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Linking corporate reputation and shareholder value using the publication of reputation rankings

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ABSTRACT

Good corporate reputation is one of the most valuable assets and causes a multitude of favorable impacts within different stakeholder groups. As a consequence, a lot of studies analyze the relationship between corporate reputation and financial performance. However, most of them raise the question of causation due to their methodology. In order to isolate the causal impact of corporate reputation on financial performance, some authors conduct event studies, but without remarkable success. Therefore, this study provides initially a comprehensive theoretical background for why reputation should affect financial performance. According to the resulting hypotheses, an event study is conducted to analyze the impact of the publication of reputation rankings by the German *Manager Magazin* on share prices. As hypothesized, positive and negative announcement effects exist regarding upgraded or downgraded companies respectively. Consequently, investors gain new information from the published rankings (increases or decreases in reputation) to adjust share prices.

1. Introduction

The major change in management research during the last decades has been the paradigmatic move from thinking in tangible to intangible assets (Barney, 1991). This movement is attributable to the assumption that intangibles are the major drivers of sustainable performance due to their characteristics. Competitors cannot easily neutralize these assets because they are hard to copy and in general not tradable via factor markets. As one of these intangibles, corporate reputation has become one of the most discussed (Abimbola & Vallaster, 2007; Caruana, 1997; Hunt & Morgan, 1995) and most valuable assets (Hall, 1992), because reputation is considerably able to defend a competitive position (Dierickx & Cool, 1989; Jones, Jones, & Little, 2000) especially by buffering negative critical incidents (Dhir & Vinen, 2005). As a consequence, the assumption arises that a consistent and strong relationship between company reputation and financial performance exists. That implies that a relationship should also exist between information contained in corporate reputation rankings and financial performance.

A number of research studies analyze this relationship (e.g., Dunbar & Schwalbach, 2000; Inglis, Morley, & Sammut, 2006; Rose & Thomsen, 2004; Sánchez & Satorrío, 2007), but none of them confirms, beyond any doubt, an influence of corporate reputation on financial performance. Analyses either cannot prove the claimed effects or the direction of causation is not clear (McGuire, Schneeweis, & Branch, 1990; McGuire, Sundgren, & Schneeweis, 1988).

In order to isolate the effect of reputation on financial performance, Hannon and Milkovich (1996), Ittner and Larcker (1998), Fornell, Mithas, Morgeson, and Krishnan (2006) as well as Abraham, Friedman, Khan, and Skolnik (2008) look for announcement effects of publishing reputation data. However, these studies are unable to confirm an impact on shareholder value.

Therefore, this event study is conducted using a refined methodology and different data (reputation rankings). More concretely, this study investigates whether announcing significant positive (negative) changes of corporate reputation measures affect shareholder value in the same direction. In contrast to previous ones, this study confirms a relationship as expected.

The paper starts with theoretical bases of corporate reputation and shareholder value as well as their interdependencies. This passage includes an overview of general drivers derived from financial and management theory, followed by a closer look at the specific (possible) impact of good reputation on shareholder value. After that, a discussion of the information contained in published reputation rankings under the assumption of market efficiency follows. The next two sections describe the methodological approach and the used sample. Finally, the paper moves on to the presentation and discussion of the results.

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2. Theoretical basis

2.1. The concept of corporate reputation

As a result of interdisciplinary initiated and driven research on corporate reputation and different perspectives ranging from psychological to managerial, a host of different concepts of reputation exist. To date, experts broadly accept that reputation is a collective construct which reflects an aggregated view of individual perceptions (Barnett, Jermier, & Lafferty, 2006; Walker, 2010; Wartick, 1992).

Additionally, a general agreement exists that corporate reputation measurements have to focus on the relevant stakeholders (Boulstridge & Carrigan, 2000). Concerning measurement approaches, a distinction is possible between taking an overall perspective (Fombrun, 1996), including internal and external stakeholders; a stakeholder group-specific perspective (Bromley, 2002a); an issue-specific perspective, within different groups of stakeholders; and an overall issue-specific perspective (Walker, 2010). The question is not whether perceived differences exist between multiple stakeholder groups as shown in Fig. 1 but rather to which extent.

The relational school (Chun, 2005) addresses this question by comparing multiple stakeholder views. Based on information asymmetry between internal (insiders) and external stakeholders (outsiders), the perceptional gap between them is most evident. Considering even the smallest differences between the groups within insiders and outsiders, the authors define corporate reputation as:

A relatively stable, aggregated and indirectly suggestible perception within multiple stakeholder groups based on a company's past actions and future prospects in comparison to some reference.

In contrast to Walker's (2010) perspective, the exclusion of the issue-specific term is crucial because of the assumption that corporate reputation represents a simplified collective assessment. Findings on the existence of halo-effects support this assumption (Brown & Perry, 1994; Schultz, Mouritsen, & Gabrielsen, 2001). However, this definition does not mean that an overall aggregation, as Fombrun (1996) states, is not acceptable. It emphasizes the allowance of and not the need for variety in general. Indeed, the absence of such a variety is due to a potential contamination of a favorable reputation by an unfavorable one or vice versa (Carter & Deephouse, 1999). Furthermore, the empirical findings of Eberl and Schwaiger (2005) support the idea that corporate reputation between various stakeholder groups is comparable. In line with these theoretical approaches and empirical findings, corporate reputation within one stakeholder group is an indicator for others in general.

2.2. Shareholder value

According to Rappaport (1998), shareholder value is the difference between the corporate value and its debts. The corporate value reflects the present value of cash flows (CF) generated by the firm's operations during the forecast period and the residual value (R) afterwards. Both cash flows and the residual value are uncertain expectations. The estimations of them take into account different states, cash flows and their related probabilities. An often proposed risk adjusted discount rate (r) of these expectations is the weighted-average cost of capital (WACC) regarding a target capital structure (Rappaport, 1998). Thus, the definition of shareholder value (SV) is:

$$SV = \frac{CF_1}{(1+r)} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_\tau}{(1+r)^\tau} + \frac{R}{r(1+r)^\tau} - Debt. \quad (1)$$

By dividing this amount (SV) by the total number of issued shares, the price per share results. Using this model, financial decisions such as share repurchase programs (Grullon & Michaely, 2004; Stephens & Weisbach, 1998), issues of new shares (Barclay & Litzenberger, 1988) or changes in the capital structure affect share prices (Masulis, 1980, 1983). Hence, after checking and excluding such price-changing causes during the observation period, three potential drivers of shareholder value remain.

First, the cash flows (CF) can be both enhanced and accelerated as illustrated in Fig. 2. Accelerating cash flows increases the present value as a result of being less discounted, which is attributable to time and risk adjustments. Second, changes of the discount rate (r) have an impact. Given that this interest rate has to compensate risks borne by debt holders and shareholders, a risk reduction minimizes capital costs ($1 + r$). Consequently, the present value shifts in favor of shareholders. In addition to accelerating cash flows, a risk reduction may be achieved by declining volatility and vulnerability of cash flows. The third remaining opportunity is to enhance the residual value (R).

However, all drivers have in common that they are, solely or in sum, just sufficient conditions for affecting shareholder value. The necessary

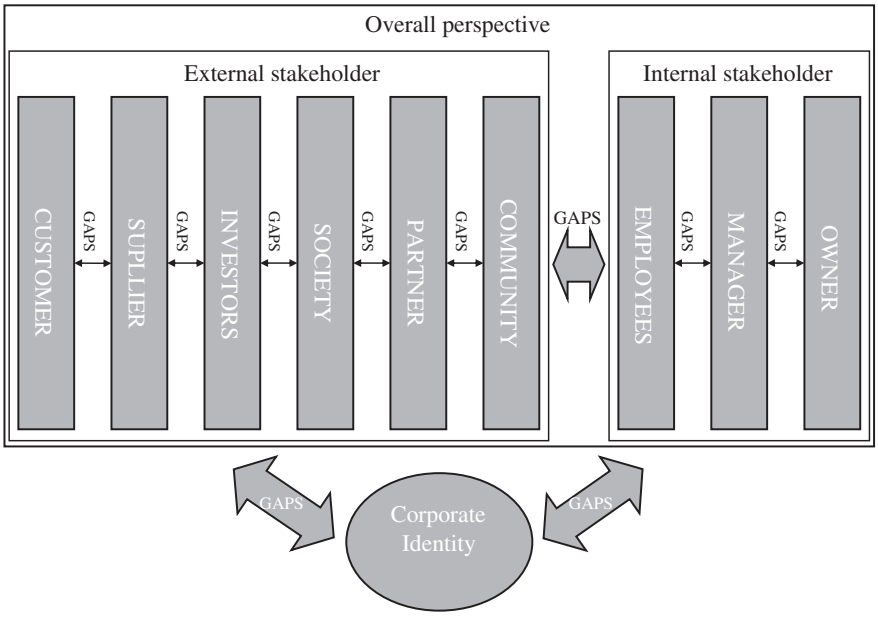

Fig. 1. Key elements of corporate reputation and the corresponding information gaps (following Chun, 2005).

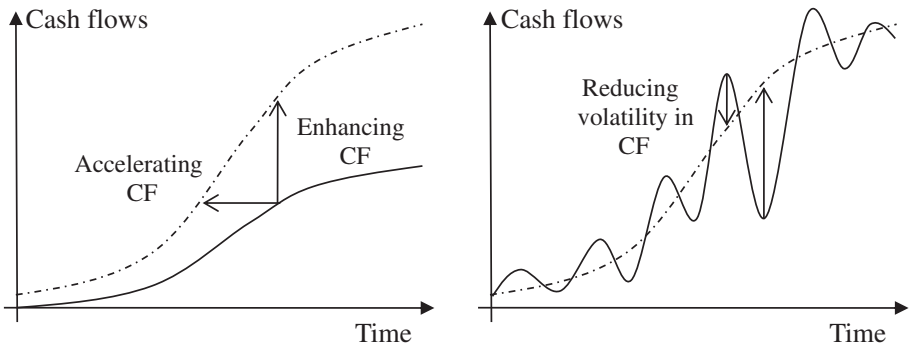

Fig. 2. Drivers of shareholder value, cash flows and risk (following Srivastava, Shervani, & Fahey, 1998).

condition for an actual change is the demand of investors who are willing to purchase shares at different prices than recently traded. After taking a glimpse at the individual potential drivers, the following section explains the relationship between corporate reputation and these drivers.

2.3. How does reputation affect shareholder value?

Assuming that corporate reputation triggers an effect on financial performance, specific stakeholder groups may affect the above mentioned financial drivers differently.

According to the first driver, the cash flow (*CF*), an earlier entry of any stakeholders into a relationship with a company increases and accelerates cash flows. Puncheva (2008) proposes a signaling based framework where corporate reputation has a large influence in such a decision-making process. Consequently, reputation serves as a signal (Sabate & Puente, 2003; Spence, 1974) and filter for all individuals without direct experience with an organization (Kazoleas, Kim, & Moffitt, 2001). In the same line, Kotha, Rajgopal, and Rindova (2001) consider a good corporate reputation as a risk-reducing mechanism for customers. Table 1 gives an overview of recent studies on these effects of reputation.

Almost all of the discovered effects are due to the signal function of corporate reputation resulting from the lack of knowledge. Only increasing repurchases and higher product prices, as Shapiro (1983) refers to, are due to individual acceptance of and identification with an organization as a result of actual positive experiences. With the exception of attracting top employees, the latter statement fits as well for the mediating cash flow drivers of internal stakeholders (e.g. employees, see Table 2). All of them have in common that they minimize costs and consequently the out flowing of cash.

Related to the second driver, the discount rate (*r*), investors are the center of attention (see Table 3). They regularly assess companies on the basis of their economic risks. In this context, corporate reputation may signal a lower probability of becoming insolvent or bankrupt. This lower risk perception can be the result of profitability derived from the positive cash flow drivers and less sales variance (Dowling, 2006; Srivastava, Shervani, & Fahey, 1997). Both reasons are substantially due to a stable customer base as with the residual value drivers specified below. Additionally, Dowling (2006) suggests the credit rating as a cause of risk reduction. Finally, lower borrowing costs reduce the weighted-average cost of capital or rather the discount rate.

Furthermore, in the case of good reputation and an intended brand extension, Dowling (2006) states the opportunity of leveraging revenues. This effect is the consequence of a risk-reduction as well as a loyal and stable customer base. The customer base is assigned to the third shareholder value driver, the residual value (*R*) (see Table 4). This loyal base consists of and grows by satisfied customers. Both Aaker (1991) and Grewal, Krishnan, Baker, and Borin (1998) point out that good reputation enhances perceived quality and consequently satisfaction. Some mediation drivers of residual value also influence both cash flow and discount rate drivers. For example, high customer loyalty reduces sensitivity to price increases and the effect of special offers by competitors (Hallowell, 1996). On the one hand this causes higher cash flows (*CF*), and on the other hand it reduces risks (*r*) by lowering their vulnerability.

Following the presented framework, good reputation affects shareholder value positively. However, some researchers claim this effect to be the other way around (for an overview see Sabate & Puente, 2003). Anderson and Smith (2006) as well as Freiesleben (2006) show a positive effect of good corporate reputation on pricing. Furthermore, Cooper, Dimitrov, and Rau (2001) work out that investors are willing to pay higher prices even if reputation (dotcom effect) do not influence firm

Table 1
Mediating drivers, cash flow (external stakeholder).

Stakeholder	Good corporate reputation…	References
Customer:	Is used as a risk-reduction mechanism	Goldberg and Hartwick (1990); Kotha et al. (2001); Lafferty and Goldsmith (1999)
	Influences buying intentions	Yoon, Guffey, and Kijewski (1993)
	Leads to higher product prices	Deephouse (2000); Klein and Leffler (1981); Landon and Smith (1997); Podolny (1993); Rindova, Williamson, Petkova, and Sever (2005); Shapiro (1983)
	Increases repurchase	Shapiro (1983)
Supplier:	Reduces transaction costs	Bromley (2002b); Kotha et al. (2001); Williamson (1985)
	Attracts better suppliers and increases their loyalty	Podolny (1993)
	May reduce contracting and monitoring costs	Roberts and Dowling (2002)
	Can lead to an anticipation of a long term relationship	Groenland (2002)
Investors:	Enables easy access to more capital with less effort	Dhir and Vinen (2005); Schwalbach (2000)

Table 2
Mediating drivers, cash flow (internal stakeholder).

Stakeholder	Good corporate reputation…	References
Employees:	Indicates a company's ability to attract top employees	Turban and Greening (1997); Winkleman (1999)
	Leads to more loyal behavior	Fombrun (1996)
	Reduces personnel fluctuation	Caminiti (1992); Dowling (1986); Eidson and Master (2000); Nakra (2000); Preece, Fleisher, and Toccacelli (1995); Roberts and Dowling (2002); Winkleman (1999)
	Increases morale and productivity	Turban and Cable (2003)

Table 3
Mediating drivers, cost of capital (all stakeholders).

Stakeholder	Good corporate reputation…	References
Investors:	Reduces costs of capital	Beatty and Ritter (1986)
	Leads to investments perceived as being less risky	Orlitzky and Benjamin (2001); Srivastava, McInish, Wood, and Capraro (1997)
	Influences the investment decision positively	Little and Little (2000); Lucey and Dowling (2005); McGregor, Slovic, Dreman, and Berry (2000); Shefrin (2001)

profitability. Accepting this impact generally, the next addressed question is how share prices reflect corporate reputation.

2.4. How do share prices reflect the status of companies' reputations?

Based on Fama's (1970, 1991) classification of market efficiency, the assumption of a semi-strong market efficiency arises, which means that share prices fully reflect all public information. Nevertheless, two different perspectives remain on the reflection of reputation.

The first perspective is that share prices fully reflect corporate reputation continually. This approach is attributable to the assumptions that market participants observe every positive or negative event which influences reputation, adjust their expectations appropriately and take part in setting prices. However, in spite of assuming a perfect capital market, homogeneous expectations of all market participants are not necessary to drive prices. It is sufficient in the process if some investors who are solvent enough gain the same expectation (Seeger, 1998). As a consequence, share prices are always adjusted.

Nevertheless, whether or not market participants are able to set appropriate prices is doubtful due to the characteristics of corporate reputation. This doubt exists because, on the one hand, collective opinions and perceptions of stakeholders who are not invested are not public information. On the other hand, corporate reputation is only informative in comparison to the perception of competitors.

Consequently, the second perspective is that corporate reputation has to be explicitly published to be fully reflected in share prices. A publication of quantified reputation rankings seems to be the best way to obtain information about the actual reputation. Following Fornell et al. (2006) and Ittner and Larcker (2003), high expenses for investors, which result from individually conducted surveys and the use of sophisticated measurement technology, additionally justify this perspective. As a consequence, due to exceeding or falling below the expectations of market participants, a ranking publication can lead to a strong market reaction. This reaction would be in compliance with findings from the publication of other significant variables such as revenues or earnings (Aharony & Swary, 1980; Cornell & Landsman, 1989; Landsman & Maydew, 2002). Based on the second perspective, the following question arises to be studied.

Table 4
Mediating drivers, residual value (all stakeholders).

Stakeholder	Good corporate reputation…	References
Customer:	Enhances perception of quality	Grewal et al. (1998)
	Leads to higher post-purchase and post-use satisfaction	Aaker (1991); Lafferty and Goldsmith (1999)
	Increases loyalty	Lafferty and Goldsmith (1999); Nguyen and Leblanc (2001)
	Leads to higher customer retention	Caminiti (1992); Landon and Smith (1997); Preece et al. (1995); Selnes (1993)
	Enlarges customer basis, fewer leave and more arrive	Rogerson (1983)

2.5. How to measure the effect of publishing reputation rankings on share prices?

This question can be analyzed following two distinct lines of approach. On the one hand, one can look for a relationship between companies which are awarded within a reputation ranking and their financial performance in the long run. In this case, analyses exist which can verify (e.g. Anderson & Smith, 2006; Fornell et al., 2006; Roberts & Dowling, 2002; Sánchez & Satorrío, 2007; Vergin & Qoronfleh, 1998) and which cannot verify these linkages (e.g. Inglis et al., 2006; Rose & Thomsen, 2004).

On the other hand, one can look for significant short term responses generated by the announcement. In this case, the causal relationship is more evident. A directly observable effect results from the announcement of quantified reputation measures. In contrast to the first line of approach, the empirical findings on announcement effects are unambiguous to date. Despite various subjects of examination (see Section 6), the assessments of Hannon and Milkovich (1996), Fornell et al. (2006) and Abraham et al. (2008) cannot validate an effect. According to the first perspective explained in Section 2.4, these authors justify consistently the absence of an announcement effect by existing market efficiency. That implies, rankings fully reflect all historical events and knowledge in the same way as share prices. In short, the publication of the ranking offers no new information for possible investors.

Assuming that the previously presented theory of adjusting expectations and consequently share prices as a result of adapting publicized reputation data is more likely, the following study is conducted.

3. Methodology

The objective of this event study is to examine short term responses, that is, whether announcing considerable positive (negative) changes in reputation causes an increase (decrease) in share prices. The existence of significant positive (negative) excess returns indicates this causation taking into account the assumptions of efficient capital markets, unanticipated information before the day of announcement and absence of confounding events. However, specification of the time period under consideration (event window) is crucial to isolate and claim such effects. Consequently, the determination of event windows starts the analytical course of the event study below. This course and the equations follow MacKinlay (1997).

Additionally, some portfolio studies make the results comparable to the study of Fornell et al. (2006) and examine long term effects.

3.1. Event study — how to determine estimation and event windows?

In general, the event window defined as $\tau = T_1 + 1$ to T_2 shall encompass all reactions due to information (MacKinlay, 1997). Hence, the smallest event window includes just the day of publication with ($\tau = 0$). But, this window is often specified larger to cover effects caused by the information before and after the announcement. The previous day ($\tau = (-1)$) usually covers share trades based on a leakage of information (McWilliams & Siegel, 1997). In contrast, the day after ($\tau = (+1)$) considers both the fact that market participants obtain information after stock markets close as well as delayed reactions rather than reactions of early followers. Consequently, following Fama (1970, 1991) and McWilliams and Siegel (1997), in order to fulfill sufficiently assumed semi-strong information efficiency, the largest event window includes only three days — the event day, the day before and the day after.

The time span of $\tau = T_0 + 1$ to T_1 defines the estimation window (MacKinlay, 1997). The window does not overlap with the event window in order to avoid an influence on estimators through returns around the event. Fig. 3 illustrates the timing sequence including the post-event window to obtain a general overview.

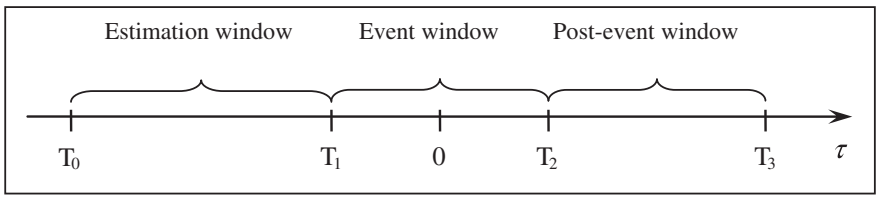

Fig. 3. Time line for an event study (MacKinlay, 1997).

Four different event windows are examined. The first window covers just the event day, whereas the second one includes the day after the announcement additionally. Both the third and fourth examined windows start one day prior to the disclosure; however, the fourth one includes the day afterwards as well. Consequently, depending on the size of the event window, the estimating period of the four mentioned windows ends in $T_1 = (-2)$ or in $T_1 = (-1)$ as shown in Fig. 4.

An additional calculated larger window checks whether the portfolios are more uniformly performing beyond the maximum period of three days. This window spans from three days prior to three days after the publication. In all variations the estimation window is 150 trading days long.

3.2. Event study — how to estimate excess returns?

Excess (abnormal) returns $AR_{i,\tau}$ indicate financial effects for company i at time τ. These abnormal returns are the difference between the actual ex-post returns $R_{i,\tau}$ and the "normal" returns $E(R_{i,\tau}|X_\tau)$ as shown in the following equation:

$$AR_{i,\tau} = R_{i,\tau} - E\left(R_{i,\tau}|X_\tau\right) \quad \text{assuming that} \quad E\left(R_{i,\tau}|X_\tau\right) \sim N\left(\mu_i, \sigma_i^2\right) \tag{2}$$

X_τ symbolizes the condition that the "normal" return is the ex-ante expected return without anticipating the event at $\tau = 0$. The "normal" returns are estimated with a linear regression based on the actual ex-post returns for the whole period beginning at $T_0 + 1$ and ending at T_1. Actual ex-post returns can be calculated on the basis of both discrete and continuously compounded returns. If $P_{i,\tau}$ declares the price of a security at time τ, then the presented equations below define discrete and logarithmic returns.

$$r_{i,\tau} = \frac{P_{i,\tau}}{P_{i,\tau-1}} - 1 \tag{3}$$

$$\begin{aligned} R_{i,\tau} &= \ln\left(1 + r_{i,\tau}\right) = \ln\left(\frac{P_{i,\tau}}{P_{i,\tau-1}}\right) \\ &= \ln\left(P_{i,\tau}\right) - \ln\left(P_{i,\tau-1}\right) \quad \text{and} \end{aligned} \tag{4}$$

$$R_{i,\tau} \sim N\left(\mu_i, \sigma_i^2\right). \tag{5}$$

Defining the continuously compounded returns as $R_{i,\tau}$ and as normally distributed logarithmic returns, the assumption arises that discrete returns are log-normally distributed (see Eq. (4)). However, this assumption contradicts the classical Capital Asset Pricing Model (CAPM) from Sharpe (1964), Lintner (1965) and Mossin (1966) as shown in Eq. (6). The CAPM assumes normally distributed discrete returns. However, using log-normally distributed discrete returns has two advantages. First, they are limited to -1, resulting in a minimum gross return $(1 + r_{i,\tau})$ of zero and consequently a maximum loss of 100%. Second, logarithmic returns are easy to sum up over multiple periods.

$$R_{i,\tau} = R_{f,\tau} + \beta_i\left(R_{m,\tau} - R_{f,\tau}\right) \quad \text{assuming that} \tag{6}$$

$$R_{m,\tau} \sim N\left(\mu_m, \sigma_m^2\right) \quad \text{and} \quad R_{f,\tau} \sim N\left(\mu_f, \sigma_f^2\right) \tag{7}$$

$R_{f,\tau}$ corresponds to the risk free rate of return and $R_{m,\tau}$ to the return of the market. The difference between both is the risk premium. Due to the fact that both market return and riskless return are not observable, the usage of approximating indices is necessary. The procedures of computing corresponding returns are analogous to security prices. The empirical Sharpe–Lintner equilibrium, representing a rearrangement of Eq. (6), indicates that individual risk premium equals risk premium times β_i:

$$R_{i,\tau} - R_{f,\tau} = \beta_i\left(R_{m,\tau} - R_{f,\tau}\right) + \varepsilon_{i,\tau} \quad \text{assuming that} \tag{8}$$

$$E\left(\varepsilon_{i,\tau}\right) = 0, \sigma^2\left(\varepsilon_{i,\tau}\right) = \sigma_{\varepsilon_i}^2 \quad \text{and} \quad Cov\left(\varepsilon_j, \varepsilon_k\right) = 0 \quad \text{for} \quad j \neq k. \tag{9}$$

Assuming stationary parameters β_i additionally (Seeger, 1998), the Sharpe–Lintner equilibrium is used to estimate β parameters during the estimation window. Taking these parameters, the next step is to calculate abnormal returns during the determined event window as stated in Eq. (10). After adding up abnormal returns of all companies on a given day, the calculation of the cumulative average abnormal return $\overline{CAR}(\tau_1, \tau_2)$ follows with a defined event window of τ_1 to τ_2 and $T_1 < \tau_1 \leq \tau_2 \leq T_2$ (see Eq. (12)).

$$AR_{i,\tau} = R_{i,\tau} - \left(R_{f,\tau} + \widehat{\beta}_i\left[R_{m,\tau} - R_{f,\tau}\right]\right) \tag{10}$$

$$\overline{AR_\tau} = \frac{1}{n}\sum_{i=1}^{n} AR_{i,\tau} \tag{11}$$

$$\overline{CAR}(\tau_1, \tau_2) = \sum_{\tau_1}^{\tau_2} \overline{AR_\tau}. \tag{12}$$

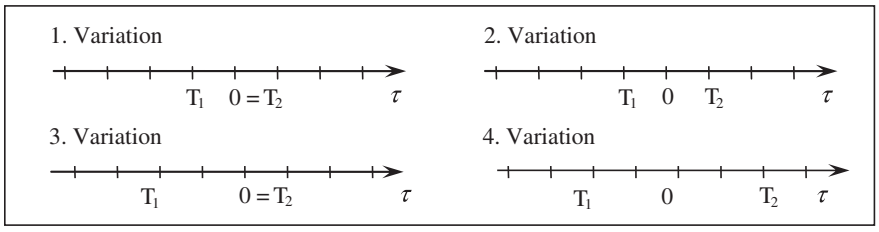

Fig. 4. The four examined event windows.

Depending on whether a portfolio of positive announcements, related to an increase of reputation, or a portfolio of negative announcements is tested, the corresponding null hypotheses are:

$$H_0^+ : \overline{CAR}(\tau_1,\tau_2) \leq 0 \quad \text{or} \quad H_0^- : \overline{CAR}(\tau_1,\tau_2) \leq 0. \tag{13}$$

The resulting alternative hypotheses are:

$$H_1^+ : \overline{CAR}(\tau_1,\tau_2) > 0 \quad \text{or} \quad H_1^- : \overline{CAR}(\tau_1,\tau_2) > 0. \tag{14}$$

Following the null hypotheses and the related assumption that the investigated events do not influence the expected value or the variance, a normal distribution of $\boldsymbol{AR_{i,\tau}}$ is supposed. Consequently, Student's *t*-test can be applied in the following form:

$$\Theta = \frac{\overline{CAR}(\tau_1,\tau_2)}{\sqrt{\hat{\sigma}^2\left(\overline{CAR}(\tau_1,\tau_2)\right)}} \sim N(0,1). \tag{15}$$

3.3. Portfolio studies

Portfolios gaining excess returns indicate a successful trading strategy based on changes in reputation scores. In order to back test two distinct (paper) portfolios, one portfolio contains the upgraded companies, whereas the other one contains the downgraded companies of the rankings. The choice of companies is based on the same criteria as in the event study. The portfolios come into form at the event day ($\tau = 0$) and remain stable until the next publication. All companies in one portfolio have an equally weighted share. Eqs. (3) and (4) form the basis for the calculation of logarithmic returns. These daily returns of each portfolio are cumulated and plotted against the index.

4. Sample

The sample to analyze announcement effects requires both a ranking containing quantified corporate reputation data and price data of the corresponding stocks and indices.

4.1. The corporate reputation ranking

In the case of reputation data, this study takes advantage of the reputation rankings from the German business periodical *Manager Magazin*, published in a two-year cycle during 1992 to 2008. The employed rankings range from 1998 to 2008 because the periodical changed the measurement model in 1998. Within the ten-year time span, *Manager Magazin* surveyed by phone a sample of 2500 representatively chosen senior executives for every ranking. The interviews took place over a one-month period in the previous year. During this process, every expert had to assess around 40 companies regarding their reputation. The experts did the assessment on an aggregated level using an eleven-point rating scale from 0 (very bad) to 10 (very good). Using these ratings, *Manager Magazin* calculated the mean values of all companies and presented them in a descending order in the ranking. In addition, jurors gave their opinions concerning what the key characteristics of corporate reputation are. The responses, listed and graded in accordance to the frequency of occurrence in Table 5, are quite stable within the period under investigation.

Based on detailed results from 2006, this rank order correlates highly with the influence of these factors. In consequence of analyzing announcement effects of quantified changes in corporate reputation, five testable events result from the six rankings.

During the years 2000 to 2008, the simultaneous publication via internet and print followed the official awarding by several days. An internet research is conducted to figure out the day of official awarding, which is used as the event day ($\tau = 0$). This research is extended to check for firm specific confounding events such as announcements of future capital actions (e.g. Barclay & Litzenberger, 1988; Grullon & Michaely, 2004), modifications of dividend policy (Aharony & Swary, 1980) or relevant accounting figures (Landsman & Maydew, 2002) during all examined event windows.

Table 5
Key characteristics of corporate reputation (*Manager Magazin*).

Year	1996	1998	2000	2002	2004	2006	2008
Customer orientation	u.	1	1	1	1	1	1
Product and service quality	u.	2	2	2	2	2	2
Quality of management	2	3	3	3	3	3	3
Innovativeness	4	5	4	4	4	4	4
Price–performance ratio	1	4	6	5	5	5	u.
Communication services	6	7	5	6	6	6	u.
Employee orientation	5	6	7	7	7	7	u.
Financial power	3	8	8	8	8	8	u.
Attractiveness for managers	9	11	10	9	9	9	u.
Internationalization	u.	10	9	10	10	10	u.
Environmental responsibility	7	9	12	11	12	12	u.
Growth dynamic	8	12	11	12	11	11	u.

Note: graded by frequency of occurrence (u. — undisclosed).

4.2. Company choice on the basis of reputation data

On the basis of the six reputation rankings, which contain 856 assessments, the sample is first adjusted to contain just the German enterprises. The decisions come from the location of the corporate headquarters. In the course of further adjustments, not listed companies, companies which have had confounding events and illiquid securities are excluded. An asset is illiquid if stockholders did not trade the shares on more than one trading day during the period of interest. These illiquid securities have to be rejected to avoid biased results because these securities could react strongly, even at a small trading volume. Furthermore, these securities violate the assumption of a perfect capital market heavily, which includes the fact that all assets are tradable anytime. For the remaining companies, the percentage deviation is calculated using their respective reputation score and the arithmetic average of all initially included companies within the corresponding year. The overall average corresponds to one hundred percent. The comparison of relative values is preferable due to fluctuating overall averages within the six rankings (see Table 6).

The fluctuating effects can be attributable to a more positive or negative general perception caused by a strong economy as opposed to a recession. Consequently, these effects can bias both the selection and the results. After comparing the calculated percentage deviations of two consecutive rankings, all companies are excluded where the corresponding difference between these relative positions is smaller than 4%. This threshold value is due to the statement in *Manager Magazin* that a difference of corporate reputation is only perceivable if the reputation measure differs by at least 15 points. The chosen threshold fulfills this condition even for the weakest listed companies (see Table 6).

The remaining 93 changes in reputation measures are split into two portfolios. One portfolio contains the upgrades, whereas the other one contains the downgrades. A final adjustment of the sample attributes

Table 6
Distribution of reputation measures[a] (*Manager Magazin*).

Year	1998	2000	2002	2004	2006	2008
Best	851[a]	853	864	882	910	893
	…	…	…	…	…	…
Mean	650	649	644	644	657	668
	…	…	…	…	…	…
Worst	482	457	356[b]	428	494	491

[a] The mean value of all ratings (0–10) regarding one company is rounded to two decimal places. This result is multiplied by 100, so that the maximum score is 1000.
[b] Outlier, not listed, restructured and partly sold after a scandal, next rank 418.

Table 7
Empirical results, upgraded companies (n = 41).

	τ_0	τ_0 to τ_{+1}	τ_{-1} to τ_0	τ_{-1} to τ_{+1}	τ_{-3} to τ_{+3}
$\overline{AR}_{\tau-3}$	–	–	–	–	0.27
$\overline{AR}_{\tau-2}$	–	–	–	–	0.45
$\overline{AR}_{\tau-1}$	–	–	1.06	1.06	1.08
$\overline{AR}_{\tau=0}$	0.38	0.38	0.39	0.39	0.49
$\overline{AR}_{\tau+1}$	–	−0.27	–	−0.27	−0.42
$\overline{AR}_{\tau+2}$	–	–	–	–	−0.00
$\overline{AR}_{\tau+3}$	–	–	–	–	0.22
$\overline{CAR}(\tau_1,\tau_2)$	0.38	0.12	1.45	1.18	2.09
t-Value	1.44	0.31	3.86	2.56	[a]
p-Value	0.08	0.38	0.00	0.01	[a]

[a] Control window, not tested due to violating the assumptions of efficient capital markets.

to the assumption of used CAPM — that β parameters reflect the company specific risk in comparison to market return. But some β parameter estimators are not significant at a significance level of 0.01 (p-value). Consequently, they are excluded and 88 remaining changes of reputation include 41 upgrades and 47 downgrades (for an overview of final sample see Appendix A).

4.3. Price data

The required price data of shares and indices are extracted from the financial database Datastream. To calculate the logarithmic returns of shares according to Eq. (4), the adjusted and unpadded share prices are used as $P_{i,\tau}$. These prices on Datastream are the official closing prices from the Frankfurt Stock Exchange (FWB®) which are adjusted for subsequent capital actions.

The CDAX® is appropriate to approximate market returns $R_{m,\tau}$. This index contains all German shares which are listed in the General Standard and Prime Standard on the FWB®. Hence, CDAX® measures the performance of the entire German equity market. As approximation of riskless returns $R_{f,\tau}$, the REX® is used. This weighted index is a representative sample of the German government bond market. The index is calculated on the basis of 30 domestic bonds and considers various times for maturity (one to ten years) as well as three interest rates. Deutsche Börse computes the CDAX® and the REX® and lists them on FWB®. For both cases this study uses the price indices adjusted for capital changes (ISIN: DE0008469107 and DE0008469800).

5. Results

5.1. Event study

The average abnormal returns $\overline{AR}_\tau$, as well as the accumulation of them $\overline{CAR}(\tau_1,\tau_2)$, are presented below and shown as percentages. The corresponding p-values are determined for one-tailed t-tests. In both samples, the cumulated average returns are as expected. The positive announcements regarding a significant increase of corporate reputation induce positive $\overline{CAR}(\tau_1,\tau_2)$. In contrast, the releases of a decreasing reputation induce negative cumulated average returns. However, the effects are not significant for all event windows. It is striking that the $\overline{CAR}(\tau_1,\tau_2)$ regarding the positive announcements are significant in three out of four cases, whereas the negative announcements are only significant in the smallest event window ($\tau = 0$). Furthermore, it was unexpected that in both samples on the day following the event ($\tau = (+1)$) the sign of $\overline{AR}_\tau$ is opposite to that of the event day itself ($\tau = 0$). Apparently, this effect signals these companies are temporarily more or less risky for investors, depending on whether they are up- or downgraded respectively. These findings are in line with findings on the post-earnings-announcement drift of Bernard and Thomas (1989).

Table 8
Empirical results, downgraded companies (n=47).

	τ_0	τ_0 to τ_{+1}	τ_{-1} to τ_0	τ_{-1} to τ_{+1}	τ_{-3} to τ_{+3}
$\overline{AR}_{\tau-3}$	–	–	–	–	0.28
$\overline{AR}_{\tau-2}$	–	–	–	–	0.35
$\overline{AR}_{\tau-1}$	–	–	0.39	0.39	0.38
$\overline{AR}_{\tau=0}$	−0.77	−0.77	−0.77	−0.77	−0.80
$\overline{AR}_{\tau+1}$	–	0.30	–	0.29	0.33
$\overline{AR}_{\tau+2}$	–	–	–	–	0.32
$\overline{AR}_{\tau+3}$	–	–	–	–	0.18
$\overline{CAR}(\tau_1,\tau_2)$	−0.77	−0.48	−0.39	−0.09	1.03
t-Value	−2.75	−1.20	−0.97	−0.19	[a]
p-Value	0.00	0.12	0.17	0.42	[a]

[a] Control window, not tested due to violating the assumptions of efficient capital markets.

Table 9
Results of Welch's *t*-test.

	τ_0	τ_0 to τ_{+1}	τ_{-1} to τ_0	τ_{-1} to τ_{+1}
Delta*	1.16	0.60	1.84	1.27
t-Value	2.42	1.04	2.30	1.60
p-Value	0.02	0.30	0.02	0.11

* $\overline{CAR}(\tau_1,\tau_2)^{Upgraded} - \overline{CAR}(\tau_1,\tau_2)^{Downgraded}$.

The overall adjusted R^2 of the parameter estimations is 0.34. Due to the clear differences between the $\overline{CAR}(\tau_1,\tau_2)$ of both samples, significance of these variations is tested additionally. Running Welch's (1937) *t*-test considers different sample sizes and possibly different variances (Sawilowsky, 2002). Table 9 reports the results of using a two-tailed *t*-test, which shows that differences are only significant for two event windows: the event day itself (τ_0) and the window including additionally the day before (τ_{-1} *to* τ_0).

As a result, the impact of the announcement is once again apparent at the event day. Furthermore, in combination with Tables 7, 8 and Fig. 5, the second significant difference (τ_{-1} *to* τ_0) indicates a leakage of information prior to the public announcements. Apart from that, the calculation of exceeding returns for the control window shows that the returns of the two distinct portfolios are more in balance beyond the examined event windows (Fig. 5).

These rising or falling share prices around the announcement show, as a consequence of announcing reputation rankings, investors significantly change their willingness to buy. However, not all effects are significant, which emphasizes the importance of the event window specification. But the impact at the event day is certain without a doubt.

5.2. Portfolio studies

The two exemplary chosen diagrams illustrate the following. First, avoiding an aggregated presentation as used by Fornell et al. (2006) shows more detailed varying effects which do not overlap. Second, the final cumulated portfolio return depends on the date of portfolio

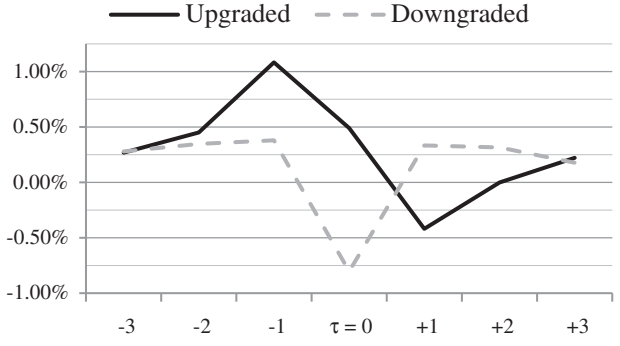

Fig. 5. Estimated excess returns ($\overline{AR}_\tau$), control window.

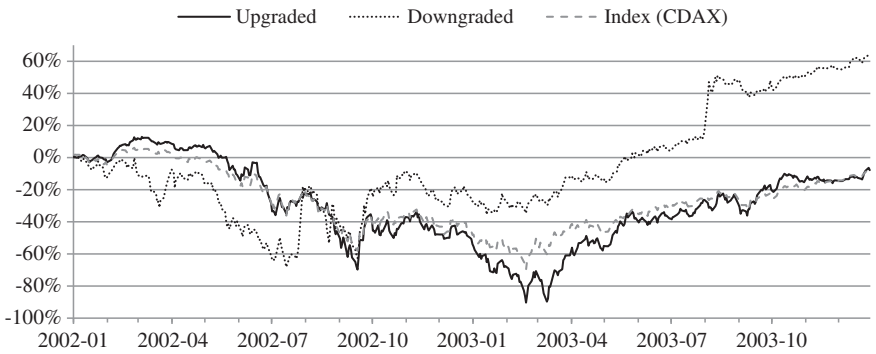

Fig. 6. Cumulative returns, selected companies ranked in 2002.

creation. Third, other factors overlap the influence of corporate reputation on share prices in the long run (see Figs. 6 and 7).

6. Discussion

The present analysis demonstrates two distinct results. On the one hand, publications of reputation rankings have an impact on shareholder value. As expected, a positive (negative) announcement effect exists if the relative ranking position has significantly improved (weakened) in comparison to the competitors. On the other hand, neither the information of good (bad) reputation scores in a ranking, nor their changes are solely appropriate to generate excess returns in the long run.

Both results are in line with earlier argumentation. The announcement effect clearly indicates that corporate reputation is information which is not public. As a consequence, corporate reputation has to be disclosed. However, once published, share prices quickly fully reflect the information. Therefore, announcement effects are significant at the day of publication and limited to a small event window. This limitation and the dominance of other information in the long run support assumed market efficiency and the corresponding specification of short event windows.

However, these findings contradict the empirical results of Hannon and Milkovich (1996), Ittner and Larcker (1998), Anderson and Smith (2006), Fornell et al. (2006) and Abraham et al. (2008). In order to clarify the underlying causes for these contradictions, a closer look at the similarities and differences between data and methodologies follows.

First of all, to discover announcement effects, Hannon and Milkovich (1996), Ittner and Larcker (1998), Fornell et al. (2006) and Abraham et al. (2008) use rankings which differ in their conceptions to measure reputation, their number of publications and their publication cycle. But in principle, despite various research questions and respondents, all used rankings can potentially cause announcement effects due to the disclosure of non-public information. Only regarding the quarterly announcements of the American Customer Satisfaction Index (ACSI), data which Fornell et al. (2006) use, one can suppose that effects tend to be very small, attributable to the short time span between the announcements. Thus, widely enough differing expectations of investors are less likely to change buying intentions.

The further discussion excludes the study of Ittner and Larcker (1998) due to the fact that Fornell et al. (2006) analyze more recent announcements of the same ranking and overcome some methodological weaknesses.

In general, this study uses the same approach to test for announcement effects as Hannon and Milkovich (1996), Fornell et al. (2006) and Abraham et al. (2008) use. Nevertheless, considerable methodical differences exist between all studies which can lead to diverging results. The most important difference seems to be how the respective studies define events. These definitions are crucial to selecting and grouping companies.

Hannon and Milkovich (1996) define the event as the publication of a human resource ranking. Consequently, they group and test all publically tradable companies in the ranking. Contrary to this, Abraham et al. (2008) define the event as listed in a specific quartile when the Reputation Quotient (RQ) is published. This definition takes into account the relative position of a company in comparison with competitors. Therefore, Abraham et al. (2008) group and test the companies in correspondence with their quartiles over all rankings. The problem of both event definitions is that they neglect the necessity of a changed (relative or absolute) position of companies. Without any change, a revaluation of share prices is not necessary for investors.

In line with this argument, Fornell et al. (2006) define the event as the publication of changed ACSI scores. This means, comparable to this study, they analyze the impact of changed reputation scores in a ranking. However, Fornell et al. (2006) consider just an absolute change of scores, which is not a sufficient indicator for an improved or declined competitive position. Consequently, taking a dynamic perspective, this study considers relative changes in the reputation measure in comparison to both the previous ranking and the overall mean.

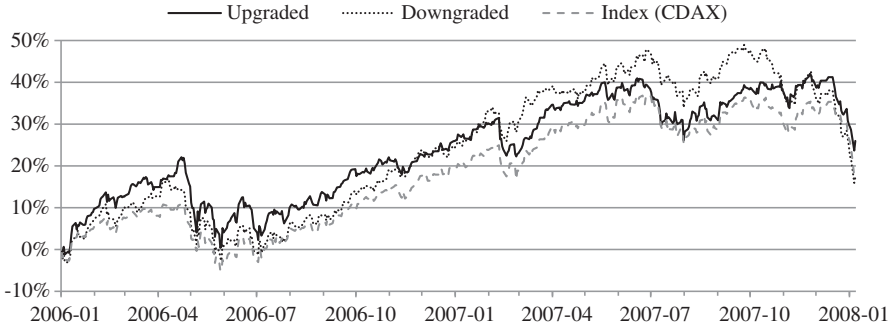

Fig. 7. Cumulative returns, selected companies ranked in 2006.

A comparison of event window definitions shows that all studies use primarily the period of publication ($\tau = 0$) and some additional event windows of maximum 5 units of time ($\tau = -2$ to $\tau = 2$). Only Abraham et al. (2008) go beyond that and use an additional window of 250 days to compare their results with the study of Anderson and Smith (2006). The criticism towards such a long event window and, accordingly, towards Anderson and Smith's study (2006) is the same (see McWilliams & Siegel, 1997), which leads to a maximum of 3 days limit of event windows in this analysis.

In all analyses the definitions of estimation windows differ in length (Hannon & Milkovich, 1996–12 or 6 months; Fornell et al., 2006–255 trading days; and Abraham et al., 2008 100 trading days) and regarding their positions in time. For example, Fornell et al. (2006) use a gap between the estimation and event window of 46 days. Whereas Abraham et al. (2008) use a gap of 100 trading days to ensure that the event itself does not influence estimated parameters. Even if the usage of such a gap is common practice, its completely arbitrary definition offers an opportunity to influence the results. This potential effect is partially visible when comparing the excess returns with the provided control window at $\tau = 0$ (0.38 compared to 0.49). Rejecting consciously the use of any gap avoids such bias. With regard to various lengths of estimation windows, the impact seems negligible as long as the period is long ($\tau \geq 100$).

Furthermore, variation in calculating actual ex-post returns is another potential cause for diverging results. Hannon and Milkovich (1996) and Fornell et al. (2006) use discrete returns. In contrast, Abraham et al. (2008) use log transformed returns, the same as this study. However, the usage of monthly returns by Hannon and Milkovich (1996) is fundamentally questionable to test for announcement effects. Finally, the isolation of an effect triggered by an event is almost impossible in such aggregated data.

Another important factor, besides the event definition, is the selection of a market model. All the studies, including this one, used the classical CAPM as market model. However, in opposition to Hannon and Milkovich (1996) and Fornell et al. (2006), who estimated the parameter α as intercept, which corresponds with $R_{f,\tau}$ used here (see Eq. (6)), Abraham et al. (2008) set α to be zero. The β parameter, as a risk measure in comparison to the market, is estimated in all studies except the study of Abraham et al. (2008). Abraham et al. (2008) set β to be 1, which implies that all companies are as risky as the entire market. That is not in line with finance theory.

To put it in a nutshell, the various used rankings are not attributable to the absence of event studies which confirm announcement effects when reputation rankings are published, but rather methodological differences. Nevertheless, in order to show an effect resulting from corporate reputation, the data should fulfill some basic criteria. The data should not be colluded due to sector membership of respondents and not be biased because of financially focused criteria (Bromley, 2002a).

Manager Magazin's data fulfill both criteria (Schwaiger, 2004). This also holds true for ACSI data used by Fornell et al. (2006) and all reputation rankings used by Hannon and Milkovich (1996). The suitability of RQ data (Abraham et al., 2008) is questionable (Schwaiger, 2004), and the Fortune data used by Anderson and Smith (2006) are inappropriate with respect to these criteria (Bromley, 2002a).

7. Limitations and further research

This study is limited to some extent. With regard to the underlying methodology, strong assumptions are necessary about the capital market and its information efficiency. In addition, as Bromley (2002a) criticizes, the study restricts results to publicly traded companies.

Furthermore, limitations exist with respect to the data. On the one hand, data have to be available. On the other hand, a selection bias may exist induced by the choice of respondents. But following earlier lines of argument, the used stakeholder group is suitable to provide the information for all stakeholders. Consequently, the arguments that managers and directors are overrepresented (Bromley, 2002a) and reveal just incidental knowledge about stakeholders due to the influence of corporate communications (Schwaiger, Raithel, & Schloderer, 2009), can be neglected. Corporate communication influences all stakeholders.

Therefore, in order to clarify the general presence of announcement effects from the publication of reputation rankings, additional research is necessary but with different data. Moreover, future research should consider the relative character (in comparison to the competitors) of the reputation construct, as well as the fact that events have to trigger a revaluation of share prices. For this purpose, adopting the used methodological design is appropriate.

Appendix A

Lists of up- and downgraded companies contained in the final sample and their corresponding changes (differences of the relative positions in comparison to the previous year).

	Upgraded					
2000	Allianz	4.2%	Deutsche Bank	6.8%	Linde	4.9%
	MG Technologies	6.8%	Münchener Rück	4.0%	Porsche	4.8%
	SAP	5.1%				
2002	BMW	4.1%	Deutsche Post	16.4%	Bayer. Hypo- & Vereinsbank	7.2%
	Münchener Rück	4.8%	Stinnes	6.5%		
2004	Adidas	4.8%	Bayer	5.4%	Beiersdorf	4.8%
	Henkel	5.0%	Puma	16.8%	TUI	5.9%
	United Internet	6.8%				
2006	Adidas	4.3%	Deutsche Post	7.1%	Deutsche Telekom	4.4%
	Fraport	5.2%	Gea Group	5.2%	Heidelberger Cement	13.0%
	MAN	4.6%	Mobilcom	10.8%	Münchener Rück	4.3%
	Puma	5.3%	United Internet	5.6%		
2008	Arcandor	7.4%	Commerzbank	7.8%	Daimler	5.0%
	Deutsche Bank	4.1%	Gea Group	5.7%	Bilfinger Berger	5.3%
	Heidelberger Druck	10.9%	Hochtief	7.9%	Linde	5.3%
	Thyssen Krupp	4.4%	Volkswagen	9.0%		
	Downgraded					
2000	Hoechst	−6.2%	Siemens	−4.6%		
2002	BASF	−5.1%	Bayer	−11.7%	Commerzbank	−4.6%
	Daimler	−5.4%	Deutsche Bank	−6.4%	Deutsche Telekom	−10.9%
	Philipp Holzmann	−26.0%	Mobilcom	−11.9%	SAP	
	Sixt	−6.7%				
2004	Allianz	−5.4%	Commerzbank	−10.7%	Deutsche Bank	−12.9%
	Deutsche Post	−7.0%	Deutsche Telekom	−4.4%	Heidelberger Druck	−8.4%
	Heidelberger Cement	−7.3%	Bayer. Hypo- & Vereinsbank	−14.1%	MLP	−11.2%
	Mobilcom	−13.8%	Münchener Rück	−8.4%	Volkswagen	−4.7%
2006	Arcandor	−28.3%	Daimler	−20.5%	EON	−12.9%
	Heidelberger Druck	−4.4%	Infineon	−5.1%	RWE	−12.5%
	Siemens	−8.5%	Volkswagen	−17.9%		
2008	Allianz	−7.0%	BASF	−4.2%	BMW	−5.0%
	Deutsche Post	−4.4%	Deutsche Telekom	−15.6%	EON	−9.3%
	Fresenius Medical Care	−5.1%	Metro	−4.4%	ProSiebenSat.1 Media	−5.2%
	MTU Aero Engines	−4.8%	Porsche	−4.8%	Puma	−6.7%
	RWE	−7.4%	Siemens	−12.7%	TUI	−5.2%

List of variables

SV	Shareholder value	$R_{f,\tau}$	Secure (fix) return at time τ
CF	Cash flows	$R_{m,\tau}$	Market return at time τ
R	Residual value, covers CF beyond the forecast period	β_i	Estimated parameter of company i
r	Return	ε_i	Error term of company i
$P_{i,\tau}$	Price of company i at time τ	AR	Abnormal return
i	Company index	$\overline{AR}$	Averaged abnormal return
τ	Time index	$\overline{CAR}$	Cumulative averaged abnormal return
$r_{i,\tau}$	Discrete return of company i at time τ	n	Number of companies
$R_{i,\tau}$	Return (logarithmic) of company i at time τ	$N(\mu_i,\sigma_i^2)$	Normal distribution with expected value μ and variance σ

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