Managerial Optimism and Corporate Investment: Is the CEO Alone Responsible for the Relation?

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Abstract

Why should aggregate investment of large conglomerates depend on personal characteristics of one single person, the CEO? In reality, decision processes are complex. Are personal characteristics of all senior managers together perhaps a better predictor of corporate decisions than the CEOs' characteristics alone? This is the question we tackle in this paper empirically for the case of managerial optimism and corporate investment. In contrast to existing empirical studies we do not only focus on optimism measures of single managers like the CEO or CFO of a firm as investment decisions of firms are usually not made by only one single person. Instead, our optimism measure is based on the insider stock transaction behavior of all senior managers that they have to report to the German Federal Financial Supervisory Authority. The main results can be summarized as follows. Managers are optimistic. Managers voluntarily increase their exposure to company specific risk more often than they reduce it, although they should, if anything, reduce their exposure. Furthermore, we find that firms with optimistic managers invest more. Moreover, the investment-cash flow sensitivity is higher for firms with optimistic managers. Consistent with theory, these results are stronger for financially constrained firms. As new insights, we find that optimism of all insiders has also explanatory power when compared to pure CEO optimism and that the higher managerial optimism, the lower the excess value of a company. We also identify moderating variables that determine when the CEO is more relevant for corporate investment (firm size, corporate governance, type of investment). CFO optimism has no explanatory power. These findings show that it is crucial to analyze how the exact decision process works within a firm.

Keywords: Optimism, corporate investment, investment-cash flow sensitivity, behavioral corporate finance

JEL Classification Code: G14, G31, G32, D80

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1 Introduction

Why should aggregate investment of large conglomerates depend on personal characteristics of one single person, the CEO? In reality, decision processes are complex.[1] Companies are run by Executive boards and Supervisory Boards have control over the CEO. In some cases, lower level managers make investment decisions under a specific threshold themselves, without consulting the Executive Board. Are personal characteristics of all senior managers together perhaps a better predictor of corporate decisions than the CEO's characteristics alone? This is the question we tackle in this paper empirically for the case of managerial optimism and corporate investment.

Corporate investment decisions are among the most important decisions of firms. Huge amounts are at stake and investment decisions are long term. Corporate investment decisions are even part of economic policy debates as economic growth heavily depends on corporate investment. However, investment decisions are still not well understood.

The starting point when analyzing corporate investment is usually that a firm's investment should only depend on the profitability of its investment opportunities as measured by, e.g., Tobin's Q (Modigliani and Miller (1958)). Investment should not depend on the firm's mix of debt and equity financing, cash flow or liquidity, or financial market conditions. However, the evidence over the last 30 years shows that investment depends on profitability (Tobin's Q) but also on cash flow. This is called "investment-cash flow dependence" or "investment-cash flow sensitivity" (see Hubbard (1998) and Stein (2003)). As a consequence, new theories have been proposed which predict that investment is sensitive

[1] See, for example, the textbook treatment in Brealey, Myers, and Allen (2006) or Glaser, Lopez-de-Silanes, and Sautner (2007).

to the amount of cash in the firm. In agency theories, managers overinvest to reap private benefits. External capital markets limit the extent to which managers can pursue these goals. An influx of cash flow leads to the result that managers invest too much. According to asymmetric information theories, managers themselves restrict external financing to avoid issuing undervalued shares. Cash flow increases investment and thus reduces underinvestment. However, these theories do not explain reality very well. Stein (2003) summarizes this current state of literature as follows: "What we know: Firms with more cash invest more. What we don't know: Why firms with more cash invest more."

Recently, behavioral corporate finance theories have been proposed that are based on managerial biases to explain corporate investment. Why should behavioral finance be useful in explaining corporate decisions? There is a huge behavioral finance literature in asset pricing and investor behavior. However, there is only little (empirical) research in behavioral corporate finance, mainly due to data limitations. This is striking as behavioral factors might be more relevant in firms since there are no arbitrage arguments, that are put forth to argue that biases are eliminated, for example, in capital markets. Furthermore, there is infrequent noisy feedback in corporations when compared to financial markets which hinders learning.

Recently, models have been proposed that are based on managerial optimism. Examples are Heaton (2002) and Malmendier and Tate (2005a). In these models, managerial optimism is modeled as follows. Managers overestimate the return of investment or the profitability of success. Managers think that shares of their company are undervalued. A direct implication is that managers invest too much, i.e. more than in the first-best situation. However, this is difficult to test empirically as the first-best situation (optimal level) is not observable. But there are further hypotheses to test. In the case of optimistic

managers, the intended investment level of these managers is higher than the first best level. If the firm is financially constrained, the firm cannot increase debt to finance investment. However, equity is also not an option as optimistic managers think that the own shares are undervalued. To summarize, the investment-cash flow sensitivity is higher in firms with optimistic managers and this effect is stronger for financially constrained (equity dependent) firms. Therefore, we can formulate the following two hypotheses that we will also test in our paper (see Malmendier and Tate (2005a))[2]:

Prediction 1: The investment of firms with optimistic managers is more sensitive to cash flow than the investment of firms with managers who are not optimistic.

Prediction 2: The investment-cash flow sensitivity of firms with optimistic managers is more pronounced in equity-dependent (financially constrained) firms.

In other words, the link between optimism and investment is stronger in equity-dependent (financially constrained) firms. The intuition is that in these firms the proportion of cash flow financing is higher. Thus, the external capital markets cannot limit effects of managerial optimism. This argument is similar in agency models.

Testing these models empirically is still at an early stage and only few papers are available. Malmendier and Tate (2005a) analyze U.S. data and construct an optimism measure based on executive stock option exercise behavior and on stock transactions behavior of CEOs. A CEO who is buying additional company stock is classified as optimistic. Malmendier and Tate (2005b) also analyze U.S. data and construct an optimism measure based on press portrays of CEO. Lin, Hu, and Chen (2005) analyze data from Taiwan. Their measure is calculated using earnings forecasts of managers. All three studies confirm

[2]See Shefrin (2005) for a textbook treatment.

the above predictions. Furthermore, Ben-David, Graham, and Harvey (2006) calculate optimism and overconfidence measures of CFOs based on the Duke/CFO Business Outlook survey. They find that firms with overconfident CFOs (i.e., CFOs with a narrow confidence interval) invest more. Doukas and Petmezas (2007) examine whether acquisitions by overconfident managers generate superior abnormal returns. Overconfidence measures are based on high order acquisition deals and insider dealings. They find that overconfident bidders realize lower announcement returns than rational bidders and exhibit poor long-term performance. Malmendier and Tate (2008) find that the probability of making an acquisition is higher if the CEO of a firm is classified as overconfident. The effect is largest if the merger is diversifying and does not require external financing. Furthermore, the market reaction at merger announcement is significantly more negative than for non-overconfident CEOs.

One big disadvantage of most of these studies is that they only focus on one person in the company, such as the CEO or the CFO. However, it is not intuitive why aggregate corporate investment should only be driven by biases of only one single person in the company. In practice, investment decisions are usually not only made by one single person in a company. Furthermore, investments under a threshold which is often about 2.5 million Euros in large European companies are usually made by lower level managers without consulting members of the executive board.[3] And even large investment decisions are not only made by the CEO or the CFO alone. We overcome this shortcoming by constructing optimism measures that are based on a broader group of managers and which make use of managers' insider stock trades. The logic is similar to one of the Malmendier and Tate (2005a) optimism measures. Managers should, if anything, reduce their exposure to firm

[3]See Brealey, Myers, and Allen (2006) or Glaser, Lopez-de-Silanes, and Sautner (2007).

specific risk. When managers voluntarily buy additional stocks of their own company, they are classified as optimistic.

More generally, our study is part of the literature that links psychological measures and economic variables to test behavioral finance models. Other examples are Dorn and Huberman (2005), Fenton-O'Creevy, Nicholson, Soane, and Willman (2003), Glaser and Weber (2007), Graham, Harvey, and Huang (2006), or Puri and Robinson (2007).

Furthermore, our research is also related to recent studies that analyze the importance of chief executive officers for firm outcomes (see, e.g., Bennedsen, Perez-Gonzalez, and Wolfenzon (2007) or Westerberg, Singh, and Häckner (1997)) or the link between managerial characteristics and corporate decisions (see, e.g., Bertrand and Schoar (2003), Guner, Malmendier, and Tate (2008), and Kaplan, Klebanov, and Sorensen (2007)). Moreover, our study is related to research that analyzes the link between insider trades and corporate actions or, in other words, how much directors know about the future of their company (see, for example, Ke, Huddart, and Petroni (2003) or Ravina and Sapienza (2006)).

The main results can be summarized as follows. Managers are optimistic. Managers voluntarily increase their exposure to company specific risk more often than they reduce it, although they should, if anything, reduce their exposure. Furthermore, we find that firms with optimistic managers invest more. Moreover, the investment-cash flow sensitivity is higher for firms with optimistic managers. Consistent with theory, these results are stronger for financially constrained firms. As new insights, we find that optimism of all insiders has also explanatory power when compared to pure CEO optimism and that the higher managerial optimism, the lower the excess value of a company. We also identify moderating variables that determine when the CEO is more relevant for corporate

investment (firm size, corporate governance, type of investment). CFO optimism has no explanatory power. These findings show that it is crucial to analyze how the exact decision process works within a firm.

The rest of the paper is organized as follows. In Section 2, we present our sample of firms and explain the balance sheet and stock market data as well as the Directors' Dealings data. Furthermore, we show how we calculate the optimism measures used in this paper. Section 3 presents the basic results on optimism and corporate investment and analyzes whether firms with optimistic managers invest more when other variables are controlled for. Section 4 contains the empirical evaluation of Hypothesis 1, i.e. whether firms with optimistic managers show a higher investment-cash flow sensitivity when compared to firms with managers who are not classified as optimistic. Section 5 presents results on Hypothesis 2 and analyzes whether the sensitivity of corporate investment to cash flow is indeed higher for firms with optimistic managers. Section 6 answers the question of whether managerial optimism leads to inefficiencies by analyzing the valuation consequences of the fact that managers are optimistic. Section 7 discusses alternative explanations of our results and the last section concludes.

2 Data Sets, Optimism Measures, and Descriptive Statistics

2.1 Sample of Firms, Balance Sheet Data, and Stock Market Data

In this paper, we link balance sheet and stock market data on the one hand and optimism measures of managers that are calculated by their insider trades on the other hand. Our main sample is based on all non-financial German CDAX stocks between 2001 to 2006 as

the insider trading legislation was introduced in the year 2001 (see below).[4] To calculate our financial constraints scores we use data from 1999 to 2006 to be able to analyze the effects of financial constraints on subsequent corporate investment. Furthermore, we also run our basic regressions (without our optimism measures) for the period from 1986 to 2006 to analyze whether the period from 2001 to 2006 was somehow special in terms of investment behavior of firms (which it was not as will turn out). Because of differing approaches to compile the annual statement all financial companies were excluded. Overall, we gather data on 835 non-financial firms.

Our main data source for balance sheet and stock price data is the Datastream/Worldscope database. This is the primary data source of studies analyzing corporate decisions in Europe (see, for example, Bris, Koskinen, and Nilsson (2006)). However also studies analyzing U.S. firms sometimes also use this database (see, for example (Cleary 1999)). Table 1 shows a list of variables we gather.

The main variables we analyze are capital expenditures (additions to fixed assets; Worldscope data item WC04601) divided by lagged assets (WC02999), cash flow (EBIT plus depreciation; WC18191+ WC01151) divided by lagged assets, and Tobin's Q.[5] We calculate Tobin's Q as in Baker, Stein, and Wurgler (2003): Q is the market value of equity (price times shares outstanding) plus assets minus the book value of equity all over assets. Table 2 presents descriptive statistics of some variables for the firms in our sample. All variables show similar patters compared to those shown on other studies.

[4]The CDAX covers all German shares admitted to the highest market segments (currently, the Prime Standard and General Standard segments, an in earlier years the Amtlicher Handel). Therefore, the index reflects the performance of the overall German equity market, and is consequently well suited for analytic purposes. See http://deutsche-boerse.com.

[5]All results are similar when we scale our variables by lagged total capital (WC03998), net property, plant, and equipment (WC02501), or sales (WC01001). Furthermore, our results hold for different cash flow definitions.

2.2 Directors' Dealings Data

As already mentioned above, our optimism measures are based on transactions of members of the Executive and Supervisory Board on their personal accounts. Insiders have to report their trades to the Federal Financial Supervisory Authority (Bafin). For former New Market stocks, this rule was introduced on March 1st, 2001 and for all other firms on July 1st, 2002. These rules are similar to the U.S. rules. All insider trades must be reported to the SEC. Table 3 gives an example of these *Meldungen nach §15a WpHG (Directors' Dealings)* that can be downloaded from the web page of the Federal Financial Supervisory Authority (Bafin), www.bafin.de, or from the commercial web page www.insiderdaten.de. During the period from 03/01/2001- 12/31/2006 a total of 15,870 directors' dealings were reported. As this study focuses on the transaction behavior of individual persons as opposed to legal entities, all transactions that were executed by legal entities (e.g. share repurchases) were excluded. For the same reason, all transactions that fall in the category of pension transactions, securities lending, subscriptions rights, option granting or stock transfer to employees were dropped. As a result, 11,241 insider transactions by members of the Executive and Supervisory Board could be used in this empirical analysis. 676 transactions included in this data set either have a zero stock price or volume or cannot definitely be classified as voluntary trades considering the description attached to the transaction. Therefore, in a second data set, these transactions were excluded and results from its analysis were used for robustness check. All results presented in the paper hold for both sets of transactions. Table 4 shows the number of purchases and sales as well as the average volume of purchases and sales in Euro broken down by members of the Executive Board and the Supervisory Board of the companies in our data set. For both the Executive Board and Supervisory Board members, the average sales volume in

Euro is larger than the average purchase volume. However, for both groups, the number of purchases is higher than the number of sales. Thus, there are many cases in which managers voluntarily increase their exposure to company specific risk.

To our knowledge, insider trading data has not been linked to corporate investment decisions in the way we do it so far. Usually, studies analyze whether insider trades are informative. An example is Lakonishok and Lee (2001). They find little market movement when insiders trade and when they report their trades to the SEC. Furthermore, insiders in aggregate are contrarian investors. However, they predict market movements better than simple contrarian strategies. Insiders also seem to be able to predict cross-sectional stock returns. The result, however, is driven by insider's ability to predict returns in smaller firms. For the German stock market, Rau (2004) finds a small market movement in the days after announcement of insider trades.[6]

2.3 Optimism Measures

Based on transactions described in the previous subsection, we construct four measures of optimism. After assigning the directors' dealings to each company, we assess for each year and company the number of purchases, the number of sales, the volume of purchases, and the volume of sales. Thereupon, we accumulate on an annual basis the number of purchases and sales and the volume of purchases and sales. Thereby we receive an annual "number-" and "volume"-variable (see Table 5 for details). We call these variables $opt_{number,EB+SB}$ and $opt_{volume,EB+SB}$. EB stands for members of the Executive Board, SB for members of the Supervisory Board. On the basis of these two variables, we construct

[6]Similar results are obtained by Betzer and Theissen (2008) and Dymke and Walter (2007) for Germany.

two further optimism measures, simple "dummy"-variables. If the "number" -variable is positive, the "dummy-number"-variable equals 1. Otherwise it equals 0. We followed the same procedure to construct a "dummy-volume"-variable. Consequently, a positive value of the described variables indicates an optimistic expectation of the board members. We call these two dummy variables $optdummy_{number,EB+SB}$ and $optdummy_{volume,EB+SB}$

The four optimism measures are based on the transactions of Executive Board and Supervisory Board members. The intuition for also incorporating members of the Supervisory Board in the calculation of these optimism measures is simple. Very often, former CEOs become the Head of the Supervisory Board and thus still influence corporate decisions. Furthermore, the Supervisory Board also influences decisions on huge investments. However, as a robustness check, we calculate four additional optimism measures that are only based on transactions of Executive Board members. We call these variables $opt_{number,EB}$, $opt_{volume,EB}$, $optdummy_{number,EB}$, and $optdummy_{volume,EB}$. These measures are perhaps better measures of manager optimism as the Supervisory Board is not equally influential in all firms. However, the four optimism measures that are only based on members of the Executive Board are based on fewer people and transactions and are thus less precise. We also construct the respective optimism measures for the CEO and the CFO alone.

For $opt_{number,EB+SB}$, the median is 0, and the mean is positive (0.1577). This is no surprise given the larger number of purchases than sales as shown on Table 4. For $opt_{volume,EB+SB}$, the median is 0 Euro and the mean is $-$ 414,034.9 Euro. Table 6 shows that the correlation between these measures is 0.1382 ($p < 0.0001$). $optdummy_{number,EB+SB}$ and $optdummy_{volume,EB+SB}$ are not equal in only less than 1 percent of all cases (such as in IM Internationalmedia AG example (Example 3) in Table 5). The results for the variables based only on Executive Boards member transactions are similar. Furthermore, the

EB+SB measures are highly significantly correlated with EB measures. For example, the correlation between $opt_{number,EB+SB}$ and $opt_{number,EB}$ is 0.7946 ($p < 0.0001$). The correlation between $opt_{volume,EB+SB}$ and $opt_{volume,EB}$ is 0.4209 ($p < 0.0001$).

3 Basic Results: Do Firms with Optimistic Managers Invest More?

Table 7 shows fixed effects panel regression results of capital expenditures on several control variables. The dependent variable is capital expenditures divided by lagged assets in Regressions (1) to (8) and (capex-industry capex)/industry capex in Regressions (9)-(11). In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. In Regressions (6) to (8), we also include the leverage ratio, the natural logarithm of total assets, and sales growth as explanatory variables. In Regressions (3) to (11), we also include an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year.

In Regressions (1) and (2), we replicate results of prior studies on determinants of corporate investment decisions. Investment is positively related to cash flow and Tobin's Q. In Regressions (3) to (11), we include our optimism measures. In all regressions, the sign of these variables is positive. In Regressions (5), (8), (10), and (11), the dummy variables are significant at least at the 10 % level. Thus, our first result is that firms with optimistic managers invest more, even when other variables are controlled for. Table 7 shows that the strongest results can be found for CEO optimism. The weakest relation between managerial optimism and corporate investment is found for CFO optimism (not reported

throughout the paper).[7]

Table 8 shows fixed effects panel regression results of capital expenditures on several control variables for large firms (Regressions (1) to (6)) and small firms ((7) to (12)). Large firms have above median total asset values, small firms have below median total asset values. The dependent variable is capital expenditures divided by lagged assets in Regressions (1) to (3) and (7) to (9) and (capex-industry capex)/industry capex in Regressions (4) to (6) and (10) to (12). This table shows that the effects of managerial optimism on corporate investment are mainly driven by smaller firms.

Table 9 shows fixed effects panel regression results of capital expenditures divided by lagged assets on several control variables for firms with varying degrees of closely held shares (in percent of shares outstanding) as proxy for ownership structure. This variable represents shares held by insiders. It includes but is not restricted to shares held by officers, directors and their immediate families, shares held in trust, shares of the company held by any other corporation, or shares held by individuals who hold 5% or more of the outstanding shares. Table 9 shows that managerial optimism mainly affects corporate investment in firms with a low number of closely held shares and (less strong) in firms with a high number of closely held shares. Managerial optimism is never linked to corporate investment in firms in the middle tercile of closely held shares. Table 10 replicates these results for (capex-industry capex)/industry capex as dependent variable. Morck, Shleifer, and Vishny (1988) find a similar nonmonotonic relationship between management ownership and market valuation of a firm, as measured by Tobin's Q.

[7]The results are similar but less strong when the other optimism measures based in transactions or volume are included. One reason might be that a higher number of purchases may simply be driven by a large board. However, we are not able to control for board size. A similar logic applies to the volume measure.

Table 11 shows fixed effects logit panel regression results of a mergers and acquisitions dummy variable on several control variables. The dependent variable is set equal to one if the "assets from acquisitions" variable is positive in a given year which happens in 32 percent of all cases (firm years). In all regressions, we analyze cash flow divided by lagged assets, lagged Tobin's Q, and the natural logarithm of total assets as control variables. In Regressions (3) to (5), we also include an optimism dummy variable. Table 11 shows that cash flow, Tobin's Q, and firm size mainly drive the probability of an acquisition. This result is consistent with prior research (see, for example, Malmendier and Tate (2008)). All optimism variables are positively related with the probability of an acquisition, but only the optimism variable that is based on all insiders shows up significantly. We note, however, that due to the low number of observations we are not able to explore this in greater detail.

Furthermore, we ran a bunch of robustness checks. The results do not depend on regression specification or the specific set of control variables. Furthermore, the results are similar when lagged optimism measures are included. Results are weaker for optimism measure based on volume. One intuition might be, that optimism measures based on volume are less precise because they can be influenced by only one large transaction. Results are similar when the years 2001 and 2002 are excluded. In these years, the insider trading law was introduced (see above).

To summarize, we find that managerial optimism explains corporate investment even when other variables are controlled for. The effect is mainly driven by CEO optimism in the case of capital expenditures. However, optimism of other managers has also explanatory power. The effects of managerial optimism on capital expenditures is especially strong in small firms and stocks with a low percentage of closely held shares. In contrast to capital

expenditures, CEO optimism has no explanatory power for acquisitions. For acquisitions, optimism of all managers significantly increases the probability of an acquisitions whereas CEO optimism alone does not.

4 Optimistic versus Non-Optimistic Managers

Prediction 1 postulated that investment of firms with optimistic managers is more sensitive to cash flow than the investment of firms with managers who are not optimistic. We test this hypothesis in Table 12. This table shows fixed effects panel regression results of capital expenditures on several control variables for firms whose managers are classified as not optimistic (Regressions (1), (3), and (5)) and optimistic (Regressions (2), (4), and (6)). The dependent variable is capital expenditures divided by lagged assets. In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. The table shows that the investment cash flow sensitivity is always higher for firms with optimistic managers. The largest difference in coefficients is found for CEOs. We thus confirm prior findings of Malmendier and Tate (2005a), Malmendier and Tate (2005b), and Lin, Hu, and Chen (2005). We are thus able to confirm Hypothesis 1. Interestingly, Tobin's Q is not significant in regressions for optimistic managers. This can be interpreted in the way that in such firms with biased managers, rational factors such as expected investment profitability (as measured by Tobin's Q) are not relevant for decisions.

5 Financial Constraints and the Effects of Managerial Optimism

5.1 The Measurement of Financial Constraints

One of the key predictions of the literature is that the link between optimism and corporate investment is more pronounced in equity-dependent or financially constrained firms. Studies usually use an index based on the work of Kaplan and Zingales (1997) and Lamont, Polk, and Saa-Requejo (2001) (see, for example, Malmendier and Tate (2005a) or Polk and Sapienza (2007)). However, there are other indexes that have been proposed in the literature such as the Cleary-index (Cleary (1999)) or the Whited-Wu-index (Whited and Wu (2006)).

Beck, Demirguc-Kunt, Laeven, and Maksimovic (2006), Cleary (2006), Glaser and Hirn (2007), and Hennessy and Whited (2007) present extensive surveys of these and other measures and analyze their interrelationships. Glaser and Hirn (2007) and Hennessy and Whited (2007) find, for example, that the Kaplan-Zingales-index is designed to identify firms with high need for funds whereas the Cleary-index and the Whited-Wu-index mainly capture firms with high costs of external funds.

In the present paper, we choose the following approach. We use the Kaplan-Zingales-index and the Whited-Wu-index to capture the different interpretation of financial constraints mentioned above (high need for funds as well as high costs of external funds). Although these indexes have been calibrated for U.S. stocks, they are also used to rank firms in Europe. For example, Bris, Koskinen, and Nilsson (2006), p. 20-27, identify financially constrained firms in Germany and the rest of Europe using the Kaplan-Zingales index. Glaser and Hirn (2007) show that this procedure is justified as these indexes yield similar

results when German stocks are ranked and the characteristics of these firms over financial constraints quantiles are compared to the respective U.S. values. As a third financial constraint measure, we use the Cleary-index. Cleary (1999) divides his sample of U.S. stocks into three categories: Group 1 firms which increase dividends and are likely not financially constrained; Group 2 firms which cut dividends and are likely financially constrained and Group 3 firms which do not change dividend payments. He then performs a discriminant analysis to discover firm characteristics that are related with the above classification of firms. While Group 3 firms are not used for purposes of discriminant analysis, they are assigned financial constraints scores. We calculate a similar score for Germany (see below for details). As Cleary (1999) does not use firm size in his discriminant analysis and as Hennessy and Whited (2007) find large differences between the cost of external funds for small and large firms, we calculate a fourth constraint measure which uses the original variables proposed in Cleary (1999) and additionally includes firm size. In the following, we call this index "own index". Overall, we expect that our index might be the best index to rank German firms to analyze the link between managerial optimism and corporate investment for financially constrained firms for the following reasons: The index is calibrated for Germany and it includes firm size to capture one important facet of financial constraints: high costs of external funds. However, as Hennessy and Whited (2007) note, such indexes might not work well to identify firms with high need for funds, e.g. as a result of lots of high NPV projects. However, we argue that in tests of the effect of managerial optimism on corporate investment for financially constrained firms this fact is less severe as optimistic managers think their firm has lots of high NPV projects although this might not be the case in reality.

To be more precise, the Kaplan-Zingales-index based on the work of Kaplan and Zingales

(1997) and Lamont, Polk, and Saa-Requejo (2001) is calculated as follows (see Lamont, Polk, and Saa-Requejo (2001), p. 552):

$$\begin{aligned} \textit{Kaplan-Zingales-index} = \quad & -1.001909 \cdot \frac{\textit{Cash flow}_{it}}{\textit{Total capital}_{it-1}} + 0.2826389 \cdot \textit{Tobin's } Q_{it} \\ & +3.139193 \cdot \textit{Leverage}_{it} - 39.3678 \cdot \frac{\textit{Dividend}_{it}}{\textit{Total capital}_{it-1}} \\ & -1.314759 \cdot \frac{\textit{Cash}_{it}}{\textit{Total capital}_{it-1}} \end{aligned} \tag{1}$$

Higher values of this index imply a higher degree of financial constraints.

The Whited-Wu-index is calculated as (Whited and Wu (2006), p. 543):

$$\begin{aligned} \textit{Whited-Wu-index} = \quad & -0.091 \cdot \frac{\textit{Cash flow}_{it}}{\textit{Total assets}_{it-1}} - 0.062 \cdot \textit{ Dummy (positive dividend)}_{it} \\ & +0.021 \cdot \frac{\textit{Long term debt}_{it}}{\textit{Total assets}_{it-1}} - 0.044 \cdot \textit{ln(total assets)}_{it} \\ & +0.102 \cdot \textit{Industry sales growth}_{it} - 0.035 \cdot \textit{Sales growth}_{it} \end{aligned} \tag{2}$$

To calculate the Cleary (1999) index with German coefficients, we run the following Probit regression. The dependent variable is a dummy variable that takes the value 1 if a firm increases dividends and 0 for firms which cut dividends. As in Cleary (1999), this variable is regressed on the current ratio, fixed charge coverage, financial slack divided by lagged capital, the net income margin, sales growth, and the debt ratio.[8] Variables are defined in Table 1. To create the index, we use all coefficients of variables that are significant at the 5 percent level (see Table 13). To calculate our own index, we simply add the natural logarithm of total assets as further explanatory variable.

Table 14 shows descriptive statistics of various firm characteristics for constraints terciles

[8]Calculating the coefficients using a discriminant analysis yields similar results.

that are based on all for indexes mentioned above. The results confirm prior literature (see Glaser and Hirn (2007)). For example, constrained firms have a lower profitability, a lower payout ratio, and are more likely to be financially distressed.

To test Hypothesis 2, we cannot split the sample in optimistic and non-optimistic managers and run regressions for the most constrained firms and compare the investment-cash flow sensitivity as was done in Section 4. The reason is that Glaser and Hirn (2007) show for Germany that firms with the highest financial constraints do not show the highest investment-cash flow sensitivity. One explanation is that among firms that are financially constrained there are some firms that are financially distressed and to not invest at all. This finding is consistent with Kaplan and Zingales (1997), Cleary (1999), Cleary (2006), and the interpretation in Fazzari, Hubbard, and Petersen (2000). Thus, we follow the approach of Malmendier and Tate (2005a) and regress investment on optimism*cash flow for financially constraint firms. The results are presented in the next subsection.

5.2 Financial Constraints and the Effects of Managerial Optimism: Results

Prediction 2 stated that the investment-cash flow sensitivity of firms with optimistic managers is more pronounced in equity-dependent (financially constrained) firms. We test this prediction in Table 15. This table shows fixed effects panel regression results of capital expenditures on several control variables for the one third of all stocks with the highest financial constraints as identified by the Kaplan-Zingales-Index, the Whited-Wu-Index, the Cleary-Index (with own coefficients), and our own index. See Subsection 5.1 and Table 13 for details. The dependent variable is capital expenditures divided by lagged assets. In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's

Q as control variables. Furthermore, we also include an optimism dummy variable and Optimism * (cash flow/lagged assets) as explanatory variables.

The first observation is that the financially constrained firms analyzed in Table 15 indeed have lower investment cash flow sensitivities than we observe for our whole sample (see Table 7). This result confirms Kaplan and Zingales (1997), Cleary (1999), Cleary (2006), and Glaser and Hirn (2007). Furthermore, the optimism*cash flow variable is significant in all regressions when optimism is based on CEO transactions. This finding strengthens the point that CEOs matter for corporate outcomes (see also Bennedsen, Perez-Gonzalez, and Wolfenzon (2007)). In Regressions (10) to (12) in which financially constrained firms are identified by the presumably most appropriate index as was argued in the last subsection, all optimism*cash flow variables are significantly related with capital expenditures. The results are similar when lagged constraint measures are included. This result is not surprising given the fact that there is some persistence of the ranking of firms over time (see Glaser and Hirn (2007)). Unreported regression results show that this is never the case for the other two constraints terciles. We are thus able to confirm Hypothesis 2.

6 Valuation Consequences of Managerial Optimism

In this subsection, we analyze whether managerial optimism is associated with inefficiencies that lead to lower market valuation of firms. Table 16 shows coefficient estimates from regressions of excess value on a focused-firm indicator and control variables such as in Berger and Ofek (1995), Table 3. Excess value is the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed values of its segments, with each segment's imputed value equal to the segment's

sales multiplied by its industry median ratio of capital to that accounting item (see Glaser and Müller (2007) for details on business segment data and the diversification discount in Germany). Control variables are the natural logarithm of total assets, capital expenditures divided by sales, and EBIT divided by sales. In Regressions (4) to (6) we include our optimism dummy variables. In Regressions (7) to (9) we include lagged values of our optimism dummy variables. Regression (1) shows a pooled OLS regression, Regression (2) is a fixed effects panel regression without year fixed effects. Regressions (3) to (9) show fixed effects panel regression with year fixed effects.

The results are similar to those presented in Berger and Ofek (1995). Table 16 shows that diversification per se does not seem to be the reason for the diversification discount. When fixed effects regressions are run, the focused-dummy is not significant anymore. Glaser and Müller (2007) analyze the reasons for the diversification discount and its disappearance once firm fixed effects are included in detail.

Table 16 shows that, the higher managerial optimism, the lower the excess value. This result is robust across all optimism measures. This result is not consistent with insider trading based on private information as managers are not correct with their expectations. Lagged optimism variables also have a negative sign although they are not significant anymore (Regressions (7) to (9)).

However, the results are consistent with the following interpretation. In some firms, managers are biased. These managers make corporate decisions that are harmful for the firm. Our findings throughout the paper are consistent with the interpretation that overinvestment due to managerial optimism is one explanation for the observed lower excess value. However, this does not seem to be the whole story, as all optimism measures are highly

negatively correlated with excess value whereas the link between optimism and corporate investment is less strong. Thus, managerial biases also seem to affect other corporate decisions to the detriment of the firm.

7 Evaluation of Alternative Explanations

Two other explanations for the link between managerial optimism and corporate investment are insider trading based on private insider information and signaling. We discuss these potential explanations in turn.

A CEO may decide to increase exposure to company risk because of private information about future stock prices that makes buying stocks attractive. Inside information also predicts investment-cash flow sensitivity. Since the information has not been incorporated into the market price, the firms stock is undervalued and investment may be sensitive to cash flow for the usual Myers and Majluf (1984) reasons (see also Malmendier and Tate (2005a). One of the key distinctions between (over-)optimism and correct, private inside information is success in later periods, on average. However, this not consistent with the results presented in Table 16.

Another reason why CEOs may want to hold company risk is to convey a (potentially) costly signal to the capital market that their firms prospects are better than the prospects of similar firms. However, the most natural version of the signaling story would not predict heightened investment cash flow sensitivity (see Malmendier and Tate (2005a). Signaling should alleviate informational asymmetries and, thus, eliminate investment-cash flow sensitivity among the firms in which CEOs hold their stocks. Thus, the tests of our investment predictions themselves will help to dispel this alternative explanation.

8 Discussion and Conclusion

In our study, we empirically analyzed the link between corporate investment and managerial optimism. In contrast to existing empirical studies we did not only focus on optimism measures of single managers like the CEO or CFO of a firm as investment decisions of firms are usually not made by only a single person. Instead, our optimism measure was based on the insider stock transaction behavior of managers that they have to report to the German Federal Financial Supervisory Authority. The main results can be summarized as follows. Managers are optimistic. Managers voluntarily increase their exposure to company specific risk more often than they reduce it, although they should, if anything, reduce their exposure. Furthermore, we find that firms with optimistic managers invest more. Moreover, the investment-cash flow sensitivity is higher for firms with optimistic managers. Consistent with theory, these results are stronger for financially constrained firms. We are thus able to confirm behavioral corporate finance models.

The results are consistent with the following interpretation. In some firms, managers are biased. These managers make corporate decisions that are harmful for the firm. Our findings throughout the paper are consistent with the interpretation that overinvestment due to managerial optimism is one explanation for the observed lower excess value. However, this does not seem to be the whole story, as all optimism measures are highly negatively correlated with excess value whereas the link between optimism and corporate investment is less strong. Thus, managerial biases also seem to affect other corporate decisions to the detriment of the firm. Future research should thus analyze whether biases also affect other corporate decisions. Recent examples of studies in this direction are Ben-David, Graham, and Harvey (2006), Malmendier, Tate, and Yan (2007), and Lin, Hu, and Chen (2008).

However, there are some suggestions for future research. We only focused on capital expenditures or M&A transactions. Future research should also focus on other investment measures such as investments in R&D, advertising, or intangible assets. Furthermore, other measures of investment profitability should also be analyzed. Moreover, better psychological measures, optimism measures, and expectation measures of managers should be gathered, for example, by using questionnaires to measure these variables. Furthermore, studies have to document more deeply, how the investment decision process in firms looks like.[9] Who decides? When do lower level managers decide themselves? What is the threshold under which lower level managers decide themselves? What is the precise mechanism in practice of how managerial optimism affects aggregate corporate investment? What is the role of corporate culture which may be affected by the CEO? And last but not least, what can firms do to eliminate the effects of managerial biases on corporate decisions? How can managers be debiased? Future research should analyze the effects of properly designed management accounting system and corporate governance to eliminate these biases and their effects on corporate decisions.

[9]Glaser, Lopez-de-Silanes, and Sautner (2007) is a recent example.

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Table 1: **Definition of Variables**

This table summarizes and defines the variables used in this paper and states their respective data source.

Variable	**Ratios**	**Worldscope data item**	**Definition/Worldscope Name**
Cash flow		WC18191	EBIT
		WC01151	+ Depreciation, depletion, amortization
Capital		WC02501	Property, plant, equipment (net)
Total assets		WC02999	Total assets
Tobin's Q	Numerator	WC08001	Market capitalization
		WC02999	+ Total assets
		WC03501	- Common equity
	Denominator	WC02999	Total assets
Debt ratio	Numerator	WC03255	Total debt
	Denominator	WC02999	Total Assets
Dividends		WC04551	Cash dividends paid, total
Dividend payout ratio		WC08256	Dividend payout (% earnings)
Dividends per share		WC05101	Dividends per share
Cash holdings		WC02001	Cash and short term investments
Current ratio	Numerator	WC02201	Current assets
	Denominator	WC03101	Current liabilities
Fixed charge coverage		WC08251	EBIT/(interest expense on debt + preferred dividends (cash))
Financial slack		WC02001	Cash and short term investments
		WC02101	+ (0.5 * inventories)
		WC02051	+ (0.7 * accounts receivable)
Net income margin	Numerator	see above	Cash flow
	Denominator	WC01001	Net sales or revenues
Industry sales growth			Mean of sales growth per industry class, two-digit industry classification code in Worldscope.
Long term debt		WC03251	
Capital expenditures (capex)		WC04601	Capital expenditures
Net sales		WC01001	Net sales or revenues
Altman's Z	Numerator	WC18191	3.3 * earnings before interest and taxes
		WC01001	+ 1.0 * net sales or revenue
		WC03495	+ 1.4 * retained earnings
		WC03151	+ 1.2 * working capital
	Denominator	WC02999	Total assets
Analyst coverage	[Source: I/E/B/S]		Number of analysts making revenue forecasts for the company
Closely held shares		WC08021	
Firm age		WC18272	

Table 2: **Descriptive Statistics**

This table presents descriptive statistics of variables for the firms in our sample. The table presents the number of observations (firm years), means, and various percentiles. Time period is 1999 to 2006. All variables are winsorized at the 1 percent level. Variables are defined in Table 1 and Subsection 2.1.

	Observations (firm years)	Mean	10th percentile	25th percentile	Median	75th percentile	90th percentile
Capex/lagged assets	4,230	0.077	0.008	0.019	0.042	0.084	0.162
Capex/lagged capital	4,229	0.192	0.010	0.034	0.086	0.177	0.380
Capex/sales	4,341	0.073	0.007	0.017	0.037	0.075	0.154
Cash flow/ lagged assets	3,544	0.427	-0.045	0.149	0.353	0.641	1.026
Cash flow/ lagged capital	3,543	1.045	-0.126	0.241	0.702	1.438	2.531
Cash/lagged assets	2,931	0.133	0.008	0.023	0.059	0.142	0.325
Tobin's Q	4,151	1.644	0.849	1.012	1.245	1.748	2.771
Sales growth	4,297	0.221	-0.211	-0.053	0.059	0.232	0.675
EBIT/lagged assets	4,179	0.009	-0.238	-0.030	0.054	0.111	0.194
EBIT/sales	4,295	-0.092	-0.331	-0.027	0.039	0.090	0.155
Net assets from acquistions/ lagged assets	2,007	0.023	0.000	0.000	0.000	0.007	0.056
Leverage ratio	4,411	0.572	0.199	0.385	0.599	0.756	0.877
Debt ratio	4,410	0.193	0.000	0.021	0.149	0.314	0.461
Long term debt/total assets	4,407	0.103	0.000	0.001	0.051	0.161	0.285
Closely held shares (%)	2,667	56.93	16.51	36.00	58.11	78.01	95.40
Current ratio	4,399	2.627	0.802	1.178	1.703	2.808	5.338
Fixed charge coverage	4,267	-1.569	-31.020	-1.800	2.740	9.620	42.100
Financial slack/lagged capital	3,910	11.126	0.470	0.970	2.252	6.820	25.255
Payout ratio (%)	3,780	15.013	0.000	0.000	0.000	27.025	54.485

Table 3: **Director's Dealings: An Example**

This table gives an example of the *Meldungen nach 15a WpHG (Directors' Dealings)* that can be downloaded from the web page of the Federal Financial Supervisory Authority (Bafin), www.bafin.de, or from the commercial webpage www.insiderdaten.de. The position of the insider is coded as follows: V=Vorstand (Executive Board Member), V V=Vorstandsvorsitzender (CEO), AR=Aufsichtsrat (Supervisory Board Member), S=Sonstige (other insider), S F=Sonstige Führungskraft (other manager).

Date	**Security identifier**	**Firm name**	**Name of insider**	**Position in firm**	**Type of Transaction**	**Number**	**Price**	**Volume**
13.02.2006	508750	Jack White Productions AG	Jack White	V V	Sale	350,000	8.75	3,062,500
13.02.2006	508903	United Internet AG	Carlotta Scheeren	S	Sale	10,000	38.24	382,387
13.02.2006	508903	United Internet AG	Tania Scheeren	S	Sale	50,000	38.24	1,911,935
13.02.2006	508903	United Internet AG	Michael Scheeren	AR	Sale	100,000	38.24	3,823,870
13.02.2006	511700	primion Technology AG	Leo Benz	AR	Purchase	2,000	14.87	29,740
13.02.2006	517690	SURTECO AG	Kenneth Green	S F	Sale	1,450	31.23	45284
13.02.2006	542190	Degussa AG	Heinz-Joachim Wagner	V	Sale	2,270	42.00	95,340
13.02.2006	542190	Degussa AG	Wilfried Robers	AR	Sale	65	42.00	2,730
13.02.2006	547040	LANXESS AG	Ulrich Koemm	V	Purchase	1,250	26.11	32,638
13.02.2006	663720	Mologen Holding AG	Burghardt Wittig	V V	Purchase	10,000	13.00	130,000
13.02.2006	663720	Mologen Holding AG	Matthias Schroff	V	Sale	10,000	13.00	130,000
13.02.2006	931340	Advanced Vision Technology Ltd.	Koby Shtaierman	V	Sale	1250	10.65	13,313
10.02.2006	501900	Agrob AG	Stephan Fuchs	V	Sale	500	13.00	6,500

Table 4: **Descriptive Statistics**

This table presents descriptive statistics of the *Meldungen nach §15a WpHG (Directors' Dealings)* that can be downloaded from the web page of the Federal Financial Supervisory Authority (Bafin), www.bafin.de, or from the commercial web page www.insiderdaten.de. The table shows the number of purchases and sales as well as the average volume of purchases and sales in Euro broken down by members of the Executive Board and the Supervisory Board of the companies in our data set.

	Number of		**Average volume in Euro**	
Position of executive	**Purchases**	**Sales**	**Purchases**	**Sales**
CEO	1,605	621	146,969	1,944,474
Deputy CEO	32	39	245,035	730,585
CFO	292	193	87,783	379,098
Other member of Executive Board	1,503	1,169	138,216	715,141
Sum Executive Board	3,432	2,022	139,015	1,060,918
Chairman of the Supervisory Board	559	342	205,168	1,660,729
Deputy Chairman of the Supervisory Board	190	136	1,353,625	3,081,346
Other member of Supervisory Board	1,222	1,169	164,792	1,288,050
Sum Supervisory Board	1,971	1,647	290,844	1,513,517
Others	613	880	831,118	878,680
Sum Executive Board and Supervisory Board	6,016	4,549		

Table 5: **Calculation of Optimism Measure**

This table presents three examples of how the optimism measures of insiders are calculated in this paper. The table the name of the insider, the transaction date, and the position of the insider within the firm. The position of the insider is coded as follows: V=Vorstand (Executive Board Member), V V=Vorstandsvorsitzender (CEO), V F=Finanzvorstand (CFO), AR=Aufsichtsrat (Supervisory Board Member), S=Sonstige (other insider), S F=Sonstige Führungskraft (other manager). Then, the table shows whether a specific transaction was a buy or sell transaction, the number of stocks traded, the price and the total volume in Euro of the transaction. First of all, we code a purchase of stocks of the own company by insiders as 1 and a sale as -1 (see the column Buy/Sell indicator). Per year and firm, we then sum this indicator variable. The sum of these indicator variables is the optimism measure based on the number of transactions (see the lines that are indicated with $\sum$ in the last column). To calculate the optimism measure based on volume we first multiply the volume of a transaction (1) with the Buy/Sell indicator. Then, we sum (1)*(2) per firm and year (see the lines that are indicated with $\sum$ in the last column). These measures represent the optimism measures in a given year.

	Year	Name of insider	Date	Position in firm	Purchase or sale	Number	Price	Volume (1)	Buy/Sell indicator (2)	(1)*(2)	
Example 1:	2005	Thomas Kniehl	22.11.2005	AR	Sale	172	9.25	1591	-1	-1591	
TAKKT AG		Thomas Kniehl	22.09.2005	AR	Sale	100	9.01	901	-1	-901	
(Security		Thomas Kniehl	10.01.2005	AR	Sale	400	7.40	2960	-1	-2960	
identifier											
744600)									**-3**	**-5452**	$\sum$
	2004	Waltraud Wätjen	05.08.2004	S	Sale	5000	6.95	34750	-1	-34750	
		Waltraud Wätjen	25.06.2004	S	Sale	7500	6.75	50625	-1	-50625	
									-2	**-85375**	$\sum$
	2003	–	–	–	–	–	–	–	**0**	**0**	$\sum$
	2002	Dieter Schadt	04.12.2002	AR	Purchase	8500	3.60	30600	1	30600	
		Dieter Schadt	02.12.2002	AR	Purchase	1500	3.60	5400	1	5400	
		Dieter Schadt	30.07.2002	AR	Purchase	5000	3.89	19464	1	19464	
		Dieter Schadt	26.07.2002	AR	Purchase	2500	4.05	10125	1	10125	
		Dieter Schadt	22.07.2002	AR	Purchase	25000	4.95	123750	1	123750	
									5	**189339**	$\sum$
	2001	–	–	–	–	–	–	–	**0**	**0**	$\sum$
Example 2:	2005	Ronny Schreiber	12.10.2005	AR	Sale	498	18.74	9333	-1	-9333	
Südzucker AG		Christoph Kirsch	12.09.2005	V F	Purchase	3666	14.00	51324	1	51324	
(Security		Klaus Kohler	12.09.2005	AR	Purchase	448	14,00	6272	1	6272	
identifier		Christoph Kirsch	06.09.2005	V F	Purchase	4334	14.00	60676	1	60676	
729700)		Christoph Kirsch	25.05.2005	V F	Purchase	20000	15.30	306000	1	306000	
									3	**414939**	$\sum$
	2004	Waldemar Gehlert	26.11.2004	S F	Sale	449	15.05	6757	-1	-6757	
									-1	**-6757**	$\sum$
	2003	–	–	–	–	–	–	–	**0**	**0**	$\sum$
	2002	–	–	–	–	–	–	–	**0**	**0**	$\sum$
	2001	–	–	–	–	–	–	–	**0**	**0**	$\sum$
Example 3:	2005	–	–	–	–	–	–	–	**0**	**0**	$\sum$
IM											
Internationalmedia	2004	–	–	–	–	–	–	–	**0**	**0**	$\sum$
AG											
(Security	2003	–	–	–	–	–	–	–	**0**	**0**	$\sum$
identifier											
548880)	2002	–	–	–	–	–	–	–	**0**	**0**	$\sum$
	2001	Stefan von Moers	26.11.2001	AR	Sale	3500	26.04	91149	-1	-91149	
		Moritz Bormann	03.10.2001	V	Purchase	3054	17.24	52659	1	52659	
		Moritz Bormann	02.10.2001	V	Purchase	500	16.18	8090	1	8090	
		Florian Bollen	14.09.2001	V V	Purchase	1960	20.49	40165	1	40165	
		Florian Bollen	13.03.2001	V V	Purchase	5000	20.14	100713	1	100713	
		Florian Bollen	09.03.2001	V V	Purchase	4100	24.58	100768	1	100768	
		Mathias Deyle	08.03.2001	AR	Sale	11000	27.11	298155	-1	-298155	
									3	**-86909**	$\sum$

Table 6: **Correlation of Optimism Measures**

This table presents the correlation of optimism variables, the significance level (in parentheses) as well as the number of observations used in calculating the variables. Based on transactions described in subsection 2.2, we construct measures of optimism as follows. After assigning the directors' dealings to each company, we assess for each year and company the number of purchases, the number of sales, the volume of purchases and the volume of sales. Thereupon, we accumulated on an annual basis the number of purchases and sales and the volume of purchases and sales. Thereby we receive an annual "number-" and "volume"-variable (see Table 5 for details). We call these variables $opt_{number,EB+SB}$ and $opt_{volume,EB+SB}$. These optimism measures are based on the transactions of Executive Board and Supervisory Board members. We also calculate additional optimism measures that are only based on transactions of Executive Board members. We call these variables $opt_{number,EB}$ and $opt_{volume,EB}$. The respective variables for the CEO and the CFO are defined similarly.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	$opt_{number,EB+SB}$	1							
		9,302							
(2)	$opt_{volume,EB+SB}$	0.1382	1						
		(0.0000)							
		9,302	9,302						
(3)	$opt_{number,EB}$	0.7946	0.0344	1					
		(0.0000)	(0.0009)						
		9,302	9,302	9,302					
(4)	$opt_{volume,EB}$	0.1050	0.4209	0.0991	1				
		(0.0000)	(0.0000)	(0.0000)					
		9,302	9,302	9,302	9,302				
(5)	$opt_{number,CEO}$	0.6547	0.0139	0.8607	0.0517	1			
		(0.0000)	(0.1816	(0.0000)	(0.0000)				
		9,302	9,302	9,302	9,302	9,302			
(6)	$opt_{volume,CEO}$	0.0618	0.3854	0.0659	0.9164	0.0519	1		
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)			
		9,302	9,302	9,302	9,302	9,302	9,302		
(7)	$opt_{number,CFO}$	0.2434	0.0403	0.2896	0.0897	0.1185	0.0589	1	
		(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0000)			
		9,302	9,302	9,302	9,302	9,302	9,302	9,302	
(8)	$opt_{volume,CFO}$	0.0683	0.0729	0.0723	0.1809	0.0156	0.0548	0.2466	1
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.1324)	(0.0000)	(0.0000)	
		9,302	9,302	9,302	9,302	9,302	9,302	9,302	9,302

Table 7: **Basic Regression Results of the Relation Between Managerial Optimism and Corporate Investment**

This table shows fixed effects panel regression results of capital expenditures on several control variables. The dependent variable is capital expenditures divided by lagged assets in Regressions (1) to (8) and (capex-industry capex)/industry capex in Regressions (9) to (11). In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. In Regressions (6) to (8), we also include the leverage ratio, the natural logarithm of total assets, and sales growth as explanatory variables. In Regressions (3) to (11), we also include an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 1986-2006 in Regression (1) and 2001-2006 in Regressions (2)-(11). All variables are winsorized at the 1 percent level. Robust *p*-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Dependent variable	Capex/lagged assets		Capex/lagged assets			Capex/lagged assets			(capex-industry capex)/industry capex		
Time period	1986-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006
Optimism based on			All	EB	CEO	All	EB	CEO	All	EB	CEO
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Cash flow/	0.064	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.646	0.649	0.652
lagged assets	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Lagged Tobin's Q	0.016	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.074	0.075	0.072
	(0.000)***	(0.021)**	(0.023)**	(0.021)**	(0.027)**	(0.032)**	(0.029)**	(0.036)**	(0.000)***	(0.000)***	(0.001)***
Leverage ratio						0.025	0.025	0.026			
						(0.040)**	(0.040)**	(0.037)**			
ln(total assets)						0.005	0.005	0.004			
						(0.215)	(0.218)	(0.233)			
Sales growth						0.008	0.008	0.008			
						(0.008)***	(0.008)***	(0.009)***			
Managerial			0.003	0.002	0.009	0.002	0.001	0.008	0.060	0.094	0.166
optimism			(0.446)	(0.602)	(0.062)*	(0.489)	(0.688)	(0.078)*	(0.227)	(0.077)*	(0.012)**
Constant	0.037	0.051	0.050	0.050	0.050	-0.022	-0.022	-0.020	-0.409	-0.412	-0.412
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.646)	(0.649)	(0.670)	(0.000)***	(0.000)***	(0.000)***
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	5963	2622	2622	2622	2622	2616	2616	2616	2621	2621	2621
Firms	699	599	599	599	599	599	599	599	599	599	599
Adjusted R-squared within	0.160	0.074	0.075	0.074	0.076	0.084	0.083	0.085	0.053	0.054	0.056
Adjusted R-squared between	0.139	0.079	0.080	0.079	0.079	0.094	0.093	0.093	0.066	0.065	0.065
Adjusted R-squared overall	0.162	0.103	0.103	0.103	0.104	0.106	0.106	0.107	0.084	0.083	0.084

Table 8: **Relation Between Managerial Optimism and Corporate Investment: Dependence on Firm Size**

This table shows fixed effects panel regression results of capital expenditures on several control variables for large firms (Regressions (1) to (6)) and small firms ((7) to (12)). Large firms have above median total asset values, small firms have below median total asset values. The dependent variable is capital expenditures divided by lagged assets in Regressions (1) to (3) and (7) to (9) and (capex-industry capex)/industry capex in Regressions (4) to (6) and (10) to (12). In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. Furthermore, we also include an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 2001-2006 in all regressions. All variables are winsorized at the 1 percent level. Robust p-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Dependent variable	Capex/lagged assets			(capex-industry capex)/industry capex			Capex/lagged assets			(capex-industry capex)/industry capex		
Firms	Large	Large	Large	Large	Large	Large	Small	Small	Small	Small	Small	Small
Optimism based on	All	EB	CEO	All	EB	CEO	All	EB	CEO	All	EB	CEO
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Cash flow/	0.048	0.048	0.048	0.640	0.640	0.640	0.035	0.035	0.035	0.575	0.582	0.583
lagged assets	(0.036)**	(0.035)**	(0.035)**	(0.001)***	(0.001)***	(0.001)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Lagged Tobin's Q	0.005	0.005	0.005	0.096	0.096	0.096	0.003	0.003	0.003	0.052	0.057	0.054
	(0.259)	(0.255)	(0.264)	(0.043)**	(0.044)**	(0.044)**	(0.079)*	(0.055)*	(0.066)*	(0.039)**	(0.024)**	(0.033)**
Managerial	-0.003	-0.004	0.004	0.007	0.001	0.017	0.008	0.006	0.008	0.102	0.161	0.262
optimism	(0.507)	(0.367)	(0.543)	(0.897)	(0.989)	(0.806)	(0.139)	(0.114)	(0.075)*	(0.241)	(0.069)*	(0.018)**
Constant	0.048	0.048	0.048	-0.446	-0.446	-0.446	0.045	0.046	0.046	-0.435	-0.448	-0.446
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1380	1380	1380	1380	1380	1380	1242	1242	1242	1241	1241	1241
Firms	336	336	336	336	336	336	335	335	335	335	335	335
Adjusted R-squared within	0.067	0.068	0.067	0.071	0.071	0.071	0.087	0.085	0.085	0.046	0.049	0.052
Adjusted R-squared between	0.024	0.025	0.026	0.038	0.038	0.038	0.129	0.124	0.125	0.077	0.074	0.074
Adjusted R-squared overall	0.070	0.071	0.072	0.086	0.085	0.086	0.112	0.110	0.110	0.078	0.078	0.078

Table 9: **Relation Between Managerial Optimism and Corporate Investment: Dependence on Ownership Structure**

This table shows fixed effects panel regression results of capital expenditures divided by lagged assets on several control variables for firms with varying degrees of closely held shares (in percent of shares outstanding) as proxy for ownership structure. This variable represents shares held by insiders. It includes but is not restricted to shares held by officers, directors and their immediate families, shares held in trust, shares of the company held by any other corporation, or shares held by individuals who hold 5% or more of the outstanding shares. In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. Furthermore, we also include an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 2001-2006 in all regressions. All variables are winsorized at the 1 percent level. Robust p-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Closely held shares	Tercile 1 (low)	Tercile 2 (middle)	Tercile 3 (high)	Tercile 1 (low)	Tercile 2 (middle)	Tercile 3 (high)	Tercile 1 (low)	Tercile 2 (middle)	Tercile 3 (high)
Optimism based on	All	All	All	EB	EB	EB	CEO	CEO	CEO
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cash flow/	0.043	0.058	0.074	0.044	0.058	0.074	0.044	0.058	0.073
lagged assets	(0.005)***	(0.027)**	(0.048)**	(0.005)***	(0.027)**	(0.047)**	(0.004)***	(0.028)**	(0.051)*
Lagged Tobin's Q	0.003	0.002	0.001	0.002	0.002	0.001	0.003	0.002	0.001
	(0.341)	(0.527)	(0.875)	(0.424)	(0.518)	(0.717)	(0.372)	(0.510)	(0.824)
Managerial	0.003	0.001	0.014	0.011	0.000	0.021	0.010	-0.002	0.004
optimism	(0.526)	(0.901)	(0.105)	(0.006)***	(0.943)	(0.079)*	(0.018)**	(0.790)	(0.777)
Constant	0.058	0.056	0.022	0.057	0.056	0.020	0.057	0.056	0.023
	(0.000)***	(0.000)***	(0.127)	(0.000)***	(0.000)***	(0.166)	(0.000)***	(0.000)***	(0.120)
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	754	611	487	754	611	487	754	611	487
Firms	229	212	185	229	212	185	229	212	185
Adjusted R-squared within	0.137	0.161	0.140	0.148	0.161	0.141	0.144	0.161	0.137
Adjusted R-squared between	0.116	0.174	0.072	0.100	0.174	0.071	0.107	0.174	0.072
Adjusted R-squared overall	0.149	0.204	0.114	0.142	0.203	0.113	0.145	0.203	0.111

Table 10: **Relation Between Managerial Optimism and Corporate Investment (Compared to Industry Investment): Dependence on Ownership Structure**

This table shows fixed effects panel regression results of (capex-industry capex)/industry capex on several control variables for firms with varying degrees of closely held shares (in percent of shares outstanding) as proxy for ownership structure. This variable represents shares held by insiders. It includes but is not restricted to shares held by officers, directors and their immediate families, shares held in trust, shares of the company held by any other corporation, or shares held by individuals who hold 5% or more of the outstanding shares. In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. Furthermore, we also include an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 2001-2006 in all regressions. All variables are winsorized at the 1 percent level. Robust p-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Closely held shares	Tercile 1 (low)	Tercile 2 (middle)	Tercile 3 (high)	Tercile 1 (low)	Tercile 2 (middle)	Tercile 3 (high)	Tercile 1 (low)	Tercile 2 (middle)	Tercile 3 (high)
Optimism based on	All	All	All	EB	EB	EB	CEO	CEO	CEO
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cash flow/	0.514	0.738	0.756	0.538	0.738	0.753	0.550	0.746	0.766
lagged assets	(0.015)**	(0.033)**	(0.008)***	(0.010)***	(0.031)**	(0.008)***	(0.009)***	(0.028)**	(0.007)***
Lagged Tobin's Q	0.077	0.037	0.046	0.063	0.038	0.047	0.073	0.036	0.042
	(0.135)	(0.249)	(0.329)	(0.215)	(0.233)	(0.304)	(0.157)	(0.258)	(0.359)
Managerial	0.130	0.006	0.055	0.333	-0.002	0.003	0.303	0.101	0.229
optimism	(0.121)	(0.948)	(0.809)	(0.001)***	(0.982)	(0.988)	(0.009)***	(0.424)	(0.253)
Constant	-0.307	-0.210	-0.650	-0.303	-0.209	-0.648	-0.316	-0.218	-0.656
	(0.045)**	(0.232)	(0.000)***	(0.045)**	(0.230)	(0.000)***	(0.038)**	(0.228)	(0.000)***
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	754	611	487	754	611	487	754	611	487
Firms	229	212	185	229	212	185	229	212	185
Adjusted R-squared within	0.044	0.096	0.094	0.073	0.096	0.094	0.058	0.098	0.096
Adjusted R-squared between	0.143	0.077	0.031	0.094	0.077	0.031	0.112	0.076	0.029
Adjusted R-squared overall	0.114	0.112	0.066	0.101	0.111	0.065	0.106	0.114	0.065

Table 11: **Optimism and Acquisitions: Basic Regressions**

This table shows fixed effects logit panel regression results of a mergers and acquisitions dummy variable on several control variables. The dependent variable is set equal to one if the "assets from acquisitions" variable is positive in a given year. In all regressions, we analyze cash flow divided by lagged assets, lagged Tobin's Q, and the natural logarithm of total assets as control variables. In Regressions (3) to (5), we also include an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 1986-2006 in Regression (1) and 2001-2006 in Regressions (2)-(5). All variables are winsorized at the 1 percent level. Robust p-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Time period	1986-2006	2001-2006	2001-2006	2001-2006	2001-2006
Optimism based on			All	EB	CEO
	(1)	(2)	(3)	(4)	(5)
Cash flow/	0.621	0.282	0.374	0.285	0.286
lagged assets	(0.076)*	(0.617)	(0.512)	(0.614)	(0.613)
Lagged Tobin's Q	0.153	0.179	0.169	0.180	0.186
	(0.030)**	(0.074)*	(0.096)*	(0.073)*	(0.064)*
Lagged ln(total assets)	0.915	0.959	0.976	0.946	0.948
	(0.000)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***
Managerial			0.584	0.167	0.438
optimism			(0.015)**	(0.524)	(0.177)
Year fixed effects	yes	yes	yes	yes	yes
Observations	1593	640	640	640	640
Firms	223	136	136	136	136

Table 12: **Empirical Results: Optimistic Versus Rational Managers**

This table shows fixed effects panel regression results of capital expenditures on several control variables for firms whose managers are classified as not optimistic (Regressions (1), (3), and (5)) and optimistic (Regressions (2), (4), and (6)). The dependent variable is capital expenditures divided by lagged assets. In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. Managers are classified as optimistic based on an optimism dummy variable. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 2001-2006. All variables are winsorized at the 1 percent level. Robust p-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Group	Not optimistic	Optimistic	Not optimistic	Optimistic	Not optimistic	Optimistic
Optimism based on	All	All	EB	EB	CEO	CEO
	(1)	(2)	(3)	(4)	(5)	(6)
Cash flow/	0.040	0.071	0.041	0.063	0.042	0.078
lagged assets	(0.000)***	(0.020)**	(0.000)***	(0.088)*	(0.000)***	(0.027)**
Lagged Tobin's Q	0.004	-0.000	0.004	0.003	0.004	-0.005
	(0.092)*	(0.897)	(0.063)*	(0.451)	(0.038)**	(0.251)
Constant	0.050	0.070	0.051	0.052	0.049	0.092
	(0.000)***	(0.000)***	(0.000)***	(0.032)**	(0.000)***	(0.000)***
Year fixed effects	yes	yes	yes	yes	yes	yes
Observations	2119	503	2240	382	2400	222
Firms	586	272	592	223	595	141
Adjusted R-squared within	0.089	0.169	0.084	0.165	0.083	0.194
Adjusted R-squared between	0.053	0.115	0.054	0.132	0.093	0.021
Adjusted R-squared overall	0.099	0.140	0.099	0.139	0.116	0.043

Table 13: **Calculation of Financial Constraints Scores**

To calculate the Cleary (1999) index with German coefficients, we run the following Probit regression. The dependent variable is a dummy variable that takes the value 1 if a firm increases dividends and 0 for firms which cut dividends. This variable is regressed on the current ratio, fixed charge coverage, financial slack divided by lagged capital, the net income margin, sales growth, and the debt ratio. Variables are defined in Table 1. To create the index, we use all coefficients of variables that are significant at the 5 percent level. Robust p-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

	Dividend increase versus decrease (1999-2006)	
	(1)	(2)
Current ratio	-0.016	0.016
	(0.509)	(0.531)
Fixed charge coverage	0.005	0.005
	(0.012)**	(0.005)***
Financial slack / lagged capital	-0.004	-0.003
	(0.098)*	(0.238)
Net income margin	2.425	2.031
	(0.000)***	(0.001)***
Sales growth	1.043	1.032
	(0.000)***	(0.000)***
Long term debt / total assets	0.141	0.090
	(0.677)	(0.791)
ln(total assets)		0.109
		(0.000)***
Constant	0.128	-0.579
	(0.140)	(0.000)***
Observations	1447	1447

Table 14: **Characteristics of Financial Constraints Scores**

This table shows several characteristics of constraints terciles as identified by the Kaplan-Zingales-Index, the Whited-Wu-Index, the Cleary-Index (with own coefficients), and our own index. See Subsection 5.1 and Table 13 for details. All variables are winsorized at the 1 percent level.

Index		Kaplan-Zingales-Index			Whited-Wu-Index			Cleary-Index (own coefficients)			Own index		
		(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Constraints		low		high	low		high	low		high	low		high
Tobins Q	Mean	1.98	1.41	1.38	1.51	1.60	1.72	2.09	1.38	1.46	2.02	1.41	1.49
	Median	1.50	1.24	1.18	1.25	1.28	1.34	1.53	1.18	1.13	1.45	1.19	1.16
Sales growth	Mean	0.31	0.13	0.07	0.24	0.21	0.12	0.51	0.09	0.04	0.49	0.09	0.05
	Median	0.09	0.06	0.01	0.06	0.07	0.04	0.25	0.06	-0.07	0.22	0.05	-0.06
Total assets	Mean	913,653	3,424,390	1,676,332	5,357,836	236,918	53,082	1,868,438	3,181,054	602,577	4,689,131	790,910	166,388
(Thsd Euro)	Median	118,072	326,360	144,941	1,210,456	145,661	32,407	110,692	247,981	68,490	261,920	188,491	44,991
Cashflow/lagged assets	Mean	0.45	0.62	0.55	0.64	0.56	0.40	0.54	0.51	0.23	0.55	0.51	0.21
	Median	0.36	0.54	0.50	0.56	0.48	0.32	0.43	0.43	0.17	0.46	0.41	0.14
CAPEX/lagged assets	Mean	0.09	0.09	0.08	0.09	0.10	0.09	0.10	0.07	0.06	0.10	0.07	0.06
	Median	0.05	0.06	0.05	0.06	0.06	0.04	0.06	0.05	0.03	0.06	0.05	0.03
Cash/lagged assets	Mean	0.19	0.09	0.04	0.09	0.11	0.13	0.18	0.08	0.13	0.15	0.09	0.15
	Median	0.11	0.06	0.03	0.05	0.06	0.05	0.09	0.05	0.05	0.07	0.05	0.06
Payout ratio	Mean	0.028	0.013	0.003	0.018	0.018	0.009	0.107	0.014	0.006	0.017	0.014	0.005
(dividend payment/assets)	Median	0.020	0.012	0.000	0.012	0.010	0.000	0.000	0.009	0.000	0.007	0.008	0.000
Payout ratio in (dividend payment/earnings)	Median	29.84	30.11	0.00	34.98	11.47	0.00	0.00	18.85	0.00	7.36	11.25	0.00
Leverage ratio	Mean	0.49	0.63	0.74	0.69	0.62	0.58	0.49	0.64	0.62	0.54	0.61	0.60
	Median	0.51	0.65	0.77	0.72	0.64	0.60	0.49	0.66	0.65	0.56	0.64	0.62
EBIT/assets	Mean	0.09	0.06	-0.02	0.08	0.07	-0.03	0.13	0.06	-0.15	0.12	0.07	-0.16
	Median	0.10	0.07	0.03	0.08	0.07	0.03	0.11	0.07	-0.07	0.10	0.07	-0.07
Excess value	Mean	0.16	-0.06	-0.14	0.07	-0.03	-0.18	0.23	-0.16	-0.23	0.21	-0.16	-0.24
	Median	0.12	-0.07	-0.15	0.01	-0.06	-0.20	0.19	-0.13	-0.23	0.14	-0.13	-0.25
Number of segments	Mean	2.99	3.24	3.07	3.53	2.85	2.76	3.04	3.19	2.93	3.33	3.02	2.77
	Median	3	3	3	3	3	3	3	3	3	3	3	3
Number of analyst forecasts	Mean	7.73	11.15	6.85	14.46	5.53	2.86	6.38	8.71	5.24	9.87	6.16	3.91
	Median	4	6	3	12	3	2	3	4	3	5	3	2
Firm age	Mean	56.72	77.06	67.61	85.48	63.91	41.23	46.14	68.00	46.20	55.57	64.80	39.94
	Median	32	78	66	90	60	20	22.5	54	22	30	44	18
Altman's Z score	Mean	2.00	1.76	1.03	1.90	1.88	1.00	1.73	1.83	0.24	1.70	1.92	0.18
(low value = distressed)	Median	2.08	1.84	1.36	1.79	1.88	1.43	1.72	1.83	0.81	1.66	1.89	0.73

Table 15: **Empirical Results: Optimism and Financial Constraints**

This table shows fixed effects panel regression results of capital expenditures on several control variables for the one third of all stocks with the highest financial constraints as identified by the Kaplan-Zingales-Index, the Whited-Wu-Index, the Cleary-Index (with own coefficients), and our own index. See Subsection 5.1 and Table 13 for details. The dependent variable is capital expenditures divided by lagged assets. In all regressions, we analyze cash flow divided by lagged assets and lagged Tobin's Q as control variables. Furthermore, we also include an optimism dummy variable and Optimism * (cash flow/lagged assets) as explanatory variables. The dummy variable is equal to 1 when members of the Executive Board and the Supervisory Board (ALL), only the Executive Board (EB), or only CEO are classified as optimistic in a given year. See Table 5 for details on the calculation of optimism measures. All regressions include firm and year fixed effects. Time period is 2001-2006. All variables are winsorized at the 1 percent level. Robust *p*-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Optimism based on	All	EB	CEO	All	EB	CEO	All	EB	CEO	All	EB	CEO
Constraints score	Kaplan-Zingales-Index			Whited-Wu-Index			Cleary-Index (own coefficients)			Own index		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Cash flow/	0.049	0.049	0.048	0.024	0.024	0.026	0.024	0.024	0.024	0.022	0.023	0.023
lagged assets	(0.000)***	(0.000)***	(0.000)***	(0.016)**	(0.013)**	(0.008)***	(0.004)***	(0.003)***	(0.004)***	(0.005)***	(0.003)***	(0.004)***
Lagged Tobin's Q	0.010	0.010	0.010	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.001	0.001
	(0.001)***	(0.001)***	(0.001)***	(0.116)	(0.111)	(0.150)	(0.441)	(0.442)	(0.457)	(0.242)	(0.249)	(0.263)
Managerial	0.009	0.005	0.006	-0.001	0.001	0.007	0.003	0.006	0.007	0.003	0.005	0.003
optimism	(0.337)	(0.377)	(0.445)	(0.854)	(0.681)	(0.122)	(0.328)	(0.029)**	(0.017)**	(0.232)	(0.031)**	(0.148)
Optimism * (cash flow/lagged assets)	-0.002	0.001	0.016	0.018	0.022	0.032	0.009	0.009	0.015	0.015	0.014	0.018
	(0.877)	(0.939)	(0.072)*	(0.196)	(0.144)	(0.024)**	(0.292)	(0.312)	(0.099)*	(0.052)*	(0.064)*	(0.020)**
Constant	0.037	0.038	0.038	0.044	0.043	0.043	0.043	0.042	0.043	0.038	0.038	0.039
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	867	867	867	785	785	785	845	845	845	837	837	837
Firms	323	323	323	262	262	262	363	363	363	344	344	344
Adjusted R-squared within	0.097	0.095	0.099	0.103	0.104	0.109	0.086	0.090	0.090	0.076	0.078	0.075
Adjusted R-squared between	0.097	0.099	0.099	0.074	0.071	0.068	0.062	0.061	0.060	0.055	0.053	0.055
Adjusted R-squared overall	0.090	0.090	0.092	0.117	0.112	0.102	0.089	0.089	0.088	0.071	0.069	0.071

Table 16: **Determinants of the Excess Value**

This table shows coefficient estimates from regressions of excess value on a focused-firm indicator and control variables such as in Berger and Ofek (1995), Table 3. Excess value is the natural logarithm of the ratio of a firms actual value to its imputed value. A firms imputed value is the sum of the imputed values of its segments, with each segments imputed value equal to the segments sales multiplied by its industry median ratio of capital to that accounting item. Control variables are rge natural logarithm of total assets, capital expenditures divided by sales, and EBIT devided by sales. In Regressions (4) to (6) we include our optimism dummy variables. In Regressions (7) to (9) we include lagged values of our optimism dummy variables. Regression (1) shows a pooled OLS regression, Regression (2) is a fixed effects panel regression without year fixed effects. Regressions (3) to (9) show fixed effects panel regression with year fixed effects. Time period is 2001 to 2006. Robust *p*-values are in parentheses. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Optimism based on				All	EB	CEO	All (Lagged)	EB (Lagged)	CEO (Lagged)
Type of regression	Pooled OLS	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Focused firm (dummy)	0.130	0.046	0.041	0.041	0.042	0.040	0.039	0.039	0.039
	(0.006)***	(0.262)	(0.317)	(0.312)	(0.302)	(0.323)	(0.340)	(0.332)	(0.338)
ln(total assets)	0.050	0.139	0.141	0.143	0.148	0.144	0.142	0.142	0.141
	(0.000)***	(0.000)***	(0.001)***	(0.000)***	(0.000)***	(0.000)***	(0.001)***	(0.000)***	(0.001)***
Capex/sales	1.707	0.714	0.739	0.741	0.741	0.746	0.735	0.734	0.736
	(0.000)***	(0.010)**	(0.009)***	(0.009)***	(0.009)***	(0.008)***	(0.009)***	(0.009)***	(0.009)***
EBIT/sales	0.054	0.061	0.066	0.065	0.065	0.064	0.064	0.063	0.064
	(0.673)	(0.254)	(0.227)	(0.230)	(0.224)	(0.236)	(0.235)	(0.241)	(0.234)
Managerial optimism				-0.055	-0.083	-0.046	-0.040	-0.031	-0.021
				(0.016)**	(0.000)***	(0.099)*	(0.070)*	(0.229)	(0.481)
Constant	-0.856	-1.878	-1.918	-1.942	-1.994	-1.954	-1.930	-1.933	-1.922
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Year fixed effects	no	no	yes	yes	yes	yes	yes	yes	yes
Observations	2190	2190	2190	2190	2190	2190	2175	2175	2175
Firms		520	520	520	520	520	506	506	506
Adjusted R-squared within		0.038	0.045	0.049	0.052	0.046	0.047	0.046	0.045
Adjusted R-squared between		0.044	0.044	0.043	0.043	0.044	0.044	0.044	0.044
Adjusted R-squared overall	0.078	0.042	0.043	0.043	0.044	0.043	0.043	0.044	0.044