

# The emerging market for European corporate governance: the relationship between governance and capital expenditures, 1997–2005

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## Abstract

We examine European corporate governance with respect to the relationship between shareholder value and capital investment. Based upon Europe's largest listed companies, it is shown that Anglo-American conceptions of shareholder value are increasingly important for European firms whatever their home jurisdictions and inherited traditions. Using annual capital expenditures (CAPEX) as a proxy for corporate managers' commitment to shareholder value, it is shown, *contra* arguments to the effect that the map of European corporate governance regimes is fixed and virtually immutable, even large firms from paradigmatic stakeholder regimes believed focused upon long-term value increasingly act to maximize short-term shareholder value. We divide Europe into three regions based on ownership concentration, legal systems, board structures and the presence of corporate governance codes. In this multi-jurisdictional setting, we compare the effects of different elements of corporate governance on CAPEX in each region. Our analysis shows that the overall effect of investor-sensitive corporate governance on CAPEX is consistently negative notwithstanding differences in the formal nature and quality of governance standards between regions. We explain this finding by reference to the governance standards of the United Kingdom: a market for corporate governance that has come to dominate its continental European neighbours.

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## 1. Introduction

There is a growing European market for corporate governance. Large continental companies appear to be adopting shareholder-friendly practices more consistent with global financial market imperatives than their national traditions. In particular, we argue in this article that the market for corporate control is increasingly important in promoting short- and medium-term shareholder value. Whatever the formal significance of concentrated ownership regimes in continental European countries, managers appear to be discounting long-term stakeholder value. Whereas Dore (2000) contrasts the Anglo-American approach of revenue and cash distribution to shareholders

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with the continental European (especially German) approach of retained earnings and investment, we seek to show that large European firms are more short-term oriented than hitherto acknowledged.

By convention, there are two approaches to the study of corporate governance and shareholder value. The first, believed practiced by continental European and Japanese firms, assumes concentrated ownership and capital intensity with investment focused on the generation of long-term value. According to Dore (2000, 187), in this type of regime 'profits represent the cash available for investments or wage increases rather than the size of the capitalists "take"'. This model of governance seeks to satisfy multiple 'insider' stakeholders assuming that short-termism would otherwise undermine long-term competitiveness. In contrast, in Anglo-American governance systems investors and portfolio managers favour the short-term distribution of excess cash over retained earnings (Aguilera et al., 2007). In part, this is due to a distrust of managers who are suspected of hubris and a propensity for empire-building. Equally, investors might not be able to estimate the economic benefits of medium- and long-term investment. These stylized facts have dominated research on comparative corporate governance over the past few decades (Hopt et al., 1998; McCahery et al., 2002; Gordon and Roe, 2004).

Case studies have challenged the robustness of these 'facts'. For example, it has been shown that when global investors demanded greater transparency and board independence at Royal Ahold, management responded with board reform (Clark et al., 2006). Likewise, it is apparent that shareholder pressure led to Jürgen Schrempp's resignation at DaimlerChrysler AG; his vision of a 'world corporation' was not realized with consequent poor rates of return for global investors. As a result, the Chrysler unit was sold-off to the US private equity firm Cerberus in May 2007. Global institutional investors including hedge-funds have routinely targeted large European blue chip companies cross-listed at international exchanges. In play are both the short-term trajectory of company stock market prices and the governance of those companies recognizing that board structure and performance are intimately related to the sensitivity of external constituents in targeted firms (Becht et al., 2003).

In this article, we argue that it is not plausible to assume an immutable European map of corporate governance regimes; in fact, there is evidence that the management behaviour of Europe's largest firms is increasingly consistent with the market for corporate control (Clark and Wójcik, 2007). In doing so, we go beyond case studies to a systematic analysis of 395 European firms testing for regime-specific differences in the relationship between corporate governance, management behaviour and shareholder value. To do so, we use annual capital expenditures (CAPEX) as a proxy for manager behaviour. Research in the US using this variable showed that lower CAPEX lead to higher market valuation and stock market performance (Gompers et al., 2003). In a related paper, Titman et al. (2004) showed that US investors react positively to reductions in CAPEX because investors infer that lower CAPEX will produce higher distributed dividends in the future. Basically, institutional investors are suspicious of managers of companies with weak shareholder rights, believing managers invest for their own benefit (see, for example, Bertrand and Mullainathan, 2003; Yermack, 2006).

Here, we assume that manager commitment to shareholder value is manifested in the pattern of corporate CAPEX. This relationship is evaluated in relation to investor-sensitive elements of corporate governance while controlling for other factors influencing companies' investment decisions. Disaggregate data is used to measure corporate

governance based upon a proprietary database made available from a commercial rating agency. In particular, we test this relationship across European governance regimes using three 'regions' based upon inherited legal traditions, market structure and the prevalence of formal codes of governance. In the empirical sections (4.1–4.5) of the article, we test for the existence of a continental European approach to shareholder value and CAPEX. We hypothesize (i) there is a significant effect of corporate governance on management behaviour and (ii) managers have adopted practices consistent with the preferences and actions of global portfolio investors.

Our study contributes to the interdisciplinary literature on corporate governance and economic geography in two ways. First, we provide evidence to the effect that corporate governance has an impact on management behaviour and performance. We show that governance, and the range of takeover defences (TD) in particular, can affect managers' CAPEX.<sup>1</sup> Companies with a high score on overall investor-sensitive corporate governance and low takeover barriers invest less than their industry peers. Second, we find that these results hold across Europe notwithstanding the historical significance attributed to three different regimes of corporate governance. As a result, it is contended that managers are adopting practices consistent with the interests of global investors even if convergence between national models of corporate governance is less systematic than hoped for by global portfolio investors. Even managers domiciled in countries with less well established governance codes and limited takeover markets appear to be adjusting to Anglo-American expectations regarding shareholder value. In these ways, the United Kingdom is the litmus-test for European corporate governance.

The article is organized in the following manner. Section 2 presents theoretical aspects of the debate about corporate governance and convergence, and explains how governance and patterns of corporate CAPEX may be related. We also summarize what is expected in terms of the empirical results. Thereafter, the data on governance and corporate financial performance are explained as is the methodology used to test the research hypotheses. Section 4 summarizes the empirical results, which are discussed in more detail in Section 5 both in general and from the perspective of economic geography. Finally, the conclusion draws implications for future research and notes possible short-comings in the analysis.

## **2. Theory of European corporate governance**

Corporate governance differs across countries in terms of ownership concentration and board structures, legal heritage and management authority. Nonetheless, Shleifer and Vishny (1997) distinguish between two generic regimes. Dispersed ownership regimes typically have an active market for corporate control, where short-term shareholder value is the company's primary objective. If typical of Anglo-American countries, continental Europe is characterized by concentrated ownership and controlling 'insiders' who directly monitor and discipline management. In theory, companies in

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1 Throughout, we refer to the elements of corporate governance relevant to institutional investors and the formal models of governance embedded in nation-state rules and regulations. In effect there is a distinction made between the theory and practice of corporate governance, emphasizing the latter in relation to the former. Hence, our study is relevant to debate in economic geography over the varieties of capitalism and path dependence (Peck and Theodore, 2007), and argument in governance studies over the political structure of national traditions (Roe, 2006; Monk, 2008).

this type of regime embrace the concept of medium- and long-term stakeholder value (Burkart and Panunzi, 2006). Unlike continental Europe, public companies in the United Kingdom and Ireland tend to have highly dispersed owners such that almost everyone is an ‘outsider’ and the threat of being taken over is, presumably, the disciplining force on management. Continental Europe firms also carry the burden of more detailed and rigid regulations compared with the principles approach that holds sway in the UK.

In response to the governance scandals of the first years of the decade, it appears that many larger European firms have adopted more shareholder-friendly practices. Companies either signal increasing commitment to governance quality by cross-listing on international exchanges or by their voluntary compliance with higher transparency and investor-friendly standards. It is often contended that superior systems of corporate governance are to be found in the United States and in the United Kingdom; it is widely believed that as global capital markets become more integrated and more correlated in terms of performance, continental European companies are likely to converge to international best-practice standards of governance.<sup>2</sup> According to Clark and Wójcik (2007, 34), it is also widely believed that best-practice is considered by market agents to be a ‘perfected version of Anglo-American corporate governance with its primary objective of maximizing shareholder value [...] and firms’ access to external funds’.

Just as European corporate governance has been changing in response to globalization, institutional investors through their corporate engagement strategies have become important in accelerating change. In a number of cases, institutional investors have sought to influence the corporate governance and transparency of blue chip companies (Hebb, 2006). More generally, investors have become more explicit about their evaluation of corporate governance deliberately referencing international standards in the assessment processes.<sup>3</sup> On the basis of governance best-practice, they have lobbied management to improve their practices and governments to develop national codes consistent with global standards. Consequently, the shareholder value perspective has become more significant irrespective of the legal environment in which target companies are headquartered. Given that Anglo-American standards of corporate governance are often invoked as representative of ‘best-practice’, we hypothesize that large continental European firms increasingly behave like UK-based companies with regard to CAPEX and retained earnings.

To illustrate, consider the recent history of Royal Ahold and DaimlerChrysler. Between 1998 and 2001, the Dutch retailer Royal Ahold engaged in worldwide acquisitions totalling 16.4 billion Euros (Wrigley and Currah, 2003). Most acquisitions took place in South America but were rather unsuccessful when judged by the return on capital invested. Deficient corporate governance practices, lax internal controls and media-hype had ceded the CEO considerable control over investment decisions. A clinical study by de Jong et al. (2005) revealed that the company’s shareholders

2 The idea of global best-practice is contested in economic geography, given the path-dependence of national traditions and institutions (Gertler, 2001). Here, we refer to a decision-relevant reference point for institutional investors rather than an absolute measure of institutional quality that dominates the design of national governance systems.

3 We note that institutional investors tend to evaluate ‘good corporate governance’ from the perspective of their equity holdings, thereby neglecting creditors. In this article, we focus on the former evaluation process (see Cremers et al., 2007 on the relationship between bondholders and corporate governance).

viewed most of these investments as indicative of CEO hubris and his penchant for empire building. Another, more recent, instance is DaimlerChrysler AG. Its former CEO's idea of a 'world corporation' involved global acquisitions and diversification into unrelated fields. Shareholder disapproval of this strategy and perceived excess investing resulted in inferior stock market performance in the years subsequent to the acquisitions. Institutional investors became impatient with the strategy of global expansion and diversification; poor operating performance led to the disposal of the Chrysler unit in 2007.

The cases of Royal Ahold and DaimlerChrysler demonstrate institutional investors' sceptical views about corporate investment in fixed assets. Assuming managers invest in order to create shareholder value, CAPEX and the value of earnings retained or distributed to shareholders are deemed indicative of incumbent managers' approaches towards value creation. CAPEX are, of course, vital for any company—in theory, CAPEX sustain a firm's competitiveness assuming that discounted future cash flows exceed costs. Here, we demonstrate empirically that there is a systematic link between the measured quality of the elements of investor-sensitive corporate governance and the relative value of CAPEX holding constant capital demand, cash flow and cash availability. If expectations of best-practice governance exert a disciplining influence on managers' investment decisions and constrains the potential for empire-building, by this logic managers should identify only profitable projects against rigorous internal controls.

It is entirely possible, of course, that such discipline or the threat of discipline encourages risk-averse behaviour resulting in chronic under-investment. This need not be beneficial over the long-term for investors and other stakeholders including employees (Stein, 1988). However, institutional investors typically manage such risks through portfolio diversification so that long-term investor commitment is unusual. As a consequence, local stakeholders may be the losers in these circumstances; managers face a trade-off between serving institutional investors, long-term competitiveness and playing favourites with local stakeholders.<sup>4</sup>

Our hypothesized relationships are explored with reference to three European governance regions or regimes. We test for the existence of differences in the proposed relationship across regimes, consistent with those that suppose that the differentiated map of corporate governance produces systematic differences in financial structure and performance (La Porta et al., 2002). We also allow for the possibility that shared financial market imperatives drive manager behaviour such that whatever the formal differences between European regimes of corporate governance, managers are increasingly sensitive to the significance of CAPEX for institutional investor expectations (the argument underpinning Clark and Wójcik, 2007). If we can show that across European regimes of governance the sign on the relationship between corporate governance and CAPEX is the same, this will be used as evidence for convergence in management behaviour. Even though there are different types of governance codes across Europe, many of which are not equally legally binding, it could be observed that managers in companies from 'weaker' governance regimes opt for behaviour consistent with Anglo-American standards.

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4 Recent papers that have addressed companies' relationship to local stakeholders and employees include Pagano and Volpin (2005) and Cestone and Cespa (2007) who provided evidence of managers exploiting their relationships with stakeholders.

Countries like France and The Netherlands have established long-standing and firm governance codes. Disclosure on whether companies comply (mostly based on the doctrine of ‘comply or explain’) with these codes can be either a function of prevalent local listing requirements or embedded in national law. In other countries like Sweden and Norway, formal codes of governance that match or mirror international standards have only recently been introduced. So as to capture these developments, we use three European regions designed to reflect differences in board structure, governance codes and legal traditions. This allows us to compare the effect of governance on CAPEX across European regions before pooling the samples into continental European and pan-European samples. That corporate governance codes may have an effect on firm investment has been readily noted in the literature. Chhaochharia and Grinstein (2007) analysed the consequences of the Sarbanes-Oxley Act for US-listed companies’ share price performance and market valuation. They concluded that the effect is positive for large-cap companies and less positive for small firms. Our analysis focuses on large-cap stocks in Europe, which are the subjects of governance strategies by investment institutions.

Prior work by Gompers et al. (2003) sought to explain the financial outperformance of well-governed US companies over badly governed counterparts. They showed that well-governed companies engage in less CAPEX and less acquisitions. However, their estimate of governance quality was rather idiosyncratic. Furthermore, it would be difficult to show that their measure is recognized as such in the actions of institutional investors. Titman et al. (2004) also investigated the capital investment and return relationship concluding that shareholders view a reduction in CAPEX positively. Here, in contrast, we take a direct approach to the issue of governance quality and use data provided by a dedicated governance rating agency. In particular, we investigate four elements of investor-sensitive corporate governance plus an overall governance score: the rights and duties of shareholders (RDS), the TD, disclosure on corporate governance (DCG) and board structure and functioning (BSF). The rating database that we use is based upon the FTSE EuroTop 300 largest European companies. Large institutional investors use this database to inform their investment decisions. Hence, our analysis directly reflects elements that institutional investors believe important when considering investment strategies.

We motivate our analysis in the following way. Firms with higher overall scores on investor-sensitive corporate governance should be more prudent on CAPEX. The subscores on the TD and BSF should, in theory, also lead to more prudent capital investment. If managers are entrenched and isolated from the market for corporate control, they will face less pressure to create short-term shareholder value. Expectations about the direction of association on the RDS and DCG cannot be made *a priori* but we expect these variables to affect investment decisions. With more rights, managers may grant (minority) shareholders more power to influence corporate strategy. Since DCG includes the transparency of remuneration practices, this element helps investors hold managers accountable on investment. BSF is the fourth category in the database and refers to the quality and robustness of internal controls. If managers face vigilant supervision and audits, they may invest more efficiently and be less prone to conceal perks.

Most importantly, we expect the effect of investor-sensitive corporate governance variables on CAPEX to be similar across Europe despite being tested in a multi-jurisdictional setting. In continental Europe, controlling insider shareholders



are supposed to be the disciplining force affecting management behaviour whereas in the UK this influence is typically located in the market for corporate control. There is ongoing debate as to whether market agents view reductions in CAPEX positively or negatively. Royal Ahold's stock price had shown adverse movements before the actual date of earnings restatement, which indicates that some financial analysts had made negative assessments about the consequences of lavish corporate spending (see generally Yermack, 2006). The problems of the continental European model of corporate governance were widely recognized in the late 1990s, even before they became apparent in Ahold and DaimlerChrysler. Given the leverage of institutional investors, and empirical evidence to the effect that shareholders prefer lower CAPEX, we expect managers to adopt Anglo-American practices even if nation-specific regimes remain wedded to political interests (compare Roe, 2006).

### **3. Study data and methodology**

#### **3.1. Data**

Institutional Shareholder Services (ISS) Europe (formerly Deminor Ratings S.A.) provides scores on European corporate governance standards.<sup>5</sup> The time horizon of the database is unusual in that no other European scoring system focused on investor-sensitive categories of governance covers the same period. Four broad categories sum to a Total governance score. The first category RDS can be described as the extent to which (minority) shareholders are able to influence a company's actions. The second category TD charts the potential barriers to hostile takeovers thereby protecting management from the market for corporate control. DCG summarizes the availability and quality of financial and non-financial information. Finally, BSF evaluates board diversity, experience and the independence of board members, as well as the insider/outsider mix and remuneration practices.

Scores range from 0 to 10 and are updated by Deminor on a yearly basis. The available data used in our article ranges from 2000 to 2005. Excluded from the analysis are 20 companies from Austria, Greece, Portugal and Luxemburg since firms from those countries are not continuously rated. In order to increase the time horizon and thereby upgrade the statistical validity of our tests, we extended the ratings backwards by three additional years by holding 2000 scores constant to 1997. Since ratings hardly changed over the period 2000–2002, we believe that this is a reasonable approach. Deminor covered a total 395 companies over the 6-year period. We are aware that using this database depends upon the skill and expertise of the rating agency. But we contend that Deminor has proven to be an effective analyst both for individual companies and across European regions. In any event, Deminor measures are more systematic and consistent on crucial issues than other similar approaches extant in the literature (cf. Gompers et al., 2003).

The main users of the database are institutional investors, who use the ratings as a baseline for their investment decisions. Information gathered by analysts to produce

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5 In the following, we refer to the governance database as the 'Deminor' database. A detailed description of the database and its categories can be found in Appendix A (see also Wójcik, 2006; Clark and Wójcik, 2007).

these ratings is publicly available if sometimes difficult to collate and synthesize so as to reflect market information rather than inside information (Wilhelm and Downing, 2001). The database is comprehensive and ratings do not place equal weight on the measured provisions as in Gompers et al.'s (2003) synthetic self-constructed *G*-score. The Deminor rating algorithm takes into account approximately 300 characteristics to arrive at a weighted rating score. Bauer et al. (2004) have used the Deminor database to investigate the possible outperformance of well-governed over badly governed European companies. Renders and Gaeremynck (2006) used the same information to study the link between governance and operating performance from an accounting perspective. Finally, Wójcik et al. (2005) used the database to check for differences in governance ratings for cross-listed firms.

The second database comes from Worldscope. CAPEX were derived from firms' cash flow statements and counts as 'additions to fixed assets'. Data was obtained on firm's total assets (TA) and sales revenues (SR) with, as well, data for control variables including trailing 3-year sales growth (SG3Y), the price-to-book ratio (PB) and Tobin's *q*. Additionally, we utilized cash flow to sales ratio (CFS), and firms' cash ratio (CR), which is defined by Dittmar and Mahrt-Smith (2007) as the ratio of cash and cash equivalents over net assets (balance sheet TA minus cash and cash equivalents). Finally, we included a debt-to-assets ratio (DA) variable to capture capital-structure effects. Tobin's *q* is the market value of assets divided by the replacement value of assets. Market value is approximated by the sum of the book value of assets and the market value of firm equity. From this, the book value of equity is subtracted. The replacement value of the assets is simply the book value of assets. Although there are more sophisticated measures of capturing Tobin's metric, we assume that this is a reasonable approximation. Log PB represents the natural logarithm of the ratio of the market value of equity and book value of equity (plus balance sheet deferred taxes). A full list of financial variables is in Appendix B.

Since the variables are ratios, currency effects are not considered. Even though a sizeable number of companies in the sample went through major restructuring during this period with name changes, merger activities and bankruptcies our database remains robust over the sample period. Table 1 reveals how our sample is distributed across western European countries.

The heterogeneity of nation-wide corporate governance codes and prescriptions in the countries under investigation is illustrated in Table 1, column 2. We investigate three distinct European regions in order to test for statistically significant differences in the relationship between corporate governance and investment. The country with the most robust corporate governance code is the United Kingdom. Since the UK stock market is highly liquid and because ownership is dispersed, takeover barriers are low, and the market for corporate control is active (Burkart and Panunzi, 2006). Moreover, according to La Porta et al. (2002), the UK's common law heritage plays a significant role in underpinning market liquidity. Therefore, as suggested by Tirole (2001), firms in the UK are more likely to embrace the concept of shareholder value: it is the reference jurisdiction for much of continental Europe.

Most continental European companies are located in civil law systems. Furthermore, continental Europe is often characterized as being bank-driven whereas the UK and Ireland are deemed governed by financial markets. The broad concept of stakeholder society, which is prevalent in continental Europe, suggests a more complex objective function than that summarized by the phrase shareholder value



**Table 1.** Overview of countries in the sample and data size

(1) Country	(2) Date of issuance of first governance code	(3) Average no. of companies	(4) Region 1	(5) Region 2	(6) Region 3
Belgium	1998	10	X		
Denmark	2000/2005	5		X	
Finland	2003	5		X	
France	1995/1998	40	X		
Germany	1998/2002	30	X		
Ireland	2000	5			X
Italy	1999/2003	23		X	
Norway	2004	4		X	
Spain	1998/2003	12		X	
The Netherlands	1997/2003	20	X		
Sweden	2005	17		X	
Switzerland	2003	17		X	
United Kingdom	1992/2000	82			X
Total		270	100	83	87

*Note:* Covered countries in the sample, average number of companies per country from 2000 to 2005 and regional belonging. Criteria of belonging to any of the three regions have been shown in Section 3.1. of the text. The last row shows the total average number of companies in the sample and per region. The date of issuance of the prevailing governance codes was according to the index of codes and principles of the European Corporate Governance Institute's website (2006) ([www.ecgi.org](http://www.ecgi.org)). If two dates are stated in column two the most recent date refers to a revision.

(Jensen, 2000). Germany is often invoked as the best example of this type of governance system, where stakeholders like banks, labour unions and community representatives sit with executives on companies' supervisory boards (Dore, 2000). As such, region one is comprised of two-tier structured systems, whereas both region two and the United Kingdom and Ireland have unitary boards. Finally, as shown in column 2 of Table 1, the three regions have different histories of corporate governance codes and thus may function differently. Formal differences in corporate governance are manifested in countries' Deminor ratings as shown in Table 2. The lower part of Table 2 also shows descriptive statistics on a regional level.

As expected, the United Kingdom together with Ireland had by far the highest total scores on investor-sensitive corporate governance. As noted earlier, this is due to the active market for corporate control and the limited significance of takeover defences. Consequently, scores on the TD category are very high. The particularly low scores on TD in Italy, Spain and Denmark are probably due to the frequent presence of golden shares and ownership ceilings.<sup>6</sup> In columns 3 and 4 (Table 2), both UK and Ireland take leading positions. Due to large supervisory boards and limited commitment to independent boards of directors, Germany scores very low on BSF. Surprisingly, Germany scores high on RDS, which might be partly attributable to employee codetermination laws. If we focus on the time-series behaviour of our relevant corporate governance and CAPEX variables, we can confirm the growing importance of governance in the

6 A 'golden share' is defined as the government having the final decision over changes in control (i.e. takeovers) or major financial decisions if they endanger national interests (Damodaran, 2002).

**Table 2.** Time-series average values of deminor scores and financials per country from 1996 to 2005

Country	(1) RDS	(2) TD	(3) DCG	(4) BSF	(5) Total	(6) CAPEX/SR (ADJ)	(7) PB	(8) <i>Q</i>	(9) SG3Y	(10) CFS	(11) CR	(12) DA
Belgium	6.2083	1.1128	4.8929	4.7158	16.9297	-0.0073	2.2553	0.8912	0.1581	0.4998	0.0858	0.2623
Switzerland	5.9189	3.3847	4.3885	3.7601	17.2336	-0.0271	3.2955	1.3462	0.0625	0.1586	0.1537	0.2255
Denmark	5.7165	1.5897	4.0636	3.1029	14.4727	0.1456	6.1084	3.9102	0.2390	0.5996	0.1250	0.2098
Finland	6.9935	4.6166	6.0276	4.6234	22.2611	-0.0206	4.0040	1.8415	0.1630	0.1924	0.1299	0.2399
Spain	5.5134	1.4762	5.1233	4.6543	16.7672	0.0277	3.1832	4.4515	0.1747	0.1778	0.0895	0.2943
France	6.3449	3.2012	5.3962	5.0234	19.9657	0.0226	3.2251	1.0098	0.0952	0.1235	0.1223	0.2572
Germany	7.0659	3.5000	5.1094	3.3673	19.0426	-0.0007	3.2841	0.9751	0.0964	0.1220	0.1278	0.2157
Ireland	7.0012	8.8515	6.8883	6.4554	29.1963	0.0125	5.1289	0.8782	0.2139	0.1396	0.1919	0.3401
Italy	6.4288	1.6853	5.7933	4.2773	18.1847	-0.0152	2.8813	0.6379	0.1168	0.2224	0.0691	0.3142
Netherlands	4.9291	1.7890	5.7222	4.4905	16.9308	0.1059	5.1537	1.8580	0.1268	0.1496	0.1220	0.2783
Norway	7.4036	2.4132	4.8117	3.9285	18.5570	0.0286	1.8257	0.7025	0.1094	0.1293	0.1308	0.2872
Sweden	6.0688	4.8288	5.0817	4.2050	20.1842	-0.0003	3.2331	1.2598	0.0975	0.1203	0.1344	0.2784
UK	6.9006	7.0724	7.3691	6.5528	27.6644	0.0358	3.7877	1.7600	0.1007	0.1465	0.1384	0.2750
Region 1	6.2470	2.7975	5.3333	4.4075	18.7854	0.0281	3.5224	1.1633	0.1065	0.1604	0.1208	0.3028
Region 2	6.1495	2.8567	5.1443	4.1529	18.2513	0.0063	3.3181	1.7682	0.1217	0.2045	0.1113	0.3610
UK and Ireland	6.9060	7.1677	7.3429	6.5475	27.7464	0.0344	3.8680	1.7069	0.1070	0.1461	0.1416	0.2664

*Note:* This table shows time-series average values of the four Deminor subscores and financials in the 13 European countries in the sample. Columns 1 until 5 show averages of the governance scores whereas the remaining columns present averages of the dependent variables (columns 6 and 7) and the control variables (columns 8 to 12). The abbreviations and meanings for the variables in columns (1) until (5) are as defined in the text and in Appendix A. CAPEX/SR(ADJ) resembles capital expenditures scaled by sales revenue and is adjusted for the industry median. *Q* is the market value of the assets divided by the replacement value of the assets. CR is cash and cash equivalents over net assets (balance sheet total assets minus cash and cash equivalents). PB ratio is market value of the firm's common equity divided by the book value. SG3Y is trailing three year sales growth and CFS is the firm's cash flow to sales ratio. DA is the firm's debt-to-assets ratio.

raw data. Since we assume Deminor scores represent institutional investors' awareness of corporate governance standards, we interpret an increasing score as growing importance. The Total score strictly and monotonously increases in every corporate governance region, whereas the variable of scaled and adjusted CAPEX does not increase. The industries covered in the sample are listed in Table 3. The table reveals differences in corporate governance ratings among European industrial sectors. Both telecoms and utilities score comparatively low on the TD. One explanation is that governments frequently own golden shares in firms in these sectors, which renders any takeover attempt as burdensome for the acquirer thereby protecting incumbent management.

### 3.2. Methodology

CAPEX are subject to both industry- and country-effects and are sensitive to company size.<sup>7</sup> Consequently, the dependent variable CAPEX was standardized by SR so as to account for firm size. This standardized measure of CAPEX is also held to the industry median value as in Gompers et al. (2003), since service and financial companies invest less in fixed assets than highly capital intensive basic industrial companies. Industry classifications are based on the Global Industry Classification Standard of 10 sectors retrieved through Worldscope. A finer industry classification was not used so as to have more significant median adjusted values. In addition to controlling for sector effects, we account for country differences using dummy variables.

The association between CAPEX and investor-sensitive corporate governance measures is evaluated using the following pooled OLS model:

$$\text{CAPEX}_{it} = \alpha_i + \sum_{j=1}^J \beta_j \text{Gov}_{j,it} + \sum_{k=1}^K \gamma_k C_{k,it} + \varepsilon_{it}, \quad (1)$$

where  $\text{CAPEX}_{it}$  represents CAPEX of firm  $i$  in period  $t$  and are scaled by SR and net of the industry median value.  $C$  is a vector of  $i$  control variables in period  $t$ . For the CAPEX regressions, these are the logarithm of price-to-book ratio (log PB), Tobin's  $q$ , SG3Y, CFS, CR, 1-year lagged CR and DA. Furthermore, dummy variables capture country-specific differences and equal unity if a company is located in a specific country (zero otherwise). Unlike Gompers et al. (2003) we opt for a pooled framework so as to utilize the database to the fullest extent. The model also uses time-fixed effects and adjusts for heteroskedasticity (White, 1980).

The reason behind incorporating log PB, Tobin's  $q$  and SG3Y is that all can be interpreted as proxies for growth opportunities (Tobin's  $q$ ), investment potential (log PB) and capital demand (SG3Y). CFS and CR capture cash flow effects and excess cash disposal for investments. On the other hand, Gov is the variable that captures the

7 We note, for example, that the data for the United Kingdom (unlike rest of Europe) includes listed REITs (notably British Land, Land Securities, BAA and others), whose very high CAPEX stand in contrast to the very low financial sector median value. There are also some privatized companies, notably Railtrack PLC, and very young companies, notably RyanAir, that have invested far more than mature firms in related sectors.

**Table 3.** Time-series average values of deminor scores and financials per sector from 1996 to 2005

Sector	(1) RDS	(2) TD	(3) DCG	(4) BSF	(5) Total	(6) CAPEX/SR	(7) PB	(8) $Q$	(9) SG3Y	(10) CFS	(11) CR	(12) DA
Energy	6.3233	3.4233	6.0694	5.1682	20.9842	0.1111	3.0332	1.5324	0.1278	0.1442	0.0748	0.1891
Materials	6.6539	5.5614	5.9274	5.0696	23.2122	0.0791	2.3913	0.8084	0.0736	0.1294	0.0896	0.2726
Industrials	6.2954	4.3089	5.8769	4.9716	21.4529	0.0931	3.1002	1.5723	0.1377	0.1754	0.1386	0.2419
Consumer discr.	6.5366	4.5787	5.9421	5.0533	22.0039	0.0712	3.2621	1.5272	0.0802	0.1180	0.1464	0.2724
Consumer staples	6.5557	4.1340	6.3155	5.3892	22.3944	0.0491	6.3535	1.3745	0.0709	0.1127	0.1265	0.3208
Health care	6.5041	3.6641	5.6955	4.6690	20.1379	0.0797	6.0111	2.8578	0.1328	0.1753	0.2839	0.1765
Financials	6.4465	4.4799	5.8189	4.9322	21.5353	0.0862	2.4569	0.2754	0.1105	0.2045	0.0365	0.2717
Information tech.	6.1665	3.9306	5.6197	4.6443	20.3611	0.0962	7.2075	8.7372	0.1953	0.0975	0.3629	0.1865
Telecom services	6.2092	2.2663	5.9643	4.7698	19.2096	0.2127	5.1657	1.2817	0.1534	0.2025	0.1647	0.3489
Utilities	6.2651	3.2613	6.0125	5.3465	20.8854	0.1819	1.9478	0.6599	0.1242	0.3365	0.0835	0.3220

*Note:* This table shows time-series average values of the four Deminor subscores and financials of the 10 sectors in the European sample. Columns 1 until 5 show averages of the governance scores whereas the remaining columns present averages of the dependent variables (columns 6 and 7) and the control variables (columns 8 to 12). The abbreviations and meanings for the variables in columns (1) until (5) are as defined in the text and in Appendix A. CAPEX/SR resembles capital expenditures scaled by sales revenue.  $Q$  is the market value of the assets divided by the replacement value of the assets. CR is cash and cash equivalents over net assets (balance sheet total assets minus cash and cash equivalents). PB ratio is market value of the firm's common equity divided by the book value. SG3Y is trailing 3-year sales growth and CFS is the firm's cash flow to sales ratio. DA is the firm's debt-to-assets ratio.

corporate governance dimensions of firm  $i$  at time  $t$ . The four elements of corporate governance are highly correlated (Table 4) and this limits the value of simultaneous incorporation of the variables into the regression equation. We observed a very strong correlation between the total score on corporate governance (Total) and the TD. On this count, this might be caused by the fact that many European companies' corporate governance are rated either lowly or very highly. Thus, a high score in this category may strongly influence the total score. Moreover, BSF and DCG correlate very highly with 0.83, possibly hinting at the fact that those scores measure fairly similar items.

Potential concerns about endogeneity of corporate governance and CAPEX are not apparent in the data. Even though one could assume larger companies (in terms of SR or balance sheet TA) would be more able to comply with international governance standards, correlations to firm size are below 0.1. Papers investigating the endogeneity of corporate board structures have focused on the CEO's involvement in the selection process rather than the firm characteristics that may influence the selection process (Hermalin and Weisbach, 1988, 1998). In order to ensure methodological robustness, we use a cross-sectional regression approach as in Fama and MacBeth (1973) with the following model:

$$\text{CAPEX}_{it} = \alpha_i + \beta_1 \text{Gov}_{it} + \gamma_{it} C_{it} + \varepsilon_{it}, \quad (2)$$

where Gov and  $C$  are as outlined in the pooled OLS regression equation. The significance of the time series average is tested with a  $t$ -statistic for eight degrees of freedom. Since the results are qualitatively the same, we opted for the more powerful pooled OLS setting and report only those results.

## 4. Results of empirical estimations

Having elaborated on the databases and methodology used to test the research hypotheses, we turn to the empirical results. Table 5 below summarizes our expected results as summarized in Section 2.1. Note that for some sub-aggregate scores we cannot infer the direction of statistical association. The results for the three regions are reported separately. If we observe similar effects despite different formal governance regimes and legal systems, this may be evidence for convergence in corporate management behaviour in Europe. Region one including Belgium, France, Germany and The Netherlands is analysed before we proceed to the one-tiered region two and the United Kingdom.

### 4.1. Findings for region one

This region is comprised of two-tiered systems of corporate governance and is made-up of countries with more established governance codes. Table 6 below, summarizes the regression results.

Table 6 reveals highly negative and significant results for Deminor's Total governance score, the TD, DCG and BSF. This suggests that these elements of corporate governance negatively affect CAPEX in excess of the industry median. Hence, companies with less takeover defences, companies which are more transparent and companies with better internal controls invest less than their industry peers. Moreover,

**Table 4.** Correlation matrix between governance variables, dependent variables and control variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	RDS	TD	DCG	BSF	TOTAL	CAPEX/SR (ADJ)	PB	$Q$	SG3Y	CFS	CR	DA
RDS	1											
TD	0.4864	1										
DCG	0.2322	0.3632	1									
BSF	0.2467	0.4420	0.8314	1								
TOTAL	0.6014	0.8754	0.7208	0.7662	1							
CAPEX/SR (ADJ)	-0.0022	-0.0636	0.0306	0.0262	-0.0226	1						
PB	-0.0279	-0.0053	-0.0279	-0.0216	-0.0213	0.0097	1					
$Q$	-0.0079	-0.0369	-0.0607	-0.0279	-0.0455	0.0838	0.0532	1				
SG3Y	-0.0116	-0.0298	-0.1399	-0.0951	-0.0794	0.1365	0.0071	0.1067	1			
CFS	-0.0376	-0.1097	-0.0649	-0.0083	-0.0896	0.0810	0.0083	0.0820	-0.0318	1		
CR	-0.0054	-0.0318	0.0150	-0.0001	-0.0155	0.0454	0.0204	0.3412	-0.0037	-0.0013	1	
DA	-0.0297	-0.0256	0.0257	0.0055	-0.0126	0.1301	-0.0130	-0.1328	0.0144	-0.0944	-0.1899	1

*Note:* Table resembles a bivariate correlation matrix between the governance variables and the financial variables of interest. The sample comprises 3,950 firm level annual observations. (1) RDS stands for Rights and Duties of Shareholders, (2) TD Range of Takeover Defenses, (3) DCG Disclosure on Corporate Governance, (4) BSF Board Structure and Functioning, (5) Total is the sum of (1) until (4). (6) CAPEX/SR (ADJ) is CAPEX scaled by sales revenue and adjusted for the industry median. (7) PB is price-to-book ratio. (8)  $Q$  Tobin's  $q$  (market value of assets over the replacement value of assets). (9) SG3Y is trailing 3-year sales growth. (10) CFS is cash flow to sales. (11) CR is the company's cash ratio [cash and cash equivalents divided by net assets (total assets minus cash and cash equivalents)]. (12) DA is debt-to-assets ratio.



**Table 5.** Research objectives and hypothesis motivation

Category	Expected relationship	Actual relationship	Related literature/hypothesis motivation
1. Total	?	–	Offsetting effects within categories might blur the overall effect on CAPEX, no inference on direction of causality
2. RDS	–/+	+/?	Related to Gompers et al. (2003); difference is the European market and focus on RDS only. Therefore, as such previously not investigated.
3. TD	–	–	More takeover defenses lead to less pressure to create shareholder value as a barrier to being taken over. More entrenched managers fear losing their job less.
4. DCG	–/?	–/+	Not investigated before; no causality inferred. Directors more accountable for their decisions
5. BSF	–	–/+	Clark et al. (2006); Wrigley and Currah (2003); notion that lax internal controls give leeway in CAPEX. More frequent and rigid controls and audits lead to fewer investments in absolute terms.
Regional differences	No	Hardly	Wójcik (2006), Coffee (2005) and Hebb (2006) show differences between governance systems and a trend towards convergence.

*Note:* We list our expected/hypothesized statistical association of each corporate governance variable with the dependent variable (i.e. CAPEX) according to related prior studies or motivated from theory. We do not report our expected coefficients concerning the control variables, since we are to our best knowledge the first to incorporate these to examine investment behaviour.

a high overall score on the quality of corporate governance contributes significantly to a reduction of CAPEX. What is remarkable, and contrary to expectations and prior research, is the positive coefficient on RDS. The multivariate regression involving all four governance variables confirms these findings. The lack of significance of DCG in model 6 is possibly attributable to a high correlation with BSF.

## 4.2. Findings for region two

Having observed the results of the two-tier region one, we turn to the results for region two. Section 4.1 revealed negative effects on almost all corporate governance variables using industry-adjusted CAPEX. Recall that region two was constituted by one-tier governance systems drawn from continental European countries with recently established codes of corporate governance (Table 1).

Table 7 reveals that region one findings are shared, to some extent, with region two. The Total's coefficient is not significant but is still slightly negative. The TD also bears a negative and significant effect in region two. This is manifested by the *P*-value that is below 5%. Remarkably, both DCG and BSF are positive and significant, which stands in stark contrast to region one. Results from the multivariate regression equation are somewhat different. Even though DCG is still positive, BSF is now negative and not significant whereas RDS is positive in this regression as it is in region one. We note that the model's fit in this region is better than region one.

**Table 6.** Pooled OLS regression results for region 1 (Belgium, France, Germany, The Netherlands)

Model	log PB (1)	Q (2)	SG3Y (3)	CFS (4)	CR (5)	CR-1 (6)	DA (7)	Total (8)	RDS (9)	TD (10)	DCG (11)	BSF (12)	ASQR (13)	n (14)
1	0.002 (0.926)	0.007 (0.335)	0.081 (0.306)	-0.037 (0.248)	-0.002 (0.909)	0.091 (0.096)*	0.197 (0.000)***	-0.004 (0.000)***					0.130	736
2	0.003 (0.870)	0.009 (0.269)	0.093 (0.261)	-0.034 (0.280)	-0.001 (0.966)	0.101 (0.069)*	0.205 (0.000)***		0.002 (0.671)				0.110	736
3	0.002 (0.923)	0.007 (0.322)	0.086 (0.294)	-0.037 (0.239)	0.000 (0.988)	0.100 (0.070)*	0.203 (0.000)***			-0.005 (0.000)***			0.121	736
4	0.001 (0.935)	0.009 (0.243)	0.082 (0.309)	-0.035 (0.261)	0.002 (0.910)	0.088 (0.108)*	0.204 (0.000)***				-0.012 (0.000)***		0.126	736
5	0.001 (0.969)	0.009 (0.233)	0.087 (0.277)	-0.033 (0.290)	-0.006 (0.755)	0.081 (0.143)	0.189 (0.000)***					-0.019 (0.001)***	0.131	736
6	-0.001 (0.959)	0.009 (0.258)	0.082 (0.301)	-0.036 (0.243)	-0.002 (0.912)	0.081 (0.141)	0.196 (0.000)***		0.004 (0.436)	-0.003 (0.071)**	-0.005 (0.109)	-0.013 (0.019)***	0.112	736

*Note:* This table shows results of pooled ordinary least squares regressions in region 1. Models 1 until 5 have different corporate governance subscores as independent variables. The dependent variable CAPEX is always capital expenditures ('additions to fixed assets') scaled by sales revenue and is net of the industry median. The coefficients are the results of the following pooled least squares regression, where  $Gov_{it}$  is either of the five governance scores and  $C_{it}$  is a vector of control variables, which are outlined below. In model 6 we include all four governance variables simultaneously.

$$CAPEX_{it} = \alpha_i + \sum_{j=1}^J \beta_j Gov_{j,it} + \sum_{k=1}^K \gamma_k C_{k,it} + \varepsilon_{it}$$

Log PB is the natural logarithm of the firm's price to book ratio, and Q is as defined in the text. SG3Y is trailing 3-year sales growth and CFS is the cash flow to sales ratio of the company. CR is the firm's balance of cash and cash equivalents over net assets (total assets minus cash and cash equivalents). CR-1 is the lagged cash ratio and DA is debt-to-total assets ratio. The five governance variables are as defined in the text. P-values of the coefficients are in parentheses. Significance at the 10, 5 and 1% level are indicated with \*, \*\* and \*\*\*, respectively. The model uses country and time fixed effects. All coefficients are adjusted for heteroskedasticity using White's (1980) diagonal covariance matrix. ASQR in column (13) is the adjusted  $R^2$  of the regression, while n in column (14) is the number of observations. For practical reasons we do not report the intercept and the coefficients of the country control variables.

**Table 7.** Pooled OLS regression results for region 2 (Switzerland, Denmark, Spain, Finland, Italy, Norway, Sweden)

Model	log PB (1)	Q (2)	SG3Y (3)	CFS (4)	CR (5)	CR-1 (6)	DA (7)	Total (8)	RDS (9)	TD (10)	DCG (11)	BSF (12)	ASQR (13)	n (14)
1	0.004 (0.536)	0.013 (0.016)**	0.063 (0.016)**	0.047 (0.173)	-0.112 (0.047)**	0.102 (0.127)	0.058 (0.002)***	-0.000 (0.711)					0.289	629
2	0.005 (0.509)	0.013 (0.014)**	0.063 (0.016)**	0.047 (0.166)	-0.112 (0.047)**	0.102 (0.128)	0.058 (0.002)***		-0.001 (0.572)				0.289	629
3	0.005 (0.496)	0.012 (0.023)**	0.063 (0.014)**	0.046 (0.185)	-0.111 (0.046)**	0.100 (0.130)	0.053 (0.005)***			-0.002 (0.038)**			0.293	629
4	0.006 (0.365)	0.013 (0.012)**	0.064 (0.019)**	0.056 (0.099)*	-0.112 (0.050)**	0.106 (0.121)	0.068 (0.000)***				0.010 (0.000)***		0.304	628
5	0.004 (0.545)	0.013 (0.013)**	0.063 (0.015)**	0.048 (0.159)	-0.111 (0.049)**	0.101 (0.134)	0.059 (0.002)***					0.005 (0.091)*	0.291	628
6	0.007 (0.332)	0.011 (0.024)**	0.064 (0.018)**	0.055 (0.108)	-0.111 (0.048)**	0.105 (0.119)	0.063 (0.001)***		0.002 (0.470)	-0.003 (0.015)**	0.013 (0.000)***	-0.002 (0.542)	0.283	628

*Note:* This table shows results of pooled ordinary least squares regressions in region 2. Models 1 until 5 have different corporate governance subscores as independent variables. The dependent variable CAPEX is always capital expenditures (‘additions to fixed assets’) scaled by sales revenue and is net of the industry median. The coefficients are the results of the following pooled least squares regression, where  $Gov_{it}$  is either of the five governance scores and  $C_{it}$  is a vector of control variables, which are outlined below. In model 6 we include all four governance variables simultaneously.

$$CAPEX_{it} = \alpha_i + \sum_{j=1}^J \beta_j Gov_{j,it} + \sum_{k=1}^K \gamma_k C_{k,it} + \varepsilon_{it}$$

Log PB is the natural logarithm of the firm’s price to book ratio, and Q is as defined in the text. SG3Y is trailing 3-year sales growth and CFS is the cash flow to sales ratio of the company. CR is the firm’s balance of cash and cash equivalents over net assets (total assets minus cash and cash equivalents). CR-1 is the lagged cash ratio and DA is debt-to-total assets ratio. The five governance variables are as defined in the text. P-values of the coefficients are in parentheses. Significance at the 10, 5 and 1% level are indicated with \*, \*\* and \*\*\*, respectively. The model uses country and time fixed effects. All coefficients are adjusted for heteroskedasticity using White’s (1980) diagonal covariance matrix. ASQR in column (13) is the adjusted R<sup>2</sup> of the regression, while n in column (14) is the number of observations. For practical reasons we do not report the intercept and the coefficients of the country control variables.

### 4.3. Findings for the United Kingdom and Ireland

We have noted the different effects of RDS, DCG and BSF on CAPEX in region one and region two. The coefficients on the two latter variables are opposite to what was observed for region one. Here, the results for the United Kingdom and Ireland are summarized. If we observe similar effects on overall governance as in regions one and two, we could interpret this as evidence of European convergence in corporate behaviour. Table 8 summarizes the results of the regressions.

As observed in the previous results for the UK, the Total coefficient is negative and significant. The coefficient on the RDS is again positive but not significant. Confirming the findings from regions one and two, a high score on the TD has a negative impact on CAPEX. DCG and BSF have negative and significant effects on CAPEX. Results from model 6 strongly confirm these results. RDS is positive and significant in the multivariate regression, even though DCG loses its significance. In sum, the results from region three are more similar to region one than to region two. Furthermore, the TD and the Total governance score have consistently negative effects on CAPEX. Given the similar effects on this coefficient in regions one and two, we can suggest that there has been pan-European convergence in management behaviour with respect to shareholder value and investment.

### 4.4. Robustness checks

In order to examine how the distinction between region one and region two may affect our results, we tested the model for the whole of continental Europe.<sup>8</sup> The results are shown in the Table 9.

We observe that the same effects hold for regions one and two combined. The RDS coefficient appears to drop-out in this grouping, since the effect is inconclusive and far from conventional significance thresholds. The significance of the TD persists with a very low *P*-value. DCG and BSF continue to be negative and significant. The overall coefficient on Total is also negative and significant. In model 6, we note that the RDS coefficient becomes more significant. Therefore, we conclude that the effects of region one dominate region two especially in the area of disclosure and BSF since the overall effect is negative. These findings are confirmed when the United Kingdom and Ireland are added to the sample.<sup>9</sup> The effect of RDS between the regions is apparently cancelled-out, which renders this coefficient insignificant. TD still has a significantly negative effect, as does the Total coefficient. BSF and DCG are highly significant and negative. In the multivariate regression, the RDS effect becomes positive and significant again, while TD remains to be highly significant.

As an additional check on the robustness of the aforementioned findings, the analysis was conducted *excluding* financial companies (every company in the sample with a GICS code of 40). Financial companies constitute a large part (~20%) of the dataset and might behave differently in terms of investment and some ratios are less straightforward to interpret (e.g. log PB). The financial sector invests less in fixed assets than

8 We also tested for any differences in the results by subperiods. This is difficult given the fact that 1997–2000 would include three static years of governance data. Nevertheless, the results were negative but weaker for 1997–2000 compared with 2001–2005.

9 We do not report results of this analysis but they are available upon request.

**Table 8.** Pooled OLS regression results for region 3 (United Kingdom, Ireland)

Model	log PB (1)	Q (2)	SG3Y (3)	CFS (4)	CR (5)	CR-1 (6)	DA (7)	Total (8)	RDS (9)	TD (10)	DCG (11)	BSF (12)	ASQR (13)	n (14)
1	-0.071 (0.000)***	0.020 (0.007)***	0.042 (0.390)	0.378 (0.000)***	0.018 (0.695)	0.034 (0.647)	0.326 (0.000)***	-0.002 (0.034)**					0.246	649
2	-0.072 (0.000)***	0.019 (0.011)**	0.040 (0.415)	0.376 (0.000)***	0.022 (0.638)	0.039 (0.602)	0.338 (0.000)***		0.003 (0.480)				0.251	649
3	-0.071 (0.000)***	0.020 (0.007)***	0.040 (0.409)	0.375 (0.000)***	0.018 (0.694)	0.035 (0.637)	0.326 (0.000)***			-0.003 (0.044)**			0.250	649
4	-0.071 (0.000)***	0.019 (0.011)**	0.044 (0.369)	0.391 (0.000)***	0.019 (0.680)	0.038 (0.609)	0.334 (0.000)***				-0.020 (0.073)*		0.244	649
5	-0.070 (0.000)***	0.018 (0.013)**	0.049 (0.326)	0.402 (0.000)***	0.020 (0.660)	0.034 (0.648)	0.324 (0.000)***					-0.023 (0.004)***	0.245	649
6	-0.069 (0.000)***	0.017 (0.017)**	0.000 (0.369)	0.004 (0.000)***	0.016 (0.723)	0.037 (0.608)	0.315 (0.000)***		0.011 (0.046)**	-0.004 (0.028)**	-0.007 (0.554)	-0.017 (0.050)**	0.317	649

*Note:* This table shows results of pooled ordinary least squares regressions in region 3. Models 1 until 5 have different corporate governance subscores as independent variables. The dependent variable CAPEX is always capital expenditures (‘additions to fixed assets’) scaled by sales revenue and is net of the industry median. The coefficients are the results of the following pooled least squares regression, where  $Gov_{it}$  is either of the five governance scores and  $C_{it}$  is a vector of control variables, which are outlined below. In model 6 we include all four governance variables simultaneously.

$$CAPEX_{it} = \alpha_i + \sum_{j=1}^J \beta_j Gov_{j,it} + \sum_{k=1}^K \gamma_k C_{k,it} + \varepsilon_{it}$$

Log PB is the natural logarithm of the firm’s price to book ratio, and Q is as defined in the text. SG3Y is trailing 3-year sales growth and CFS is the cash flow to sales ratio of the company. CR is the firm’s balance of cash and cash equivalents over net assets (total assets minus cash and cash equivalents). CR-1 is the lagged cash ratio and DA is debt-to-total assets ratio. The five governance variables are as defined in the text. P-values of the coefficients are in parentheses. Significance at the 10, 5 and 1% level are indicated with \*, \*\* and \*\*\*, respectively. The model uses country and time fixed effects. All coefficients are adjusted for heteroskedasticity using White’s (1980) diagonal covariance matrix. ASQR in column (13) is the adjusted R<sup>2</sup> of the regression, while n in column (14) is the number of observations. For practical reasons we do not report the intercept and the coefficients of the country control variables.

**Table 9.** Pooled OLS regression results for continental Europe (Europe excluding United Kingdom and Ireland)

Model	log PB (1)	<i>Q</i> (2)	SG3Y (3)	CFS (4)	CR (5)	CR-1 (6)	DA (7)	Total (8)	RDS (9)	TD (10)	DCG (11)	BSF (12)	ASQR (13)	<i>n</i> (14)
1	0.009 (0.517)	0.009 (0.090)*	0.067 (0.011)**	0.013 (0.632)	-0.029 (0.142)	0.062 (0.076)*	0.124 (0.000)***	-0.003 (0.001)***					0.142	1365
2	0.009 (0.524)	0.010 (0.060)*	0.067 (0.013)**	0.016 (0.546)	-0.028 (0.158)	0.065 (0.064)*	0.131 (0.000)***		0.000 (0.958)				0.133	1365
3	0.009 (0.522)	0.008 (0.088)*	0.067 (0.011)**	0.014 (0.616)	-0.028 (0.159)	0.063 (0.070)*	0.126 (0.000)***			-0.003 (0.000)***			0.140	1365
4	0.009 (0.563)	0.008 (0.049)**	0.067 (0.012)**	0.014 (0.631)	-0.028 (0.156)	0.063 (0.081)*	0.126 (0.000)***				-0.003 (0.029)**		0.138	1364
5	0.008 (0.550)	0.010 (0.050)**	0.066 (0.015)**	0.016 (0.548)	-0.031 (0.119)	0.064 (0.070)*	0.127 (0.000)***					-0.010 (0.006)***	0.141	1364
6	0.007 (0.614)	0.009 (0.077)*	0.065 (0.014)**	0.013 (0.633)	-0.029 (0.133)	0.061 (0.078)*	0.125 (0.000)***		0.003 (0.383)	-0.003 (0.001)***	-0.002 (0.633)	-0.007 (0.087)*	0.128	1364

*Note:* This table shows results of pooled ordinary least squares regressions in continental Europe. Models 1 until 5 have different corporate governance subscores as independent variables. The dependent variable CAPEX is always capital expenditures ('additions to fixed assets') scaled by sales revenue and is net of the industry median. The coefficients are the results of the following pooled least squares regression, where  $Gov_{i,t}$  is either of the five governance scores and  $C_{i,t}$  is a vector of control variables, which are outlined below. In model 6 we include all four governance variables simultaneously.

$$CAPEX_{i,t} = \alpha_i + \sum_{j=1}^J \beta_j Gov_{j,i,t} + \sum_{k=1}^K \gamma_k C_{k,i,t} + \varepsilon_{i,t}$$

Log PB is the natural logarithm of the firm's price to book ratio, and *Q* is as defined in the text. SG3Y is trailing 3-year sales growth and CFS is the cash flow to sales ratio of the company. CR is the firm's balance of cash and cash equivalents over net assets (total assets minus cash and cash equivalents). CR-1 is the lagged cash ratio and DA is debt-to-total assets ratio. The five governance variables are as defined in the text. *P*-values of the coefficients are in parentheses. Significance at the 10, 5 and 1% level are indicated with \*, \*\* and \*\*\*, respectively. The model uses country and time fixed effects. All coefficients are adjusted for heteroskedasticity using White's (1980) diagonal covariance matrix. ASQR in column (13) is the adjusted  $R^2$  of the regression, while *n* in column (14) is the number of observations. For practical reasons we do not report the intercept and the coefficients of the country control variables.



most other industries. Nevertheless, excluding financials and conducting the same analysis as shown in Table 10 hardly changes the results.

The Total governance score still has a highly significant coefficient with a  $P$ -value below 0.1%. The same finding holds for the TD and BSF with  $P$ -values below 1%. The CG coefficient is significant with a  $P$ -value between 1% and 5%. We observe a significantly positive coefficient on the RDS. Therefore, the inclusion of financial companies did not materially affect the results. Overall, the TD has a *consistently* negative and significant effect on industry adjusted CAPEX. But we also observe different effects of DCG and BSF between the regions. The coefficient on the RDS is positive but not significant.<sup>10</sup>

#### 4.5. Generalized methods of moments

A possible concern in our analysis of the governance effect on CAPEX is the potential serial correlation in the residuals.<sup>11</sup> This might cast doubt on the validity of OLS regressions since significance could be achieved by CAPEX hardly changing over time. In order to tackle this possible problem, we adopt an instrumental generalized methods of moments (GMM) approach as in Cochrane (2005) and Campbell et al. (1997). Unlike OLS or maximum likelihood estimation, GMM does not require the data generating process to be known. In order to estimate the parameters  $\theta$ , GMM can infer from sample moments to population moments without requirements such as the absence of heteroskedasticity or serial correlation. Hence the adoption of GMM results in very powerful and robust estimates. The general equation that minimizes the criterion function  $q$  is as follows:

$$q = \bar{m}(\theta)' W_n \bar{m}(\theta), \quad (3)$$

where  $W$  (weighting matrix) is proportional to the variance of the moments  $m$ . Hence, the optimal weighting matrix equals  $W_{\text{GMM}} = \{\text{Asy. Var}[\sqrt{n} * \bar{m}_n(\theta)]\}^{-1}$ . As instruments, we chose lagged values of the control variables in order to overidentify the moment equations  $\bar{m}(\theta)$ . As GMM weights, we employed period weights and still account for heteroskedasticity using White's correction. Using this approach does not materially affect our results.<sup>12</sup> We conclude that our findings are robust with respect to potential serial correlation in the error terms.

### 5. Practice of European corporate governance

Do more transparent companies with better internal controls and less takeover defences invest less than their industry peers? Our results provide evidence that these elements of investor-sensitive corporate governance have significant negative effects on the CAPEX of European companies. Moreover, we find, by and large, the *same* effects across the three European governance regions that are used to test for systemic regime effects. For portfolio investors dependent upon global financial markets for management

10 We also conducted tests for the period of 2000–2005 and concluded that the backfilling procedure does not significantly statistically affect our results (available from the authors).

11 We are grateful to Rik Frehen for suggesting this approach.

12 Tables and results are available upon request.

**Table 10.** Pooled OLS regression results for Europe (excluding financial companies)

Model	log PB (1)	<i>Q</i> (2)	SG3Y (3)	CFS (4)	CR (5)	CR-1 (6)	DA (7)	Total (8)	RDS (9)	TD (10)	DCG (11)	BSF (12)	ASQR (13)	<i>n</i> (14)
1	-0.024 (0.004)***	0.013 (0.001)***	0.071 (0.005)***	0.020 (0.558)	0.001 (0.983)	0.064 (0.124)	0.237 (0.000)***	-0.003 (0.000)***					0.147	1500
2	-0.025 (0.004)***	0.014 (0.001)***	0.072 (0.006)***	0.024 (0.501)	0.003 (0.916)	0.069 (0.103)	0.251 (0.000)***		0.000 (0.899)				0.141	1500
3	-0.024 (0.004)***	0.013 (0.001)***	0.072 (0.004)***	0.021 (0.549)	0.002 (0.939)	0.064 (0.120)	0.239 (0.000)***			-0.004 (0.000)***			0.153	1500
4	-0.025 (0.002)***	0.014 (0.001)***	0.068 (0.005)***	0.020 (0.569)	0.003 (0.932)	0.068 (0.108)	0.252 (0.000)***				-0.009 (0.032)**		0.146	1500
5	-0.025 (0.003)***	0.014 (0.001)***	0.069 (0.007)***	0.023 (0.499)	0.001 (0.977)	0.069 (0.104)	0.245 (0.000)***					-0.011 (0.007)***	0.147	1500
6	-0.025 (0.003)***	0.013 (0.001)***	0.067 (0.006)***	0.019 (0.588)	0.002 (0.937)	0.065 (0.118)	0.240 (0.000)***		0.005 (0.133)	-0.005 (0.000)***	-0.004 (0.421)	-0.005 (0.258)	0.141	1500

*Note:* This table shows results of pooled ordinary least squares regressions in whole Europe and excludes financial companies (i.e. all companies having a GICS code of 40). Models 1 until 5 have different corporate governance subscores as independent variables. The dependent variable CAPEX is always capital expenditures ('additions to fixed assets') scaled by sales revenue and is net of the industry median. The coefficients are the results of the following pooled least squares regression, where  $Gov_{it}$  is either of the five governance scores and  $C_{it}$  is a vector of control variables, which are outlined below. In model 6 we include all four governance variables simultaneously.

$$CAPEX_{it} = \alpha_i + \sum_{j=1}^J \beta_j Gov_{j,it} + \sum_{k=1}^K \gamma_k C_{k,it} + \varepsilon_{it}$$

Log PB is the natural logarithm of the firm's price to book ratio, and *Q* is as defined in the text. SG3Y is trailing 3-year sales growth and CFS is the cash flow to sales ratio of the company. CR is the firm's balance of cash and cash equivalents over net assets (total assets minus cash and cash equivalents). CR-1 is the lagged cash ratio and DA is debt-to-total assets ratio. The five governance variables are as defined in the text. *P*-values of the coefficients are in parentheses. Significance at the 10, 5 and 1% level are indicated with \*, \*\* and \*\*\*, respectively. The model uses country and time fixed effects. All coefficients are adjusted for heteroscedasticity using White's (1980) diagonal covariance matrix. ASQR in column (13) is the adjusted  $R^2$  of the regression, while *n* in column (14) is the number of observations. For practical reasons we do not report the intercept and the coefficients of the country control variables.

discipline, there is a significant negative coefficient on the TD across all regions and in the aggregate pan-European sample. This particular score is more comprehensive than the Gompers et al. (2003) *G*-score since it incorporates ownership and capital structure. These findings are in-line with related findings by Daines and Klausner (2001) who point out that anti-takeover provisions increase agency costs. Moreover, they conclude that the return on investment is largest when the firm concerned has been subject to a hostile takeover. By their assessment, openness to the market for corporate control induces management to operate more efficiently (hence the TD negative coefficient).

Intriguing results were also found for the coefficients on disclosure and BSF: it was shown that these coefficients had persistently negative effects on industry-adjusted CAPEX in region one and region three. While the former category refers to the transparency of firm governance, the latter variable captures the independence, the insider/outsider mix and the committee formation of the board—consequently, the governance potential of a firm in relation to investment decision making. Recall that poor board functioning and a lack of internal control systems were the governance failures that allowed empire-building at Royal Ahold. Less transparent governance allows management to exploit the ambiguities inherent in any governance regime and can allow managers to conceal value-destroying projects and perks.

Whereas our BSF's result matched our theoretical expectations of a negative relationship, in Table 5 DCG's negative coefficient was not inferred previously. Similarly, the positive coefficient on the RDS is a finding that does not appear in prior research and may appear odd. Recent academic discussion reveals that the role that the RDS may play in corporate governance is rather ambiguous. Some legal scholars argue that 'active investor involvement [...] disrupts [...] the centralization of essentially non-reviewable decision making authority in the board of directors' (Bainbridge, 2006). The coefficient on DCG is not significant in all settings and a deeper exploration is required in further research.

Most importantly, our results have significant implications for understanding the nature and performance of competing European regimes of corporate governance. The study focused on three distinct European regions and investigated the relationship between corporate governance and shareholder value in each region and then across Europe. The overall effect of corporate governance (the Total score) on CAPEX is consistently negative. Results are very similar across the regions and in the pooled sample *even though* the underlying formal structures of corporate governance are quite distinct by nation–state. This result implies that managers of large firms tend to respond to common investor-driven standards of corporate governance irrespective of their home of incorporation. Apparently, European companies opt less for retained earnings and more for the Anglo-American approach of distributing excess cash flow to shareholders with variable payout ratios (cf. Dore, 2000).

In effect, our results suggest that whatever the formal design and structure of a country's model of corporate governance, portfolio investors are able to exert pressure on the managers of large firms to act in ways consistent with shareholder value rather than stakeholder value (short-term rather than long-term value). This is an important finding, since it tends to discount the significance of national rules and regulations in the face of global financial market imperatives (as suggested by Clark and Wójcik, 2007).

In this regard, the most important governance effect was found for the variable that is the *least* regulated among the four categories throughout Europe, namely the TD.

Even though EU recommendations to abstain from the use of anti-takeover measures exist, regulations to this effect hardly ever appear in European countries' corporate governance codes.<sup>13</sup> The Spanish Aldama Report (2003), for example, points out that 'the adoption of protective measures aimed at preventing takeovers [...] should also require the approval of the Shareholders' Meeting' (Section IV, 1.3). This constrains incumbents' ability to entrench but does not prohibit this behaviour. Likewise, the Dutch Tabaksblat Code (2003) does not include 'best practice provisions on the permissible use of anti-takeover measures in (hostile) takeover situations' (Section 56–59). Other governance codes of the countries in our sample do not address takeovers or merely recommend the procedures concerning the submission of takeover bids.

Hence, the European market for corporate control is only loosely regulated but perhaps underestimated in terms of its effect on management behaviour. That this result is strongest in region three is not surprising since the UK is characterized by a high degree of dispersed ownership and a relatively liquid stock market. Therein, the market for corporate control is an important disciplining force for managers of this region. Region one is made up of countries where transparency and objective board functioning have been heavily promoted recently. This might explain these variables' strong effects on CAPEX.

A further surprising finding is the positive and significant coefficients on DCG and BSF in region two. Apparently, companies incorporated in one-tier structured countries with recent governance codes invest more the more transparent they are and the more independent board and internal controls are managed. This result is opposite to that in regions one and three. However, when combining region one with region two in a pan-European sample, we note that the negative effects on these variables dominate the positive effects. Further, a negative effect for both TD and Total in a region with different board structures, a different legal system and a less established governance code gives in our view *even stronger* evidence of convergence in the practice of corporate governance. Returning to our question, whether the Anglo-American or the continental European approach dominates manager behaviour, we clearly reject the latter. It seems that market-related elements of corporate governance have the effect of disciplining managers to distribute revenue rather than retain earnings.

## 6. Conclusions

Using a unique database on the governance ratings of European companies from 1997 to 2005 provided by Deminor, and combining it with financial data from Worldscope, we were able to establish a statistically significant negative relationship between investor-sensitive corporate governance and company investment. This is stronger in the continental European region that comprises predominantly two-tier structured companies whereas the unitary board region has a weaker but still consistent result. The results for the UK and Ireland are stronger in magnitude and were in the

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13 In the EU, the 2004 Directive on takeover bids (Official Journal L 142, 30/04/2004) seeks to encourage the 'proper functioning of financial markets' requiring (Article 3) that company boards 'must act in the best interests of the company as a whole' when considering takeover bids while (Article 11) denies the use of defensive measures in such circumstances. However, it is also widely appreciated that the Directive (Article 12) also allows member-states the right to not require companies to comply with these regulations.

same direction. Here, the disciplining effect of the market for corporate control is especially pronounced. The effect still holds even if we pool all companies together into a pan-European dataset. In effect, the Anglo-American governance system serves as a market-reference point for the governance of large continental European firms. Robustness checks such as excluding financial companies do not alter our results. Moreover, we are able to show that our results are robust even in the case of serial correlation.

In light of the fact that European policymakers have sought to ‘reform’ companies’ governance structures by the introduction of governance codes, it is interesting that the least regulated element—the TD—is the most significant element disciplining corporate managers. Companies adopting fewer anti-takeover provisions spend significantly less than their industry peers. This suggests that the global market for corporate control is underestimated in terms of its disciplining effect on corporate managers. Equally, this suggests that theorists of corporate governance that emphasize the inherited governance traditions of nation-states may over-estimate the significance of formal regulatory structures. In effect, our results suggest that as global financial markets continue to integrate, and as portfolio investment managers expand their interests to the four corners of the globe, market-standards of governance may come to dominate formal regimes of governance in ways that discount the significance of the latter.

This conclusion, though tentative and obviously specific to our research, is underpinned by related findings with respect to companies’ disclosure practices and the quality of board structures and their functioning. We are able to show that the more transparent are the governance practices of companies the less likely managers invest beyond the industry median. Similarly, our results suggest that better-functioning boards arrive at more market-sensitive investment decision making. Therefore, the European market for corporate governance can serve as a substitute for national governance codes and regulations if companies converge to Anglo-American practices so to appeal to the interests of institutional investors. Our analysis provides evidence to the effect that European companies increasing focus upon short-term shareholder value in ways consistent with Anglo-American practices.

Of course, our results should be treated with some caution. In their paper, Gompers et al. (2003) note that their *G*-score, which is constructed by enumerating entrenching- and anti-takeover devices, can be a symptom of corporate culture rather than management behaviour. Thus, a low score on corporate governance need not necessarily be a consequence of management’s intentions but can also be determined by (unknown) external variables. The authors also note that there might be some ‘hardly quantifiable variable’ that determines corporate governance structures apart from managers’ entrenchment motives. Similarly, an omitted-variable bias might affect our results if the variable is correlated with either of the regressors under examination. That is, CAPEX might also be driven by some other variable beyond being a value- or a growth stock (log PB), realizing growth opportunities (Tobin’s *q*) or satisfying investment demand (SG3Y). Since we followed prior researchers’ arguments and intuition, we are confident that we control for the most obvious factors.

Some critics oppose the increased reliance on commercial databases that quantitatively rate firms’ corporate governance structures and construct metrics out of qualitative information. Sonnenfeld (2004) argued that rating companies rely on myths rather than evidence in arriving at objective judgments. However, our use of the Deminor data

is premised upon our own knowledge and experience with the data and our assessment of the skills and expertise of their team of specialists. In any event, we note that the database is used extensively by institutional investors to make their investment decisions. Even if the database were misleading on crucial issues, it is more robust than the method used by Gompers et al. (2003) and has the added virtue that it is, in fact, data that actually affects global investment decision making.

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## Appendix A

### Description of Deminor's rating algorithm (Caprasse, 2005)

The research enables the user to compare corporate governance standards and practices across companies with reference to four corporate governance categories [see Deminor Ratings S. A. Brochure, p. 5. Brussels, Belgium. Available online at World Wide Web: [www.deminor.org](http://www.deminor.org) (accessed Retrieved 5 August 2005)].

### **Rights and duties of shareholders**

Includes criteria concerning the respect of the one-share one-vote one-dividend principle, voting right restrictions, voting issues, shareholder proposals, voting procedures and maintenance of pre-emptive rights.

### **Range of takeover defenses**

Examines the presence and strength of anti-takeover devices such as poison pills, golden parachutes, core shareholdings, extensive cross-shareholdings and co-option systems that could be used to protect the company from a hostile takeover and to disenfranchise shareholders. Further to this, the dilution effects and economic barriers to such instruments are examined.

### **Disclosure on corporate governance**

Analyses the transparency of a corporation as measured by the quantity and quality of non-financial information on its governance structure such as diversity and independence for board members, board committees, director remuneration, auditors' fees and rotation, accounting standards, information on major shareholders of the company, environmental information, etc.

### **Board structure and functioning**

Examines all issues relating to the governance of a board such as independent directors, division of the role of the chairman and chief executive, election of the board, director remuneration, the workings and authorities of board committees, etc.

## Appendix B

### Description of control variables

(1) Abbreviation	(2) Variable	(3) Description
PB	Price-to-book ratio	<b>Price-to-book current</b> —Price-current/book value per share
SG3Y	Trailing three-year sales growth	<b>Three year annual growth</b> represents [(Current year's net sales or revenues/net sales or revenues 4 years ago, reduced to a compound annual rate)–1] × 100.
$Q$	Tobin's $q$	<b>Tobin's <math>Q</math></b> —it is the market value of assets divided by the replacement value of assets. The market value is approximated by the difference between the sum of the book value of assets and the market value and the book value of equity. The replacement value of the assets is simply the book value of assets.
CFS	Cash flow to sales ratio	<b>Cash flow to sales</b> represents funds from operations/net sales or revenues × 100.
CR	Cash ratio	<b>Cash ratio</b> —as defined by Dittmar and Mahrt-Smith (2007): cash and cash equivalents divided by net assets (total assets minus cash and cash equivalents).
Debt	Balance sheet total debt	<b>Total debt</b> represents all interest bearing and capitalized lease obligations. It is the sum of long and short term debt.
TA	Balance sheet total assets	<b>Total assets</b> represent the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.
SR	Sales revenues	<b>Net sales or revenues</b> represent gross sales and other operating revenue less discounts, returns and allowances.
CAPEX	Capital expenditures	<b>Capital expenditures</b> —additions to fixed assets.
Country controls		<b>Country dummy</b> —variable equals one if company belongs to a particular country and is zero otherwise.

*Note:* We define the control variables that we use throughout our statistical analysis. All of the data was taken from Worldscope. Since the statistical analysis makes exclusive use of ratios, we do not have to tackle currency effects between the European countries under investigation.