

Looking Inside a Conglomerate: Efficiency of Internal Capital Allocation and Managerial Power Within a Firm

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This version: December 2008

We would like to thank Martin Artz, Marc Deloof, Ingolf Dittmann, Roman Inderst, Rajkamal Iyer, Ernst Maug, Enrico Perotti, Rafael Repullo, Markus Schmid, Henri Servaes, Andrei Shleifer, Javier Suarez, Alexander Wagner, David Yermack, and seminar participants at University of Amsterdam, Tilburg University, the London Business School, the University of Zurich, the 6th Oxford Finance Summer Symposium, the European Summer Symposium in Financial Markets in Gerzensee, the 34th Annual Meeting of the European Finance Association 2007 in Ljubljana, the Workshop on Internal Capital Markets at the University of Antwerp, the 14th Annual Meeting of the German Finance Association (DGF) in Dresden, the Workshop on Corporate Governance and Executive Compensation at the University of Mannheim, and the Final ECGTN Conference in Barcelona for helpful comments. Financial support from the Deutsche Forschungsgemeinschaft (DFG) is gratefully acknowledged. All errors are our own.

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Abstract

Does more bargaining power of managers inside a firm lead to larger allocations of capital? To tackle this question, we use unique and proprietary panel data on planned and realized capital allocations inside a very large conglomerate. The firm operates worldwide, is headquartered in Europe and has 5 divisions and 22 business units. We measure bargaining power by looking at the three complementary measures of power: (i) tenure of the Division CEOs; (ii) whether they have the local nationality; and (iii) whether they have an engineering degree (the firm has a very strong and very long engineering tradition). We find that (ex ante) planned allocations of capital are not distorted by bargaining power. We then study how unexpected cash windfalls at the headquarters are distributed inside the firm. The cash windfalls result from the sale of equity stakes in other firms and are exogenous to the divisions and business units. We find that managers with more bargaining power get larger parts of the cash windfalls for their own units. Our results suggest that bargaining power does not matter in the formalized allocation process but rather when it comes to the ad hoc distribution of cash windfalls. We show that our power variables do not seem to proxy for ability.

Keywords: Internal Capital Allocation, Internal Capital Markets, Power Inside the Firm, Capital Budgeting, Planning

JEL Classification Code: G14, G31, G32, D80

1. Introduction

Do divisions or business units in large conglomerates with better investment opportunities receive larger capital expenditure budgets and thus invest more? Or is it possible that they receive higher budgets simply because they are run by more powerful and not necessarily better managers? This is the question we tackle in this paper empirically. Common sense suggests that managers who are powerful inside organizations are more successful in pursuing their personal goals and in receiving larger allocations of capital for their own units. This idea has also been formalized in models by Meyer, Milgrom and Roberts (1992), Scharfstein and Stein (2000), Rajan, Servaes and Zingales (2000) or Wulf (2008). These models assume that Division CEOs inside firms have a preference for larger capital allocations (for rent-seeking/empire building reasons) and therefore conduct activities to get more funds allocated (so-called influence activities). These influence activities cause costs because of the resources spent on affecting allocations and because of the resulting suboptimal investment decisions. In general, these internal capital market models predict that managers with more bargaining power vis-a-vis the CEO of the firm are more likely to get larger capital allocations.

We argue that the situation in the empirical literature on internal capital markets is similar to the one on internal labor markets where Baker and Holmstrom (1995) argued that there are “too many theories, too few facts” and “we need ... additional studies of personnel records, supplemented by interviews and institutional facts.” Following their argumentation, Baker, Gibbs and Holmstrom (1994a, 1994b) tested theories based on detailed internal labor market data from a single firm. Motivated by this approach, we study what happens in the internal capital market of a large international conglomerate that operates worldwide and is headquartered in Europe. More specifically, we look at the effects of bargaining power on the allocation of capital for investment (capital expenditure). We use a proprietary, very rich and detailed data set on realized and planned capital allocations. The data set is based on internal management accounting data and allows us to precisely look inside the conglomerate to test our predictions. Our data contains detailed information on all five divisions of the firm as well as on all 22 business units. The business units operate under the roof of the divisions which have no operating activities themselves. We have monthly realized (actual) allocation data for the period 01/2001-12/2006 and quarterly planned allocation data for the period 01/2002-12/2006.

We measure the bargaining power of Division CEOs (which are governing the business units) in three complementary ways that capture different aspects of power. First, we follow the

empirical corporate governance literature and look at the tenure of the Division CEOs. We follow papers such as Ryan and Wiggins (2004) or Berger, Ofek and Yermack (1997) and assume that the power of a Division CEO increases as his tenure lengthens. Tenure hereby tries to captures the influence and social networks of a specific person inside the company. We also construct a related tenure variable by measuring instead of the tenure inside the firm the number of months in the Division CEO position. Second, we measure the type of academic degree a Division CEO holds. More specifically, we argue that a Division CEOs with an engineering degree can be regarded as more powerful inside our firm for a set of reasons. Our sample firm has a very strong and very long engineering tradition. All past CEOs were engineers, the firm has patents on some of the most important engineering innovations in modern history, and an engineering background matters a lot for a company career according to statements by several people of the firm. Third, we measure whether Division CEOs have the nationality of the country where the firm originates from, and where the headquarters and its main operations are. We hereby try to measure power from a socio-cultural perspective and assume that Division CEOs that have the local nationality are more powerful inside the organization.

We first study whether ex ante capital allocations are efficient in the sense that business units with higher expected investment opportunities receive larger capital allocations, independent of the bargaining power of their respective Division CEOs. Our results show that bargaining power does *not* distort ex ante allocations of capital in the institutionalized allocation process of the firm. This result suggests that the process of setting ex ante capital allocation plans is designed in a way that eliminates inefficient influence activities. This finding is consistent with the fact that our description of the firm's capital allocation process shows that the conglomerate uses sophisticated and institutionalized procedures which closely match the textbook recommendations for capital allocation processes (see Anthony and Govindarajan (2003) or Brealey, Myers and Allen (2006))¹. We also show that the ex ante planned values (e.g., for capital expenditures) are, on average, higher than the ex post realized ones. This phenomenon is called “budgetary slack” and has been documented in the management accounting literature (see, example, e.g., Davila and Wouters (2005) and the references cited therein).

We then use a methodology that is similar to the one employed in Blanchard, Lopez-de-Silanes and Shleifer (1994) and study whether the within-firm distribution of eight unexpected and largely exogenous cash windfalls at the headquarters level is affected by power. The cash

¹ Based on internal documents of the firm, we provide a detailed description of the allocation process in the paper.

windfalls result from the sale of equity participations in other firms and are not included in the ex ante allocation plans. However, once occurred, the capital from these windfalls is partially available for the investment of the business units and can cause a deviation between planned and realized capital allocations.

We show that Division CEOs with more bargaining power get larger parts of the cash windfalls for investment by their own business units. This finding is consistent with a managerial power story. We document that the economic effects of power on the distribution of the cash windfalls is large. We show that the cash windfalls increase the quarterly investment rate (capital expenditures/total assets) of an average business unit from 0.0089 to 0.0136, which is an increase in investment by 53%. This change in investment is significantly larger for business units of more powerful Division CEOs. If power is, for example, measured by tenure in the firm, then the change in investment is 0.0130 larger for more powerful Division CEOs. This difference in investment is equivalent to 146% of the average investment rate of all business unit quarters without cash windfalls.

We then measure how investment changes *relative* to what has initially been planned by the firm. We find that cash windfalls have the effect of bringing realized investment rates closer to the initially planned ones. The cash windfall induced change is again economically significant: in an average quarter without a windfall, realized investment lies 0.0057 below planned investment. This difference reduces to only 0.0020 in an average cash windfall quarter. We then show that the cash windfall induced change in investment is again significantly stronger for business units governed by more powerful Division CEOs. Again, the economic effects are relatively large.

We document that our results hold after accounting for differences in investment opportunities, business unit fixed effects, intra-division correlation, and a wide set of other controls. Moreover, we show that our sample firms is not financially constraint according to measures used in the literature and that the firm did not sell the equity stakes as no other funds were available to finance the investment of its business units. This further mitigates that the cash windfalls might be endogenous (see Hovakimian and Titman (2002)).

We also show that our power variables do not seem to proxy for ability. If power captures ability we would expect that our power proxies and future business unit performance are positively linked. However, we cannot find such a relation. We also show that future capital allocations are not adjusted downwards after units have received large proceeds from the cash windfalls. This is especially not the case for more powerful Division CEOs. Overall, our evidence

suggests that power does not matter in the formalized allocation process (i.e., for planned capital expenditure) but rather when it comes to the ad hoc distribution of unexpected cash windfalls for which institutionalized and structured processes are less likely to be binding.

Our results are most closely related to the following papers. Rajan, Servaes and Zingales (2000) predict that whether or not a division receives or makes transfers in a conglomerate depends not so much on its own opportunities but rather on its size-weighted opportunities and to what extent they are dispersed across divisions in a firm. By assuming that dispersion is the result of power by division managers, they link the use of power inside the firm to inefficient allocations. Based on US segment data, Rajan, Servaes and Zingales (2000) find evidence that is consistent with this story. Gaspar and Massa (2007) analyze the role of bargaining power (proxied by personal connections between divisional managers and the CEO) on the allocation of resources within large corporate organizations. Using also segment level data, they find that the segments run by better connected managers receive more money. McNeil and Smythe (2009) merge Execucomp data with segment data and find that division managers' lobbying power positively affects capital allocations. They measure power by looking at tenure, time-in-position, board membership, and top executive status. The advantage of the studies by Rajan, Servaes and Zingales (2000), Gaspar and Massa (2007) and McNeil and Smythe (2009) is that they are able to analyze a large cross section of firms. However, this comes at the cost of having not very detailed data on capital allocations, especially not planned data and data on the business unit level, and on the power structures inside firms (see Schoar (2002) or Maksimovic and Philips (2006)).² Cremers, Huang and Sautner (2008) have detailed capital allocation data from a banking group and a measure of power (disproportionate voting rights inside the group). They document that power can have a bright side by overcoming asymmetric information problems within firms leading to more efficient capital allocations.³

Beyond documenting the effects of power, we exploit our planning data to mitigate problems of measurement error in proxies for expected investment profitability (such as Tobin's

² Schoar (2002) argues that "it seems crucial to understand how governance structures within a firm interact with managerial decisions at different levels of the corporate hierarchy." Similarly, Maksimovic and Philips (2006) state in their recent survey on internal capital markets that "research in firm organization is particularly tricky because researchers specifically have to look inside corporations to assess the efficiency of resource allocations between various subunits".

³ There is also a related literature in the area of management accounting. Covaleski and Dirsmith (1986), for example, describe the role of politics and power in budgeting systems using interviews with nursing managers from six hospitals. Abernethy and Vagnoni (2004) analyze the consequences of power on organizational functioning. Their data set is based on questionnaire answers which are analyzed with the help of structural equation modeling techniques. Our paper is furthermore related to the very few studies in finance which analyze internal management accounting data from one conglomerate (see, for example, Bartram (2008) or Wagner, Miller and Zeckhauser (2006)).

Q, see, e.g., Erickson and Whited (2000) and Whited (2001)). Apart from relying on measures of imputed Tobin's Q, we are able to use the planned investment profitability measures which are actually employed by the firm. These variables are Planned Sales Growth, Planned Return on Assets (ROA), and Planned Economic Value Added (EVA), and the corresponding values are available from the time when the firm's ex ante plans were made.⁴ Our present study is thus also related to a recent paper by Cummins, Hassett and Oliner (2006). They address the problem of measurement error in Tobin's Q by using firm-specific earnings forecasts from securities analysts to construct a measure of investment opportunities which does not rely on the stock market. Analysts' forecasts are used to capture the expected future returns on which the firm's investment decisions are based. Cummins, Hassett and Oliner (2006) find that investment responds significantly to their measure of expected investment profitability while cash flow seems to be insensitive. Thus, the approach taken by Cummins, Hassett and Oliner (2006) and our study can be regarded as complementary methods which both provide ways to mitigate problems related to measurement error in Tobin's Q.

The rest of this paper is organized as follows. In Section 2, we describe models that study the effect of bargaining power on the allocation of capital. Section 3 describes the sample firm and presents the data set that is used in our study. Moreover, we deal with the question whether our sample firm is representative for other large manufacturing conglomerates. Section 4 documents the capital budgeting process in our firm and describes our power proxies. While Section 5 presents results on whether managerial power affects the (ex ante) planned capital allocations, Section 6 shows results on the effect of power for the distribution of cash windfalls. Section 7 discusses alternative explanations, and the last section of the paper summarizes our results and concludes.

⁴ These values could be wrong, but they are the best estimates of expected investment profitability at the time the plans (i.e., ex ante decisions) were made. We will show later that the correlations between planned and realized profitability measures range between 0.61 and 0.97. See Table 7 for details.

2. Models of Internal Capital Allocation and Managerial Power

Starting points of the literature on the relationship between the power of division managers and capital allocations are influence cost models such as Meyer, Milgrom and Roberts (1992).⁵ In these models, Division CEOs are considered as rent-seeking managers trying to influence the CEO to get larger capital allocations (e.g., by overstating their own units' prospects or by exercising bargaining power and lobbying activities). The basic implication of these models is that the misallocations of resources in conglomerates are caused by agency problems and power considerations inside firms.

In this spirit, Scharfstein and Stein (2000) develop a two-tiered agency model that shows how rent-seeking behavior on the part of division managers can subvert the workings of an internal capital market. By pursuing rent-seeking activities, division managers can raise their bargaining power to extract greater overall compensation from the CEO. As the CEO is herself an agent of outside investors, the extra compensation paid to the division managers can take the form of preferential capital budgeting allocations rather than of higher cash wages. The implication of the work by Scharfstein and Stein (2000) is that the behavior of division managers and their bargaining power in negotiations with the CEO matters for the understanding of inefficiencies in the capital allocation process.

Wulf (2008) also looks at inefficient resource allocations that result from influence activities by division managers. In her model, division managers distort their private information about future investments to get more capital allocated. As in Scharfstein and Stein (2000), she thereby also assumes that division managers derive utility from having larger capital budgets, a preference that has been termed "empire-building" in the agency literature.

Compared to the progress that has been made through theoretical contributions in the field of internal capital markets, the empirical literature is still at a very early stage. A main reason for this situation is that existing studies need to use publicly available segment reporting data (e.g., from Compustat Segment Data) which contains information at the division level only. Given the coarse structure of this data (no real intra-firm information) and due to the lack of within firm proxies for power, it has been very difficult to test the predictions of bargaining power models using real data.

⁵ For a more comprehensive overview of theories on the bright and dark sides of internal capital markets, we refer to the survey articles by Stein (2003) and Maksimovic and Phillips (2007).

3. The Firm, the Data Sets, and Descriptive Statistics

3.1 The Organizational Structure of the Sample Firm

Our sample firm is a major international conglomerate headquartered in Europe with operations around the world and more than 100,000 employees. From an organizational point of view, the firm operates with five product divisions. Each product division itself has no operating activities and consists of a number of business units which are operating under its roof. In total, the firm has 22 business units and the general operational structure of the firm is summarized in Figure 1. It shows the five divisions and illustrates that Division 2, for example, has a total of eight business units underneath. The divisions govern the business units across different regions and countries. To support and facilitate various cross-division activities, the firm has a headquarters which coordinates central corporate functions and processes such as outside financing or legal affairs. The divisions have no access to the capital market themselves. The headquarters also holds and manages a set of equity stakes in other corporations. The executive board of the firm is responsible for the day-to-day management and for all major corporate decisions. Each of the five divisions is run by a separate management team whose head is a Division CEO. The Division CEOs are generally *not* part of the executive board.⁶ Below the divisions, all business units are run by a management team whose CEOs are part of the management team of the corresponding division.

3.2 The Data Sets and Summary Statistics

We have detailed monthly data on the entire capital allocation of the firm. Our data includes information on all business units which are operating inside the conglomerate. The data set is uniquely comprehensive and comes from the internal management accounting system of the firm. Our data set contains confidential information on both planned and realized (actual) capital allocations. The data on the planned capital allocations comes from the firm's annual capital allocation plan that will be described in detail in the next subsection. While realized data is available from January 2001 to December 2006, the planned data comes from January 2002 to December 2006. Appendix A-1 contains an overview of the data we can use. It also contains information on the managerial power and cash windfall data which will be explained below.

Table 1 presents descriptive statistics for all five product divisions of the conglomerate. The numbers in each column result from the aggregation of the respective business unit numbers

⁶ For a limited time period within our sample, one Division CEO served also as a member of the executive board.

(as the divisions have no operating activities themselves). The table also includes the number of business units that operate under each of the five divisions. All values are in million EUR (except for sales growth and total personnel). The documented statistics are mean values for each division and calculated based on annual data. Tobin's Q is an imputed number and the median Tobin's Q of all other traded firms in the European Union that have the same 3-digit SIC code as the respective division. This data comes from Datastream/Worldscope. Definitions of all variables are provided in Appendix A-2.

Table 1 shows that the five divisions are very large economic players, both in terms of total sales and total assets, and in terms of total number of workers employed (on average between 8,000 and 46,000 per year). The average level of investment per year (capital expenditures) varies between 77 million EUR in Division 5 and 460 million EUR in Division 3.

3.3 Representativeness of the Sample Firm

To ensure that our firm is similar to other big conglomerates, we compare a set of characteristics of our firm with those of other large conglomerates. First, we compare its stock price performance with the performance of the Euro Stoxx 50 index. We use the EuroStoxx 50 as our firm is headquartered in Europe and has a similar market capitalization as the average firm in the EuroStoxx 50. Figure 2 plots the performance relative to the index over the period 2000 to 2006 and shows that the firm's stock price almost exactly tracks the index, even though the development is more volatile than the diversified index.

Second, we analyze key financial variables of our firm and compare them with those of all non-financial Euro Stoxx 50 firms. Table 2 show that our sample firm is by no means an outlier but seems to have a slightly lower investment rate, a lower cash flow, slightly higher sales, and lower leverage ratio. For our subsequent analysis, it is important to note that our firm is unlikely to be financially constrained. Apart from having a relatively low leverage ratio, other measures used in the literature also rather seem to suggest that our firm faces low financial constraints (see Cleary (1999), Cleary (2006), Kaplan and Zingales (1997), and Whited and Wu (2006)). The firm, for example, increased its dividend payments over the sample period. While the dividend was unchanged from 2001 to 2004, it was significantly increased both in 2005 and in 2006. Furthermore, the firm initiated a share repurchase program in 2005 and paid out about 1 billion EUR to its shareholders. As argued in Hovakimian and Titman (2006), these considerations are important as the cash windfalls which we exploit later in this paper could not be considered exogenous to the business units' capital expenditures if the firm would be financially constrained.

Third, we compare the investment-cash flow-sensitivity of the divisions of our sample firm with the investment-cash flow sensitivities documented in studies using division-level data (e.g., Shin and Stulz (1998)).⁷ This analysis also allows us to construct a first measure of the functioning of the firm's internal capital market. We closely follow the approach used in Shin and Stulz (1998) and regress investment of a division on division cash flow, proxies for division investment opportunities, and on the cash flow of the other divisions of the firm. Other divisions' cash flow is included to evaluate whether an active internal capital market exists. In this analysis and in what follows, cash flow is measured as the cash flow from operations. To create a measure of investment opportunities that uses division data, we follow Shin and Stulz (1998) and use the sales growth of the division and a measure of (imputed) division Tobin's Q. Furthermore, we also use division EBIT as an additional proxy for growth opportunities and profitability. Consistent with Shin and Stulz (1998), we normalize capital expenditure, the division's cash flow, other division's cash flow, and EBIT by the same variable, namely, the book value of the total assets of the firm. We use division fixed effects to account for division-specific effects as and also include year dummies in the regressions.

Table 3 reports the regression estimates using monthly data from January 2001 to December 2006. Our estimates are consistent with those documented for conglomerates in other studies, and especially in the study by Shin and Stulz (1998)). More specifically, we find that investment (capital expenditures) by a given division depends on the cash flow of the firm's other divisions, but much less than it depends on the division's own cash flow. Consistent with Shin and Stulz (1998), we also find that division investment is sensitive to measures of investment opportunities. The results suggest that our conglomerate actively operates an internal capital market and reallocates cash across divisions.

Fourth, we calculate the Berger and Ofek (1995) conglomerate discount of the sample firm and compare it with the discount of other conglomerates. We find that the discount of our firm is, on average, 15% over the sample period and hence also comparable to other large conglomerates.

Overall, the analysis in this section shows that the general characteristics of our firm are very comparable with those of other large conglomerates, mitigating concerns that our findings are not representative for other multi-segment firms.

⁷ We use division level data, constructed by aggregating business unit variables, to be able to compare our results with those in studies using division level data (e.g., Shin and Stulz (1998)).

4. Internal Capital Allocation Process and Managerial Power

4.1 The Decision Process for the Allocation of Capital

To understand whether and where bargaining power of managers inside the firm plays a role for capital allocations, we have access to information describing the capital allocation process employed by the firm.⁸ Like in most companies, the general strategy of the firm, developed by the executive board, serves as the ultimate foundation for all major corporate investment decisions. To transform this general corporate strategy into concrete capital allocations and investment decisions, the firm has a very standardized two-phase process in place. Figure 3 provides an overview of this process, how the two phases related to each other, what the involved parties are, and who makes what decisions and when.

Phase 1: The Strategic Outlook

The objective of the first phase (i.e., the strategic outlook) is to develop a three-year long-term strategic plan for all business units of the firm. Therefore, the firm tries to identify future growth opportunities for the divisions and business units therein. The strategic outlook includes general targets for planned investments and required resource allocations (i.e., a “guide”) for all divisions and hence serves as the foundation for the internal capital allocation process. The process is very institutionalized and structured, and it typically starts in January and ends in April of a given year, with decisions being made for the three-year period starting in January of the subsequent year. An important aspect of the strategic outlook is to have discussions between division management and the executive board on long-run strategies on the divisions and their business units.

As can be seen in Figure 3, the strategic outlook starts with the Business Unit CEOs taking the lead and identifying long-term investment opportunities for their units. All over February, negotiations take place between the Business Unit CEOs and the corresponding Division CEOs over these identified opportunities, with preliminary decisions on the implied business plans being made by the division management in March. Each Division CEOs then presents the three-year business plans of their units to the executive board and negotiates over revisions and adjustments. Following these negotiations, a final decision on the figures in the strategic outlook is being made in a meeting of the executive board in April.

⁸ We can use documents provided by the firm on (i) the institutional details of the allocation process, (ii) the time line of different budgeting meetings, (iii) the managers that generally participate in these meetings, and (iv) the approval procedures for investments.

Phase 2: The Annual Capital Allocation Plan

Right after the finalization of the strategic outlook, a concrete annual capital allocation plan, the second phase of the allocation process, is developed for the coming year. The objective of the annual capital allocation plan is a one-year investment plan containing detailed resource allocations for all business units. The link between the strategic outlook and the allocation plan is hence the breaking down of the business plan for the setting of very concrete investment targets. The proposed annual allocation plans are also translated into a complete set of balance sheets and income statements for each business unit, which are subsequently aggregated and consolidated at the division as well as the firm level.

Discussions over the annual allocation plan start in June with the division management, based on the strategic outlook, preparing investment and allocation targets for the coming year and presenting them to the business units. The Business Unit and Division CEOs then jointly negotiate over these allocation plans and conduct revisions and adjustments. Preliminary decisions over the budget are then being made in August. As in the strategic outlook, the Division CEOs then present the capital allocation plan for their divisions to the executive board and a second round of in-depth joint negotiations and revisions takes place. Finally, in October or November, the executive board decides on the investment and allocation targets for the coming year. The divisions and business units then receive the approved plan and build it into their planned budget for the next year.

For our empirical analysis, we have data from this annual capital allocation plan. Figure 4 provides an overview of the budgeting process over different years and documents for which time period we have data. Since the annual capital allocation plan is not modified, it is generally more informative than the strategic outlook whose plans are overlapping and adjusted during the three year period.⁹

The firm has no institutionalized process and formalized rules on the allocation of cash windfalls which occur if the headquarters sells some of its equity stakes in other firms. Moreover, as we will describe later, the proceeds from cash windfall we study in this paper are not included in the annual capital allocation plan. These issues will be important for the subsequent analysis.

⁹ During the year, the firm also conducts quarterly budget revisions (updates) and rolling forecasts. These revisions, for which we do not have data, are typically necessary if product demand conditions change. In our regressions, we account for potential adjustments by controlling for lagged planning period deviations of planned EBIT from realized EBIT.

Execution of Allocation and Investment Decisions

The process behind the concrete execution of capital expenditures for specific projects is relatively straightforward. The firm requires approval by the executive board for any project which involves an investment or a divestment in (in)tangible fixed assets that exceeds a specific threshold (in EUR). The respective thresholds depend on the different divisions and vary between 5 and 35 million EUR, depending on how capital intensive investments are. In order to get board approval, each business unit has to document that the pursued investment generates a positive NPV. As the discount rate for the calculation of the NPV, the firm uses a project-specific weighted average cost of capital (WACC). The inputs used for calculation of the WACC are provided by the headquarters (e.g., tax rates, interest rates, or country risk premia). All investments which are below the investment thresholds are at the discretion of the business units and can easily and quickly be executed (e.g., to buy or replace small machines or IT).

To summarize, the internal capital allocation process in our conglomerate is a mixture of top down and bottom up procedures. The procedures used are very similar to those described in standard textbooks on capital allocation such as, for example, Anthony and Govindarajan (2003) or and Brealey, Myers and Allen (2006)). However, the firm has no institutionalized procedures for the allocation of capital resulting from cash windfalls.

4.2 The Measurement of Managerial Power

The theoretical models on bargaining power predict that Division CEOs who have more power vis-a-vis the CEO of the firm should receive larger capital allocations for their units. We construct three complementary power measures for all 13 Division CEOs who were employed during our sample period.¹⁰ First, we follow the empirical corporate governance literature and look at the tenure of the Division CEO. We follow papers such as Ryan and Wiggins (2004) or Berger, Ofek and Yermack (1997) and assume that the power of a Division CEO increases as his tenure lengthens. We hence how long the individual Division CEOs have been working for the firm. Using tenure as a proxy, we try to capture the influence and social networks of a specific person in the company. We also construct a related tenure variable which directly measures the number of months a Division CEO has been in its current position.

Second, we measure the type of academic degree a division manager holds (see also Table 4 for descriptive statistics). More specifically, we argue that a Division CEOs with an engineering degree can be regarded as more powerful within our firm for a set of different reasons. Our

¹⁰ Unfortunately, we do not have data on or the names of the Business Unit CEOs.

sample firm has a very strong and very long engineering tradition. All past CEOs were engineers, the firm has patents on some of the most important engineering innovations in modern history, and an engineering background matters a lot for a career inside the firm according to statements by people of the firm.

Third, we measure whether Division CEOs have the nationality of the country where the firm originates from and where the headquarters and its main operations are. We hereby try to measure power from a socio-cultural perspective and assume that Division CEOs who have the local nationality are powerful inside the organization.

Panel A of Table 4 provides descriptive statistics of our power proxies. It shows, for example, that the mean (median) value of our tenure at the firm variable is 17.7 (16) years, with a minimum of 0 and a maximum of 39 years. The mean (median) Division CEOs is in office for 28.6 (22) months. Panel B of Table 4 documents that our power variables are positively but far from perfectly correlated and hence try to capture different facets of power inside the firm.

5. Planned Capital Allocation and Managerial Power and

The uniqueness of our data also stems from the availability of information on planned capital allocations from the firm's annual capital allocation plan. The availability of such data is important for the analysis of the efficiency of capital allocations as planned allocations reveal the intended (ex-ante) allocation decisions of a firm. Moreover, having access to planning data allows us to use the profitability measures that were actually employed by the firm to assess future opportunities. This allows us to mitigate problems of measurement error in proxies for investment opportunities such as (imputed) Tobin's Q which rely on market data from comparable firms and might be correlated with investment (see Cummins, Hasset and Oliner (2006), Erickson and Whited (2000) or Whited (2001)).

Using this data, we investigate in a first step whether the planned allocations are efficient (i.e., mainly determined by investment opportunities) and to what extent bargaining power matters for these allocations. Having looked at planned capital allocations, we will then investigate a main reason causing deviations between realized and planned allocations, namely capital resulting from cash windfalls, and to what extent the distribution of these windfalls is related to power.

Table 5 presents descriptive statistics of the planned allocation data for all business units of the firm. For comparison, the table also includes the corresponding realized values. The

planned allocation data stems from the conglomerate's annual capital allocation plan which was described in Section 4. All variables are calculated based on quarterly observations. The table shows that the (ex ante) planned values do not exactly match the (ex post) realized ones. Planned capital expenditure values, for example, are higher than the (ex post) realized values. This is a well-known phenomenon in the management accounting literature and called budgetary slack (see Davila and Wouters (2005)). Panel B of Table 5 documents pairwise correlations between the realized and planned values. It shows that planned and realized values are generally highly correlated, but the correlations for many variables are far from being perfect. While the correlation between planned and realized capital expenditures, for example, is only 0.8605, the correlation between planned and realized sales is 0.9741.¹¹

To understand the planned budget and to measure the effects of our power proxies on the planned allocation of capital, Table 6 presents regressions at the business unit level in which planned capital expenditures is regressed on our measures of managerial power, planned EBIT divided by lagged total assets (return on assets), planned sales growth, and the lagged deviation of planned and realized EBIT.¹² The estimates show that planned investment is significantly related to measures of future growth opportunities and profitability. These results are in line with neoclassical investment models which suggest that corporate resources should go to the units with the highest growth opportunities. Interestingly, we cannot detect that our measures of bargaining power matter for determining the ex ante capital allocations. This result suggests that the sophisticated and institutionalized process of setting the ex ante capital allocation plans is structured in a way that minimizes the effects of influence activities and power struggles. One explanation for this finding might be that the capital allocation process uses procedures which closely match the recommendations for "optimal" processes provided in textbooks such as Anthony and Govindarajan (2003) or Brealey, Myers and Allen (2006).

¹¹ Note that the latter correlation suggests that the quality of the forecast of the expected investment profitability is rather high, reassuring the quality of the internal measures of investment opportunities.

¹² This regression setup is consistent with management accounting research in which, for example, budget adjustments as a result of spending variances are analyzed (see, for example, Lee and Plummer (2007)). The results are similar if we use EVA/Total Assets.

6. The Allocation of Cash Windfalls and Managerial Power

6.1 The Cash Windfalls

The previous section showed that the ex ante capital allocation process is not distorted by managerial power. Moreover, we have seen that the (ex post) realized capital allocations differ from the ones that were planned ex ante. We now study how capital from unexpected cash windfalls at the headquarters level is distributed inside the firm. These cash windfalls result from the headquarters selling equity stakes (often minority shareholdings) in other companies whose activities are not related to the activities of the five product divisions and their business units. The cash windfalls have not been included in the planned allocation budget but are, once occurred, partially available for investments of the business units. Moreover, as the Division CEOs are neither involved in the selling decisions nor hold the equity stakes themselves, and as the firm is not financially constrained (i.e., did not sell the stakes to primarily finance investment of a certain business unit), the cash windfalls can be considered largely exogenous to the Division CEOs, their divisions and their business units (see Hovakimian and Titman (2002)).

Studying the effects of power on the distribution of cash windfalls rather than on planned budgets is also advantageous for another reason. Instead of being the result of power, high planned budgets could by itself also be a manifestation and hence driver of managerial power in organizations. This reverse causality problem in the analysis of planned capital allocation is mitigated when cash windfalls are used. As cash windfalls are not part of planned capital expenditures but come on top of the existing budgets, they obviously cannot proxy for power (in contrast to historically high budgets).

We measure cash windfalls by looking at all equity stakes that have been sold by the headquarters during the sample period and that generated a cash inflow of at least 500 million EUR. Table 7 provides descriptive statistics of the cash windfalls. In total, we could identify eight equity sales transactions leading to an average cash windfall of 703 million EUR, ranging from 615 to 935 million EUR. These windfalls occur in a total of 6 different quarters and the average cash windfall per windfall quarter is 938 million EUR.¹³ As is apparent in Figures 5 and 6, the cash windfalls are of big economic importance for the sample firms and its five divisions, and they are likely to impact the firm's operations. The windfalls in 2005, for example, amount to

¹³ The cash windfalls occurred in Q4 2003 (one windfall), Q3 2004, Q4 2004 (two windfalls), Q2 2005, Q3 2005 (two windfalls), and Q4 2005.

40% of the total sales of the firm, 19% of the total assets, more than 100% of the cash flows from operations, four times the annual investment, and 126% of the firm's EBIT.

Panel B of Table 7 provides a summarized description of some of the characteristics of the windfalls. Detailed information for each of the windfalls is provided in Appendix A-3. One can see that a main reason for the sale of the equity stakes was that the headquarters considered them non-strategic assets and tried to time the market by exploiting a high market valuation.

Panel C provides, based on cash flow statements, information on how the company used the proceeds that resulted from the windfalls. The numbers are averages calculated over the years in which cash windfalls occurred. The table shows that almost 20% of the money from the windfalls was used for investment within the firm. Importantly, 30% of the money was paid out to the firms' shareholders in the form of dividends and share repurchases, and another 20% was used to increase cash holdings. These usages further mitigate concerns that the equity stakes were sold primarily in order to raise capital for the financing of projects. Figure 8 plots cumulative abnormal returns from a simple event study around the cash windfall announcement dates. While the market seems to initially react positive to the windfalls, this effect seems to disappear over the next 20 trading days.

In the following, we will focus on the effects of the windfalls on capital expenditures of the business units in the firm. More specifically, we will study the distribution of the cash windfalls within the firm by looking at the changes in the differences between realized and planned investment (i.e., between actual and planned capital allocations). Cash windfalls that are used for investment but not included in the planned allocation cause a deviation of realized from planned investment. If managerial power matters for the allocation of cash windfalls, we should expect that more powerful Division CEOs receive a larger piece of these cash windfalls.

6.2 Cash Windfalls and Managerial Power: Preliminary Evidence

Before we investigate the changes in the difference between planned and realized investment, we look at the windfall-induced changes in the levels of the pure investment rates (not relative to the plan). Table 8 shows that the cash windfalls increase the quarterly investment rate of an average business unit from 0.0089 to 0.0136. This corresponds to an economically large increase in investment by about 53% and implies that a 100 million EUR cash windfall in a business unit-quarter increases realized investment by about 550,000 EUR (in the same quarter). The effects of the windfalls on investment are also illustrated in Figure 7. Using monthly data to

illustrate the intra-quarter effects, it plots investment rates around the cash windfall events.¹⁴ While monthly investment is 0.0031 for the average business unit in a no cash windfall month, it increases by more than 60% to 0.0050 in the cash windfall months. Moreover, the figure shows that the windfalls not only affect investment in the months in which they occur but also in the next month (where the investment rate is still 0.0046).

Table 8 also shows the effects of differences in our power proxies on the distribution of the cash windfalls. The table documents a simple difference-in-differences analysis and looks at the change in the investment rate of business units run by more and less powerful Division CEOs. The table shows, for example, that the windfall-induced change in investment is 0.013 larger for business units whose Division CEO has an above median tenure. Again, the difference of 0.013 is economically significant and represents about 146% of the average no cash windfall investment rate of 0.0089.

To illustrate the effects of managerial power on the distribution of the cash windfalls in greater depth, Table 9 looks at how the difference between realized and planned investment changes due to the windfalls. We measure the effects of the windfalls relative to planned investment in order to capture the “surprise” component of the windfalls. The table presents the difference between realized and planned capital expenditures (divided by total assets), again for quarters with and without cash windfalls, and separately for Division CEOs with low and high power. We then calculate a shock induced change in investment which is defined as the values in line (2) minus the values in line (1). The table shows that in general, realized investment lies below planned investment. This is a well-know phenomenon in the management accounting literature and called budgetary slack. Moreover, one can see that cash windfalls bring realized investment typically closer to planned investment. In an average no cash windfall quarter, realized investment lies 0.0057 below planned investment, while this difference is only 0.0020 in the average cash windfall quarter.

The table also shows that the effects of a cash windfall are always much larger for business units whose Division CEO has greater power. For our tenure at the firm variable, for example, the cash windfall induced change of investment is almost three times larger for more powerful Division CEOs (cash windfall induced change of 0.0018 versus 0.0059). The difference in the power effect of 0.0031 is again economically large and represents about 35% ($=0.0031/0.0089$) of the average no cash windfall investment rate of a business unit. Overall, the

¹⁴ The cash windfall events are hereby defined as the months in which a sold equity stake caused a cash inflow. Our analysis will later focus on quarterly observations as planned data is only available in this frequency.

results in Table 9, combined with those in Table 8, provide some first evidence that power is relevant for the allocation of capital that results from cash windfalls at the headquarters level. We analyze this link in greater detail in the following.

6.3 Cash Windfalls and Managerial Power: Further Evidence Based on Regressions

In Table 10, we examine whether the influence and bargaining power of the Division CEOs over the cash windfall can explain the differences between realized and planned capital expenditures, after accounting for a wide range of factors, namely differences in investment opportunities, unobserved business unit heterogeneity, intra-division correlation, and a set of other controls. We regress the difference between realized and planned capital expenditures on a the (log of the) cash windfall variable, our power variables, an interaction term of the cash windfall and the power variables, sales growth, EBIT divided by lagged total assets (return on assets), lagged (planning period) EBIT deviation from the plan, and lagged imputed Tobin's Q. Our managerial power measure varies from regression to regression and is named in the columns above the regressions. The difference between realized and planned capital expenditures is again scaled by total assets of the respective business unit. The standard errors account for heteroskedasticity and are clustered at the division level.

Our regression estimates show that the differences between realized and planned investment can be explained by how unexpected windfall cash flows that occur at the headquarters level are distributed inside the firm. More specifically, the results provide evidence suggesting that division managers who have more bargaining power within the conglomerate get a larger fraction of the windfalls for their own business units, even after controlling for performance and profitability measures. However, while our results are statistically significant for Tenure at Firm and Local Nationality, we cannot detect significant effects for the other two power proxies.¹⁵

As it is important for the results in Table 10 to properly control for investment opportunities, we conduct several robustness checks of the above results. More specifically, we include various measures for investment opportunities: the planned measures of our sample firm, past realized values, future realized values, and different imputed Tobin's Q values. While the measures for investment opportunities are not always significant in the regressions, the

¹⁵ The results are not surprising given the univariate results shown in Table 9 in which the strongest effects are also documented for tenure at firm and local nationality.

coefficient of the interaction variable between power and cash windfall remains significant in regressions (1) and (3).

Taken together, our results provide evidence consistent with the models of Meyer, Milgrom and Roberts (1992), Scharfstein and Stein (2000), Rajan, Servaes and Zingales (2000), or Wulf (2008), which suggest that variables which are related to the bargaining power of managers inside a firm have to be taken into account when analyzing internal capital allocations. Moreover, our findings suggest that differences between realized and planned investment can be mainly explained by unexpected cash windfalls that occur at the headquarters level and how they are distributed inside the firm. One potential concern might be that our power variables in fact proxy for ability which is not fully captured by measures of investment profitability. We will discuss this concern and related issues in the next section.

7. Discussion and Alternative Explanations

7.1 Capital Expenditures from Cash Windfalls versus Normal Budgets

The previous section has shown that managers with more bargaining power within the firm can capture significantly more money from cash windfalls for their own units' investment. Moreover, we also showed that business units of more powerful managers generally spend less of their planned budget compared to less powerful units. A question that naturally arises from these two observations is why powerful managers with a general preference for more capital try to get as much as possible from the windfalls, while at the same time not fully spending the normal budget.

One possible explanation for this behavior could lie in the different characters of the two capital sources. If money from the normal capital budget (planned capital allocations) is not spent, for example because no profitable investment opportunities arise, it is *not* available for spending by other business units of the firm. Money from the cash windfalls, on the other hand, is partially available for the distribution within the entire firm. If a unit does not capture and utilize the available funds for its own investment, it is likely to be captured and used by other units. Relinquishing capital from windfalls hence implies that other units will get it. Powerful managers therefore have an incentive to capture as much as possible from the windfalls even though they might not fully spend their normal budgets.

To better understand why investment increase so much during the cash windfall quarters, we conducted several interviews with people inside the firm. One view that was expressed there

was that investment approval procedures seem to be more lax in months with large cash windfalls. As discussed in Section 4, for each actual investment, certain NPV criteria have to be fulfilled.¹⁶ One of the stated reasons why approval procedures might be more lax when large windfall proceeds are available was that the firm seems to try avoiding that large amounts of cash accumulate in their cash accounts, generate rather low returns, or might cause shareholder activists to target the company. If such lax approval is more likely to happen at divisions and business units which are run by powerful managers, this could provide an complementary interpretation of our findings.

7.2 Power as a Measure of Ability

One potential concern of our findings is that the power variables, in fact, capture ability. In such a case, we should expect to find that ability (i.e., our power measures) is reflected in the planned capital allocation in the sense that more able Division CEOs get larger capital budgets ex ante. However, as show in Section 5 where we regressed the planned capital allocations for investment on the power variables and controls, we have no evidence for such a relationship. This finding not only implies that power does not seem to matter for the institutionalized ex ante capital allocation process, it also suggests that our power variables are likely not to proxy for ability. Otherwise, we should have seen a positive relation between planned investment and the ability variables.

As a further test, we also regressed future performance of the business units on our power proxies and a set of controls (not reported here). If our power variables capture ability, we should see a positive relationship between future performance and our power proxies. To measure performance, we use EBIT/Total Assets, Sales Growth and EVA/Total Assets. When we regress future performance on our power variables, we find that the relationship between the two is either statistically insignificant (for EBIT/Total Assets and Sales Growth) or very low and economically insignificant (for EVA/Total Assets). Overall, these findings affirm that our power variables are not proxying for ability.

¹⁶ Planned capital expenditures are usually the upper limit for actual capital expenditures. Actual investment can be below planned investment in the cases in which not all actual investment projects have been approved by upper level managers (the headquarters) even though they have been budgeted. If planned investment is not spent, it cannot be transferred to the next year. However, there is no year end ratcheting due to the approval procedure in which upper level managers have to decide on suggested investment projects.

7.3 Adjustment of Investment after Cash Windfalls

We have shown that investment rises significantly in those quarters in which cash windfalls occurred and that this increase was much more pronounced for the business units of more powerful Division CEOs. In this section, we analyze whether investment is adjusted downwards in the quarters after the cash windfalls. We hereby aim at testing whether powerful Division CEOs get less capital allocated in periods after the windfalls. If this is the case, it would imply a mitigation or even elimination of the cash windfall effects and weaken our power results.

We therefore separate the sample into business units of more and less powerful Division CEOs and regress investment on lagged investment, a lagged cash windfall dummy, an interaction term between the two and a set of controls. The results in Table 11 document that investment shows a positive autocorrelation and that there is no evidence for a downward adjustment in capital expenditure after increased investment in cash windfall periods. Moreover, we cannot detect any differences in the investment adjustment between more and less powerful Division CEOs.

7.4 Efficiency of Investment

To judge the overall efficiency of investment in our sample firm and to complement our Shin and Stulz (1998) type of analysis, we also employ the methodology suggested by Ozbas and Scharfstein (2008). They analyze the Tobin's Q-sensitivity of investment for divisions of firms to infer investment efficiency. In unreported regressions, we find for our sample firm that investment is sensitive to measures of investment opportunities (such as sales growth) for less powerful Division CEOs whereas investment is not sensitive to these measures for more powerful Division CEOs. These results suggest that investment of divisions and business units which are run by powerful managers is less efficient than the investment of the remaining divisions and business units.

8. Conclusion

Using uniquely comprehensive and confidential data from the internal management accounting system of a large international conglomerate, we analyzed the efficiency of capital allocation inside the firm. We tested predictions of theories that link managerial power inside a firm and allocation of capital and which have been difficult to test due to data limitations. Our data set not only included data on both realized and planned capital allocations.

Using planned data, we showed that the analysis of realized instead of planned allocations might be misleading. When we looked at ex-ante allocation decisions, we found that only profitability measures were related to capital expenditures. These results are important as they suggest that the firm's ex-ante capital allocations plans might be regarded as rather efficient. We then studied how unexpected cash windfalls that occur at the headquarters level are distributed inside the firm. We showed that division managers who have more bargaining power within the conglomerate can get a larger part of these windfall cash flows for their own business units (after controlling for performance and profitability measures). These results suggested that variables which are related to the bargaining power of managers inside a firm should be taken into account when analyzing internal capital allocations. Regarding generalizations of our results, we are aware that our evidence is based on data from one conglomerate. The advantage is that we can hold the institutional and organizational set-up of the firm and of the employed capital allocation process constant but it certainly also implies limitations.

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Table 1: Descriptive Statistics at the Division Level

This table presents descriptive statistics of all five divisions of the sample firm for the period January 2001 to December 2006. It also includes the number of business units that operate within each of the five divisions. All values are in million EUR (except for sales growth and total personnel). The numbers presented here are calculated as the annual year-end averages over the six years. Tobin's Q is the median Q of all other firms with the same 3-digit SIC code in the European Union and this data comes from Datastream/Worldscope. For variable definitions, see Appendix A-2.

	Division 1	Division 2	Division 3	Division 4	Division 5
Number of Business Units	4	8	1	5	4
Median Tobin's Q of Firms with Same 3-digit SIC Code	2.15	1.94	1.62	1.27	1.62
Capital Expenditure (million EUR)	80.64	102.11	456.62	166.73	77.53
Sales (million EUR)	9,378.52	6,157.89	4,425.04	5,212.04	2,031.98
Sales Growth (in %)	0.02	0.07	-0.03	0.01	0.10
EBIT (million EUR)	-91.68	476.99	-61.09	593.04	360.43
Total Assets (million EUR)	2,504.91	5,510.19	4,334.16	2,694.51	917.31
Cash Flow from Operations (million EUR)	216.45	832.38	784.87	793.94	488.84
Total Personnel	17,212	27,358	33,985	45,785	8,188

Table 2: Key Financial Variables of Sample Firm and Non-Financial DJ Euro Stoxx 50 Firms

This table presents key financial variables of our sample conglomerate and compares them with all non-financial Dow Jones Euro Stoxx 50 firms. For the non-financial Dow Jones Euro Stoxx 50 firms, we report means, medians, standard deviations as well as several percentiles. The table shows average values from 2000 to 2006 of yearly data. For variable definitions, see Appendix A-2.

	Sample Firm	DJ Euro Stoxx 50						
		Mean	Standard deviation	10th percentile	25th percentile	Median	75th percentile	90th percentile
Capital Expenditures/Total Assets	0.045	0.056	0.026	0.029	0.040	0.050	0.069	0.090
Cash Flow/Total Assets	0.058	0.098	0.046	0.056	0.073	0.091	0.107	0.158
Sales/Total Assets	0.942	0.794	0.430	0.384	0.481	0.686	0.988	1.287
Total Liabilities/Total Assets	0.470	0.644	0.121	0.468	0.576	0.643	0.729	0.803

Table 3: Estimates of Investment Equation at the Division Level

This table presents regressions estimates at the division level of capital expenditures on cash flow from operations, cash flow from operations of other divisions, sales growth, imputed Tobin's Q, and EBIT divided by lagged total assets (return on assets). Capital expenditures and the two cash flow variables are scaled by lagged total assets. Imputed Tobin's Q is the median Q of all other firms in the European Union that have the same 3-digit SIC code as the respective division. All variables are winsorized at the 1% level. In the regressions, we use monthly data from January 2001 to December 2006. Absolute values of robust t-statistics are in parentheses. For variable definitions, see Appendix A-2. ** indicates significance at 5%, *** indicates significance at 1%. Standard errors are also adjusted for intra-division correlation.

	Capital Expenditure/Total Assets	
	(1)	(2)
Own Cash Flow/Total Assets	0.022 (2.50)**	0.019 (2.09)**
Cash Flow (other divisions)/Total Assets	0.007 (2.58)**	0.007 (2.50)**
Sales Growth	0.001 (3.82)***	0.001 (3.69)***
Imputed Tobin's Q (Lagged Value)	0.000 (0.14)	0.000 (0.04)
EBIT/Total Assets		0.022 (1.29)
Constant	-0.0003 (0.78)	-0.0003 (0.63)
Year Fixed Effects	Yes	Yes
Division Fixed Effects	Yes	Yes
Clustering by Division	Yes	Yes
Observations	296	296
Adj. R-squared	0.20	0.21

Table 4: Measures of Managerial Power Inside the Firm: Descriptive Statistics and Correlations

Panel A provides summary statistics of our measures of bargaining power inside the firm. The variables are defined in Appendix A-2. The variables are self-constructed based on annual reports and web searches. Panel B presents correlation coefficients (and the corresponding p-values) between our measures of bargaining power inside the firm. The table also contains the number of observations used to calculate the respective correlations.

Panel A: Descriptive Statistics

Number of Division CEOs in Sample			13		
Tenure	Tenure at Firm (in years)	Minimum	0		
		Mean	17.71		
		Median	16.00		
		Maximum	39		
		Std. dev.	14.57		
			Obs. (Business Unit Quarters)	515	
	Tenure as Division CEO (in months)	Minimum	2		
		Mean	28.58		
		Median	22.00		
		Maximum	86		
Std. dev.		21.56			
Engineering Degree	Business Unit Quarters	Yes	356	69%	
	Business Unit Quarters	No	159	31%	
Local Nationality	Business Unit Quarters	Yes	218	42%	
	Business Unit Quarters	No	297	58%	

Panel B: Correlation Coefficients

	(1)	(2)	(3)	(4)
Tenure at Firm (1)	1.0000			
	515			
Tenure as Division CEO (2)	0.4863 (0.0000)	1.0000		
	515	515		
Engineering Degree (3)	-0.1662 (0.0002)	-0.0238 (0.5899)	1.0000	
	515	515	515	
Local Nationality (4)	0.8959 (0.0000)	0.4922 (0.0000)	-0.0655 (0.1379)	1.0000
	515	515	515	515

Table 5: Descriptive Statistics and Correlations of Planned and Realized Variables at the Business Unit Level

Panel A presents descriptive statistics of all business units of the sample firm for the period January 2002 to December 2006 (planned values) and January 2001 to December 2006 (realized values). The numbers presented here are calculated as the averages across quarterly data. For variable definitions, see Appendix A-2. The data is from the internal management accounting system of the firm. Panel B presents correlation coefficients between realized values and planned values at the business unit level. The correlations are calculated using quarterly data from January 2002 to December 2006. *** indicates significance at 1%. The table also contains the number of observations used to calculate the respective correlations. The data is from the internal management accounting system of the firm.

Panel A: Descriptive Statistics

Variable	Obs.	Mean	1st percentile	25th percentile	Median	75th percentile	99th percentile	Std. dev
Planned Sales (in million EUR)	411	352.24	20.56	107.10	221.00	405.46	1,653.39	383.83
Planned EBIT (in million EUR)	411	25.93	-30.70	2.46	13.02	44.57	103.99	40.00
Planned EBIT/Total Assets	411	0.04	-0.10	0.01	0.04	0.07	0.23	0.06
Planned Sales Growth	390	0.05	-0.59	-0.02	0.05	0.16	0.78	0.26
Planned Cash Flow from Operations (in million EUR)	227	42.69	-64.42	2.55	19.51	54.32	287.70	70.95
Planned Cash Flow from Operations/Total Assets	227	0.05	-0.28	0.01	0.05	0.10	0.44	0.10
Planned Capital Expenditure (in million EUR)	371	12.50	-0.80	3.12	4.67	9.96	132.13	25.16
Planned Personnel	227	6,444	275	1,214	3,849	7418	35771	7954
Sales (in million EUR)	515	316.96	20.17	93.09	194.84	357.53	1,632.40	371.09
EBIT (in million EUR)	515	14.89	-254.84	-2.30	9.19	37.32	140.68	59.23
EBIT/Total Assets	515	0.02	-0.22	-0.01	0.03	0.07	0.24	0.11
Sales Growth	493	0.04	-0.55	-0.08	0.02	0.15	0.78	0.27
Cash Flow from Operations (in million EUR)	515	36.31	-123.17	-0.60	17.12	50.26	337.40	77.95
Cash Flow from Operations/Total Assets	515	0.05	-0.42	0.00	0.04	0.10	0.43	0.13
Capital Expenditure (in million EUR)	515	10.29	-7.82	1.52	3.29	8.09	147.46	31.40
Capital Expenditure/Total Assets	515	0.01	-0.02	0.00	0.01	0.02	0.08	0.06
Personnel	515	6,105	295	1,203	3,407	7,418	35,771	7,954

Panel B: Correlation Coefficients

	Correlation	p-Value	Observations
Correlation (Sales, Planned Sales)	0.9741	<0.0001***	411
Correlation (EBIT, Planned EBIT)	0.6066	<0.0001***	411
Correlation (Cash Flow from Oper., Planned Cash Flow from Oper.)	0.6154	<0.0001***	403
Correlation (Capital Expenditure, Planned Capital Expenditure)	0.8605	<0.0001***	371

Table 6: Determinants of Planned Investment at the Business Unit Level

This table presents fixed effects panel regression results at the business unit level of planned capital expenditures on several measures of managerial power, planned EBIT divided by lagged total assets (return on assets), planned sales growth, and lagged (planning period) deviation from planned and realized EBIT. Planned capital expenditures is scaled by lagged total assets. All variables are winsorized at the 1% level. In the regression, we use quarterly data from January 2002 to December 2006. Absolute values of robust t statistics are in parentheses. Standard errors are also adjusted for intra-division correlation. Variable definitions are in Appendix A-2.*** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

	Planned Capital Expenditure/Total Assets				
	(1)	(2)	(3)	(4)	(5)
Planned EBIT/Total Assets	0.017 (1.37)	0.018 (1.44)	0.018 (1.41)	0.018 (1.40)	0.017 (1.37)
Planned Sales Growth	0.007 (2.47)**	0.007 (2.56)**	0.007 (2.51)**	0.007 (2.52)**	0.007 (2.48)**
Engineering Degree					0.000 (0.06)
Tenure as Division CEO				0.000 (1.28)	
Local Nationality			0.004 (1.47)		
Tenure at Firm		0.000 (1.48)			
Lagged EBIT Deviation from Plan/Total Assets	0.077 (2.70)***	0.092 (2.92)***	0.09 (2.90)***	0.087 (2.99)***	0.077 (2.71)***
Constant	0.014 (11.24)***	0.011 (6.28)***	0.012 (7.60)***	0.013 (9.85)***	0.014 (6.36)***
Business Unit Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clustering by Division	Yes	Yes	Yes	Yes	Yes
Observations	311	311	311	311	311
R-squared	0.04	0.05	0.05	0.04	0.04

Table 7: Description of Cash Windfalls

This table presents a description of the cash windfalls. The headquarters of the firm held equity stakes in other firms that were sold and resulted in large cash windfalls during the period 01/2001-12/2006. Cash windfalls occurred in Q4 2003 (one windfall), Q3 2004, Q4 2004 (two windfalls), Q2 2005, Q3 2005 (two windfalls), and Q4 2005. Panel A reports the frequency of the cash windfall and provides descriptive statistics of the size of the windfalls (in million EUR). Panel B provides a summarized description of the windfalls. It contains the stated reasons for the sale, the stated usage of the proceeds from the windfalls, the procedure of how the stake was sold, and the pre- and after sale stake which the sample firm held. Furthermore, it also contains information on how long the sample firm held the equity stakes. Panel A and B are constructed based on information from company news reports as well as newspaper articles. Panel C contains information on the observed usage of the cash windfalls. These figures are calculated based on cash flow statements of the firm. A detailed description of the individual cash windfalls is contained in Appendix A-3.

Panel A: Descriptive Statistics of Cash Windfalls

Number of Cash Windfalls		8
Number of Quarters with Cash Windfalls		6
Size of Cash Windfalls (million EUR)	Mean	703
	Median	694
	Min	615
	Max	935
	Std.dev.	140
Profit from Cash Windfalls (million EUR)	Mean	425
	Median	380

Panel B: Description of Cash Windfalls

Stated Reason for Equity Stake (multiple usages possible)	# Non-strategic asset	6
	# Exploit high market value	3
	# Reduce exposure to cyclical ind.	2
Stated Usage of Money from Equity Stake* (multiple reasons possible)	# Fund strategic growth options	6
	# General corporate purposes	2
	# Reduction of debt	1
Procedure of Sale of Equity Stake	# Initial Public Offering (IPO)	1
	# Seasoned Equity Offering (SEO)	4
	# OTC Transaction (OTC)	3
Pre-Sale Equity Stakes	Mean	32%
	Median	29%
After-Sale Equity Stake	Mean	16%
	Median	16%
Holding Period of Equity Stake (years)	Mean	12
	Median	11

* This information was available only for seven cash windfalls

Panel C: Usage of Cash Windfalls

Capital Expenditure	19%
Working Capital (increase)	1%
Acquisitions	13%
Repayment Debt	21%
Dividends	9%
Share Repurchases	11%
Tax	6%
Increase in Cash Holdings	20%

Table 8: Cash Windfalls and Power: Effects for Capital Expenditures

This table presents the effects of power (measured by tenure of division CEOs in the firm, months as Division CEO, whether or not the Division CEO has the local nationality and whether or not he has an engineering degree). The table reports investment rates (capital expenditure/total assets) at the business unit level for cash windfall and no cash windfall quarters. The business units are separated based on the power measures for the corresponding Division CEOs. The cash windfall induced change is calculated as values in line (2) minus values in line (1). The average investment rate for all no cash windfall business unit quarters is 0.0089 and 0.0136 for all cash windfall business unit quarters.

		Managerial Power Measure Low	Managerial Power Measure High	
	Full Sample	Low Tenure at Firm (below median)	High Tenure at Firm (above median)	
No Cash Windfall Quarter (1)	0.0089	0.0077	0.0098	0.0021
Cash Windfall Quarter (2)	0.0136	0.0083	0.0234	0.0151
Cash Windfall Induced Change	0.0006	0.0006	0.0136	Diff in diffs 0.0130
		Low Tenure as Division CEO (below median)	High Tenure as Division CEO (above median)	
No Cash Windfall Quarter (1)	0.0089	0.0058	0.012	0.006
Cash Windfall Quarter (2)	0.0136	0.0139	0.0133	-0.001
Cash Windfall Induced Change	0.0006	0.0082	0.0013	Diff in diffs -0.0070
		Division CEO not Local Nationality	Division CEO Local Nationality	
No Cash Windfall Quarter (1)	0.0089	0.003	0.0161	0.013
Cash Windfall Quarter (2)	0.0136	0.0083	0.0234	0.015
Cash Windfall Induced Change	0.0006	0.0053	0.0074	Diff in diffs 0.0020
		Division CEO Non-Engineer	Division CEO Engineer	
No Cash Windfall Quarter (1)		0.0152	0.006	-0.009
Cash Windfall Quarter (2)		0.0153	0.0129	-0.002
Cash Windfall Induced Change	0.0006	0.0001	0.0069	Diff in diffs 0.0070

**Table 9: Managerial Power and Cash Windfall Induced Deviations
between Realized and Planned Investment at the Business Unit Level**

This table presents the difference between realized and planned capital expenditures (divided by total assets) for quarters with and without a cash windfall. The difference is shown separately for low and high power CEOs. The cash windfall induced change is calculated as values in line (2) minus values in line (1). The table reports mean values over both quarters with and without cash windfalls.

	Full Sample	Managerial Power Measure Low	Managerial Power Measure High	
		Low Tenure at Firm (below median)	High Tenure at Firm (above median)	
No Cash Windfall Quarter (1)	-0.0057	-0.0036	-0.0082	-0.0046
Cash Windfall Quarter (2)	-0.002	-0.0018	-0.0023	-0.0005
Cash Windfall Induced Change	0.0037	0.0018	0.0059	Diff in diffs 0.0041
		Low Tenure as Division CEO (below median)	High Tenure as Division CEO (above median)	
No Cash Windfall Quarter (1)	-0.0057	-0.0047	-0.0062	-0.0015
Cash Windfall Quarter (2)	-0.002	-0.0025	-0.0016	0.0009
Cash Windfall Induced Change	0.0037	0.0022	0.0046	Diff in diffs 0.0024
		Division CEO not Local Nationality	Division CEO Local Nationality	
No Cash Windfall Quarter (1)	-0.0057	-0.0038	-0.0082	-0.0044
Cash Windfall Quarter (2)	-0.002	-0.0018	-0.0023	-0.0005
Cash Windfall Induced Change	0.0037	0.0021	0.0059	Diff in diffs 0.0039
		Division CEO Non-Engineer	Division CEO Engineer	
No Cash Windfall Quarter (1)	-0.0057	-0.0084	-0.0048	0.0036
Cash Windfall Quarter (2)	-0.002	-0.0045	-0.0008	0.0037
Cash Windfall Induced Change	0.0037	0.0038	0.0041	Diff in diffs 0.0001

**Table 10: Determinants of Deviations Between Realized and Planned Investment
at the Business Unit Level**

This table presents fixed effects panel regressions at the business unit level of the differences between realized and planned capital expenditures on the cash shock variable (cash inflow at the headquarters level from the selling of equity stakes in other firms as measured as $\ln(1+\text{Cash Windfall})$), a managerial power variable (the four different power variables are reported in the four different columns), an interaction term of the cash windfall and the power variable, sales growth, EBIT divided by lagged total assets (return on assets), lagged (planning period) EBIT deviation from the plan, and lagged imputed Tobin's Q. The difference between realized and planned capital expenditures is scaled by total assets of the respective business unit. All variables are winsorized at the 1% level. In the regression, we use quarterly data from January 2002 to December 2006. The coefficient of the interaction term is multiplied with 10,000. Absolute values of robust t-statistics are in parentheses. Standard errors are also adjusted for intra-division correlation. For variable definitions, see Appendix A-2. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

Managerial Power Variable:	Dependent variable: (Realized Capital Exp.-Planned Capital Exp.)/Total Assets			
	Tenure at Firm (1)	Tenure as Division CEO (2)	Local Nationality (3)	Engineering Degree (4)
Sales Growth	0.001 (0.23)	0.001 (0.51)	0.001 (0.25)	0.001 (0.63)
EBIT/Total Assets	0.027 (2.34)*	0.027 (2.06)	0.028 (2.42)*	0.027 (2.06)
Lagged EBIT Deviation from Plan/ Total Assets	-0.062 (6.43)***	-0.061 (5.60)***	-0.060 (5.91)***	-0.062 (8.64)***
Tobin's Q (Lagged Value)	0.009 (1.18)	0.007 (0.56)	0.009 (1.21)	0.010 (1.20)
$\ln(\text{Cash Windfalls})$	0.001 (2.55)*	0.001 (1.87)	0.001 (2.65)*	0.001 (2.61)*
Managerial Power	-0.000112 (2.46)*	-0.000052 (0.69)	-0.003 (1.66)	0.001 (0.50)
Managerial Power * $\ln(\text{Cash Windfall})$	0.119 (2.76)*	-0.052 (0.05)	4.114 (2.45)*	-3.152 (1.33)
Constant	-0.023 (1.37)	-0.018 (0.65)	-0.024 (1.43)	-0.028 (1.44)
Business Unit Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Fourth quarter dummy	Yes	Yes	Yes	Yes
Clustering by Division	Yes	Yes	Yes	Yes
Observations	311	311	311	311
Adjusted R-squared	0.11	0.11	0.11	0.11

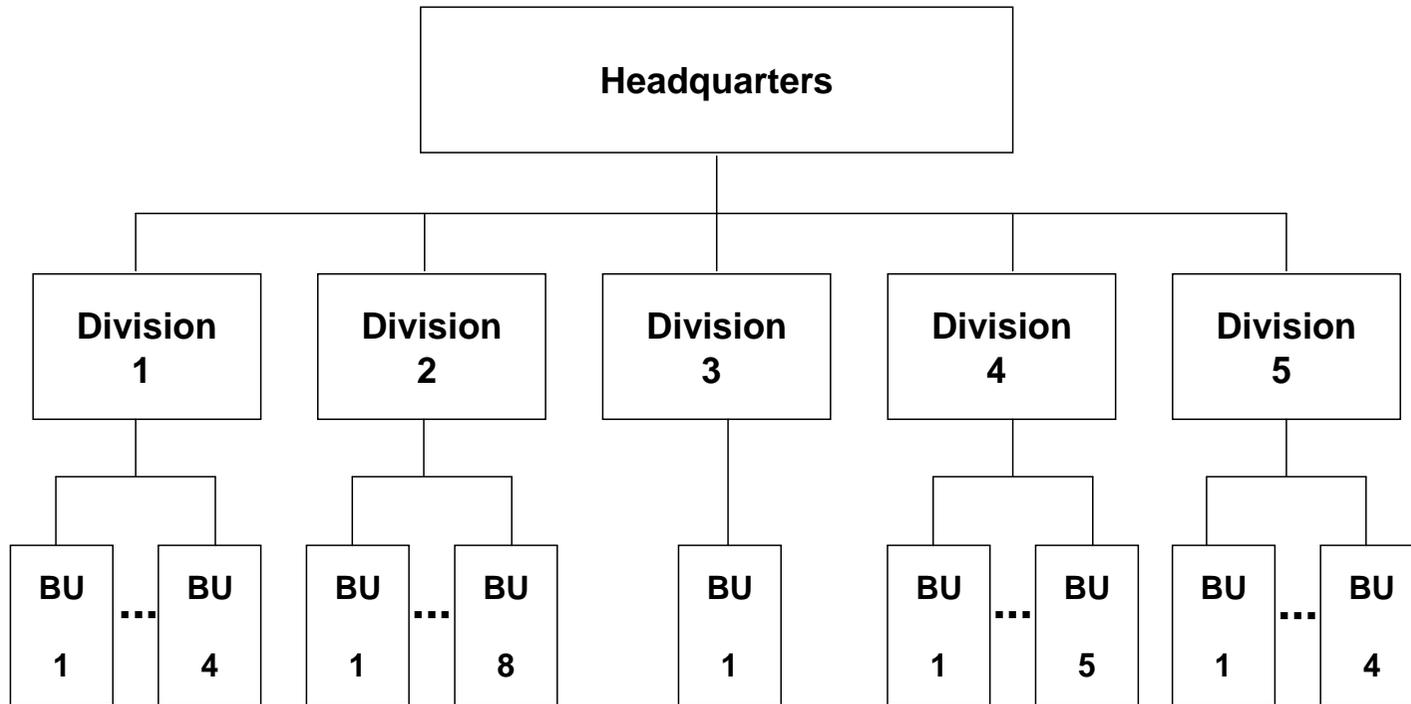
Table 11: Adjustment of Investment after Cash Windfalls

This table presents fixed effects panel regressions at the business unit level of regression of capital expenditure on lagged capital expenditure, a lagged cash windfall dummy, an interaction term between the two and a set of controls. The sample is separated into business units belonging to division CEOs with high and low bargaining power (measured by tenure in the displayed table). Absolute values of robust t-statistics are in parentheses. Standard errors are also adjusted for intra-division correlation. The sample period is January 2001-December 2006. For variable definitions, see Appendix A-2. *** indicates significance at 1%; ** indicates significance at 5%; * indicates significance at 10%.

	Capital Expenditure/Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Tenure < Median Value		Tenure > Median Value		Full Sample
Lagged Capital Expenditure/Total Assets	0.165 (2.73)***	0.212 (2.63)***	0.403 (3.88)***	0.398 (2.93)***	0.384 (3.68)***
Cash Flow/Total Assets	0.002 (0.26)	0.001 (0.23)	0.026 (1.54)	0.028 (1.61)	0.015 (1.71)*
Sales Growth	0.005 (2.40)**	0.005 (2.35)**	0.007 (1.03)	0.007 (0.99)	0.004 (1.61)
Lagged Cash Windfall Dummy		0.002 (1.24)		-0.006 (1.33)	0.000 (0.01)
Lagged Cash Windfall Dummy * Lagged Capital Expenditure		-0.144 (1.09)		0.060 (0.33)	-0.081 (0.64)
Constant	0.006 (2.57)**	0.006 (2.48)**	0.011 (4.05)***	0.011 (3.72)***	0.008 (3.74)***
Business Unit Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clustering by Division	Yes	Yes	Yes	Yes	Yes
Observations	230	230	197	197	427
R-squared	0.09	0.10	0.21	0.21	0.16

Figure 1: Operational Structure of the Firm

This figure summarizes the operational structure of the firm. It shows the five divisions and illustrates that Division 2, for example, has a total of eight business units underneath.



BU = Business Unit

Figure 2: Sample Firm and DJ Euro Stoxx 50 (Jan 2000 to Dec 2006)

This figure shows the normalized performance of the sample firm relative to the DJ Euro Stoxx 50 over the period January 2000 to December 2006.

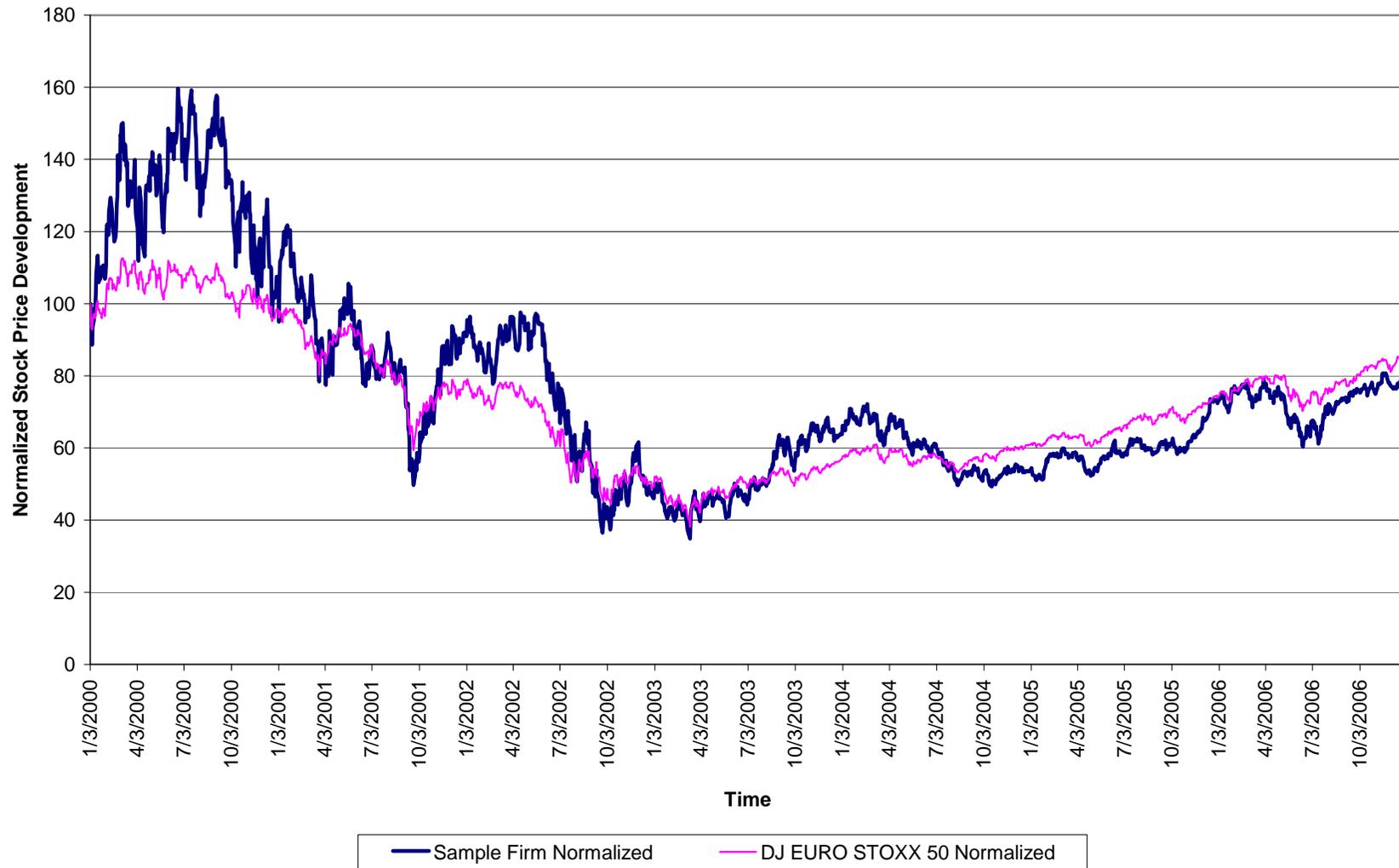


Figure 3: Decision Process behind Allocation of Capital

This figure presents an overview of the process behind the allocation of capital. The capital allocation process consists of two phases, the Strategic Outlook and the Annual Capital Allocation Plan. The figure shows how these two phases related to each other, what the involved parties are, and who makes what decisions and when.

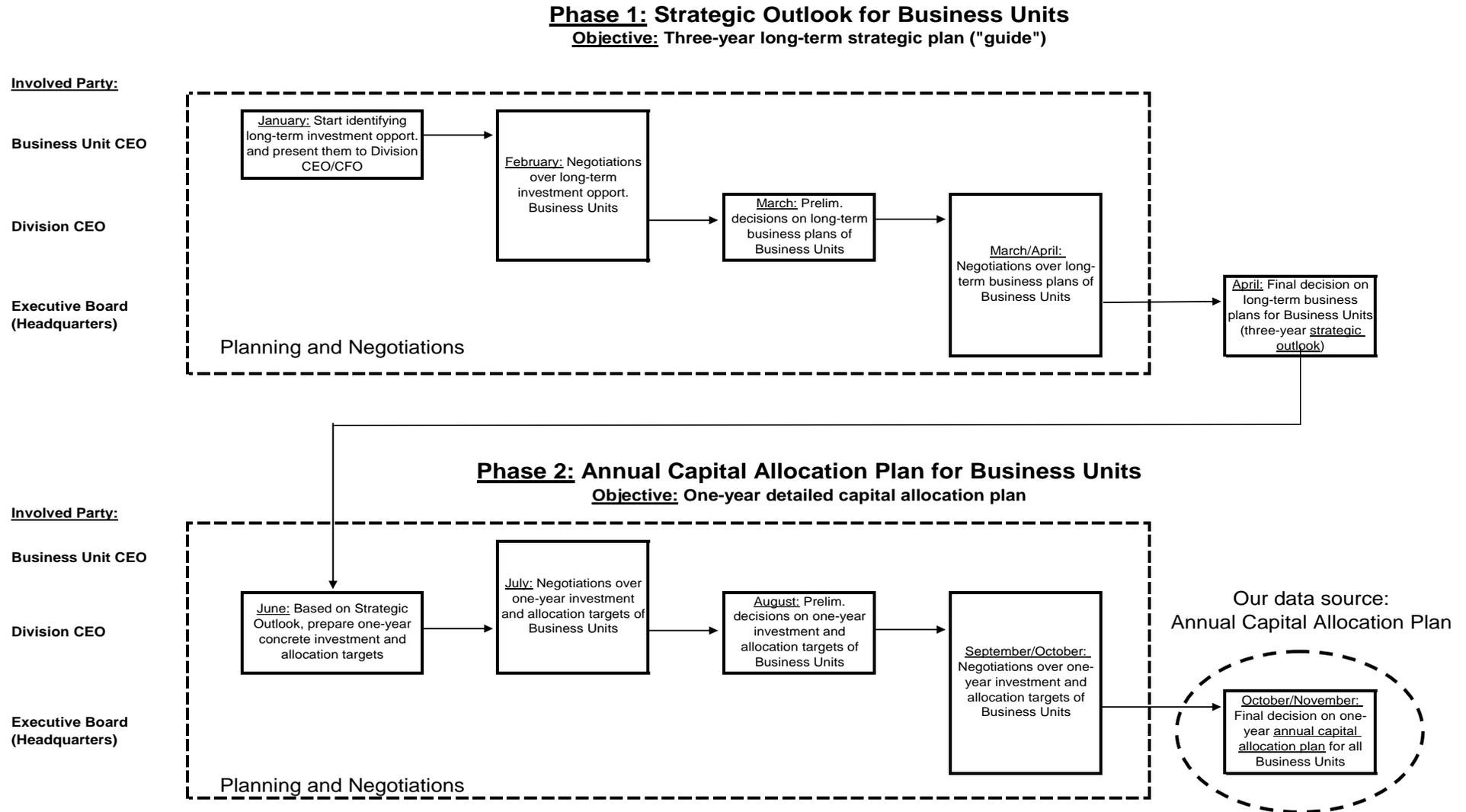
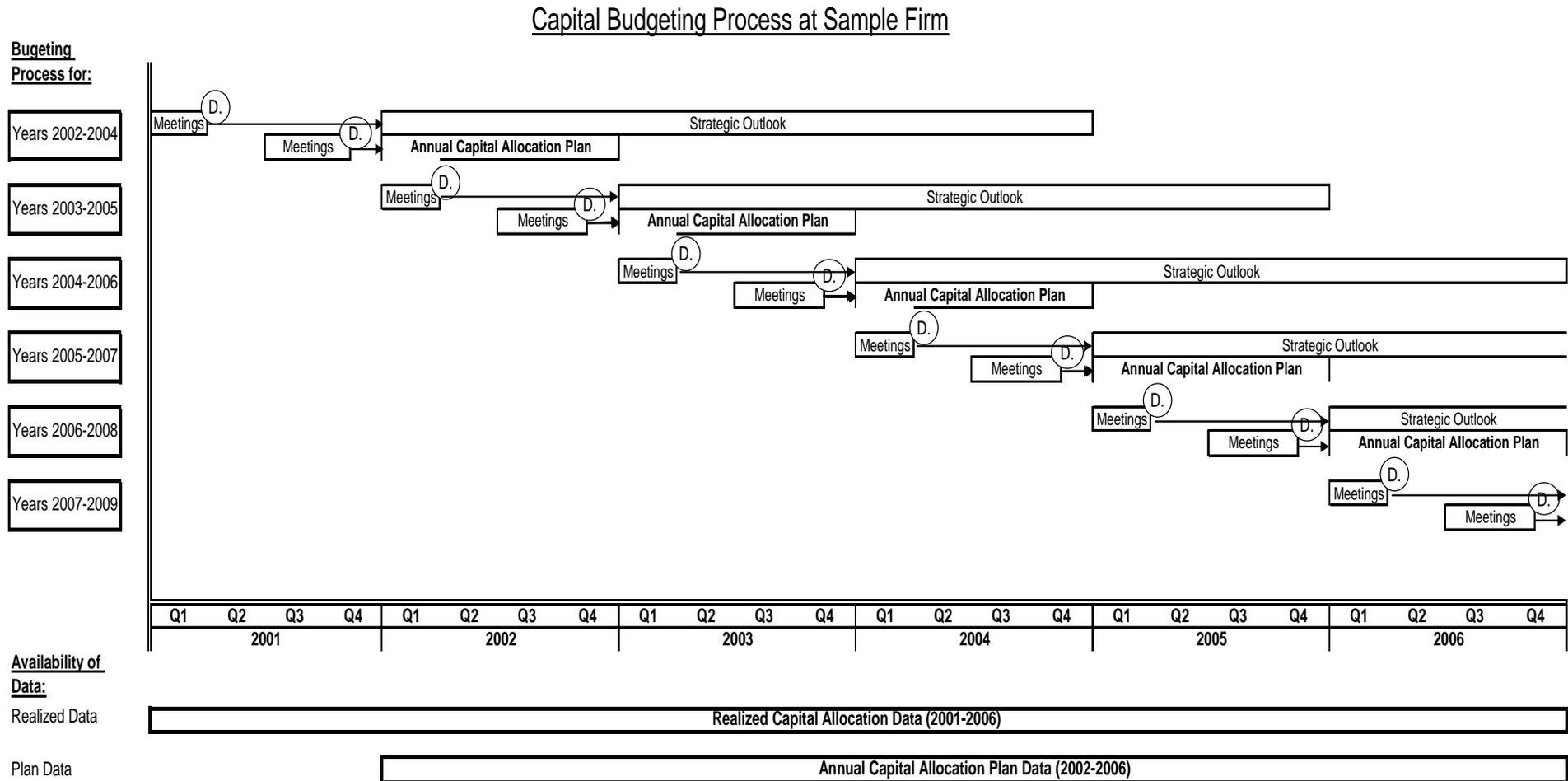


Figure 4: Capital Budgeting Process over Time and Available Data

This figure presents an overview of the processes behind the allocation of capital over time and shows the data we have available. Data on realized capital allocation is available from 2001-2006, data on planned capital allocation from 2002-2006.



(D.) means: "Decision over plan is made"

Figure 5: Importance of Cash Windfalls Relative to Firm Level Variables

This figure documents the relative importance of the cash windfalls by relating the resulting cash inflows to sales, total assets, cash flow from operations, capital expenditures, and EBIT of the firm. The firm variables are calculated by aggregating the corresponding division figures. Cash windfalls occurred in the year 2003 (one windfall), 2004 (three windfalls), and 2005 (four windfalls). The figure relates the cash windfalls of the respective years to the corresponding firm level variables of the same year.

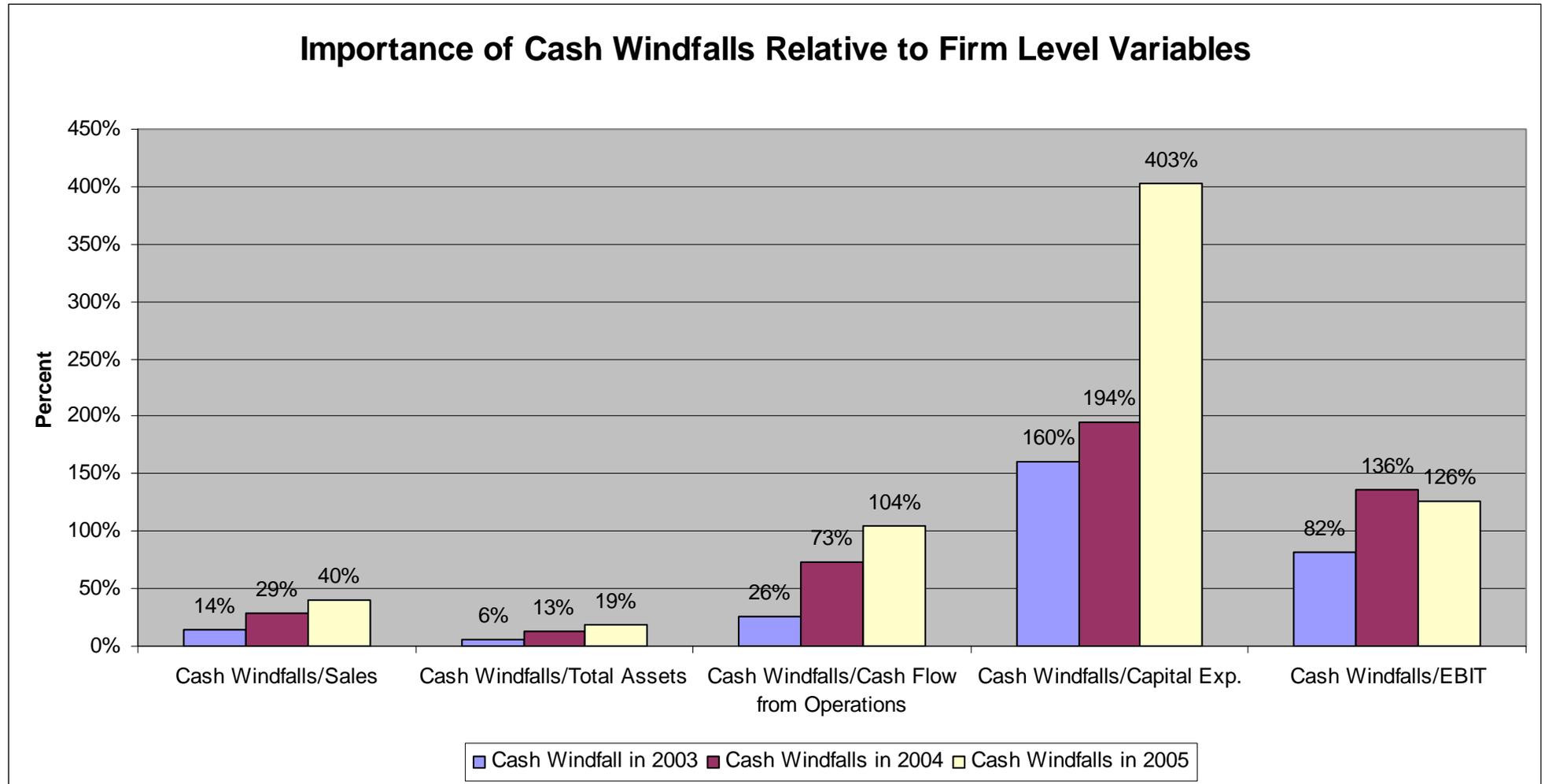
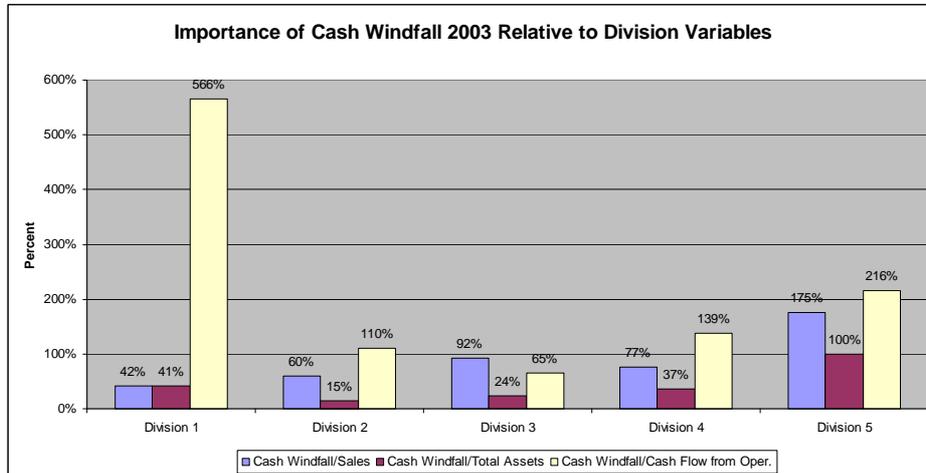


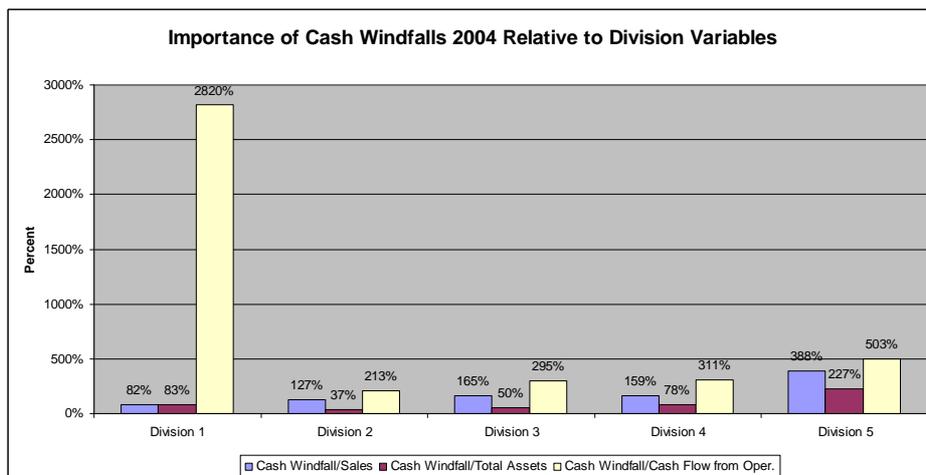
Figure 6: Importance of Cash Windfalls Relative to Division Level Variables

This figure documents the relative importance of the cash windfalls by relating the resulting cash inflows to sales, total assets, and cash flow from operations of the five divisions. Cash windfalls occurred in the year 2003 (one windfall), 2004 (three windfalls), and 2005 (four windfalls). The figure relates the cash windfalls of the respective years to the corresponding division level variables of the same year.

Panel A: Cash Windfall 2003



Panel B: Cash Windfalls 2004



Panel C: Cash Windfalls 2005

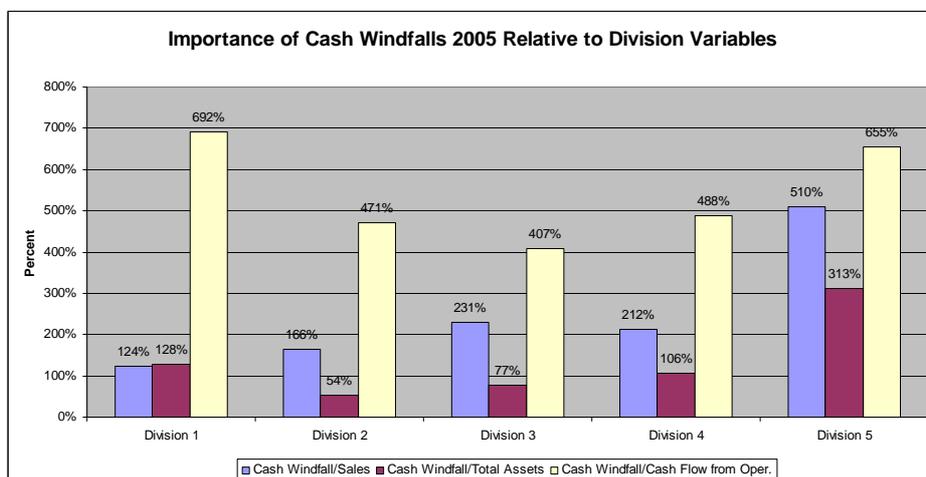


Figure 7: Monthly Investment Rates (Capital Expenditures Divided by Total Assets) around the Cash Windfall Events

This figure illustrates the average monthly Business Unit investment rates (capital expenditures/total assets) after the months in which the cash windfalls took place.

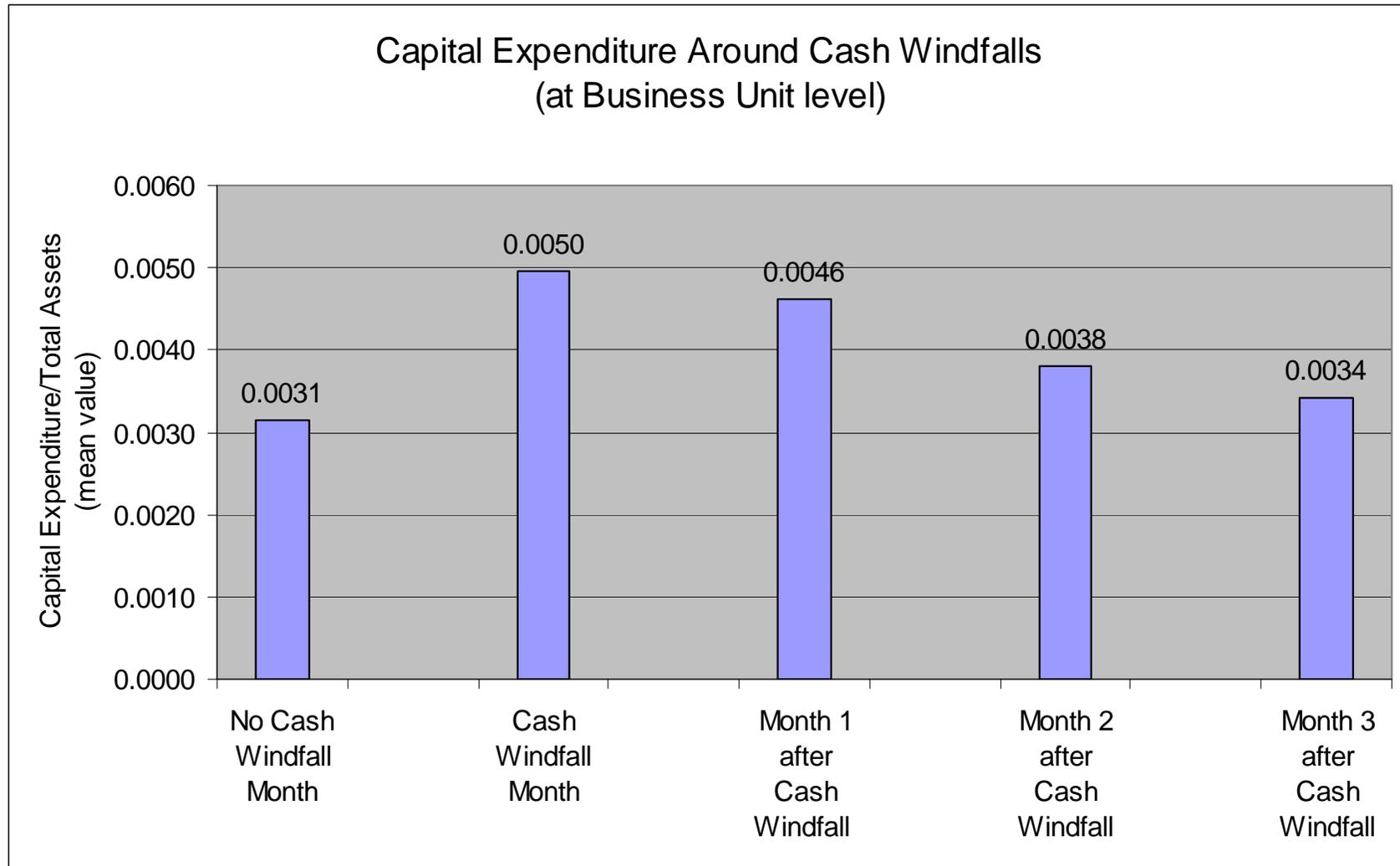
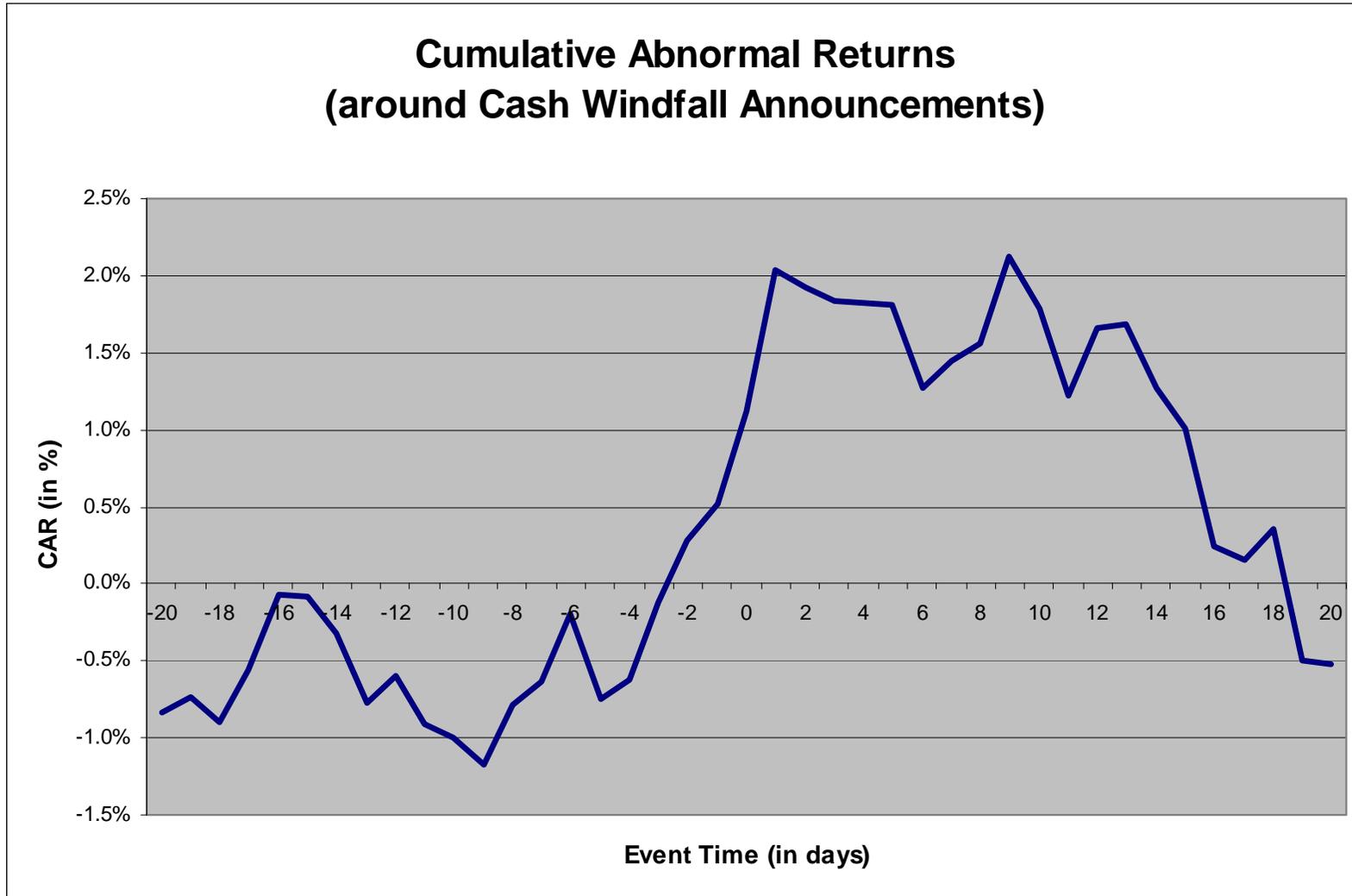


Figure 8: Stock Price Performance Around Cash Windfalls

This figure illustrates cumulative abnormal returns for the firm's stock price around the cash windfall announcement dates.



Appendix

Appendix A-1: Overview Over Data Sets and Data Sources

This table provides an overview of the three data sets we use, provides the respective content as well as the time periods and the source.

Data Type	Content	Time Period	Source
Data on Capital Allocations	Realized Data: Data on realized capital allocations for all 5 Divisions and 22 Business Units.	Monthly from 01/2001-12/2006	Internal management accounting system of the firm
	Plan Data: Data on the planned capital allocations for all 5 Divisions and 22 Business Units.	Quarterly from 01/2002-12/2006	Internal management accounting system of the firm
	Plan data is not adjusted during the year, i.e. we have the initial allocation plans. There is hence no bias from manipulations of the plan once performance occurred during the year		
Data on Managerial Power inside the Firm	For 13 Division CEOs data on Tenure, Local Nationality, and Type of University Degree	01/2001-12/2006	Self-constructed based on annual reports and web searches
Data on Cash Windfalls	Headquarter has equity stakes in other firms that were sold and resulted in 8 large cash windfalls.	01/2001-12/2006	Self-constructed based on annual reports, press statements, ad hoc information, and web searches
	Cash windfalls are exogenous (firm is not financially constraint)		

Appendix A-2: Definition of Variables

This table summarizes and defines the variables used in the empirical analysis. All variables are measured in EUR (except for sales growth, total personnel, and the managerial power variables). The financial variables listed below are available at the business unit level. The managerial power variables are available at the Division CEO level.

Variable	Description
Financial variables	
Capital Expenditure	Defined as investments of a business unit in tangible and intangible assets, adjusted for proceeds from the sales of fixed assets and/or software
Sales	Defined as the proceeds of a business unit from the sales of products or services to third parties and other divisions inside the firm.
Sales Growth	Defined as the difference between this period sales and previous period sales divided by previous period sales of a business unit.
EBIT	Defined as earnings before interest payments and taxes of a business unit.
Total Assets	Defined as the sum of the book values of a business unit's fixed and current assets.
Cash Flow from Operations	Defined as net income +/- depreciation and amortization +/- changes in working capital of a business unit.
Personnel	Defined as the number of employees being employed in a business unit.
Managerial power variables	
Tenure at Firm	Number of years a Division CEO has been working in the firm.
Tenure as Division CEO	Number of months a Division CEO has been working in his position as Division CEO.
Engineering Degree	Dummy variable that takes the value 1 if a Division CEO has an engineering degree.
Local Nationality	Dummy variable that takes the value 1 if a Division CEO has the nationality of the country where the firm originates from and has its main operations
Cash windfall variables	
Cash Windfall	Cash inflow at the headquarter level that results from the selling of equity stakes in other firms (in million EUR)

Appendix A-3: Detailed Description of Cash Windfalls

This table presents a detailed description of the cash windfalls. It contains information on the date on which the stake was sold, the main country in which the company operated, where the sold company was traded, the corporate performance (before the sale) of the company in which the stake was sold, the equity stake our sample firm had before and after the sale (in %), the cash inflow resulting from the sale, the reported profit on the sale, reported information on whether or not the profit of the sale was taxable, the procedure of the sale (SEO meaning seasoned equity offering, IPO meaning initial public offering, and OTC meaning sale over-the-counter). The table further reports how the company obtained the stake, the holding period of the stake, the stated reasons on why the stake was sold, and the stated reasons on what the sample firm did with the proceedings. This table is based on information from company news reports as well as newspaper articles.

Equity Stake	Date of Sale	Main Country of Operation	Company Publicly Traded?	Performance of Company before Sale	Pre-Sale Equity Stake (in %)	Post-Sale Equity Stake (in %)	How did Company get Equity Stake?	Cash Inflow (in million EUR)	Profit on Sale (in million EUR)	Profit Taxable?	Procedure of Sale	Holding Period (in years)	Stated Reason for Sale	Stated Use of Money
Equity Stake 1	Q4 2003	Taiwan	Yes (Taiwan Stock Exchange and NYSE)	Good performance	25.1	19.1	Firm initially set-up as joint venture	935	695	Yes	SEO	16	Non-strategic asset; Exploit high market value	General corporate purposes, Reduction of debt
Equity Stake 2	Q3 2004	US	Yes (NYSE)	Normal performance	83.5	37.7	Results from venture capital investment	672	635	Yes	IPO	19	Non-strategic asset	General corporate purposes
Equity Stake 3	Q4 2004	Worldwide	Yes (EURONEXT Paris and NYSE)	Bad performance	3	0	Results from carve-out of former Business Unit	720	300	No	OTC	6	Non-strategic asset; Exploit high market value	Fund strategic growth options
Equity Stake 4	Q4 2004	Europe	Yes (EURONEXT Paris)	Normal performance	31.9	15.4	Results from carve-out of former Business Unit	550	160	No	OTC	4	Reduce exposure to cyclical industry; Non-strategic asset	Fund strategic growth options

Appendix A-3: Detailed Description of Cash Windfalls (continued)

Equity Stake	Date of Sale	Main Country of Operation	Company Publicly Traded?	Performance of Company before Sale	Pre-Sale Equity Stake (in %)	Post-Sale Equity Stake (in %)	How did Company get Equity Stake?	Cash Inflow (in million EUR)	Profit on Sale (in million EUR)	Profit Taxable?	Procedure of Sale	Holding Period (in years)	Stated Reason for Sale	Stated Use of Money
Equity Stake 5	Q2 2005	US	Yes (NYSE)	Normal performance	37.1	3.5	Results from venture capital investment	870	753	Yes	SEO	20	Exploit high market value	Fund strategic growth options
Equity Stake 6	Q3 2005	Europe	Yes (EURONEXT Paris)	Normal performance	15.4	0	Results from carve-out of former Business Unit	550	185	No	OTC	5	Non-strategic asset	Fund strategic growth options
Equity Stake 7	Q3 2005	Taiwan	Yes (Taiwan Stock Exchange and NYSE)	Normal performance	19	16.4	Firm initially set-up as joint venture	715	460	Yes	SEO	18	Non-strategic asset	n/a
Equity Stake 8	Q4 2005	Korea	Yes (Korea Stock Exchange and NYSE)	Good performance	40.5	32.9	Firm initially set-up as joint venture	615	211	No	SEO	6	Reduce exposure to cyclical industry	Fund strategic growth options