analysis and because our explanatory variables vary only a little, the random effects model seems more appropriate.

< Insert Table 17 >

In regressions 3 and 4 we only take into consideration whether firms are operating below or above the target, which is determined by their firm-specific characteristics. Table 17 shows that the estimated coefficients for δ_1 and δ_2 are positive but small for both the total financial debt ratio (eq. 3) and the long-term financial debt ratio (eq. 4). This could indicate that firms adjust towards the trade-off target. However, the adjustment is very small which might suggest that the adjustment and transaction costs or constraints (Jalilvand and Harris, 1984) are much larger in comparison to the costs of deviating from the target or that the firm has no desire to reach a predetermined target. When using industry averages as proxy for the total (eq. 5) and long-term (eq. 6) financial debt target ratios, the coefficients remain positive but small. The adjustment coefficient towards the total financial debt ratio is not significant for firms operating below the industry average, but the coefficient of the long-term financial debt ratio for firms below the industry average is significant. Overall it can be said that the equations with the industry targets produce similar results as when the target is determined based on theoretical models. The fact that the adjustment coefficients are small is a necessary but insufficient perquisite to reject hypotheses H_{1A} and H_{1B} or H_{5A} and H_{5B}, but these results could be a first indication of the presence of pecking order behaviour in SMEs.

According to the pecking order, firms increase their debt if the free cash flow is negative and decrease their debt if the free cash flow is positive. When dividing our observations into four classes based on dummy variables $T_{i,t}^{T}$ and P for the total financial debt ratio, the coefficients δ_2 and δ_3 (eq. 7) are in line with both the static trade-off theory and the pecking order theory. The former theory explains the decrease (δ_2) of the total financial debt ratio based on the fact that the firm was operating above the target in the previous period. The increase (δ_3) of the total financial debt ratio can also be explained on the basis of the deviation from the target because when firms are below the target the trade-off theory predicts an increase in the debt ratio. According to the pecking order theory, the changes in the financial debt ratio are a consequence of the cash position of the firm. Firms with a positive free cash flow decrease (δ_2) their total financial debt ratio and firms with a negative free cash flow increase (δ_3) their financial debt ratio. The statistics in table 7 confirm this conclusion. When operating above the target financial debt ratio, a deficit of internal funds forces the firm to increase their total financial debt ratio ($\delta_3 < 0$), which indicates that the pecking order theory is superior to the trade-off theory. Observations showing a surplus of internal funds and a financial debt ratio below the target have an adjustment coefficient that is negative, which is consistent with the pecking order theory, however the coefficient is not statistically different from zero. A possible explanation could be that firms do use their free cash flow to decrease their financial debt ratio, but are more likely to do so if their financial debt ratio is higher. From equation 8, the came conclusions can be drawn, except for the observations that have a negative free cash flow and are already operating above the target. There the adjustment is not significantly different from zero.

Equations 9 and 10 also distribute the observation into four classes based on whether they are operating above or below the target and whether they have a positive free cash flow or a negative free cash flow. The difference with equations 7 and 8 is that the target is not determined as predicted by the trade-off theory but the industry average is used. Table 17 shows that the results do not change whether the industry averages are used as targets or whether more complicated calculations are used to determine the target. Firms with a negative free cash flow and a debt ratio above that of the industry have no significant adjustment coefficient, which could be considered as partial evidence of hypothesis H6c. Tables 10 and 11 already showed that the proportion of observations that increased their capital is highest for firms in this class.

The analysis of equations 5 to 10 provides evidence in favour of the pecking order theory. Therefore we run two additional regressions in which we replace the target debt ratio calculated as predicted by the trade-off theory by the debt ratio of the previous period corrected with the free cash flow of the current period scaled by total assets. The pecking order theory, after all, states that firm's financing behaviour is determined by the free cash flow. First of all, it should be noted that the R^2 increases as compared to the previous regressions. The estimation results indicate that firms that are operating below this value, meaning that they have a negative free cash flow, adjust their total financial debt ratio with 89.41% and their long-term debt ratio with 92.03% to the FCF-corrected debt ratio. Firms with a positive free cash flow decrease their debt ratio but only with 13% to 20%. Long-term debt decreases less but that might be explained by the fact that bank loans mostly are repaid according to a repayment schedule or that firms prefer to hold their free cash for later usage.

< Insert Table 18 >

When re-estimating equation 11 for observations with a high total financial debt ratio and a low total financial debt ratio, we notice that firms with a negative free cash flow respond to the lack of internal funds without taking into consideration the current amount of debt. When re-estimating equation 11 separately for firms with and without growth opportunities, we see that firms with growth opportunities either increase their debt more when they have growth opportunities and decrease their debt less if they have positive free cash flow. Combined with the statistics from table 15 this contradicts the complex pecking order.

8 CONCLUSIONS

The aim of our study was to scrutinize the underlying theoretical drivers behind the financing decisions in small and medium-sized firms. Given the special cognitive style of management in SMEs, characterized by bounded rationality and intuition, we investigate whether the behavioural principle has a higher explanatory power than the two traditional competing theories in relation to financing behaviour in SMEs.

We presented an elaborate descriptive analysis that gives a first indication that in small and medium-sized firms, the static trade-off theory, which suggests using complex targets does not outperform the behavioural principle that proposes using the industry average as debt target. However, the descriptive analysis seems to provide strong evidence in favour of the pecking order theory.

To test the contradicting theoretical predictions from the trade-off theory and the pecking order theory and the behavioural principle we use several partial adjustment models. Due to the classification of observations, by the use of dummy variables, we were able to focus more directly on the classes for which the static trade-off theory and the behavioural theory make other predictions that the pecking order theory. The models using the industry averages as targets perform as well as the models in which a more complex target, as predicted by the static trade-off theory is used, but do not seem to be more explanatory. In small firms the static trade-off theory and the behavioural principle are less important than the pecking order theory, which is more prevailing in our data. The regression results support the predictions provided by the pecking order theory that firms decrease or increase their financial debt in correspondence to the availability or lack of internal funds.

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Appendix 1

Nace-Bel activity code	Activity	Sector N°	N° firms per sector
15	Manufacture of food products	1	66
16	Manufacture of tabacco products		
17	Manufacture of textiles	2	42
18	Manufacture of wearing apparel		
19	Tanning & dressing of leather		
20	Manufacture of wood	3	15
21	Manufacture of pulp & paper	4	11
22	Publishing and printing	5	27
23	Manufacture of coke	6	24
24	Manufacture of chemicals		
25	Manufacture of rubber products	7	28
26	Manufacture of mineral products	8	34
27	Manufacture of basic metals	9	13
28	Manufacture of fabricated metal products	10	43
29	Manufacture of machinery & equipment	11	38
30	Manufacture of computers	12	23
31	Manufacture of electrical machinery		
32	Manufacture of radio & telecommunication		
33	Manufacture of medical instruments		
34	Manufacture of motor vehicles	13	12
35	Manufacture of other transport equipment		
36	Manufacture of furniture	14	21
50	Sale of motor vehicles	15	73
51	Whole sale of agricultural raw materials and live animals	16	9
	Wholesale of food, beverages and live animals	17	72
	Wholesale of household goods	18	113
	Wholesale of non-agricultural intermediate products, waste and scrap	19	99
	Wholesale of machinery, equipment and supplies	20	81
	Other wholesale	21	10
52	Retail trade	22	45

Appendix 2: Tables

Table 1

Overview of variables and measures

Variable	Label	Measure/proxy
Equity capital	C	• Issued and uncalled capital
Debt ratio	DT	• Debt over total assets
Total financial debt ratio	$TFDT$	• Financial debt payable after one year, plus financial debt payable within one year plus current portions of debts after one year over total assets
Long-term financial debt ratio	$LFDT$	• Financial debt payable after one year plus current portions of debts after one year over total assets
Short-term financial debt ratio	$SFDT$	• Financial debt payable within one year
Total assets	TA	• Balance sheet total
Change in total financial debt ratio	$\Delta TFDT$	• $\Delta TFDT_{i,t} = \frac{TFDT_{i,t} - TFDT_{i,t-1}}{TA_{i,t-1}}$
Change in long-term financial debt ratio	$\Delta LFDT$	• $\Delta LFDT_{i,t} = \frac{LFDT_{i,t} - LFDT_{i,t-1}}{TA_{i,t-1}}$
Change in short-term financial debt ratio	$\Delta SFDT$	• $\Delta SFDT_{i,t} = \frac{SFDT_{i,t} - SFDT_{i,t-1}}{TA_{i,t-1}}$
Target long-term financial debt ratio	$LFDT^*$	• Fitted values of the regression results obtained by the fixed effects model (table 2)
	$T^L_{i,t}$	• 1 if $LFDT^*_{i,t} - LFDT_{i,t-1}$ > 0, otherwise 0
Target total financial debt ratio	$TFDT^*$	• Fitted values of the regression results obtained by the fixed effects model (table 2)
	$T^T_{i,t}$	• 1 if $TFDT^*_{i,t} - TFDT_{i,t-1}$ > 0, otherwise 0
Free cash flow	FCF	• Operating cash flow after taxes at the end of period – gross investment in operating fixed assets in period – net increase in working capital in period
	$P_{i,t}$	• 1 if FCF > 0; otherwise 0
Pecking order total financial debt ratio	$PTFDT^*$	• Total financial debt of the previous period minus the free cash flow over total assets of the previous period, restricted to the interval [0,1]
	$I^T_{i,t}$	• 1 if $PTFDT^*_{i,t} - TFDT_{i,t-1}$ > 0, otherwise 0
Pecking order long – term financial debt ratio	$PLFDT^*$	• Long-term financial debt of the previous period minus the free cash flow over total assets of the previous period, restricted to the interval [0,1]
	$I^L_{i,t}$	• 1 if $PLFDT^*_{i,t} - TLFDT_{i,t-1}$ > 0, otherwise 0
Industry averages	INDAVT (INDAVL)	• measured by averaging the values of the total (and long-term) financial ratio of period *t* for all the firms *i* in that specific industry class present in our sample

	$IAT_{i,t}$	•	1 if $INDAVT_{i,t} - TFDT_{i,t-1} > 0$, otherwise 0
	$IAL_{i,t}$	•	1 if $INDAVL_{i,t} - LFDT_{i,t-1} > 0$, otherwise 0
Firm size	S1	•	Natural logarithm of total assets
	S2	•	Natural logarithm of sales
Asset structure	AssStr1	•	Tangible assets over total assets
	AssStr2	•	Tangible assets expanded with accounts receivable and inventories scaled by total assets
Profitability	Prof	•	Ratio of pre-tax profits to total assets for a period of two years
Growth opportunities	Growhtopp	•	Intangible assets over total assets
	Grdum	•	1 if Growthopp > 0, otherwise 0
Historical growth	Histgrowth	•	Growth rate of total assets over a period of two years: $(TA_t - TA_{t-2})/TA_{t-2}$
Return on investment	ROI	•	Current profit/losses before taxes over total assets

Table 2

Fixed effects model for total financial debt ratio and long-term financial debt ratio

Equation number	1	2
Dependent variable	TFDT	LFDT
Constant	-0.2901461 (0.0354881)**	-0.1997128 (0.0245359)**
Firm size (S1)	0.0469448 (0.00404)**	0.0253079 (0.0027932)**
Asset structure (AssStr2)	0.4209704 (0.0187025)**	0.4130974 (0.0129306)**
Profitability	-0.0567684 (0.0096311)**	-0.0031949 (0.0066588)
Growth opportunities	0.0691943 (0.0761092)*	0.00687 (0.0526208)
Number of obs	7192	7192
Number of groups	899	899
R-sq within	0.0962	0.1460
F (4, 6289)	167.30**	268.72**

Standard errors in parenthesis: ** significant at 1% significance level, * significant at 5% significance level. The proxy to measure asset structure (AssStr1) is tangible fixed assets scaled by total assets. The proxy for firm size S1 is the natural logarithm of total assets. As a proxy for growth opportunities (growthopp) the ratio of intangible assets to total assets is chosen and as a proxy for profitability (prof) the ratio of pre-tax profits to total assets for a period of two years is chosen. When using AssStr2 (tangible fixed assets expanded with accounts receivable and inventories scaled by total assets) or S2 (the natural logarithm of sales) the explanatory power of the model drops.

Table 3

Sample statistics

	Mean(*)	Median(*)	Standard deviation(*)	Min(*)	Max(*)
DT	62.85%	66.27%	21.95%	2.20%	99.91%
TFDT	19.26%	14.99%	18.58%	0.00%	92.17%
LFDT	9.40%	4.51%	11.92%	0.00%	76.46%
ΔTFDT	15.15%	0.00%	20.13%	-75.81%	939.52%
ΔLFDT	0.47%	0.00%	13.43%	-54.86%	712.18%
ΔC	33.70	0.00%	796.58	-25 193	40 000
TFDT*	19.25%	18.64%	7.00%	-1.17%	52.62%
LFDT*	9.439	8.28%	6.19%	-3.86%	39.71%
INDAVT	19.29%	20.40%	4.17%	8.88%	36.42%
INDAVL	9.42%	9.51%	3.46%	2.70%	21.51%
PTFDT*	17.27%	10.56%	19.83%	0.00%	100%
PLFDT*	9.97%	2.26%	14.54%	0.00%	100%
FCF	1 104.74	224.00	2 715.86	-11 362.14	14 316.36
Total assets	7 928.36	5 482.00	7 215.90	296.00	97 871
Sales	15 296.73	10 745.50	15 270.29	442.00	279 975
AssStr1	17.92%	14.75%	14.31%	0.00%	83.41%
AssStr2	82.50%	87.74%	16.41%	5.97%	99.98%
Prof	0.94%	0.36%	10.84%	-128.89%	1 031.34%
Growthopp	0.52%	0.00%	2.15%	0.00%	55.43%
Histgrowth	13.08%	7.55%	32.90%	-82.41%	277,14%
ROI	6.92%	5.49%	9.76%	-84.84%	59.48%

(*) Statistics are calculated over all years and firms combined.

Table 4

A. Some characteristics of the distinct classes based on $T^{T}_{i,t}$ [3]

	$T^{T}_{i,t} = 1$	$T^{T}_{i,t} = 0$	
	56.08%	43.92%	
$\Delta TFDT_{i,t} > 0$	32.06%	42.89%	•
$\Delta TFDT_{i,t} = 0$	29.90%	1.46%	•
$\Delta TFDT_{i,t} < 0$	38.04%	55.65%	•
$\Delta C_{i,t} > 0$	8.50%	9.09%	
$\Delta C_{i,t} = 0$	90.18%	89.68%	
$\Delta C_{i,t} < 0$	1.32%	1.23%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: T_{it}: below (= 1) or above (= 0) the target in the previous period.
• Indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

B. Some characteristics of the distinct classes based on $T^{L}_{i,t}$ [4]

	$T^{L}_{i,t} = 1$	$T^{L}_{i,t} = 0$	
	58.68%	41.32%	
$\Delta LFDT_{i,t} > 0$	20.33%	26.58%	•
$\Delta LFDT_{i,t} = 0$	45.09%	5.28%	•
$\Delta LFDT_{i,t} < 0$	34.57%	68.57%	•
$\Delta C_{i,t} > 0$	8.67%	8.88%	
$\Delta C_{i,t} = 0$	89.91%	90.04%	
$\Delta C_{i,t} < 0$	1.42%	1.08%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: T_{it}: below (= 1) or above (= 0) the target in the previous period.
• Indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

[3] (2) When dividing the observation into more then two categories we find no additional information. When using the industry average as the target, the results are similar (see table 9).

Table 5

Some characteristics of the distinct classes based on $P_{i,t}$

	$P_{i,t} = 0$	$P_{i,t} = 1$	
	33.59%(*)	66.41%	
$\Delta TFDT_{i,t} > 0$	61.55%(**)	24.31%	•
$\Delta TFDT_{i,t} = 0$	16.35%	17.94%	
$\Delta TFDT_{i,t} < 0$	22.10%	57.75%	•
$\Delta LFDT_{i,t} > 0$	34.94%[5]	16.83%	•
$\Delta LFDT_{i,t} = 0$	28.31%	28.81%	
$\Delta LFDT_{i,t} < 0$	36.75%	54.36%	•
$\Delta C_{i,t} > 0$	10.35%	7.96%	•
$\Delta C_{i,t} = 0$	88.57%	90.66%	•
$\Delta C_{i,t} < 0$	1.08%	1.38%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)
• Indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

Table 6

In depth investigation of changes in the components of the total financial debt ratio

		$P_{i,t} = 0$			$P_{i,t} = 1$		
		$\Delta TFDT_{i,t}$			$\Delta TFDT_{i,t}$		
		> 0	= 0	< 0	> 0	= 0	< 0
$\Delta LFDT_{i,t} > 0$	$\Delta SFDT_{i,t} > 0$	31.81%(*)	0%	0%	19.73%	0%	0%
$\Delta LFDT_{i,t} = 0$	$\Delta SFDT_{i,t} > 0$	14.59%	0%	0%	14.99%	0%	0%
$\Delta LFDT_{i,t} < 0$	$\Delta SFDT_{i,t} > 0$	30.80%	0.25%	14.04%	35.40%	0.35%	15.30%
$\Delta LFDT_{i,t} > 0$	$\Delta SFDT_{i,t} = 0$	13.38%	0%	0%	16.45%	0%	0%
$\Delta LFDT_{i,t} = 0$	$\Delta SFDT_{i,t} = 0$	0%	99.75%	0%	0%	99.18%	0%
$\Delta LFDT_{i,t} < 0$	$\Delta SFDT_{i,t} = 0$	0%	0%	45.51%	0%	0%	28.28%
$\Delta LFDT_{i,t} > 0$	$\Delta SFDT_{i,t} < 0$	9.42%	0%	5.99%	13.43%	0.47%	*8.13%*
$\Delta LFDT_{i,t} = 0$	$\Delta SFDT_{i,t} < 0$	0%	0%	13.67%	0%	0%	*12.76%*
$\Delta LFDT_{i,t} < 0$	$\Delta SFDT_{i,t} < 0$	0%	0%	20.79%	0%	0%	35.53%

(*) Percentage per class that satisfies the row change. Symbol: $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)

[5] When expanding long-term debt with current portions of debts after one year, the financing behaviour does not change.

Table 7

Some characteristics of the distinct classes based on $T^T_{i,t}$ and $P_{i,t}$[6]

	$T^T_{i,t}$ = 1 & $P_{i,t}$ = 0	$T^T_{i,t}$ = 1 & $P_{i,t}$ = 1	$T^T_{i,t}$ = 0 & $P_{i,t}$ = 0	$T^T_{i,t}$ = 0 & $P_{i,t}$ = 1
	20.16%	36.51%	13.43%	29.90%
$\Delta TFDT_{i,t} > 0$	50.83%	21.82%	77.64%	27.35%
$\Delta TFDT_{i,t} = 0$	26.21%	31.53%	1.55%	1.35%
$\Delta TFDT_{i,t} < 0$	22.97%	46.65%	20.81%	71.30%
$\Delta C_{i,t} > 0$	9.52%	8.19%	11.59%	7.67%
$\Delta C_{i,t} = 0$	89.17%	90.52%	87.68%	90.84%
$\Delta C_{i,t} < 0$	1.31%	1.29%	0.72%	1.49%

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $T_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)

The proportions for $\Delta TFDT_{i,t} > 0$, are pairwise all significantly different at a 1% significance level. The proportions for $\Delta TFDT_{i,t} = 0$ are pairwise significantly different at a 1% significance level, except for the proportions in the two last columns. The proportions for $\Delta TFDT_{i,t} < 0$ are pairwise significantly different at a 1% significance level except for the proportions in class 1 and 3. The proportions for $\Delta C_{i,t} > 0$ are not significantly different pairwise at a 1% significance level except for the proportions in class 2 and 3 and class 3 and 4. The proportions for $\Delta C_{i,t} = 0$ and $\Delta C_{i,t} < 0$ are not significantly different pairwise at a 1% significance level. The proportions within each cell are significantly different at a 1% significance level.

Table 8

Some characteristics of the distinct classes based on $T^L_{i,t}$ and $P_{i,t}$[7]

	$T^L_{i,t}$ = 1 & $P_{i,t}$ = 0	$T^L_{i,t}$ = 1 & $P_{i,t}$ = 1	$T^L_{i,t}$ = 0 & $P_{i,t}$ = 0	$T^L_{i,t}$ = 0 & $P_{i,t}$ = 1
	20.27%	38.40%	13.32%	28.01%
$\Delta LFDT_{i,t} > 0$	29.08%	15.71%	43.84%	18.37%
$\Delta LFDT_{i,t} = 0$	43.14%	46.13%	5.74%	5.06%
$\Delta LFDT_{i,t} < 0$	27.78%	38.16%	50.42%	76.56%
$\Delta C_{i,t} > 0$	9.60%	8.18%	11.48%	7.65%
$\Delta C_{i,t} = 0$	89.23%	90.26%	87.58%	91.21%
$\Delta C_{i,t} < 0$	1.17%	1.56%	0.94%	1.14%

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $T_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)

The proportions for $\Delta LFDT_{i,t} > 0$, are significantly different at a 1% significance level, except those in class 2 and 4. The proportions for $\Delta LFDT_{i,t} = 0$ are pairwise significantly different at a 1% significance level, except for the proportions in class 1 and 2, and class 3 and 4 which are statistically the same. The proportions for $\Delta LFDT_{i,t} < 0$ are pairwise significantly different at a 1% significance level. The proportions for $\Delta C_{i,t} > 0$ are not significantly different at a 1% significance level except for the proportions in class 3 and 4. The proportions for $\Delta C_{i,t} = 0$ are pairwise not significantly different, except for the proportions in class 3 and 4 at a 1% significance level. The proportions for $\Delta C_{i,t} < 0$ are pairwise statistically the same in each class. The proportions in the cells are significantly different at a 1% significance level.

6 (5) When using the industry average as the target, the results are similar (see table 10 and table 11).

Table 9

A. Some characteristics of the distinct classes based on $IAT_{i,t}$

	$IAT_{i,t} = 1$	$IAT_{i,t} = 0$	
	56.19%	43.81%	
$\Delta TFDT_{i,t} > 0$	31.77%	43.29%	•
$\Delta TFDT_{i,t} = 0$	30.17%	1.05%	•
$\Delta TFDT_{i,t} < 0$	38.06%	55.66%	•
$\Delta C_{i,t} > 0$	8.29%	9.36%	
$\Delta C_{i,t} = 0$	90.50%	89.27%	
$\Delta C_{i,t} < 0$	1.21%	1.36%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: IAT_{it}: below (= 1) or above (= 0) the target in the previous period.
• Indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

B. Some characteristics of the distinct classes based on $IAL_{i,t}$

	$IAL_{i,t} = 1$	$IAL_{i,t} = 0$	
	61.75%	38.25%	
$\Delta LFDT_{i,t} > 0$	19.68%	28.14%	•
$\Delta LFDT_{i,t} = 0$	44.76%	2.62%	•
$\Delta LFDT_{i,t} < 0$	35.56%	69.25%	•
$\Delta C_{i,t} > 0$	8.53%	9.12%	
$\Delta C_{i,t} = 0$	90.14%	89.68 %	
$\Delta C_{i,t} < 0$	1.33%	1.20%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: IAL_{it}: below (= 1) or above (= 0) the target in the previous period.
• Indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

Table 10

Some characteristics of the distinct classes based on $IAT_{i,t}$ and $P_{i,t}$

	$IAT_{i,t}$= 1 & $P_{i,t}$ = 0	$IAT_{i,t}$ = 1 & $P_{i,t}$ = 1	$IAT_{i,t}$ = 0 & $P_{i,t}$ = 0	$IAT_{i,t}$ = 0 & $P_{i,t}$ = 1
	19.66%	36.53%	13.93%	29.88%
$\Delta TFDT_{i,t} > 0$	49.50%	22.23%	78.54%	26.85%
$\Delta TFDT_{i,t} = 0$	27.09%	31.82%	1.20%	0.98%
$\Delta TFDT_{i,t} < 0$	23.41%	45.95%	20.26%	72.17%
$\Delta C_{i,t} > 0$	9.05%	7.88%	12.18%	8.05%
$\Delta C_{i,t} = 0$	89.75%	90.90%	86.93%	90.37%
$\Delta C_{i,t} < 0$	1.20%	1.22%	0.90%	1.58%

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $IAT_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)
The proportions for $\Delta TFDT_{i,t} > 0$, are pairwise significantly different at a 1% significance level. The proportions for $\Delta TFDT_{i,t} = 0$ are pairwise significantly different at a 1% significance level, except for the proportions in the two last columns. The proportions for $\Delta TFDT_{i,t} < 0$ are pairwise significantly different at a 1% significance level except for the proportions in class 1 and 3. The proportions for $\Delta C_{i,t} > 0$ are pairwise not significantly different at a 1% significance level except for the proportions in class 2 and 3 and class 3 and 4. The proportions for $\Delta C_{i,t} = 0$ are pairwise not significantly different at a 1% significance level, except for the proportion in class 3 which is significantly different from the proportions in class 2 and 4. The proportions of $\Delta C_{i,t} < 0$ are pairwise not significantly different. The proportions within each cell are significantly different at a 1% significance level.

Table 11

Some characteristics of the distinct classes based on $IAL_{i,t}$ and $P_{i,t}$

	$IAL_{i,t}$= 1 & $P_{i,t}$ = 0	$IAL_{i,t}$= 1 & $P_{i,t}$ = 1	$IAL_{i,t}$= 0 & $P_{i,t}$ = 0	$IAL_{i,t}$= 0 & $P_{i,t}$ = 1
	21.47 %	40.28%	12.12%	26.13%
$\Delta LFDT_{i,t} > 0$	27.14%	15.71%	48.74%	18.57%
$\Delta LFDT_{i,t} = 0$	42.75%	45.84%	2.75%	2.55%
$\Delta LFDT_{i,t} < 0$	30.12%	38.45%	48.51%	78.87%
$\Delta C_{i,t} > 0$	9.20%	8.18%	12.39%	7.61%
$\Delta C_{i,t} = 0$	89.77%	90.33%	86.47%	91.17%
$\Delta C_{i,t} < 0$	1.04	1.48%	1.15%	1.22%

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)
The proportions for ΔLFDTi,t > 0, are pairwise significantly different at a 1% significance level, except those in class 2 and 4. The proportions for ΔLFDTi,t = 0 are pairwise significantly different at a 1% significance level, except for the proportions in class 1 and 2, and class 3 and 4 which are statistically the same. The proportions for ΔLFDTi,t < 0 are pairwise significantly different at a 1% significance level. The proportions for ΔCi,t > 0 are pairwise not significantly different at a 1% significance level except for the proportions in class 2 and 3 and class 3 and 4. The proportions for ΔCi,t = 0 are pairwise statistically the same for each class, except for the proportion in class 3 which is significantly different from the proportions in class 2 and 4 at a 1% significance level. The proportions for ΔCi,t < 0 are pairwise not significantly different at a 1% significance level. The proportions in the cells are significantly different at a 1% significance level.

Table 12

A. Some characteristics of the distinct classes based on $I^{T}_{i,t}$

	$I^{T}_{i,t} = 1$	$I^{T}_{i,t} = 0$	
	33.54%(*)	66.46%	
$\Delta TFDT_{i,t} > 0$	61.57%(**)	25.23%	•
$\Delta TFDT_{i,t} = 0$	16.33%	17.95%	
$\Delta TFDT_{i,t} < 0$	22.10%	57.72%	•
$\Delta C_{i,t} > 0$	10.36%	7.95%	•
$\Delta C_{i,t} = 0$	88.56%	90.67%	•
$\Delta C_{i,t} < 0$	1.08%	1.38%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $I_{i,t}$: below (= 1) or above (= 0) the target in the previous period.
• indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

B. Some characteristics of the distinct classes based on $I^{L}_{i,t}$

	$I^{L}_{i,t} = 1$	$I^{L}_{i,t} = 0$	
	33.52%(*)	66.48%	
$\Delta LFDT_{i,t} > 0$	34.96%(**)	16.84%	•
$\Delta LFDT_{i,t} = 0$	28.33%	28.80%	
$\Delta LFDT_{i,t} < 0$	36.71%	54.36%	•
$\Delta C_{i,t} > 0$	10.37%	7.95%	•
$\Delta C_{i,t} = 0$	88.56%	90.67%	•
$\Delta C_{i,t} < 0$	1.08%	1.38%	

(*) Percentage of the sample in the column. (**) Percentage per class that satisfies the row change. Symbols: $I_{i,t}$: below (= 1) or above (= 0) the target in the previous period.
• indicates that the proportions of that specific row are significantly different at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

Table 13

A. Financing behaviour in relation to profitability

	Percentiles of profitability			
	< -2,87%	[-2.87% - 0.36%]	[0.36% - 4.39%]	> 4.39%
$\Delta TFDT_{i,t} > 0$[8]	38.22%(*)	42.60%	37.21%	29.25%
$\Delta TFDT_{i,t} = 0$	20.63%	12.96%	14.58%	21.47%
$\Delta TFDT_{i,t} < 0$	41.15%	44.44%	48.21%	49.28%
$\Delta C_{i,t} > 0$	10.01%	8.29%	7.73%	9.01%
$\Delta C_{i,t} = 0$	88.43%	90.71%	91.32%	89.38%
$\Delta C_{i,t} < 0$	1.56%	1.00%	0.95%	1.61%

(*) Percentage per class that satisfies the row change. The class boundaries are determined based on the percentiles 25, 50 and 75.
For $\Delta TFDT_{i,t} > 0$, the proportion of class 4 is pairwise significantly different from the proportions in the other classes at a 1 % significance level. The proportions in class 2 and 3 are also statistically different. The proportions for $\Delta TFDT_{i,t} = 0$ are pairwise significantly different at a 1% significance level, except for the proportions in class 1 and 4 and also class 2 and 3. The proportions for $\Delta TFDT_{i,t} < 0$ are pairwise not significantly different except for the proportion in class 1 which is significantly different from the proportions in class 3 and 4, at a 1% significance level. The proportions of $\Delta C_{i,t}$ are pairwise statistically the same except for the proportions in class 1 and 4 when $\Delta C_{i,t} > 0$, at a 1% significance level.
The proportions in the cells are significantly different at a 1% significance level.

B. Average change of the total financial debt ratio and equity capital in relation to profitability

	Profitability			
	< -2,87%	[-2.87% - 0.36%]	[0.36% - 4.39%]	> 4.39%
$\Delta TFDT_{i,t} > 0$	0.13129	0.08799	0.10018	0.11716
$\Delta TFDT_{i,t} = 0$	0	0	0	0
$\Delta TFDT_{i,t} < 0$	-0.05417	-0.05113	-0.05279	-0.06517
$\Delta C_{i,t} > 0$	714.8667	247.7987	667.6115	775.3889
$\Delta C_{i,t} = 0$	0	0	0	0
$\Delta C_{i,t} < 0$	-1960.571	-1869.611	-1485.059	-958.931

(*) Average change of the total financial debt ratio of firms that satisfy the column and row condition. The class boundaries are determined based on the percentiles 25, 50 and 75.
The average decreases of the total financial debt ratio are significantly different at a 1% significance level between the four classes. The other changes are statistically the same.

[8] The results for the long-term financial debt ratio exhibit the same patterns.

Table 14

A. Average change of the total financial debt ratio in the current year related to the total financial debt ratio in the previous period and the cash position of the firm

	Total financial debt ratio of the previous period			
	< 1.26%	[1.26% - 15.31%]	[15.31% -32.57%]	> 32.57%
$P_{i,t} = 1$	0.01811(*)	-0.00553	-0.02793	-0.05130
$P_{i,t} = 0$	0.03463	0.08108	0.07650	0,11322

(*) Average change of the total financial debt ratio of firms that satisfy the column and row condition. Symbol: $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0). The class boundaries are determined based on the percentiles 25, 50 and 75.
The average changes of the total financial debt ratio are significantly different at a 1% significance level over the rows. The average changes of the total financial debt ratio within the classes are significantly different at a 1% significance level, except for the average changes in the first class (total financial debt ratio in the previous period < 1.26%).

B. Average change of the total financial debt ratio in the current year related to the total financial debt ratio in the previous period and the cash position of the firm

	Total financial debt ratio of the previous period		
	[32.57% - 46.52%]	[46.52% - 54.44%]	> 54.44%
$P_{i,t} = 1$	-0.03822	-0.06235	-0.07794
$P_{i,t} = 0$	0,12797	0.09612	0.08259

(*) Average change of the total financial debt ratio of firms that satisfy the column and row condition.
Symbol: $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0). The class boundaries are determined based on the percentiles 75, 90 and 95.

Figure 1

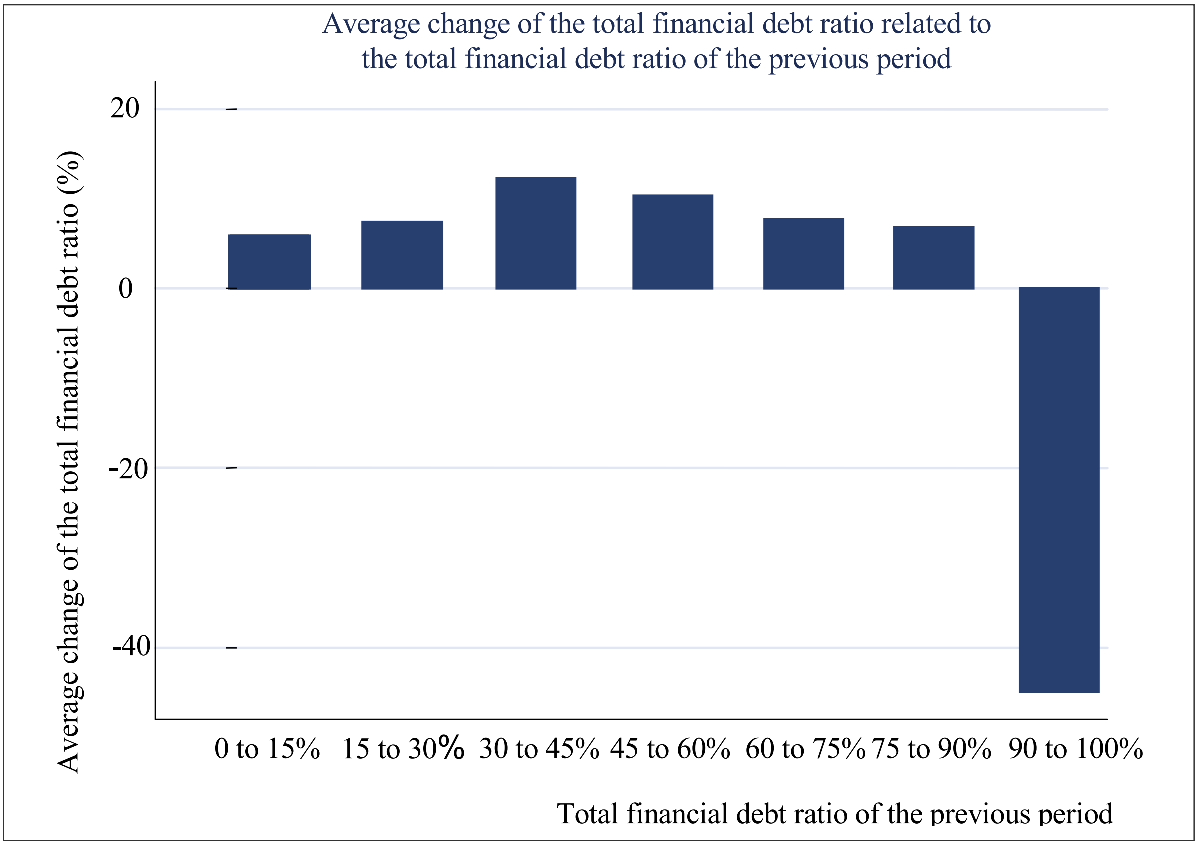
Average change of the total financial debt ratio related to
the total financial debt ratio of the previous period
Average change of the total financial debt ratio (%)
20
0
-20
-40
0 to 15%
15 to 30%
30 to 45%
45 to 60%
60 to 75%
75 to 90%
90 to 100%
Total financial debt ratio of the previous period

Table 15

Average change of the total financial debt ratio in the current year related future growth opportunities, calculated as intangible over total assets in the current year, and the cash position[9]

	Future growth opportunities	
	No (0)	Yes (> 0)
$P_{i,t} = 1$	-0.15479	- 0.02090
$P_{i,t} = 0$	0.07391	0.08005

(*) Average change of the total financial debt ratio of firms that satisfy the column and row condition. Symbol: $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0). The proxy for growth opportunities is intangible assets over total assets.

The average changes are not significantly different at a 1% significance level over the rows. The average changes within each class of future growth opportunities, are significantly different at a 1% significance level.

[9] When relating the average change of the total financial debt ratio of the current year *t* to future growth opportunities, calculated as intangible over total assets in the next period *t + 1,* the results are: for $P_{i,t} = 1$: –0.02102; -0.02493 and for $P_{i,t} = 0$: 0.06969; 0.08205

Table 16

Regresson results obtained by the fixed effects model[10]

Equation number	3	4	5	6
Dependent variable	ΔTFDT	ΔLFDT	ΔTFDT	ΔLFDT
Constant	.0150971 (.0061849)*	.0113729 (.0034364)**	.0287802 (.0067789)**	.0139128 (.0042055)**
$T_{i,t}^{T}\left(TFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	.7220006 (.0581791)**			
$\left(1-T_{i,t}^{T}\right)\left(TFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	.71461 (.0392578)**			
$T_{i,t}^{L}\left(LFDT_{i,t}^{*}-LFDT_{i,t-1}\right)$		.6092675 (.0617673)**		
$\left(1-T_{i,t}^{L}\right)\left(LFDT_{i,t}^{*}-LFDT_{i,t-1}\right)$		.7187955 (.0354226)**		
$IAT_{i,t}\left(INDAVT_{i,t}^{*}-TFDT_{i,t-1}\right)$			.5517993 (.0618545)**	
$\left(1-IAT_{i,t}\right)\left(INDAVT_{i,t}^{*}-TFDT_{i,t-1}\right)$			.7312442 (.0404866)**	
$IAL_{i,t}\left(INDAVL_{i,t}^{*}-LFDT_{i,t-1}\right)$				.5242733 (.0717121)**
$\left(1-IAL_{i,t}\right)\left(INDAVL_{i,t}^{*}-LFDT_{i,t-1}\right)$				.6847756 (.034882)**
Number of obs	7192	7192	7192	7192
Number of groups	899	899	899	899
R-sq within	0.0971	0.0984	0.0844	0.0889
R-sq overall	0.0071	0.0150	0.0055	0.0105
F (4, 6289)	338.25**	343.41**	289.98**	306.82**

Symbols: $T_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAT_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period.

[10] The estimates, for all the models, are similar when extending the models with control variables such as firm size (S1), return on investment and a dummy for growth opportunities and are therefore not included in the paper.

Equation number	7	8	9	10
Dependent variable	ΔTFDT	ΔLFDT	ΔTFDT	ΔLFDT
Constant	.0115174 (.0061473)	.0130983 (.0034513)**	.0236755 (.006716)**	.0144114 (.0041934)**
$T^T_{i,t}P_{i,t}\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	.6148885 (.0625068)**			
$\left(1-T^T_{i,t}\right)P_{i,t}\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	.7996984 (.0390805)**			
$T^T_{i,t}\left(1-P_{i,t}\right)\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	.8403525 (.060791)**			
$\left(1-T^T_{i,t}\right)\left(1-P_{i,t}\right)\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	.2833713 (.0502991)**			
$T^L_{i,t}P_{i,t}\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.4749645 (.0683278)**		
$\left(1-T^L_{i,t}\right)P_{i,t}\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.7801962 (.0370348)**		
$T^L_{i,t}\left(1-P_{i,t}\right)\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.7174852 (.0661875)**		
$\left(1-T^L_{i,t}\right)\left(1-P_{i,t}\right)\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.5775846 (.0458342)**		
$IAT_{i,t}P_{i,t}\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			.4509541 (.0647973)**	
$\left(1-IAT_{i,t}\right)P_{i,t}\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			.8083142 (.0402249)**	
$IAT_{i,t}\left(1-P_{i,t}\right)\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			.7089203 (.065449)**	
$\left(1-IAT_{i,t}\right)\left(1-P_{i,t}\right)\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			-.310085 (.0512279)**	
$IAL_{i,t}P_{i,t}\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.4179458 (.0753965)**
$\left(1-IAL_{i,t}\right)P_{i,t}\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.7481168 (.0360248)**
$IAL_{i,t}\left(1-P_{i,t}\right)\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.6634835 (.0776729)**
$\left(1-IAL_{i,t}\right)\left(1-P_{i,t}\right)\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.5202605 (.0436607)**
Number of obs	7192	7192	7192	7192
Number of groups	899	899	899	899
R-sq within	0.1262	0.1049	0.1136	0.0975
R-sq overall	0.0193	0.0183	0.0174	0.0140
F (4, 6289)	227.09**	184.26**	201.41**	169.80**

Symbols: $T_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAT_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0).

Equation number	11	12
Dependent variable	ΔTFDT	ΔLFDT
Constant	-.0029539 (.002941)*	-.0119955 (.0029145)**
$I_{i,t}^{T}\left(PTFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	.891209 (.0262214)**	
$\left(1-I_{i,t}^{T}\right)\left(PTFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	.2764099 (.0250992)**	
$I_{i,t}^{L}\left(PLFDT_{i,t}^{*}-LFDT_{i,t-1}\right)$		.9315435 (.0259777)**
$\left(1-I_{i,t}^{L}\right)\left(PLFDT_{i,t}^{*}-LFDT_{i,t-1}\right)$		.2496179 (.0413712)**
Number of obs	7192	7192
Number of groups	899	899
R-sq within	0.2088	0.1974
R-sq overall	0.2009	0.1928
F (4, 6289)	830.18**	773.70**

Symbols: $I_{i,t}$: below (= 1) or above (= 0) the target in the previous period.

Table 17

Regression results obtained by the random effects model[11]

Equation number	3	4	5	6
Dependent variable	ΔTFDT	ΔLFDT	ΔTFDT	ΔLFDT
Constant	.0150533 (.0043003)**	.0072165 (.0024237)**	.0178684 (.004648)**	.0050793 (.0028444)
$T^T_{i,t}(TFDT^*_{i,t} - TFDT_{i,t-1})$	.0889078 (.0329408)**			
$(1-T^T_{i,t})(TFDT^*_{i,t} - TFDT_{i,t-1})$	.0986104 (.0233684)**			
$T^L_{i,t}(LFDT^*_{i,t} - LFDT_{i,t-1})$		.119039 (.1695267)**		
$(1-T^L_{i,t})(LFDT^*_{i,t} - LFDT_{i,t-1})$		.1695267 (.0220249)**		
$IAT_{i,t}(INDAVT^*_{i,t} - TFDT_{i,t-1})$			.0527779 (.035418)	
$(1-IAT_{i,t})(INDAVT^*_{i,t} - TFDT_{i,t-1})$			.1002406 (.02398)**	
$IAL_{i,t}(INDAVL^*_{i,t} - LFDT_{i,t-1})$				.119242 (.0408089)**
$(1-IAL_{i,t})(INDAVL^*_{i,t} - LFDT_{i,t-1})$				.1181297 (.0207637)**
Number of obs	7192	7192	7192	7192
Number of groups	899	899	899	899
R-sq within	0.0969	0.0981	0.0836	0.0884
R-sq overall	0.0071	0.0151	0.0056	0.0106
Wald chi2 (2)	51.38**	109.93**	40.35**	76.97**

Symbols: $T_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAT_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period.

[11] The estimates, for all the models, are similar when extending the models with control variables such as firm size (S1), return on investment and a dummy for growth opportunities and are therefore not included in the paper.

Equation number	7	8	9	10
Dependent variable	ΔTFDT	ΔLFDT	ΔTFDT	ΔLFDT
Constant	.015059 (.0042111)**	.0077806 (.0024165)**	.016301 (.0045536)**	.0049815 (.002831)
$T^T_{i,t}P\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	-.0260644 (.0365595)			
$\left(1-T^T_{i,t}\right)P\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	.2761863 (.0251721)**			
$T^T_{i,t}(1-P)\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	.2764455 (.0412708)**			
$\left(1-T^T_{i,t}\right)(1-P)\left(TFDT^*_{i,t}-TFDT_{i,t-1}\right)$	-.3196975 (.0343246)**			
$T^L_{i,t}P\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		-.0031923 (.0402142)		
$\left(1-T^L_{i,t}\right)P\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.2373694 (.0247181)**		
$T^L_{i,t}(1-P)\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.2955299 (.0454871)**		
$\left(1-T^L_{i,t}\right)(1-P)\left(LFDT^*_{i,t}-LFDT_{i,t-1}\right)$		.0184087 (.0352389)		
$IAT_{i,t}P\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			-.0418802 (.0381502)	
$\left(1-IAT_{i,t}\right)P\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			.265007 (.0255608)**	
$IAT_{i,t}(1-P)\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			.2486237 (.0444108)**	
$\left(1-IAT_{i,t}\right)(1-P)\left(INDAVT^*_{i,t}-TFDT_{i,t-1}\right)$			-.311699 (.0346148)**	
$IAL_{i,t}P\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.0292254 (.0452508)
$\left(1-IAL_{i,t}\right)P\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.1934777 (.0229614)**
$IAL_{i,t}(1-P)\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				.2790589 (.0521899)**
$\left(1-IAL_{i,t}\right)(1-P)\left(INDAVL^*_{i,t}-LFDT_{i,t-1}\right)$				-.0618441 (.0321291)
Number of obs	7192	7192	7192	7192
Number of groups	899	899	899	899
R-sq within	0.0683	0.0685	0.0621	0.0524
R-sq overall	0.0497	0.0240	0.0465	0.0211
Wald chi2 (4)	375.63**	176.36**	350.18**	154.58**

Symbols: $T_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAT_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period $IAL_{i,t}$: below (= 1) or above (= 0) the target in the previous period; $P_{i,t}$: positive free cash flow (= 1) or negative free cash flow (= 0)

Equation number	11	12
Dependent variable	ΔTFDT	ΔLFDT
Constant	-.0075252 (.0027394)**	-.0156279 (.0026911)**
$I_{i,t}^{T}\left(PTFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	.8941607 (.0233616)**	
$\left(1-I_{i,t}^{T}\right)\left(PTFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	.200955 (.0219995)**	
$I_{i,t}^{L}\left(PLFDT_{i,t}^{*}-LFDT_{i,t-1}\right)$		.9203343 (.0232992)**
$\left(1-L_{i,t}^{L}\right)\left(PLFDT_{i,t}^{*}-LFDT_{i,t-1}\right)$		.134787 (.0342797)**
Number of obs	7192	7192
Number of groups	899	899
R-sq within	0.2079	0.1965
R-sq overall	0.2020	0.1939
Wald chi2 (2)	1819.33**	1729.25**

Symbols: $I_{i,t}$: below (= 1) or above (= 0) the target in the previous period.

Table 18

Comparison between observations with high or low previous total financial debt ratio and comparison between observations with an without growth opportunities

Equation number	13[(1)]	14	15[(2)]	16
Dependent variable	ΔTFDT	ΔTFDT	ΔTFDT	ΔTFDT
Constant	-.0377466 (.0076294)**	.012599 (.0079327)	-.015685 (.0060794)**	-.0036699 (.0028848)
$I_{i,t}^{T}\left(PTFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	1.603516 (.0639114)**	.4542258 (.0427889)**	.9947 (.0479102)**	.8380691 (.0255903)**
$\left(1-I_{i,t}^{T}\right)\left(PTFDT_{i,t}^{*}-TFDT_{i,t-1}\right)$	0.1330517 (.0380429)**	-.49605 (1.998728)	.1649689 (.044906)**	0.2204071 (.0241621)**
Number of obs	1798	1797	2236	4956
Number of groups	405	375	436	786
R-sq within	0.3105	0.0626	0.1984	0.2366
R-sq overall	0.2974	0.0539	0.1867	0.2173
Wald chi2 (4)	759.62**	114.30**	512.77**	1374.82**

Symbols: $I_{i,t}$: below (= 1) or above (= 0) the target in the previous period.
[(1)] Equation 13 only includes the observations with a total financial debt ratio in the previous period that are above percentile 75, while equation 14 includes those which are below percentile 25.
[(2)] Equation 15 includes the observations with growth opportunities while equation 16 includes those without growth opportunities.