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The (Ir)relevance of Disclosure of Compliance with Corporate Governance Codes: Empirical Evidence from the German Stock Market

by

Till G. Mahr, Eric Nowak, and Roland Rott*

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This paper studies short- and long-run effects of disclosure of compliance with the German Corporate Governance Code. First, we present an analysis of firms' compliance with the Code. Second, event-study results suggest that aggregate market and firm values are unaffected, although there was widespread belief that market reactions would follow the disclosure of the declaration of conformity. Third, for the long horizon, we find that neither levels nor changes in Code compliance levels have an impact on stock price performance. Our results add evidence to the hypothesis that self-regulatory corporate governance reforms relying on disclosure without monitoring and legal enforcement are ineffective. (JEL: G14, G34, G38, K22)

* Till G. Mahr: KPMG AG, Leipzig, Germany; Eric Nowak (corresponding author): Swiss Institute of Finance and University of Lugano, Switzerland; Roland Rott: CFA London, United Kingdom. This article has benefited from numerous interviews with institutional investors. For these insights we are grateful to Dr. Hans-Christoph Hirt (Hermes Focus Funds), Alexander Juschus (Glass Lewis), Rolf Drees (BVI), Jochen Mathée (BNP Paribas), and Christiane Hölz (DSW). For helpful comments we thank the two anonymous referees, Alexander Bassen, Olaf Ehrhardt, Stefanie Franzke, Michel Habib, Claudio Loderer, Kasper Nielsen, Bernhard Pellens, Roberta Romano, Elizabeth Snyderwine, and Brigitte Zypries; seminar participants at the University of Bern, Ruhr-University of Bochum, China Europe International Business School Shanghai, Georgetown University, University of Fribourg, and Coppead Business School Rio de Janeiro; and conference participants at the AFFI Paris International Finance Meeting, NCCR FINRISK Research Day, and the EFMA Symposium on European Corporate Governance in Leeds. We thank Gayle Hameister, Romy Schneider-Albrecht, and Thomas Filz for research assistance. Financial support by the *National Centre of Competence in Research Financial Valuation and Risk Management* (NCCR FINRISK) is gratefully acknowledged.

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1 Introduction

On August 8, 2002, the German Corporate Governance Code (*Deutscher Corporate Governance Kodex*) was published in the official Federal Bulletin.[1] Between that date and December 31, 2002, all German listed companies had to disclose their acceptance of this voluntary code in a declaration of conformity under section 161 of the stock corporation act (*Aktiengesetz*). The first declaration was published on October 1, 2002 by ThyssenKrupp AG (see appendix section A.1).

The purpose of this paper is to determine whether the publication of the declaration of conformity has any economic consequences. More precisely, we want to examine whether the Code is regarded by the market as a signal of good corporate governance, or acceptance of the Code does not provide value-relevant information to the market. This is an important question for two reasons:

First, we want to know whether the government, which promoted this voluntary code as a central device for the reform of German corporate governance, achieved its stated goal, which was "to promote the trust of international and national investors [...] in the management and supervision of listed German stock corporations" (German Corporate Governance Code, 2002, foreword). This goal was to be achieved by self-regulation enforced via the capital market. We quote Gerhard Cromme (2001, p. 13), the Chairman of the Code Commission: "Those who do not comply with the Code will be punished by the capital market."

Second, the question of whether certain corporate governance practices are value-relevant, from a theoretical perspective, raises the interesting issue of whether disclosure of Code compliance is a credible signal. Due to information asymmetry, outside investors may not be able to differentiate between firms with good and bad governance quality. If disclosure of Code compliance is a credible signal, this must be because the cost of the signal is significantly higher for firms with bad governance than for firms with good governance practices, so that the bad do not find it worthwhile to mimic the good.[2] In such a case, shareholders are ultimately willing to pay a higher price for firms with good governance, for example due to the reduction in monitoring and auditing costs (Lombardo and Pagano, 2002).

This would be true even if the signal itself is not efficient. Following Crawford and Sobel's (1982) *cheap talk* model, code compliance could be a credible signal even if adoption of the signal is costless, because the Code attracts attention, and firms with bad governance do not want that attention. Yet, in their model, perfect communication can only occur if the preferences of the sender (i.e., the management) and the receiver (i.e., the shareholder) are identical. At the other extreme, when agents' preferences are in complete opposition, no real communication can occur. Shareholders are less willing to trust the signal sent out by the management

[1] The current version of the German Corporate Governance Code of May 5, 2015, and its amendments since publication are available on the official website of the Cromme Commission at http://www.corporate-governance-code.de.

[2] This argument goes back to Spence (1973).

and supervisory board (i.e., the declaration of conformity) if their respective preferences are different. Aumann and Hart (2003) show that repeated communication generally makes it possible to reach outcomes that cannot be achieved with single-period communication. Therefore, *annual* recurring disclosure of Code compliance gives firms an opportunity to certify information, in addition to making cheap-talk claims. Alternatively, in economic or legal interactions there may be penalties for misleading disclosure, or accounting principles that allow agents to submit substantive evidence of their information (Forges and Koessler, 2008).

For empirical researchers, the evolution of this disclosure mechanism of corporate governance in Germany provides a natural experiment to test its credibility and its effectiveness, in the short and in the long run.

Our null hypothesis is that disclosure of the declaration of conformity has no information content, is irrelevant for shareholders, and thus does not affect firm value. The underlying intuition is obvious: Why should disclosure make any difference, considering that firms have endogenously chosen their specific governance arrangements driven by their strategy and structure, so that these are already reflected in the share price (Deakin, 2010)? Our alternative hypothesis is that the Code constitutes a value-relevant corporate governance innovation, because it makes mandatory disclosure of firms' governance practices a credible signal. If the declaration of conformity is a credible signal, then it increases the costs of bad governance, and it also increases the risk that false information in the declaration can lead to a liability loss for board members.

The question of whether disclosure of Code compliance is or is not credible ultimately has to be answered by the primary addressees: the shareholders.[3] In capital market research on disclosure, event-study methodology is the standard approach used to analyze shareholder rationale (Kothari, 2001). Assuming that the event – disclosure of Code compliance – has information content, a careful analysis of share price reactions during and after the event will reveal whether shareholders consider acceptance of the Code and high (low) Code compliance to be good news (bad news) or no news at all.

To our knowledge, this is still the first and only study to analyze both the *short-run* and the *long-run* effects of voluntary Code compliance at the *individual firm* level as well as at the *aggregate market* level. In particular, our paper broadens the literature in three distinct ways:

(i) We analyze the information content of Code compliance disclosure, to detect whether the declaration of conformity is a credible signal and the capital market acts as an effective enforcement mechanism. This has important public policy implications, because its effectiveness had been taken for granted when the Code was established, leading the German government and the European Commission (EC) to abstain from any other form of enforcement and/or regulation. As the former

[3] This perception is anchored in the foreword: "The Code clarifies the rights of shareholders, who provide the company with the required equity capital and who carry the entrepreneurial risk."

European Commissioner for Internal Market and Services Charlie McCreevy put it, "I have always been a strong supporter of the 'comply-or-explain' principle. And in particular for codes of conduct. I am convinced that this is the approach that best reconciles the objective of promoting good corporate governance practices in the market with the need to ensure the necessary flexibility for companies" (Speech/08/518, EU Corporate Governance Summit in Brussels, October 8, 2008).

(ii) We also conduct a long-run analysis that allows for strategic information certification by firms and for *learning* by market participants about the relevance of the Code as suggested by Gompers, Ishii, and Metrick (2003).

(iii) We have assembled data of exceptional quality: our sample comprises a unique, hand-collected data set of 317 large German firms for the first year of disclosure and the following two years. This allows us to compile an unbalanced panel of 717 observations for the long-run analysis from October 2002 until September 2005. Our results indicate that there is neither a positive or negative announcement effect for Code compliance at the market or firm level, nor a long-run share price effect due to variations in Code acceptance, both across companies and through time.

The timely relevance and ongoing lack of conclusive empirical evidence on compliance with best-practice codes is further emphasized by a recent proposal for a Directive issued by the EC. On April 2014, the EC proposed a new *Directive on the encouragement of long-term shareholder engagement and Recommendation on the quality of corporate governance reporting ("comply or explain")*. The Directive is justified (EC Memo/14/275, section I.9) by the Commission, because "efforts to improve corporate governance through soft-law measures [. . .] have not led to significant improvement." The EC laments that despite "gradual improvement in recent years, there are still shortcomings in the way the 'comply or explain' principle is applied," so in "order to maintain the key role of codes of conduct in ensuring good corporate governance and their legitimacy, the Commission considers that action at EU level is needed" (EC Memo/14/275, section II.2). In our view, the disappointment of the EC and the need it sees for further regulatory action underscores the need for and high relevance of novel insights into the not yet well understood mechanisms of corporate governance codes.

The remainder of the paper is organized as follows. After a literature review in section 2, section 3 gives further clarification of the history of the German Corporate Governance Code and its main objectives and content. Section 4 presents comprehensive descriptive statistics on Code compliance. In section 5 we derive testable hypotheses, and we document what happened in the short term to share prices of firms that accept the Code and disclose high compliance versus those firms that disclose low compliance with the Code. Section 6 of our paper analyses the long-term effects of corporate governance compliance on firm value. In section 7 we conclude, and discuss several explanations for our results, suggesting that disclosure of the declaration of conformity is a non-event.

2 *Literature on Corporate Governance Regulation*

Most of the recent literature on corporate governance regulation is concerned with the introduction of the *Sarbanes–Oxley Act* (SOX) in 2002, which was surrounded by a large number of *mandatory* rules, e.g., CEO certification of financial statements with the SEC. Both Jain and Rezaee (2006) and Chhaochharia and Grinstein (2007) conclude that, on average, SOX rules are wealth-increasing for shareholders.

However, Chhaochharia, Otto, and Vig (2011) find that this result is true only for large firms, while for small firms, the costs of the rules are greater than their benefits and the net effect on corporate governance is negative. With respect to the SEC certification order of June 27, 2002, Griffin and Lont (2005) present event-study results consistent with the view that investors do indeed respond to the certification requirement. Hirtle (2006) finds that bank holding companies experienced positive and significant average abnormal returns from certification. Lobo and Zhou (2005) report that early-filing firms tend to have higher quality of earnings. Wilkinson and Clements (2006) conclude that the positive reaction to early filing was influenced by already existing corporate governance mechanisms. Cullinan, Du, and Wright (2006) show that SOX anti-loan provisions enhance the accuracy and reliability of financial reporting.

On the other hand, Bhattacharya, Groznik, and Haslem (2003) argue that certification was a non-event for the certifiers. They show that the market had already separated firms with good earnings transparency from firms with bad earnings transparency before the SEC order. Also skeptical, Romano (2005) argues that the corporate governance provisions of SOX should be stripped of their mandatory force and rendered optional, so that firms can decide for themselves whether they want to adopt them. Given this disagreement, measuring the effects of voluntary corporate governance rules could be seen as a test of their possible effectiveness in the U.S. as well.

Despite the widespread existence of best-practice codes, the economic results of compliance with *voluntary* rules are inconclusive. The recommendations of the Cadbury Commission in the UK supposedly led to positive changes in corporate control through better board supervision (Stiles and Taylor, 1993), an increased likelihood of outside CEO appointments (Dahya and McConnell, 2005), and higher sensitivity of CEO turnover to performance (Dahya, McConnell, and Travlos, 2002; and Peasnell, Pope, and Young, 2000). On the other hand, Weir, Laing, and McKnight (2002) find only a weak effect of the extent of code compliance in the UK on firm performance.

For the Netherlands, according to de Jong et al. (2005), the recommendations of the Peters Commission of 1996 led to no (positive) influence on firm value. For Spain, Fernández-Rodríguez, Gómez-Ansón, and Cuervo-García (2004) report that the market reaction to announcements of compliance with the national code seems to be positive only for firms that also concurrently announce a major restructuring of the board. Alves and Mendes (2004) find no systematic effect of compli-

ance on the performance of Portuguese firms. Gilson and Milhaupt (2005) find no significant price movement on announcement of voluntary governance reform by Japanese firms for the first year of adoption. However, none of the above studies looks at long-run valuation effects of firm-specific compliance.

For Germany, there is broad evidence of high compliance with the Code, but rigorous studies on the market reaction are scant. Andres and Theissen (2008) provide a notable exception, but they only look at remuneration disclosure. Goncharov, Werner, and Zimmermann (2006) argue – studying a small sample of only 61 large nonfinancial firms – that the degree of compliance with the Code is value-relevant information.[4]

All the above studies have in common that they only look at single aspects of code compliance for a particular period, mostly its time of implementation. However, while these analyses are interesting in their own right, they cannot claim to fully capture all potential valuation effects, since their failing to detect an effect could be due to the fact that we do not know ex ante whether it happens *before*, *at*, or *after* implementation, at the *aggregate market* level, or at the level of the *individual firm*. Hence, in order to build a strong case to accept a null outcome we need to ensure that we do not miss any possible other effect in time.

3 The German Corporate Governance Code: An Overview

3.1 The Baums Commission

The Government Commission on Corporate Governance (*Baums Commission*) was set up in July 2000 by the German government to develop detailed recommendations regarding standards of good governance and advancements in German company law.[5] In its final report of July 2001, the Baums Commission suggests a code of best practice and articulates support for a voluntary self-regulation mechanism, since adoption of legally enforced regulations was cumbersome and detrimentally delayed.[6] According to the report, such laws would often be too inflexible for the necessary differentiation between firms.

[4] Although their two-stage least-squares regression approach addresses potential endogeneity between corporate governance and their measure of firm value, the reduced-form regression estimates could be biased due to weak instruments. For a comprehensive discussion of the effect of endogenous explanatory variables in models using two-stage least-squares estimators, see, for example, Larcker and Rusticus (2010). Besides these econometric problems, Holthausen and Watts (2001, p. 3) have shown why "drawing standard-setting inferences is difficult" and not justified by conducting value-relevance tests in this way.

[5] Appendix section A.2 gives a detailed chronological overview of the regulatory stages introducing the Code.

[6] The Baums (2001) report also considered the experience of two private initiatives, both having published a voluntary code of best practice for German companies. Strenger (2004) provides further evidence on this.

Overall, the final report aims to show a strong orientation towards the flexible stock corporation laws of U.S. states. But in contrast to Germany, investor protection in the U.S. is based on three strong foundations:

(i) The common-law tradition of ex post protection in law, in the event of violations of fiduciary duty by majority shareholders or breaches of loyalty by the board; (ii) the powerful SEC's investor protection regime; and (iii) the pressure of an efficient capital market (institutional investors, analysts, financial press, and listing rules).

Nevertheless, the Baums Commission argues that transferring flexible corporate governance principles into the legal and institutional German capital market environment was reasonable, because they anticipated future convergence of investor protection standards in Germany and other continental European countries in the direction of Anglo-Saxon company law. However, the validity of this convergence hypothesis is warmly debated among academics,[7] and even the Commission itself points out that investor protection in Germany is different from that in the U.S. in two of the three fundamental principles outlined: (i) the consequences for effective ex post investor protection, resulting from different legal traditions; and (ii) the differences between the SEC and the German federal securities supervisory authority (*Bundesanstalt für Finanzaufsicht – BaFin*). The Commission even addresses this second point in justifying its recommendation of a voluntary code, arguing against further development of the BaFin into a more broadly powerful capital market supervisor like the SEC.

3.2 The Cromme Commission and the Code

Following the recommendations of the Baums Commission, a second Government Commission for a German Corporate Governance Code (*Cromme Commission*) was mandated in September 2001 to develop an official German Corporate Governance Code, which was released on February 26, 2002.

To stress its special relevance for the capital markets, the Code "clarifies the rights of shareholders, who provide the company with the required equity capital and who carry the entrepreneurial risk" (German Corporate Governance Code, 2002, foreword).

The Code refers to major criticisms usually leveled at German corporate governance – especially by international investors: inadequate focus on shareholder interests, the two-tier system of management board and supervisory board, inadequate transparency in German corporate governance, inadequate independence of German supervisory boards, and limited independence of financial-statement auditors (Baums, 2001). Each of these reform issues is addressed within the six chapters of the Code: (i) shareholder rights, with special focus on the general meeting; (ii) cooperation between the management board and supervisory board;

[7] See, for example, Gilson (2001), defending the convergence view, and on the other side of the argument Schmidt and Spindler (2002).

(iii) the management board itself, covering its responsibilities, membership, compensation, and conflicts of interest; (iv) the supervisory board, with additional regard to the role of the chairman, its committees, and its efficiency; (v) transparency; (vi) reporting and the audit of the annual financial statements.

Since the Code is principles-based, it provides a framework that the individual companies will have to fill in. The recommendations of the Code are marked in its text by the use of the word "shall." Companies can deviate from them, but are then obliged to disclose this annually. This is designed to enable companies to reflect sector- and enterprise-specific requirements, showing that the Code aims to contribute to more flexibility and more self-regulation in the German corporate constitution. The Code also contains suggestions that can be deviated from without disclosure; for these, the Code uses the terms "should" or "can." The remaining passages of the Code, not marked by these terms, contain provisions that enterprises are obliged to observe under applicable law. According to prevailing legal opinion in Germany, the Code embodies best-practice standards that are not actually legally binding (Hopt, 2002, and Lutter, 2002). Thus, there are no legal consequences of publishing misleading declarations of compliance with the Code.

3.3 Declaration of Conformity in Accordance with Article 161 of the Stock Corporation Act

The Code has a (codified) legal basis through the declaration of conformity required by Article 161 of the German stock corporation act, as amended by the transparency and disclosure law (*Transparenz- und Publizitätsgesetz*), which came into force on July 26, 2002.

As outlined by Germany's Ministry of Justice, the purpose of the declaration of conformity is the provision to capital market participants of firm-specific information regarding compliance with the Code (Deutscher Bundestag, 2002). Accordingly, German companies must disclose their past and planned future Code compliance (the *comply-or-explain* principle).

Any deviations from the Code must be reported individually; beyond this requirement, no further explanation is necessary. The declaration of conformity must be accessible to the shareholders (published on the Internet) and updated at least annually.

As the rules of conduct generally apply collectively to both boards, the declaration must be submitted jointly by the management and supervisory boards. The mandatory annual review of the Code aims to encourage board members to repeatedly revise standards of conduct. The first declaration of conformity was to be submitted by the end of 2002, and under Article 285 of the German commercial law (*Handelsgesetzbuch*), subsequent filings would occur at the end of each financial year. The firm must turn in its declaration together with the annual report to the register of corporations as outlined in Article 325 of the commercial law.

3.4 The Presumed Role of the Capital Market in Code Implementation

While only disclosure of compliance is a legal requirement, monitoring and enforcement of the Code is expected to occur by self-regulation through the capital market (Hopt, 2002; Lutter, 2002). Interestingly, the government deliberately refrained from making disclosure of an *explanation* of deviations from the Code compulsory, expecting each firm to act on its own (Deutscher Bundestag, 2002, p. 21): "It can be assumed that the firm will issue a justification for each case of non-conformity." This is different to the comply-or-explain principle in the UK that requires companies to explain not only *if* but also *why* they deviate from the Combined Code.

The crucial role of the capital market in monitoring and enforcing the Code is magnified by the complete lack of any other enforcement mechanism. In particular, Code compliance is (i) not a listing requirement; (ii) not supervised by the federal financial supervisory authority; (iii) not subject to a requirement for external examination of the accuracy of the conformity declarations by the firm's auditor. According to the German Institute of Auditors (Institut der Wirtschaftsprüfer, 2003), the auditor's sole responsibility is to certify that the declaration of conformity has been filed according to the law, without reviewing the accuracy of its content.

It is assumed that noncompliance with the Code will be sanctioned by the capital market (Cromme, 2001). In other words, the declaration of conformity should serve as a signal to investors about firm-specific governance, and investors will take the information contained in the declaration of conformity into account when they evaluate firms to adjust investment decisions. However, there is no empirical evidence backing this claim, as both previous measures for self-regulating the German capital market, namely the *Insider Trading Code* and the *Takeover Code*, were found ineffective and were later incorporated into codified law (Nowak, 2001). From exactly these assumptions made by the regulators and legal scholars, we derive testable hypotheses and try to shed light on the following: (i) To what extent do German companies comply with the Code? (ii) Does the capital market respond to compliance or noncompliance of the Code with stock price adjustments – in the short or long run? (iii) Does the capital market differentiate between firms according to their degree of Code compliance?

4 Data Description and Analysis of Compliance Behavior

Basic data was compiled for all firms of Deutsche Börse's *prime standard* market segment. As reported in Table 1, 398 securities were listed as of October 31, 2003. 40 securities issued by foreign companies had to be excluded, since the Code only applies to German companies. 21 securities had to be excluded to avoid double counting of companies that had issued more than one share class, e.g., common and preferred stock, leading to a total sample of 337 companies.

Table 1
Deviations from Code Recommendations for All Firms in the Sample and by Index Membership

	Prime standard	DAX	MDAX	TecDAX	SDAX	Remaining prime standard
Firm Selection						
Regular size	398	30	40	30	50	238
Adjusted size[1]	337	30	47	25	47	188
Firms in the sample	317	30	44	25	42	176
Coverage	0.94	1.00	0.94	1.00	0.89	0.96
Code Deviations[2] *(D)*						
Mean	4.3	2.0	2.9	3.3	5.2	4.7
Standard deviation	3.4	2.2	2.4	2.6	4.0	3.5
Median	4.0					
Minimum	0					
Maximum	21					
Number of Firms						
$D \leq 2$ (high compliance)	86					
$D = 3$	47					
$D = 4$	57					
$D = 5$	45					
$D \geq 6$ (low compliance)	80					
Total	315					

Notes: Index definition follows Deutsche Börse Group, http://deutsche-boerse.com. [1] Adjustments necessary to delete foreign companies and additional share classes per company. [2] The first declaration of conformity had to be disclosed by the end of 2002, and companies are required to update their declaration at least annually. Declarations that were no longer available online at the time of the data collection were requested from the relevant companies by mail; 20 companies failed to respond. [3] Code deviations are calculated for 315 firms, since two companies in the sample, Geratherm Medical AG and Fortec AG, have simply rejected the Code.

The object of the analysis in this section is the first-time declaration of conformity that had to be published by all listed German companies by the end of 2002. This declaration was collected from company websites or requested in writing. All but 20 declarations (which were no longer published on the Internet at the time of data compilation and were not sent upon request) were hand-collected. The data thus contains the initial declarations of conformity of 317 firms, representing 94 % of the total population of firms.

According to the law, a company can choose to reject the Code in total, for example, if it has published its own governance principles. However, out of the 317 companies investigated, only two completely rejected the Code: Geratherm Medical AG and Fortec AG. For both companies the exact disclosure date is not

available, so no further evidence on market impact can be derived from these cases. In conclusion, one can therefore say that acceptance is high.

Table 2 reports summary statistics and the sample selection for the 315 financial and nonfinancial firms that accepted the Code in 2002 and shows the distribution of Code deviations (D) by index membership. Companies have to disclose in their annual declaration of conformity which of the 60 recommendations they do not comply with. We construct quintile portfolios according to the number of Code deviations with higher loading of the two extreme portfolios: Companies with $D \leq 2$ are considered as high-compliance firms; companies with $D \geq 6$ are considered low-compliance firms. Book value of total assets and market value of equity are both characterized by large variance, indicating the inclusion of both large and small firms in our sample. The profitability of the sample firms is rather low, with a value-weighted average *return on equity* of 2 % (median 9 %). The *leverage* (calculated as total debt divided by total assets) is about 60 %. On average, these firms have been listed on the exchange for eleven years.

The evidence that the vast majority of companies comply with the Code in principle suggests, at first sight, a high relevance of the Code to firms' governance.[8]

On the other hand, full compliance with all 60 *shall* recommendations contained in the 2002 Code is merely a voluntary requirement. The number of deviations from the Code recommendations (D) thus provides an objective measure to evaluate Code compliance. For the 315 firms that accepted the Code, we calculate the number of deviations reported by the companies in their declaration of conformity. We then use this number as a measure in order to divide the sample into two groups of *high* and *low* corporate governance compliance (CG compliance) respectively. The higher the number of deviations, the lower the measure of CG compliance.[9] Based on the two extreme quartiles of D drawn from the total number of firms, we define high-CG-compliance firms as those disclosing zero, one, or two deviations ($D \leq 2$), roughly representing the upper quartile, and low-CG-compliance firms as those reporting six or more deviations ($D \geq 6$), representing the lower quartile of the sample.

On that basis the picture looks quite different: only 23 companies report following all Code recommendations ($D = 0$), i.e., 93 % of the companies report from one

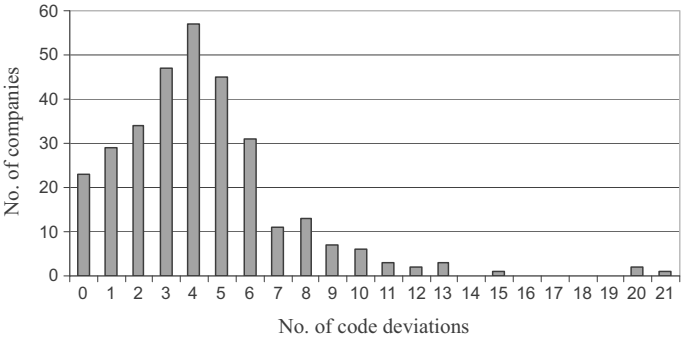
[8] This evidence is used by the German Ministry of Justice and by members of the Cromme Commission to confirm the success of the Code. The argument is put forward in Talaulicar and von Werder (2008) and in a letter to one of the authors from the German Minister of Justice, Brigitte Zypries, dated June 8, 2004.

[9] Our measure D can thus be interpreted in the same way as the *governance index G* constructed by Gompers, Ishii, and Metrick (2003), with the difference that the provisions are defined by the German Code. Note that while our approach is in the same spirit, we are not subject to their measurement-error problems criticized by Larcker, Richardson, and Tuna (2007). First, although our D-score governance index is a naive sum of recommendations, it is not arbitrary, but exactly defined by German law. Second, unlike other studies, we do not aim to analyze the relation between corporate governance and performance; instead we focus solely on investigating the information content of a disclosure form on compliance with a well-defined governance index.

Table 2
Summary Statistics

	All sample firms with declaration of conformity (year 2002)						Mean – high compliance ($n = 86$)	Mean – low compliance ($n = 80$)	Difference in means	
	obs.	mean	median	std. dev.	min	max			diff.	t-ratio
Total assets (M€)	308	15,034	148	82,261	1.73	852,056	34,287	4,306	29,981	*2.22*
Market value (M€)	308	1,581	63	5,297	0.93	51,420	3,012	262	2,750	*4.17*
Income (M€)	307	55	0.53	475	−3,442	4,877	104	2	102	*1.47*
3-yr growth (%)	305	0.37	0.13	2.20	−0.74	37.82	0.17	0.63	−0.46	*−1.07*
ROE (%)	306	0.02	0.09	0.24	−6.27	0.73	0.08	0.08	0.00	*0.00*
Beta	307	1.05	0.93	0.78	−1.50	4.59	1.19	0.88	0.31	*2.45*
Leverage	308	0.58	0.62	0.24	0.02	1.00	0.62	0.61	0.01	*0.38*
Tobin's q	305	1.06	0.97	0.50	0.41	4.73	1.08	1.09	−0.01	*−0.15*
Firm age	315	11	3	17	0	114	16	8	8	*3.18*

Figure
Number of Companies with Each Number of Deviations from Code Recommendations ($n = 315$)



Notes: Two of the 317 companies in the prime sample, Geratherm Medical AG and Fortec AG, have rejected the Code and are not included in the statistics.

up to a maximum of 21 deviation(s). The figure shows the frequency distribution of deviations by company.

We are aware of the possibility that the variations in the governance index *D* could be biased for at least two reasons: the deviation count might not capture firms' explanations for noncompliance, and Code recommendations might be cheap to adopt and economically unimportant. This issue of the value irrelevance of Code compliance is an empirical question that represents the focus of this paper.

We deal with the first issue by looking at both firm behavior and investor opinion. As any sanction for noncompliance is subject to evaluation by investors, self-interest should explain the reasons for each company's deviations. It should be borne in mind that when it introduced the declaration of conformity, the German government was convinced that companies would publish a statement explaining each deviation with firm-specific reasons (Deutscher Bundestag, 2002). In fact, one-third of companies do not state any reason for their deviation. Even fewer companies (5.3 %) disclose their (non)compliance with the *should* suggestions of the Code, which again are merely a voluntary requirement. From this firm behavior, we conclude that the disclosure of deviations contains sufficient information for investors.

Second, we survey institutional investors about the relevance of the explanations actually given. In general, there are three categories of arguments for rejecting certain Code recommendations: (i) industry- or firm-specific requirements; (ii) reasonably explained decisions; and (iii) personal matters. A summary of explanations for rejection of Code recommendations with the highest number of deviations was used for an independent plausibility check by leading German and foreign institutional

investors.[10] The results are unambiguous: only a fraction of all rejections pass the investors' test as either unavoidable due to industry- or firm-specific circumstances, or reasonably explained. Personal matters are not regarded as acceptable reasons by investors at all. The summary of the investor assessment indicates the irrelevance of most explanations. Although only indicative, we take this evidence together with firms' disclosure practices as justification for our measurement approach.

It can thus be said that despite broad acceptance of the Code, the average value of 4.3 deviations signals a significant gap between actual firm-level governance practices and those recommended by the Code.

Looking again at Table 1, we find that the number of Code deviations is correlated with index membership: DAX firms have on average the lowest number of deviations (2.0), followed by MDAX and TecDAX firms (2.9 and 3.3 respectively). Companies in the SDAX index have the highest average number of deviations (5.2). As index membership is determined by market capitalization based on free float and trade volume, it can be regarded as a proxy for company size (and probably capital market orientation). One potential explanation for the differences in Code compliance according to index membership is a move towards international governance standards by larger companies, which need access to international investors. Consequently, Code compliance for companies in the SDAX and companies without index membership – exhibiting low market capitalization and low liquidity – is below average.

A small group of 23 companies in the sample are cross-listed on a U.S. stock exchange (including 17 companies at NYSE). Since they must comply with tougher U.S. listing standards and disclosure requirements, these companies can be assumed to have governance structures in place that already comply with most Code recommendations (Stulz, 1999). Our analysis shows that indeed, seven of the companies in question fully comply with the Code, a ratio of 30 %, compared to just 6.8 % for all companies. Of the remaining 16 companies, 13 explain their deviations, i.e., 81 %, compared to just 68 % for all companies. The average number of deviations is 2.6, compared to 4.3 for all companies. It therefore seems reasonable, as suggested by Licht (2003), to assume that a dual listing on German and U.S. stock exchanges provides for good governance as defined by the Code. But if one considers the respective index memberships of these firms, the findings become rather weak, as not all companies deviate significantly from their respective index averages. This leads us to conclude that a dual listing itself has no causal effect on better Code compliance.

Table 2 provides a comparison of characteristics between firms in the upper and lower quartiles of Code compliance. The results of a mean comparison test reveal that, on average, high-compliance firms are larger (in terms of book value of assets

[10] The survey was conducted in June 2005. Respondents were: Dr. Hans-Christoph Hirt, Hermes Focus Funds; Alexander Juschus, ISS Proxy Services; Rolf Drees, Union Investment; Jochen Mathée, Westfalenbank Asset Management; and Christiane Hölz, DSW. Due to the small sample size, the answers are indicative rather than representative, and for that reason the results are not reported in detail.

and market value of equity), riskier, and older. There are no significant differences in profitability, capital structure, or growth opportunities between the upper- and lower-quartile firms in the sample.

An analysis of Code compliance by industry supports the assumption that industry membership can have an important influence on firm governance. As shown in Table 3, firms from highly regulated sectors (e.g., banking) report fewer deviations on average than firms from less regulated sectors. Another reason for this difference could be varying degrees of capital market orientation in different industries.

Table 3
Deviations from Code Recommendations by Industry

Industry	Mean	Number of companies*
Banks	1.2	5
Utilities	1.7	3
Transport & Logistics	2.7	7
Chemicals	3.1	9
Financial services	3.4	17
Food & Beverages	3.5	2
Basic resources	3.8	4
Insurance	3.8	6
Industrial	3.9	64
Pharma & Healthcare	4.0	32
Mean	*4.3*	*315*
Media	4.4	21
Technology	4.5	20
Construction	4.7	5
Retail	4.8	15
Software	4.8	64
Telecommunication	4.8	10
Automobile	4.9	14
Consumer	5.6	17

Notes: This table provides summary statistics on the distribution of Code deviations (D) by industry based on the 2002 Code, which contains 60 recommendations in total. Companies have to disclose in their annual declaration of conformity which of the Code's recommendations they do not comply with. Industry classification and denotations are from Deutsche Börse Group's "Guide to the Equity Indices," November 3, 2003 (available at http://deutsche-boerse.com). Deutsche Börse Group has defined a two-tier model for industry classification. Assignment to one of 62 industry groups (second tier) depends on a company's sales focus. Assignment to one of the 18 sectors of the prime standard (first tier) is then based on the prior industry group classification. * Two of the 317 companies in the sample, Geratherm Medical AG (Pharma & Healthcare) and Fortec AG (Technology), have rejected the Code. Both companies were excluded when calculating average deviations from Code recommendations. The median value for the sample of 315 companies is 4.0 deviations.

Table 4
Most Frequent Deviations from Code Recommendations by all Companies in the Sample

Code reference	Code recommendation	Deviations 2002	2003	2004
4.2.4	Individual disclosure of management board compensation	–	68 %	66 %
3.8 (2)	Deductible for D&O insurance	54 %	58 %	54 %
5.4.5 (3)	Individual disclosure of supervisory-board compensation	–	43 %	40 %
5.4.5 (2)	Performance-related compensation for the supervisory board	46 %	40 %	38 %
7.1.2	Consolidated financial statements and interim reports publicly accessible within 90 and 45 days, respectively	39 %	36 %	34 %
5.3.1	Supervisory board to form committees with sufficient expertise	32 %	29 %	30 %
5.4.1	Supervisory-board nominations to take international activities, potential conflicts of interest, and an age limit into account	23 %	25 %	26 %
5.4.5 (1)	Supervisory-board compensation to take into consideration performance of additional tasks by board members, e.g., chairing a committee	29 %	23 %	20 %
	Observations	315	284	299

Notes: This table presents Code recommendations with the most frequently reported deviations by all sample companies in the stated year. The reference in the first column is based on the German Corporate Governance Code, May 21, 2003. As Code recommendations 4.2.4 and 5.4.5 (3) were introduced in May 2003, they have no values for 2002. The second column provides a short description of the content of the respective Code recommendation. Only Code recommendations with deviation ratios of more than 25 % are shown. The percentages in columns 3 to 5 show the degree of noncompliance with a given Code recommendation by the sample companies.

The last step in the descriptive analysis is concerned with *critical*, or *neuralgic*, Code recommendations, i.e., recommendations a significant number of companies choose to deviate from. For the year 2002, there is one particular Code recommendation (no. 3.8, paragraph 2, *Deductible for D&O-insurance*) that the majority of companies choose not to follow. Four recommendations exhibit a deviation ratio of more than 25 %, and ten recommendations have deviation ratios between 10 % and 25 %. In contrast, 18 recommendations show less than 1 % deviation for the entire sample. Table 4 shows all recommendations with a deviation ratio of more than 25 % in 2002, 2003, and 2004. The Code amendment of May 2003 introduced several new recommendations, two of which have very high rejection rates.

The most critical recommendations are related to *board member remuneration*, *supervisory-board member qualifications*, and *financial reporting*. Thus, it seems that the Code's critical recommendations are indeed avoided by many of the com-

panies. While we remain skeptical as to whether these critical recommendations are indeed provisions that should be considered crucial for good governance (although *by definition* the commission assumes exactly that), for the predominant part of the critical recommendations we can rule out the possibility that they were known to investors before the Code came into existence.[11]

For these cases, the finding of high noncompliance sheds further doubt on the Code's ability to significantly change corporate governance practices in Germany, which was a major objective of the Cromme Commission. This is also evidenced by the fact that the German Ministry of Justice has already replaced the most frequently rejected provision requiring individual disclosure of executive compensation with codified law and in the aftermath of the financial crisis has recently drafted another law on the *Appropriateness of directors' remuneration*, which made the requirement of a personal deductible for D&O insurance a mandatory rule as well (Deutscher Bundestag, 2005, 2009).

5 Short-Window Event Study of the Declaration of Conformity

5.1 Testable Hypotheses on the Stock Price Impact of the Declaration of Conformity

In this section, we apply standard event-study methodology to test whether the first-time disclosure of the declaration of conformity provides value-relevant information to the market. Testable hypotheses can be directly derived from the assumptions made by members of the Cromme Commission concerning implementation of the official German Code in 2002. While their arguments may sound naive from an economic perspective (since they apparently assumed that before adoption of the Code the market did not know which firms had good governance and which did not), they form the basis for the regulatory action taken. According to this view, when a firm accepts the Code, it demonstrates commitment and initiative in enacting good governance procedures, and a willingness to increase transparency. The declaration of conformity provides the capital market with the necessary information that allows investors to improve their firm-specific risk assessment. Information asymmetries should decrease, reducing investors' desired risk premium and thus the expected rate of return. If a company decides not to report compliance with the Code, it hinders efficient monitoring by the market, and as a result will immediately be punished by a depressed stock price. Clearly, this rationale only holds if market participants believe that Code acceptance is a proxy for actual behavior in line with the spirit of the Code and not just a (costless) box-ticking exercise. Thus, the following basic hypothesis can be derived:

[11] The reason for this is that it was the very first time compliance with these provisions had to be made public, and anecdotal evidence suggests that the boards themselves only decided at the last minute – after hefty discussions with their lawyers and auditors – which choice to make, which is one reason why we have so many late filers for the first declaration of conformity.

HYPOTHESIS 1 *Firms that accept the Code will generate positive abnormal stock returns.*

NULL HYPOTHESIS 1 *Firms that accept the Code will generate no abnormal returns.*

However, since almost every listed German firm has accepted the Code, more detailed analysis seems appropriate to detect potential market sanctions. At firm level, the quality of the declaration of conformity can be interpreted as a signal for the commitment to maintain or improve firm-specific governance practices. High compliance should result in smaller risk premiums and lead to stock return appreciations, and vice versa. Firms with low governance quality find that the costs of a declaration of conformity with high compliance or detailed explanations are prohibitive. We formulate Hypothesis 2 accordingly:

HYPOTHESIS 2 *Firms that file a high (low) compliance declaration of conformity generate a positive (negative) abnormal return.*

NULL HYPOTHESIS 2 *The degree of compliance is not related to stock returns.*

Testing the two hypotheses, we have to control for the fact that the sample firms are listed in various stock exchange indices. As a possible extension of the hypotheses, it could therefore be expected that in some indices the compliance effect will be more pronounced than in others; for example, the market might require a minimum (voluntary) governance standard in certain indices.

This means it can be assumed that the market reaction is more clear-cut for DAX index firms, as a result of the more comprehensive coverage by analysts, financial press, and investors than that of, say, small-cap firms with no index listing.

Another extension of the hypotheses relates to the possibility that market participants consider the firm's industry when evaluating the quality of the conformity declaration, so that in some industries a high-quality declaration carries greater value than in others.[12]

Finally, another way to refine the analysis is to examine aggregate market reactions to the announcements of regulatory events related to the development of the Code. We add this test as a robustness check.

5.2 Sample Selection

For all 317 companies in the sample we determine the exact publication date of the declaration of conformity. Likewise, confounding information of any kind around the event date that could cause a price effect (e.g., ad hoc news, press releases) has been identified. Data was collected from the company websites, and a subset of

[12] Gillan (2006) argues that corporate governance characteristics vary by industry, at least in the U.S. We take account of industry effects in the long-run study of section 6.

Table 5
Sample Selection for the Short-Window Event Study

Description	*n*
Total number of shares (prime standard)	398
Foreign companies	(40)
Companies with dual share classes outstanding	(21)
Total number of companies (prime standard)	337
Declaration of conformity unavailable	(20)
Total number of declarations of conformity	317
Declaration disclosed but exact event date not certifiable	(138)
Company disclosed material news around the event date	(30)
Parameter values or share price data unavailable	(3)
Declaration of conformity not disclosed by the company	(1)
Total number of event firms	145
including: high-compliance firms ($D \leq 2$)	46
including: low-compliance firms ($D \geq 6$)	42

Notes: This table shows the procedure for sample selection. The prime standard segment of the Frankfurt Stock Exchange listed 398 securities as of October 31, 2003 (record date for data collection). The first declaration of conformity had to be disclosed by the end of 2002, and firms are required to update the declaration annually. Declarations that were no longer available online at the time of the data collection were requested from the companies by mail; 20 companies failed to respond.

companies were directly contacted and interviewed in October 2003 to verify the event date.[13] The results are shown in Table 5.

For 138 declarations, the exact disclosure day cannot be determined because the date was not mentioned in the declaration and the companies did not participate in our survey. For three companies, regression parameters are not available due to a lack of share price data. One company did not publish its declaration of conformity and thus has to be excluded. Of the remaining companies with exact event dates, thirty are excluded due to confounding news releases, which cannot be definitively considered as having no price effect.

This leaves a total of 145 firms for event-study analysis. Based on the number of deviations (D) drawn from the total number of event firms, we construct two extreme portfolios, one of 46 high-CG-compliance ($D \leq 2$) firms and another one of 42 low-CG-compliance ($D \geq 6$) firms, representing approximately the upper and lower quartiles of the event firms.

[13] These dates are highly reliable, because the actual publication date is accurately time-stamped in the declaration of conformity of the firms in our sample. Other sources such as newspapers or information provided by the German financial regulator (BaFin) are not available, since it is only compulsory to publish the declaration on the corporate website.

5.3 Event-Study Design

We investigate the event date t_0 and two event windows around t_0 for significant price changes (abnormal or excess returns), the largest event window being $[t_{-1},t_{+2}]$ to capture information leaks shortly before the event and delayed reactions occurring one or two days after the event. The calculation of abnormal returns helps us to ascertain the effect of the declaration of conformity on the stock price.

We calculate discrete daily returns (using the closing prices of the stocks on the Frankfurt stock exchange). Market returns are approximated using the Technical University of Karlsruhe's DAFOX market index. We estimate normal returns with an estimation window defined as the time period of 120 trading days $[t_{-123},t_{-3}]$ before the event period. A post-event window of 18 days is defined to check for the persistence of abnormal returns.

To infer statistical significance, we first use the simple parametric t-test to determine the relationship between average abnormal returns and the variance of the time series. This method implicitly assumes that securities residuals are uncorrelated and that event-induced variance is insignificant (Brown and Warner, 1980).

To account for the restriction that there is no event-induced variance, we apply both the ordinary and the standardized cross-sectional test. These test statistics reduce the influence of increases in variance caused by the event that leads to frequent rejections of the null hypothesis of zero average abnormal returns when it is, in fact, true. The ordinary method conducts a t-test by dividing the average event-period residual by its contemporaneous cross-sectional standard error. Boehmer, Musumeci, and Poulsen (BMP, 1991) argue that the ordinary cross-sectional technique will be misspecified if the event-period residuals for different firms are drawn from different distributions. To account for this potential drawback, the authors suggest a test statistic (called the *BMP test*) that standardizes the residuals by the estimation-period standard deviation and is not influenced by event-induced changes of the variance.

We also apply nonparametric tests that do not require specific assumptions for the distribution of abnormal returns. These methods are also able to minimize possible biases in the analysis due to a few firms driving the results. MacKinlay (1997) suggests the use of nonparametric tests in conjunction with the parametric counterparts. This provides a robustness check of conclusions based on parametric tests. The significance is first checked with the nonparametric sign test that assumes that 50 % of the security returns are negative. However, this test could be biased, since returns are in fact skewed to the right (Brown and Warner, 1980). Finally, we apply the Corrado (1989) mean-rank test, which produces more reliable results, particularly with smaller sample sizes that result from the definition of Hypothesis 2 for our one-day return data. This test does not require the assumption of a normal distribution; it is particularly appropriate in cases of biased t-test conclusions due to outliers and in the presence of skewed daily security returns.

Table 6
Average (cumulative) Abnormal Returns Using Constant-Mean Returns ($n = 145$)

		Event date		Event windows	
		$t[0]$		$t[-1,1]$	$t[-1,2]$
Parametric Tests					
(1)	Cumulative average abnormal return (CAAR)	−0.0084 %		0.9513 %	1.503 %
	Brown and Warner (1980) Test	(−0.02)		(0.75)	(0.92)
	Cross-sectional test	(−0.02)		(1.40)	(1.93)
(2)	Standardized CAAR – BMP (1991) test statistic	(−1.09)		(1.28)	(1.58)
Nonparametric Tests					
(3)	Sign test: percentage of positive CAARs	44.83		49.66	48.97
		−1.25		*−0.08*	*−0.25*
(4)	Rank test of average abnormal returns	$t[0]$	$t[1]$	$t[2]$	$t[-1]$
	Corrado (1989)	*0.09*	*−1.48*	*−0.46*	*0.25*

Notes: This table presents event-study results for all 145 sample companies. We calculate discrete daily returns (using the closing prices of the relevant stocks on the Frankfurt Stock Exchange). The estimation window is defined as the time period of 120 trading days $[t_{-123}, t_{-3}]$ before the event period. The constant-mean returns are approximated for a period of 120 trading days before the event date. For the event date $t[0]$ and two event periods with lengths of 3 and 4 successive trading days around $t[0]$, the CAARs are shown in row (1). Test statistics (in parentheses) for the CAARs are the simple t-test according to (a) Brown and Warner (1980) and (b) the cross-sectional method. The test statistics for the standardized CAARs in (2) are from Boehmer, Musumeci, and Poulsen (1991). The lower panel shows the results of nonparametric tests. The percentage of positive CAARs is given in row (3). The results of a sign test regarding the null hypothesis that the percentage of positive CAARs is 0.50 are reported in the row below. Row (4) shows the results of the rank test suggested by Corrado (1989) for one-day returns as indicated.

5.4 Results

Null Hypothesis 1 of no abnormal returns for firms that accept the Code cannot be rejected. The results of the parametric and nonparametric test statistics show no statistically significant price reaction upon acceptance of the Code. Table 6 at first sight shows a weakly significant, positive average cumulative abnormal return in the window $[t_{-1}, t_{+2}]$ according to the ordinary cross-sectional test. However, the significance of the parametric test statistic completely disappears after truncating a single outlier (Intershop AG). The results of the simple t-test are insignificant in all cases. Comparisons between median and mean value of the CARs confirm the fact that the distribution of excess returns is highly skewed towards the left. That means that a few extreme values may have exerted an unjustifiably large influence in rais-

ing the mean. When in the window $[t_{-1},t_{+2}]$ the largest cumulative abnormal return is removed, the CAAR reduces to 0.9878 % and the ordinary cross-sectional test becomes insignificant (1.57), as does the standardized cross-sectional test statistic (1.42). An additional investigation with the sign test demonstrates no significant returns in t_0 and the two event windows between t_{-1} and t_{+2}. Corrado's rank test for the event date and $[t_{-1}]$, $[t_1]$, and $[t_2]$ also produces only insignificant test statistics. Hence Null Hypothesis 1 of no abnormal returns for firms that accept the Code cannot be rejected.

Although we have just shown that on average there is no abnormal price reaction for the whole sample, it could be that the capital market differentiates between firms with unexpectedly high and low compliance declarations. However, our results concerning Hypothesis 2 show that the capital market does not react to the *degree* of Code compliance with a corresponding price adjustment either. Based on our event-study methodology, there are no significant abnormal returns in the two subgroups, independently of the respective test statistic (see Table 7). In fact, the average cumulative abnormal returns of the high-compliance group are slightly negative in the time period around the event date. A two-sample Wilcoxon rank-sum test (also known as Mann–Whitney two-sample statistic) reveals that the returns of firms with high-compliance declarations of conformity are not significantly different from the returns of firms with low-compliance declarations. Consequently, also Null Hypothesis 2 of no abnormal returns for firms that accept the Code to different degrees cannot be rejected.

To sum it up, the stock market does not react in any way to the first-time disclosure of the declaration of conformity, and furthermore the degree of compliance has no immediate impact on a firm's stock price. While we cannot completely rule out that this finding may be driven by the fact that firms' corporate governance characteristics were already reflected in their stock price before the event, it definitely shows that disclosure of the declaration of conformity is irrelevant. The Code's main enforcement mechanism thus contains no value-relevant information for shareholders, contrary to the expectations of the regulator and the Code's legal supporters.

5.5 Robustness Checks

In this section we present further evidence showing that there were no immediate market reactions to the Code and its implementation and that our results are robust. The no-results case is always difficult to defend, but given its implications here, robustness checks are important in putting forward a persuasive case. In section 5.5.1 we apply an alternative return-generating process, section 5.5.2 presents results using the portfolio approach, section 5.5.3 shows robustness to different specifications of the market portfolio, section 5.5.4 discusses robustness to the use of standardized absolute prediction errors, and section 5.5.5 assesses the aggregate market reaction to the Code's regulatory history.

Table 7
Average (cumulative) Abnormal Returns in the High ($n = 46$) and Low ($n = 42$) Code Compliance Portfolio Using Market-Model Returns

		Event date $t[0]$			Event windows $t[-1,1]$			$t[-1,2]$		
		high	low	z-value	high	low	z-value	high	low	z-value
Parametric Tests										
(1)	(C)AAR	−0.3257 %	−0.1966 %	(0.61)	0.5218 %	0.2473 %	(0.68)	0.5803 %	1.1169 %	(1.05)
	Brown and Warner (1980) method	(−0.48)	(−0.27)		(0.26)	(0.11)		(0.21)	(0.38)	
	Cross-sectional test	(−0.52)	(−0.34)		(0.49)	(0.31)		(0.41)	(1.00)	
(2)	Standardized (C)AAR – BMP (1991)	(−0.83)	(−0.39)	(0.67)	(0.25)	(0.14)	(0.65)	(0.23)	(0.91)	(1.27)
Nonparametric Tests										
(3)	Sign test: % of positive (C)AARs	52.38	53.66		47.62	58.54		47.62	48.78	
		(0.31)	(0.47)		(−0.31)	(1.09)		(−0.31)	(−0.16)	
(4)	Rank test of AARs				$t[-1]$					
	Corrado (1989)	(0.91)	(−0.33)		(−0.35)	(−1.43)				

Notes: This table presents event-study results for two subsamples of 46 companies with $D \leq 2$ and 42 companies with $D \geq 6$ deviations from Code recommendations. Calculation of market-model returns is as described in Table 6. The upper panel shows the results of parametric tests. For the event date $t[0]$ and two event periods with lengths of 3 and 4 successive trading days around $t[0]$, the average (C)ARs are shown in row (1) for the high-compliance and low-compliance portfolios, respectively. For the event date and the event windows a two-sample Wilcoxon rank-sum test (Mann–Whitney test) is conducted. z-values for the difference in means are given in separate columns. Test statistics (in parentheses) for the average (C)ARs are the simple t-tests according to (a) Brown and Warner (1980) and (b) the cross-sectional method. Test statistics for the standardized average (C)ARs in row (2) are from Boehmer, Musumeci, and Poulsen (1991). The lower panel shows the results of nonparametric tests. The percentage of positive average (C)ARs is given in row (3). The results of a sign test regarding the null that the percentage of positive average (C)ARs is 0.50 are reported in the row below. Row (4) shows the results of the Corrado (1989) rank test for one-day returns.

Table 8
Average (cumulative) Abnormal Returns Using OLS Market-Model Returns ($n = 145$)

		Event date $t[0]$		Event windows $t[-1,1]$	$t[-1,2]$
Parametric Tests					
(1)	(Cumulative) average abnormal return	−0.0622 %		0.4888 %	1.1935 %
	Brown and Warner (1980) method	(−0.15)		(0.40)	(0.73)
	Cross-sectional test	(−0.19)		(0.89)	(1.82)
(2)	Standardized (C)AAR – BMP (1991)	(−0.47)		(0.71)	(1.63)
Nonparametric Tests					
(3)	Sign test: percentage of positive (C)AARs	48.65 (−0.33)		50.68 (0.16)	54.73 (1.15)
(4)	Rank test of average abnormal returns		$t[1]$	$t[2]$	$t[-1]$
	Corrado (1989)	(0.39)	(−0.39)	(−1.26)	(−0.16)

Notes: This table presents event-study results for all 145 sample companies. We calculate discrete daily returns (using the closing prices of the respective stocks on the Frankfurt Stock Exchange). The estimation window is defined as the time period of 120 trading days $[t_{-123}, t_{-3}]$ before the event period. The market returns are approximated using the Technical University of Karlsruhe's DAFOX market index. The parameter values of α (mean value $= -0.00045$) and β (mean value $= -0.66127$) for the market model were estimated for the period of 120 trading days before the event date. The mean value of the coefficient of determination R^2 is large enough to suggest sufficient quality of the regression. Rows (1) and (2) in the upper panel show the results of parametric tests. For three event periods with lengths of 1, 3, and 4 trading days, average (C)ARs are shown in row (1). Test statistics (in parentheses) for the average (C)ARs are the simple t-test according to Brown and Warner (1980) in row (1a) and the cross-sectional test in row (1b). The test statistics in row (2) for the standardized average (C)ARs (not shown) are from Boehmer, Musumeci, and Poulsen (1991). Rows (3) to (4) in the lower panel show the results of nonparametric tests. The percentage of positive average (C)ARs is given in row (3). The results of a sign test regarding the null hypothesis that the percentage of positive average (C)ARs is 0.50 are reported in the line below. Row (4) shows the results of the rank test suggested by Corrado (1989) for one-day returns as indicated.

5.5.1 Alternative Return Generating Process

As a first robustness test, we apply standard market-model returns instead of the constant-mean return model to estimate abnormal returns, and then repeat the test of both null hypotheses. The results are reported in Table 8.

As we find no qualitative change compared to our prior findings based on constant-mean returns, we do not repeat the discussion here. Likewise, the use of market-model returns in the test of Hypothesis 2 does not differ from the results based on constant-mean returns (not reported, but results are available on request).

5.5.2 Portfolio Approach

Considering that about three-quarters of the firms published their declaration of conformity in December 2002, the traditional event-study methodology of Brown and Warner (1980) may suffer from clustering problems. In the case of overlapping event dates, the assumption of zero covariance between abnormal returns that underlies the market-model regressions could be violated. Although ordinary least squares (OLS) can provide unbiased coefficient estimates in the context of event date clustering, OLS-based estimates of the corresponding standard errors would generally be biased. We address this problem by applying a test procedure suggested in the literature: the *portfolio approach*.[14] Abnormal returns are aggregated to form a single time series of observations. Hypothesis tests can then be based on the standard deviation in this series of (presumably) independent observations (see Bernard, 1987). We use the aggregated portfolio method as proposed by Campbell, Lo, and MacKinlay (1997) to control for overlapping of events in calendar time and construct portfolios of all firms publishing the declaration of conformity at the same date. We then aggregate all abnormal returns into a portfolio dated using event time, and conduct a security-level analysis on this portfolio. This approach diminishes the error created by cross-correlation in the residuals. To obtain reasonable sample size, we create portfolios based around any date on which at least ten declarations were published. This is the case on four trading days, December 16, 18, 19, and 20, for which we build such portfolios with 11, 12, 16, and 19 event firms respectively. Results are shown in Table 9.

Neither the parametric nor the nonparametric test statistics indicate the presence of abnormal returns in the portfolios. Thus, even controlling for clustering, the general inference of no significant abnormal returns upon the event remains unchanged. The robustness of our main results is also supported by simulations reported by Boehmer, Musumeci, and Poulsen (1991), who show that the results from the standardized cross-sectional procedure (BMP test) are essentially unaffected by the presence of event-date clustering.

5.5.3 Index Proxy for Market Portfolio

Table 10 shows the result from the test of Hypothesis 1 on the 23 DAX companies in our sample using market-model returns. We derive the rationale for this test from the expectation that in some indices the compliance effect could be more pronounced than in others. In particular, the reaction could be limited to DAX index companies as a result of the more comprehensive coverage by analysts, financial press, and investors in the top index segment, thus leaving small-capitalization stocks unaffected. The parametric tests and the nonparametric tests do not reject

[14] For the case of total event date clustering, MacKinlay (1997) suggests the use of Zellner's seemingly unrelated regression technique instead of cross-sectional aggregation of abnormal returns. See also Bernard (1987) for a discussion of alternative treatment methods for event-date clustering.

Table 9
Calendar Time Portfolio Approach

		Calendar time							
		Dec. 16		Dec. 18		Dec. 19		Dec. 20	
		$t[0]$	$t[0,1]$	$t[0]$	$t[0,1]$	$t[0]$	$t[0,1]$	$t[0]$	$t[0,1]$
Parametric Tests									
(1)	(Cumulative) average abnormal return	−0.6232 %	0.6074 %	−1.2554 %	−0.2890 %	1.2979 %	−1.1584 %	1.2446 %	1.8917 %
	Brown and Warner (1980) method[a]	(−0.38)	(0.18)	(−0.80)	(−0.09)	(1.08)	(−0.48)	(0.79)	(0.73)
	Cross-sectional test[b]	(−0.65)	(0.24)	(−0.79)	(−0.45)	(1.24)	(−0.59)	(0.82)	(1.16)
(2)	Standardized (C)AAR – BMP (1991)	(−1.18)	(0.27)	(−1.09)	(0.08)	(1.05)	(−0.48)	(1.16)	(1.15)
Nonparametric Tests									
(3)	Sign test: percentage of positive (C)AARs	33.33	44.44	50.00	60.00	54.55	63.64	64.71	58.82
		(−1.00)	(−0.33)	(0.00)	(0.63)	(0.30)	(0.90)	(1.21)	(0.73)
(4)	Rank test of average abnormal returns		$t[1]$		$t[1]$		$t[1]$		$t[1]$
	Corrado (1989)	(1.53)	(−0.49)	(0.37)	(−0.52)	(−0.73)	(1.25)	(−1.01)	(−0.40)
	Observations	11		12		16		19	

Notes: This table presents event-study results in calendar time using the portfolio approach. Portfolios are constructed for events that occurred for more than 10 companies on the same calendar day. These days are December 16, 18, 19, and 20, 2002. The number of firms in each portfolio is given in the last row. Calculation of market-model returns is as described in Table 6. Rows (1) and (2) in the upper panel show the results of parametric tests. For the event date $t[0]$ and the event window $t[0,1]$, average (C)ARs are shown in row (1). Test statistics for the average (C)ARs are the simple t-test according to Brown and Warner (1980) in row (1a) and the cross-sectional test in row (1b). The test statistics for the standardized average (C)ARs in row (2) are from Boehmer, Musumeci, and Poulsen (1991). Rows (3) and (4) in the lower panel show the results of nonparametric tests. The percentage of positive average (C)ARs is given in row (3). The results of a sign test regarding the null hypothesis that the percentage of positive average (C)AARs is 0.50 are reported in the line below. Row (4) shows the results of the rank test suggested by Corrado (1989) for one-day returns as indicated. Test statistics are given in parentheses.

Table 10
Average (cumulative) Abnormal Returns Using Market-Model Returns for DAX ($n = 23$)

		Event date		Event windows	
		$t[0]$		$t[-1,1]$	$t[-1,2]$
Parametric Tests					
(1)	(Cumulative) average abnormal return	0.1190 %		0.2882 %	1.1568 %
	Brown and Warner (1980) method[a]	(0.18)		(0.14)	(0.43)
	Cross-sectional test[b]	(0.16)		(0.23)	(0.78)
(2)	Standardized (C)AAR – BMP (1991)	(−0.07)		(0.33)	(0.88)
Nonparametric Tests					
(3)	Sign test: percentage of positive (C)AARs	39.13 (−1.04)		52.17 (0.21)	60.87 (1.04)
(4)	Rank test of average abnormal returns		$t[1]$	$t[2]$	$t[-1]$
	Corrado (1989)	(0.40)	(−0.29)	(−1.01)	(−0.47)

Notes: This table presents event-study results for the DAX companies in the sample ($n = 23$). Calculation of market-model returns is as described in Table 6. Rows (1) and (2) in the upper panel show the results of parametric tests. For three event periods with lengths of 1, 3, and 4 trading days, average CARs and standardized average (C)ARs are shown in rows (1) and (2). Test statistics (in parentheses) for the average (C)ARs are the simple t-test according to Brown and Warner (1980) in row (1a) and the cross-sectional test in row (1b). The test statistics for the standardized average (C)ARs in row (2) are from Boehmer, Musumeci, and Poulsen (1991). Rows (3) to (4) in the lower panel show the results of nonparametric tests. The percentage of positive average (C)ARs is given in row (3). The results of a sign test regarding the null hypothesis that the percentage of positive average (C)ARs is 0.50 are reported in the line below. Row (4) shows the results of the rank test suggested by Corrado (1989) for one-day returns as indicated.

the null hypothesis of no such reaction. On the event date itself even the sign test is insignificant, and it even shows a negative sign. In addition, the rank test is also insignificant in all event windows, leaving no doubt that the DAX companies did not experience a positive price reaction when they published their declaration of conformity.

5.5.4 Standardized Absolute Abnormal Returns (SABRs)

Because information contained in the declaration of conformity could be either positive or negative, we also evaluate its relevance using standardized absolute abnormal stock returns (SABRs) in the spirit of Carter and Soo (1999) or Cready and Mynatt (1991).

With this approach, all means and corresponding t-statistics are based on values winsorized at the 99 % level, and t-statistics are computed from standardized absolute errors based on Cready and Mynatt's (1991) procedures. However, even using absolute prediction errors, the null result holds, as not a single absolute day return for disclosure of the declaration of conformity is different from zero at conventional levels of statistical significance. For reasons of space the results are not reported here, but are available on request from the authors.

5.5.5 Capital Market Reactions to Regulatory Events

Finally, we check whether firms' share prices have already been influenced by the regulatory events that were part of the process to develop and implement the Code. We therefore conduct an event study in calendar time for each individual stage of the regulatory process between May 2000 (the announcement of the members of the Baums Commission) and June 2003 (the press release by the Cromme Commission regarding the first major amendment to the Code). The twelve events of the regulatory process identified for this study are outlined in appendix section A.2. This crude test is similar in spirit to the empirical analysis conducted by de Jong et al. (2005). We proxy the market by using the DAFOX index as the market portfolio and calculate constant-mean abnormal returns. The normal benchmark return is calculated over the estimation window $[t_{-141}, t_{-21}]$ before the first event. The event-day abnormal returns are calculated as the raw return on the event day minus the benchmark return. Cumulative abnormal returns are obtained by adding the abnormal returns before, at, and after the event, i.e., t_{-1}, t_0, and t_{+1}. Statistical significance is obtained using the simple t-statistics of the time series.

We find only one regulatory event concerning the Code that experienced any significant positive abnormal returns on the event day (but not for the 3-day CAR): On August 8, 2002, the Code was published in the Federal Bulletin, and the stock market's abnormal return is 2.33 percent. On the other hand, seven of the twelve regulatory events experience *negative* abnormal returns. One such event is the official appointment of the members of the Cromme Commission on September 6, 2001. The membership of the commission could very well have been a disappointment to market participants, given that most members are CEOs (who thus find themselves regulating other CEOs), while shareholder groups and finance experts are not represented in the body. The stock market dropped abnormally by 2.28 % on that day, and by 7 % over the 3-day window. Upon the day of the first meeting of the commission, November 7, 2003, there is also a marginally significant negative abnormal return of 3.4 percent. All other events show no significant stock market reaction, even at the 10 % level.

In sum, the aggregate market reaction to the regulatory events related to introduction of the Code can be considered to range from mixed (but predominantly negative) reactions, to taking no notice at all. We warn against drawing too strong conclusions about a positive (or negative) market reaction, as we cannot rule out any influence by confounding events causing significant market reactions on the

Table 11
Capital Market Reactions to Regulatory Events

No.	Event date	Event description	Abnormal return (in %)	t-statistic	3-day CAR (in %)	t-statistic
1	May 29, 2000	Appointment of the Baums Commission	0.3495	(0.21)	1.1887	(0.26)
2	June 20, 2000	Start of work by the Baums Commission	0.2509	(0.15)	−2.9106	(−0.61)
3	July 10, 2001	Report of the Baums Commission	−0.6621	(−0.58)	−1.8133	(−0.55)
4	Sep. 6, 2001	Appointment of the Cromme Commission	−2.2817**	(−1.96)	−7.0110**	(−2.02)
5	Dec. 18, 2001	Presentation of a draft version of the Code	−0.5992	(−0.42)	0.3059	(0.07)
6	Feb. 26, 2002	Presentation of the Code	0.1943	(0.13)	2.1662	(0.46)
7	April 11, 2002	Draft transparency and disclosure law	−0.9332	(−0.75)	−0.5581	(−0.14)
8	July 26, 2002	Final transparency and disclosure law	−0.1976	(−0.21)	4.1454	(1.53)
9	Aug. 8, 2002	Publication of the Code in the Federal Bulletin	2.3262**	(2.29)	2.3354	(0.77)
10	Nov. 7, 2002	First meeting of the Cromme Commission	−3.3879*	(−1.90)	−6.4256	(−1.19)
11	May 21, 2003	Second meeting of the Cromme Commission	−0.9415	(−0.51)	−0.7045	(−0.12)
12	June 10, 2003	Application information for Code amendments	0.7799	(0.44)	0.7970	(0.14)

Notes: This table presents event-study results of the capital market reaction to announcements before and after the introduction of the German Corporate Governance Code. A detailed description of the events is given in appendix section A.2. Abnormal returns (AR) are calculated using the returns on the DAFOX market index in a constant-mean return model. The estimation window is calculated over 120 trading days $[t_{-141}, t_{-21}]$ before the first event. CARs are the sum of ARs on days $[t_{-1}, t_0, t+1]$. t-statistics are stated in parentheses. Significance at the 10 %, 5 %, and 1 % levels is indicated by *, **, and *** respectively.

dates of the regulatory events, or by inference due to cross-correlations of the residuals, but the Code's introduction appears to have been a non-event at best, and clearly so at the firm level as indicated by our main event-study findings.

6 Code Compliance and Long-Run Stock Returns

6.1 Background

The hypotheses tested above presume the existence of immediate price reactions in a semiefficient capital market, i.e., any price effect would have occurred on the date the declaration of conformity was disclosed. However, the findings of Gompers, Ishii, and Metrick (2003) and Brown and Caylor (2006) suggest a long-term effect of corporate governance quality on firm value and the cost of capital.[15] The former argue that investors might learn only slowly (i.e., after recurring disclosure) about the true cost of differences in governance quality. In other words, the German capital market may not have fully incorporated the information immediately upon disclosure of Code compliance. Given that the declaration of conformity is filed on a yearly basis, we are able to perform a *long-run event study* using portfolio returns over the three-year period from October 2002 until the end of September 2005.

In this section, we test again Hypothesis 2 that there is a persistent relationship between different degrees of Code compliance (as expressed in the declaration of conformity) and abnormal returns. This is accomplished by the construction of different portfolios – each aggregating firms with matched levels of Code compliance.

When assessing the long-term performance effects of the Code, the design should give the Code its best shot at showing positive results. We therefore extend our analysis and test the additional hypothesis that what is value-relevant is not the *level* of Code compliance but *changes* in the level of compliance. More precisely, firms that improve their compliance with the Code during the observation period might be subject to higher market valuation and hence lower cost of capital, and vice versa. We therefore construct additional portfolios, respectively comprising companies whose corporate governance quality improved or declined after 2002, as measured by an improvement or reduction stated in the declaration of conformity. We formulate Hypothesis 3 accordingly:

HYPOTHESIS 3 *Firms that improve (reduce) their compliance with the Code generate positive (negative) abnormal returns.*

NULL HYPOTHESIS 3 *Change of Code compliance is not related to stock returns.*

[15] Note that while our approach is in the spirit of Gompers, Ishii, and Metrick (2003), we are not subject to their measurement-error problem criticized by Larcker, Richardson, and Tuna (2007). First, although our D-score governance index is a "naive sum" of recommendations too, it is not arbitrarily constructed, but exactly defined by German law. Second, unlike other studies such as Brown and Caylor (2006) or Kelton and Yang (2008), we do not aim to analyze the relation between corporate governance per se and an outcome (performance, transparency), but instead we focus solely on investigating the information content of a disclosure rule of compliance with a well-defined governance code.

6.2 Data and Methodology

To perform a long-run analysis, we build on our year-2002 sample of 315 German firms listed in the prime standard of Deutsche Börse. We hand-collect additional data on Code compliance for the years 2003 and 2004 in March 2005. We obtain the declaration of conformity from 284 and 299 firms for the respective years, representing 85 % and 96 % of all firms in the prime standard. In total, we have 898 firm–year observations for the analysis. Table 4 presents data on those Code recommendations with the most frequent deviations in each year. All of the critical recommendations in 2002 remain above the cutoff level of 25 % in the following two years, implying little or no improvement in overall Code compliance. In addition, two important recommendations newly introduced in 2003 – individual disclosure of management and supervisory-board compensation (Code references 4.2.4 and 5.4.5 (3)) – were not complied with by most firms in the first and second years.

To ensure comparability of Code compliance across time, we scale the absolute number of deviations by the respective number of total Code recommendations that exist in a given year, i.e., 60 in 2002 and 68 in 2003 and 2004. Based on these scaled Code deviations, we construct two mutually exclusive stock portfolios that contain all firms above and below the median according to their respective level of compliance. To check the robustness of our results, we similarly construct portfolios with more extreme levels of compliance: (i) upper and lower 30th percentiles and (ii) upper and lower 10th percentiles.

Portfolios are reset annually to reflect changes in firms' compliance behavior. Firms for which no declaration of conformity was available at the reset date are automatically excluded for the subsequent twelve-month period. To test Hypothesis 3 we construct *change* portfolios following the same procedure: one portfolio comprises all firms that have improved their Code compliance, and a second portfolio contains firms that display a reduction in Code compliance. Similar extreme portfolios are constructed for robustness checks. The change portfolios are compiled at the end of 2003 and re-formed once at the end of 2004. As a result, we can apply a time series of 154 and 89 weekly portfolio returns in calendar time to test Hypotheses 2 and 3.

Lyon, Barber, and Tsai (1999) suggest using the calendar-time portfolio method to analyze whether sample firms persistently earn abnormal returns. By choosing this approach we make best use of the annual disclosure on Code compliance and also eliminate any event-date uncertainty.[16] We apply a four-factor model as suggested by Carhart (1997) to calculate long-run returns and study the empirical relation between our compliance index and performance with the portfolio method. The four-factor model combines the three risk factors of Fama and French (1993) and the momentum factor of Jegadeesh and Titman (1993). We estimate the

[16] For an alternative application of standard event-study methodology with long-run abnormal stock returns see Barber and Lyon (1997) and Kothari and Warner (1997).

four-factor model as

$$R_{it} - R_{ft} = \alpha_i + \beta_i (R_{mt} - R_{ft}) + s_i SMB_t + h_i HML_t + m_i MOM_t + \varepsilon_{it},$$

where R_{it} is the simple weekly return on the calendar-time portfolio i (value-weighted and equal-weighted), R_{ft} is the risk-free rate approximated by the weekly Euribor, R_{mt} is the week-t value-weighted market return approximated by the DAFOX market index of all listed German firms, SMB_t (small minus big) is the return on a value-weighted portfolio of small stocks less the return on a value-weighted portfolio of big stocks, HML_t (high minus low) is the return on a value-weighted portfolio of high-book-to-market stocks less the return on a value-weighted portfolio of low-book-to-market stocks, and MOM_t is the week-t return on a value-weighted portfolio of the past twelve months' winners less the return on a value-weighted portfolio of the past twelve months' losers. The regression yields parameter estimates for α_i, β_i, s_i, h_i, and m_i. The error term in the regression is denoted by ε_{it} with the usual normality assumptions of zero mean and equal variance. The parameter of interest in the regression is the intercept, α_i. A positive intercept indicates that after controlling for market, size, book-to-market equity ratio, and momentum factors in returns, a sample portfolio has performed better than expected.[17] In interpreting the results we focus on the value-weighted portfolio returns, as in the presence of small-capitalization stocks value-weighted average returns result in more realistic portfolio returns. Nevertheless, equal-weighted portfolios are considered as a robustness check. Stock returns are calculated as discrete returns using performance-adjusted share prices from Thomson Financial (Datastream) that adjust for dividend payments as well as capital changes.

The three zero-investment factor-mimicking portfolios are designed to capture the well-known asset pricing anomalies of size, style, and momentum effects. The weekly *SMB* and *HML* factors are not available from public sources for Germany. The factors are provided by Ken French for the U.S. and international capital markets including Germany at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

International data is calculated on a monthly basis. Thus, in the spirit of Fama and French (1993), we calculate *SMB* by constructing two portfolios comprising large- and small-capitalization stocks. The large-capitalization portfolio includes the largest and most liquid German stocks (DAX index), and the second portfolio contains firms from a small-capitalization stock index (SDAX). The large-capitalization portfolio is regularly recalculated in September of each year, and the small-capitalization portfolio at the end of each quarter. For further details see the *Guide to the Equity Indices of Deutsche Börse AG* (2006).

[17] The error term in this regression may be heteroskedastic, since the number of securities in the calendar-time portfolio varies between weeks. In a similar model, Lyon, Barber, and Tsai (1999) find that this heteroskedasticity does not significantly affect the specification of the intercept test in random samples. When we calculate our portfolios using White's heteroskedasticity-robust standard errors, our results do not change regarding the significance and sign of the estimated coefficients.

For *HML* we use balance-sheet data available from the *Compustat Global Vantage* database and calculate the book-to-market ratio for all German firms as the book value of equity stated in the consolidated group accounts (Compustat item *SEQ*) divided by the market value of equity at the end of December of each year. If a company has issued preferred stock, the market value of equity is the sum of common and preferred stock multiplied by the respective share prices. We then calculate the 30th and 70th percentiles of the book-to-market equity ratio and build the *value* (high book-to-market) and *growth* (low book-to-market) portfolios at December 31 of the previous year. The portfolios remain unchanged for the next twelve months, when they are recalculated. We expand our three-factor model and include a fourth factor to allow for an additional asset-pricing anomaly presented by Jegadeesh and Titman (1993), i.e., the continuation of prior returns (*momentum*). For the construction of portfolios that capture the one-year momentum effect we follow Carhart (1997) and determine the 30th and 70th percentiles of the twelve-month returns of all German firms. We use this cutoff to build the *winners* and *losers* portfolios. As before, the *MOM* portfolios are rebuilt annually. Finally, over the total observation period we determine weekly returns at the end of each week for *size*, *book-to-market*, and *momentum* portfolios by calculating the value-weighted average of the weekly returns across all firms in the respective portfolio. The three factors for the German capital market are then calculated as the return differences of the respective extreme portfolios for each week.

6.3 Results

Estimation results of the four-factor model are given in Tables 12 and 13. Table 12 shows estimates of the relationship between absolute Code compliance and long-run stock returns. Table 13 contains the corresponding results for portfolios constructed based on the *change* in Code compliance during the observation period. The estimation models exhibit adjusted R^2 values between 0.24 and 0.63, indicating that they are well suited to explain portfolio returns by market sensitivity, size, book-to-market, and momentum.

In Table 12, the negative sign for *SMB* indicates that both the high-compliance and the low-compliance portfolio are skewed towards large-capitalization stocks. The higher (absolute) coefficient of the size factor in the high-compliance portfolios is probably caused by the positive relationship between high compliance and firm size. The positive coefficient on *HML* indicates a value-stock bias in the portfolios. In Panel A, the α of 0.0015 basis points per week for the median high-compliance regression is positive but not statistically significant. This result remains robust even if portfolios are constructed differently (see Panels B and C). Thus, portfolio returns cannot be attributed to high Code compliance.

Surprisingly, in Panel B the α of 0.0023 basis points in the low-compliance equation, which corresponds to approximately 12.5 % per year, is statistically significant at the 5 % level, and even the low-compliance α's in Panels A and C are weakly significant.

Table 12
Performance-Attribution Regressions for Code Compliance Portfolios

Portfolio	α	*RMRF*	*SMB*	*HML*	*MOM*	R^2 adj.	Obs.
Panel A: Median Cutoff							
High	0.0015	0.1624***	−0.4691***	0.2537***	0.0374	0.59	153
	(1.14)	(3.33)	(−6.97)	(4.31)	(0.71)		
Low	0.0019*	0.2221***	−0.3684***	0.1453***	−0.0505	0.59	150
	(1.66)	(4.94)	(−6.03)	(2.64)	(−1.03)		
Difference	0.0001	−0.0115	−0.1209*	0.0867**	−0.0038	0.11	150
	(0.11)	(−0.33)	(−2.52)	(2.01)	(−0.10)		
Panel B: 30 % Cutoff							
High	0.0015	0.1730***	−0.4796***	0.2491***	0.0304	0.57	153
	(1.07)	(3.35)	(−6.73)	(4.01)	(0.54)		
Low	0.0023**	0.1676***	−0.4025***	0.1580***	−0.0289	0.59	150
	(2.10)	(3.94)	(−6.97)	(3.04)	(−0.63)		
Difference	−0.0003	0.0559	−0.0981	0.0667	−0.0363	0.10	150
	(−0.22)	(1.26)	(−1.63)	(1.23)	(−0.75)		
Panel C: 10 % Cutoff							
High	0.0008	0.1867***	−0.4004***	0.2452***	0.0452	0.49	153
	(0.55)	(3.41)	(−5.30)	(3.71)	(0.76)		
Low	0.0020*	0.1145**	−0.0308	0.1586***	−0.0742	0.24	150
	(1.70)	(2.56)	(−0.51)	(2.90)	(−1.53)		
Difference	−0.0008	0.1166**	−0.3834***	0.0750	0.0387	0.37	150
	(−0.57)	(2.31)	(−5.61)	(1.22)	(0.71)		

Notes: This table presents empirical results corresponding to the multifactor regression formally defined by the equation $R_{it} - R_{ft} = \alpha_i + \beta_i(R_{it} - R_{ft}) + s_i SMB_t + h_i HML_t + m_i MOM_t + \varepsilon_{it}$, where $R_{it} - R_{ft}$ represents the returns on the market proxy in excess of the risk-free rate, *SMB* denotes the difference in return between a small-cap portfolio and a large-cap portfolio, *HML* denotes the return spread between a value portfolio and a growth portfolio, and *MOM* is the return difference between a prior 12-month winner portfolio and a prior 12-month loser portfolio. The *Difference* portfolio is constructed by subtracting low-ranked portfolio returns from the returns of the high-ranked compliance portfolios. The sample period is October 2002 to September 2005. t-statistics are stated in parentheses. Significance at the 10 %, 5 %, and 1 % levels is indicated by *, **, and *** respectively.

There is no immediate explanation available for this finding, as prior research suggests that firms with better governance should generate *higher* returns than firms with weaker governance. When the two portfolios are compared, there are no statistically significant differences, as indicated by the results of the difference regressions, i.e., the two portfolios do not differ in exposure to market risk and style

Table 13
Performance-Attribution Regressions for Change in Code Compliance Portfolios

Portfolio	α	*RMRF*	*SMB*	*HML*	*MOM*	R^2 adj.	Obs.
Panel A: Median Cutoff							
Up	−0.0006	0.5324***	−0.1038	0.0096	0.2732***	0.63	89
	(−0.51)	(7.70)	(−1.09)	(0.10)	(3.70)		
Down	−0.0002	0.4898***	−0.2085**	0.0246	0.0042	0.52	89
	(−0.16)	(6.59)	(−2.04)	(0.24)	(0.05)		
Difference	0.0000	0.0427	0.1047	−0.0150	0.2689***	0.20	89
	(0.00)	(0.74)	(1.33)	(−0.19)	(4.38)		
Panel B: 30 % Cutoff							
Up	0.0010	0.5786***	0.0775	−0.0659	0.1757*	0.47	89
	(0.58)	(6.16)	(0.56)	(−0.46)	(1.75)		
Down	0.0021	0.3062***	−0.2442	0.3254*	0.1702	0.29	80
	(1.06)	(2.71)	(−1.45)	(1.87)	(1.39)		
Difference	−0.0001	0.2946*	0.3726*	−0.3460	−0.0017	0.04	80
	(−0.04)	(2.1)	(1.79)	(−1.60)	(−0.01)		
Panel C: 10 % Cutoff							
Up	−0.0002	0.5289***	−0.0304	−0.1623	0.0963	0.42	89
	(−0.16)	(6.22)	(−0.26)	(−1.37)	(1.06)		
Down	0.0021	0.2964**	−0.3110	0.3747*	0.1719	0.28	80
	(0.96)	(2.37)	(−1.67)	(1.94)	(1.27)		
Difference	−0.0015	0.2420	0.2178	−0.5459**	−0.0674	0.04	80
	(−0.56)	(1.61)	(0.97)	(−2.35)	(−0.41)		

Notes: This table presents empirical results of the multifactor regression formally defined by the equation $R_{it} - R_{ft} = \alpha_i + \beta_i(R_{it} - R_{ft}) + s_i SMB_t + h_i HML_t + m_i MOM_t + \varepsilon_{it}$, where $R_{it} - R_{ft}$ represents the returns on the market proxy in excess of the risk-free rate, *SMB* denotes the difference in return between a small-cap portfolio and a large-cap portfolio, *HML* denotes the return spread between a value portfolio and a growth portfolio, and *MOM* is the return difference between a prior 12-month winner portfolio and a prior 12-month loser portfolio. The *Difference* portfolio is constructed by subtracting low-ranked portfolio returns from the returns of the high-ranked compliance portfolios. The sample period is October 2002 to September 2005. t-statistics are stated in parentheses. Significance at the 10 %, 5 %, and 1 % levels is indicated by *, **, and *** respectively.

factors, or α. We are thus reluctant to interpret the α in the low-compliance group as related to governance.

Table 13 presents our findings on the governance *winners* (up) and *losers* (down). Neither group nor the difference portfolio has a significant α. The market factor remains significantly positive, while other factors become insignificant in most specifications. This indicates that increasing Code acceptance is not related to size or

firm growth. With significance at the 1 % level, there appears to be one interesting result in the median-cutoff change portfolios (Panel A), with positive loadings of the momentum factor: firms that improve their Code compliance seem to be those with good stock performance (winners). When the difference portfolio is estimated, this finding remains significant at the 1 % level; it becomes insignificant in the alternative portfolio specifications (see Panels B and C).

The insignificant α documents the nonexistence of any long-term performance impact of high compliance with the Code, and thus supports our event-study findings. We are unable to detect almost any difference in stock performance that could be attributed to differences in Code compliance. Two minor results are noteworthy: (i) we find a (weakly) statistically significant α for the low-compliance portfolio (see Panel B in Table 12), and (ii) as shown in Panel A of Table 13, we find a robust loading of the momentum factor, which implies that firms that experience above-average share price appreciation in the previous year are, on average, also likely to simultaneously improve their Code compliance.

Our results are robust with respect to industry influence. Lyon, Barber, and Tsai (1999) show for long-run abnormal stock returns in the U.S. that potential misspecifications of the asset-pricing model due to industry-induced variations in expected returns disappear when samples are evenly distributed among four or more two-digit SIC codes. Since our sample firms are from all 18 industries defined by Deutsche Börse, we can rule out industry clustering that could cause biased estimates. This assumption is proved in the final robustness checks summarized in Table 14. When we replicate our calculations with industry-adjusted returns, the inference remains the same. When equally weighted returns are considered, the α in the median difference portfolio for Code compliance becomes significant with a negative sign (see column (2) in Table 14). This implies that buying firms with high Code compliance and selling short firms with low Code compliance has been a value-destroying investment strategy. Investors should not base their investment decisions on compliance with the German corporate governance code.

7 Discussion

The introduction of the German Corporate Governance Code in 2002 creates a particularly interesting natural experiment for evaluating a self-regulatory comply-or-explain initiative with mandatory disclosure but no monitoring and no legal enforcement of compliance. In light of our results, we can put the Code into the perspective of the recent German corporate governance reform, and the history of similar self-regulation efforts in Germany (which ultimately failed).

Our empirical findings start with evidence and implications from a descriptive analysis of compliance behavior regarding the Code. We then investigate the value effects of compliance behavior by analyzing the disclosure of the annual declaration of conformity with the Code. We study short-window announcement and long-run performance effects of Code compliance on firm value. Using standard

Table 14
Robustness Checks: Performance-Attribution Regressions under Alternative Portfolio Constructions

	Code compliance		Change in code compliance	
	α, value-weighted (1)	α, equal-weighted (2)	α, value-weighted (3)	α, equal-weighted (4)
Difference portfolios				
Median Cutoff	0.0001	−0.0015**	0.0000	0.0004
	(0.11)	(−2.49)	(0.00)	(0.48)
30 % Cutoff	−0.0003	−0.0016*	−0.0001	0.0023
	(−0.22)	(−1.92)	(−0.04)	(0.97)
10 % Cutoff	−0.0008	−0.0015	−0.0015	−0.0003
	(−0.57)	(−1.20)	(−0.56)	(−0.08)
Industry-Adjusted Returns				
Median Cutoff	0.0000	−0.0015**	−0.0005	−0.0009
	(−0.01)	(−2.43)	(−0.82)	(−1.02)
30 % Cutoff	−0.0005	−0.0015	0.0009	0.0017
	(−0.81)	(−1.64)	(−0.55)	(0.74)
10 % Cutoff	−0.0005	−0.0014	−0.0031	−0.0020
	(−0.41)	(−1.03)	(−1.00)	(−0.49)

Notes: This table presents the α's from four-factor regressions for variations on the difference portfolios (Code compliance and change in Code compliance) with cutoff levels at the median and the 30th and 10th percentile as described in the text. Code compliance by sample firms is described in section 3. The construction of the compliance portfolios is explained in section 5. The portfolios are reset annually in accordance with the publication of the declaration of conformity. The upper panel uses the unadjusted difference between the weekly returns to the median and the 30th- and 10th-percentile portfolios. The lower panel contains the results using industry-adjusted returns, with industry adjustments based on the 18 industries of the Deutsche Börse AG classification. Columns (1) and (2) show the value-weighted and equal-weighted results for Code-compliance portfolios, whereas columns (3) and (4) show respective results for the portfolios constructed based on the change in Code compliance. The explanatory variables are *RMRF*, *SMB*, *HML*, *MOM*, and a constant. These variables are the returns to zero-investment portfolios designed to capture market, size, book-to-market, and momentum effects respectively. See section 5 on the construction of these factors. All coefficients except for the α's are omitted in this table. The sample period is October 2002 to September 2005. t-statistics are stated in parentheses. Significance at the 10 %, 5 %, and 1 % levels is indicated by *, **, and *** respectively.

event-study methodology, we examine the short-term reaction of share prices to the first-time disclosure of the declaration of conformity. Our event-study results suggest that firm value is unaffected by the announcement, although such market reactions were widely assumed by the private and public promoters of the Code.

If there is nothing unusual in returns during an event, this does not necessarily mean that the event is value-irrelevant. Bhattacharya et al. (2000) provide reasons why a non-event may occur: (i) the sample size may be small, which means the tests have no power; (ii) the market may be inefficient, in which case there is no link between value-relevant events and stock prices; (iii) though the event is value-relevant, there may be no price reactions because the market had anticipated the event or because insiders with private information about the event got away with trading in this market, and prices fully reflected the insiders' information; (iv) finally, the event may be value-irrelevant. We believe that the last is the case. In our test, the sample size is large and comparable to the sample size in typical event studies. Also, unlike the tests of Bhattacharya et al. (2000) on the Mexican stock market, our tests concern the largest German firms in the prime segment of the German stock market. Given its high liquidity and intensive coverage by analysts, we have no reason to believe that the market is not efficient.

That leaves only two explanations: First, the disclosure of Code compliance does not provide value-relevant information to the market. All the information conveyed by such disclosure is already reflected in the market price. This could be the case either because the event was anticipated by the market, or because insiders with private information about the event traded in this market without being punished. Tests of the regulatory event on the whole market indicated no positive anticipation effect, and anecdotal evidence suggests that the hypotheses of event anticipation and insider trading should be rejected. We therefore analyze the similar question of whether a pricing effect of changes in Code compliance exists over a longer period of time. We examine the effect of the degrees of Code compliance and respective changes on firm valuation over three years, and find that acceptance of the Code has no positive effect on stock price performance. Thus, our results suggest that – even in the long term – better governance (measured by the degree of compliance with the Code and changes thereto) does not lead to higher stock returns, nor is lower compliance related to stock price depreciations.

The second explanation of our findings is that the disclosure of Code compliance is a noisy signal that lacks credibility, so that its value is small. Based on our results, we cannot support the view that disclosure of the declaration of conformity serves as a credible signal of good governance. We arrive at pessimistic future expectations about the enforcement mechanism underlying the German Code. In accordance with (partial) evidence from other studies, we conclude that corporate governance regulation enforced purely through disclosure of compliance is rather ineffective – in the short and in the long run.

It should therefore come as no surprise that the most critical recommendations of the German Code have been or will be incorporated into codified law in the future – and so the Governance Code will likely share the fate of its two faded predecessors, the Insider Trading Code and the Takeover Code. Disappointed with issuers' compliance behavior, the German Ministry of Justice has already replaced the most frequently rejected provision, requiring individual disclosure of executive compensation, with codified law (Deutscher Bundestag, 2005). Complying with

this recommendation would have benefited the shareholders, but would have imposed a slight personal disclosure cost on management board members.[18] We see the introduction of the Executive Compensation Disclosure Law and of the Law on the Appropriateness of Directors' Remuneration as an implicit proof for our findings that the declaration of conformity is not an effective enforcement mechanism.

Our German evidence is in line with the U.S. evidence of Listokin (2010), who concludes that "failure to increase shareholder power may prevent the benefits of other corporate governance reforms [. . .] from being realized" (p. 53), because "[i]f a governance arrangement is inefficient but suits the board of directors, there will be almost no way to change it" (p. 40).

Already a decade ago, one member of the Code commission (Baums and Scott, 2005) suggested a reform of German corporate governance law that would facilitate legal actions to enforce the informational liability of management and supervisory-board members as well as empower their shareholders. Fourteen years after the introduction of the Code, there is good reason to reevaluate this proposal, because, as La Porta, Lopez-de-Silanes, and Shleifer (2006, p. 27) have argued, "financial markets do not prosper when left to market forces alone."

[18] Lo (2003) empirically shows that increased executive compensation disclosure rules benefit shareholders by inducing corporate governance improvements. Andres and Theissen (2008) show that firms not complying with this recommendation of the German Code were particularly those with large agency problems.

Appendix

A.1 Declaration of Conformity, 2002, by ThyssenKrupp AG

Declaration by the Executive Board and Supervisory Board
of ThyssenKrupp AG
on the recommendations of the
"Government Commission on the German Corporate Governance Code"
in accordance with Art. 161 of the Stock Corporation Act (AktG)

ThyssenKrupp AG complies with the recommendations of the "Government Commission on the German Corporate Governance Code" with the following exceptions:

One Supervisory Board member, who is a director of an exchange-listed company, currently has more than five Supervisory Board mandates at non-Group exchange-listed companies (Code section 5.4.3 sentence 2).

To date, there has been no extra compensation for the chair and members of supervisory board committees. The Executive Board and Supervisory Board will propose to the forthcoming Annual Stockholders' Meeting on February 21, 2003 that Art. 14 par. 1 of the Articles of Association of ThyssenKrupp AG be amended to include a provision on compensation for the chair and members of supervisory board committees (Code section 5.4.5 par. 1 sentence 3).

Duisburg/Essen, October 1, 2002

For the Supervisory Board **For the Executive Board**

Dr. Gerhard Cromme **Prof. Dr. Ekkehard D. Schulz**

Source: http://www.thyssenkrupp.de.

A.2 Chronological Overview of Events before and after the Introduction of the German Corporate Governance Code of 2002

Table A1
Capital Market Reactions to Regulatory Events

No.	Date	Event	Description
1	May 29, 2000	Appointment of the Baums Commission	Appointment of the members of the first government commission on corporate governance, chaired by Theodor Baums
2	June 20, 2000	Start of work by the Baums Commission	Issuance of a questionnaire to all relevant parties requesting comments on potential corporate governance changes in Germany. The Baums Commission was also influenced by the Corporate Governance Principles published by the Frankfurt Panel in January 2000 and the German Code of Corporate Governance published by the Berlin Panel in June 2000.
3	July 10, 2001	Report of the Baums Commission	Publication of the final report of the Baums Commission, including recommendations to introduce a voluntary Corporate Governance Code based on a comply-or-explain principle
4	Sep. 6, 2001	Appointment of the Cromme Commission	The Minister of Justice appointed the members of the second government commission for a German Corporate Governance Code, chaired by Gerhard Cromme, to develop an official Code.
5	Dec. 18, 2001	Presentation of a draft version of the Code	Public presentation of the draft of the Code
6	Feb. 26, 2002	Presentation of the Code	Public presentation of the final version of the Code
7	April 11, 2002	Draft transparency and disclosure law	Publication of document 14/8769 regarding the planned transparency and disclosure law by the German Bundestag, explaining the rationale for the introduction of the German Corporate Governance Code and the comply-or-explain principle.
8	July 26, 2002	Transparency and disclosure law	Commencement of the transparency and disclosure law of July 19, 2002, including new Article 161 of the stock corporation act (Aktiengesetz) requiring a declaration of conformity with the Code (published in the Federal Bulletin, July 29, 2002; Ministry of Justice, July 30, 2002)

Table A1
(continued)

No.	Date	Event	Description
9	Aug. 8, 2002	Publication of the Code in the Federal Bulletin	Publication of the German Corporate Governance Code in the electronic Federal Bulletin (Elektronischer Bundesanzeiger): German listed companies had until the end of 2002 to publish their first declaration of conformity under Article 161 of the stock corporation act.
10	Nov. 7, 2002	First meeting of the Cromme Commission	The Cromme Commission decided to make one minor amendment to the Code (section 6.6, first paragraph) in order to reflect new Article 15a of the securities trading act (WpHG) introduced by the transparency and disclosure law of July 19, 2002 (press release, Nov. 8, 2002; published in the Federal Bulletin, Nov. 26, 2002).
11	May 21, 2003	Second meeting of the Cromme Commission	The Cromme Commission decided on a major amendment to the Code of 2002, mainly concerning board remuneration (sections 3.10, 4.2.2, 4.2.3, 4.2.4, 5.4.5, 6.6, and 7.2.1).
12	June 10, 2003	Indications for the application of Code amendments	Press release by the Ministry of Justice explaining application of Article 161 of the stock corporation act in view of the amended version of the Code released by the Cromme Commission at its second meeting of May 21 (the Code of May 21, 2003, published in the Federal Bulletin, July 4, 2003)
13	June 8, 2004	Third meeting of the Cromme Commission	The Cromme Commission made no amendments to the Code.
14	June 2, 2005	Fourth meeting of the Cromme Commission	The Cromme Commission decided to make several amendments to the Code re disclosure and the supervisory board (sections 3.10, 5.3, and 5.4).
15	June 12, 2006	Fifth meeting of the Cromme Commission	The Cromme Commission decided to make amendments to the Code to strengthen rights of General Meeting chairman and re compensation.
16	June 14, 2007	Sixth meeting of the Cromme Commission	The Cromme Commission decided to make several amendments to the Code particularly re severance payments.
17	June 6, 2008	Seventh meeting of the Cromme Commission	The Cromme Commission decided to make several amendments to the Code (section 4.2.2, 5.4.6, and 7.1.2).

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Till G. Mahr
KPMG AG
Wirtschaftsprüfungsgesellschaft
Prager Str. 17
04103 Leipzig
Germany
tmahr@kpmg.com

Eric Nowak
Swiss Finance Institute
University of Lugano
Via Guiseppe Buffi 13
6904 Lugano
Switzerland
eric.nowak@usi.ch

Roland Rott
GO Investment Partners LLP
26 Throgmorton Street
London
EC2N 2AN
United Kingdom
r.rott@goinvestmentpartners.com