



Netspar

Network for Studies on Pensions, Aging and Retirement

Rob Bauer

Piet Eichholtz

Nils Kok

Corporate Governance and Performance: The REIT Effect

Discussion Paper 2007 - 043

2007

Corporate Governance and Performance: The REIT Effect

Rob Bauer
Piet Eichholtz[‡]
Nils Kok

Keywords: REITs, corporate governance, firm value, performance

JEL: G12, G34, G38

Bauer is with Maastricht University and Netspar, Eichholtz is with Maastricht University and Netspar and Kok is with Maastricht University, all in the Netherlands. The authors acknowledge the helpful comments of David Downs, Peter Englund, Erasmo Giambona, Martin Hoesli, Seow Eng Ong, Tim Riddiough and an anonymous referee, as well as seminar and conference participants at the University of Amsterdam, National University of Singapore, the INQUIRE Europe 2007 Autumn Seminar, and the 2007 International AREUEA Meeting. We thank RiskMetrics for providing the governance data. All remaining errors are ours. [‡]Correspondence to: Piet Eichholtz, Maastricht University, Faculty of Economics and Business Administration, Department of Finance, PO Box 616 6200MD Maastricht, the Netherlands. Phone: +31(0)43 3883838. Fax: +31(0)43 3884875. Mail: P.Eichholtz@finance.unimaas.nl.

Corporate Governance and Performance: The REIT Effect

Abstract

REITs offer a natural experiment in corporate governance due to the fact that they leave little free cash flow for management, which reduces agency problems. We exploit a unique and leading corporate governance database to test whether corporate governance matters for the performance of U.S. REITs. We document for a sample including governance ratings of more than 220 REITs that firm value is significantly related to firm-level governance for REITs with low payout ratios only. Repeating the analysis with the complete database that includes more than 5,000 companies, and a control sample of firms with high corporate real estate ratios, we find a strong and significantly positive relation between our governance index and several performance variables, indicating that the partial lack of a relation between governance and performance in the real estate sector might be explained by a REIT effect.

I. Introduction

The legal setting and organizational structure under which U.S. Real Estate Investment Trusts (REITs) operate, changes the traditional principal-agent setting. Dividend payout maximization – in effect the reduction of the free cash flow problem as described by Jensen (1986) – is less of a concern for REITs, as US law requires a 90% mandatory payout of net earnings. This legal obligation limits the opportunities for managerial expropriation and is often introduced in countries with a weak legal system, for example Brazil, Chile and Ecuador, as a legal substitute for the weakness of other mechanisms that protect shareholders (La Porta et al. 1998). In the case of U.S. REITs, which are embedded in one of the world's strongest legal environments, the mandatory payout of net earnings was never implemented for reasons of shareholder protection. Therefore, the reduction of the agency problem is merely a favorable side-effect. Under the substitution hypothesis (La Porta et al. 2000), the legal restrictions regarding REITs might mitigate the need for strong internal corporate governance mechanisms, i.e. corporate governance is less likely to be important for REITs than for regular corporations (Hartzell, Kallberg and Liu 2004).

On the other hand, it has been argued that the legal restrictions on REITs do not solve the agency problem. REIT managers face an obligatory 90% payout distribution over net earnings, which is after a substantial depreciation expense. The difference between net earnings and free cash flow creates discretionary cash, and REIT managers can freely decide on the actual payout ratio of this free cash flow.¹ Moreover, legal restrictions regarding ownership structure, the so-called 5-50 rule, deters the formation of large block holders, and might protect REIT managers from the scrutiny of the market for corporate control (Eichholtz and Kok 2008). Therefore, a competing hypothesis states that the legal setting in which REITs operate should be complemented by internal corporate governance mechanisms – as in regular corporations – to prevent managerial entrenchment and to reduce agency problems to a minimum.

Under this ‘complement’ hypothesis, we would expect that the relation between firm-level corporate governance and firm performance, which has been consistently documented in the literature, holds for U.S. REITs as well. However, Klapper and Love (2004) and Durnev and Kim (2005) find that a strong institutional setting weakens the well-documented link between corporate governance and performance. Under the substitution hypothesis, the strong legal setting in which companies operate mitigates the need for firm-level corporate governance mechanisms, and deviating from the optimal corporate governance structure is therefore less costly. Hence, one could expect the relation between corporate governance structure and REIT performance to be relatively weak.

Studying the structure and effectiveness of corporate governance in REITs is relevant, as the growing international property investment flows are increasingly allocated through indirect property vehicles such as Real Estate Investment Trusts (REITs) and unlisted property funds rather than directly owned property investments. Meanwhile, an increasing number of countries introduce or have recently introduced a REIT-like structure to facilitate capital inflows in the real estate sector.² The combination of both trends yields the need for in-depth research on the structure and effectiveness of corporate governance mechanisms in REITs.

¹ Several papers have shown that the actual payout ratio of REITs is often more than 90% of net earnings. See for example Wang, Erickson and Gau (1993), Downs, Guener and Patterson (2000) and Gosh and Sirmans (2006).

² See Eichholtz and Kok (2007) for a detailed overview of recent international trends in global listed property markets.

This paper contributes to the existing real estate corporate governance literature in three ways. First, instead of relying on self-constructed governance measures, we use the Corporate Governance Quotient index (CGQ), a database that is produced by one of the leading governance data providers, Institutional Shareholder Services (ISS).³ This index is widely used in practice and includes most of the governance mechanisms that are relevant for investors. Recent examples of investor recognition of ISS in the real estate sector are for example NAREIT reports using ISS data (NAREIT 2003) and the advisory role of ISS in the merger between SL Green Realty and Reckson Associates Realty. Our index includes governance measures on eight different categories and thus represents a much more complete proxy of corporate governance than for example the often-used G-Index, which is constructed by Gompers et al. (2003). The G-Index is based on the Investor Responsibility Research Center (IRRC) surveys and covers only two categories of corporate governance: investor rights and takeover protection. The use of a governance index has the advantage of capturing the effects of all individual governance mechanisms in one single number (Black, Jang and Kim 2006; Boehren and Odegaard 2003). To our knowledge, this is the first real estate study that exploits a comprehensive corporate governance index.

Second, we not only investigate the governance-performance relation for the real estate sector, but we also provide results for the complete CGQ dataset, and we perform three robustness checks. We use the complete CGQ dataset, which includes more than 5,000 U.S. companies to test whether our specific governance index yields results similar to the existing literature. As a first robustness check we test whether our results are REIT-specific, as it has been documented that firms with a relatively high share of fixed assets ('hard capital') generally have fewer possibilities to engage in value-destructing behavior (Gertler and Hubbard 1988). To this end, we match the REIT sample with a control sample of firms that have a high corporate real estate ratio. The second control sample is constructed by selecting all REITs in the G-Index dataset, to test whether our findings are database-specific. The last robustness check distinguishes REITs with high dividend payout ratios from those with low payout ratios.

³ Institutional Shareholder Services has been acquired by the RiskMetrics Group in January 2007.

The third contribution of the paper is that we use a broad set of performance measures and methodologies to estimate the impact of corporate governance on firm performance. First, we measure the effect of corporate governance on firm value using an OLS regression approach with Tobin's Q as the dependent variable. Second, we estimate the effect of corporate governance on operating efficiency, where return on assets (ROA), return on equity (ROE), the net profit margin (NPM), sales growth (SALES) and funds from operations growth (FFO) are the proxies.

In line with the substitution hypothesis, we find that corporate governance does not matter for firm value and operating performance in a sample of U.S. REITs. The control sample of REITs selected from the G-Index sample does not show a relation between corporate governance and firm value and operating performance either. Results for the sample of regular corporations and for the control sample of companies with high real estate ownership, consistently show a significantly positive relation between corporate governance, operating performance and firm value. When we split the REIT sample based on the dividend payout ratio, it appears that governance is important for the subsample that includes REITs with relatively low payout ratios - and therefore large discretionary cash flows. However, only internal corporate governance mechanism seems to be value-enhancing, whereas other governance mechanisms are less important than for regular corporations. We explain the distinct findings for REITs by the mandatory payout rule and operational restrictions that apply to REITs, which make deviation from the optimal governance structure less costly, and could therefore weaken the relation between governance and performance.

The rest of this paper is structured as follows. In the next section we will shortly review the literature on the relation between firm-level corporate governance and performance. In Section III, we describe our dataset, which comprises the ISS Corporate Governance Quotient index and financial information. In Section IV, we will address the impact of governance on firm value and operating performance, using Tobin's Q and four measures of operating performance. We study the complete database, followed by the analysis of the REIT-sample and the control samples. Finally, Section V provides discussion and conclusions to the paper.

II. Literature Review: Corporate Governance and Performance

A large body of literature, in real estate as well as in corporate finance, investigates the relation between corporate governance and performance. Most studies thereby focus on one specific aspect of governance, such as ownership structure, board composition, or executive compensation, and relate this to performance. In their widely-cited paper, Gompers, Ishii and Metrick (2003, GIM) construct a so-called 'G-Index', in which takeover provisions are used as a proxy for the level of shareholder rights. The creation of an index allows for alternative methodologies, but it should be noted that the GIM index is based on one aspect of corporate governance only. Creating 'democracy' and 'dictatorship' portfolios, the authors find evidence that a trading strategy buying firms with the highest shareholder rights and selling companies with the lowest shareholder rights, earns average annualized abnormal returns of 8.5% from 1990 to 1999. Moreover, firm value (Tobin's Q) is inversely related to the number of takeover provisions. Following their paper, a new stream of literature has emerged, using different samples and methodologies, all exploiting governance indices rather than individual governance measures.

First, several studies focus on a specific country. Drobetz, Schillhofer and Zimmermann (2004) investigate the impact of governance on firm performance using a self-constructed corporate governance rating for the German market. Their results are in line with GIM, as governance ratings are positively related to firm valuation and a zero-cost trading strategy that shorts firms with low ratings and buys firms with high ratings leads to an annualized abnormal return of 12% over the sample period. Black et al. (2006) are the first to test for endogeneity issues in the relation between an overall governance index and firm value, for a sample of Korean firms. The results indicate that the relation between their corporate governance index and firm value is causal, thereby eliminating some of the often-voiced concerns on the endogeneity of the relation between governance indices and firm performance.

Second, several studies strongly criticize GIM, based on further empirical tests that use the G-Index. Cremers and Nair (2005) investigate the impact of a corporate governance index on performance, but also include two measures of internal governance. They find that firms with a low number of takeover provisions outperform firms with a high number of takeover provisions, but this effect is conditional on stock ownership by pension funds, which indicates the importance of the interaction between the internal

and external mechanisms of control. Contrary to GIM, Core, Guay and Rusticus (2006) find that the difference between stock returns of good and bad governance portfolios reverses after 1999, although their findings strengthen the relation between the G-Index and operating performance.

Third, the effect of regulatory environments on the relation between corporate governance and firm valuation – as discussed by LaPorta, Lopez-De-Silanes, Shleifer and Vishny (2002) – has been studied using aggregate corporate governance measures. Klapper and Love (2004) find that firm-level corporate governance is most important in countries with poor investor protection, using a sample of 500 firms across 25 emerging countries. They note that a strong institutional setting might act as a substitute for firm-level corporate governance. Similarly, Durnev and Kim (2005) investigate the effect of legal environments on corporate governance practices in a multi-country setting. Using the CLSA database, they find for a sample of 859 firms in 27 countries that investment opportunities, the need for external financing, and ownership structure all affect the quality of corporate governance. Furthermore, firms with better governance enjoy a higher valuation, measured by Tobin's Q. Most importantly, all these relations are stronger in less investor-friendly countries.

Real estate research on the relation between corporate governance and performance mainly focuses on the functioning of individual monitoring mechanisms. The results of these analyses can subsequently be compared to general corporate governance research, to judge whether the distinct legal setting of REITs indeed affects transparency. Monitoring mechanisms that have been the subject of performance-related real estate research include board structure and/or ownership structure (Friday and Sirmans 1998; Friday, Sirmans and Conover 1999; Ghosh and Sirmans 2003), management structure (Ambrose and Linneman 2001; Cannon and Vogt 1995; Howe and Shilling 1990; Wei, Hsieh and Sirmans 1995), inside ownership (Capozza and Seguin 2003; Han 2006), involvement of institutional investors (Chan, Leung and Wang 1998; Ling and Ryngaert 1997), and a combination of different governance mechanisms (Hartzell, Kallberg and Liu 2004; Hartzell, Sun and Titman 2006).⁴

⁴ This short list of real estate studies on the relation between corporate governance and performance is by no means meant to be complete, but merely provides an overview of the monitoring mechanisms that have been studied in relation to performance in the real estate sector hitherto.

More recently, Bianco, Ghosh and Sirmans (2007) examine the relationship between the G-Index and performance of REITs. They find a relation between the takeover index and performance in 2004, but this result disappears in 2006. The authors argue that the irrelevance of the G-Index in more recent times suggests that external governance is ineffective for REITs, and therefore, REIT corporate governance studies should pay more attention to the efficiency of internal governance mechanisms.

III. Data

To study the aggregate impact of corporate governance on REIT performance, we exploit the Corporate Governance Quotient (CGQ) index, provided by Institutional Shareholder Services. The CGQ index is based on public disclosure documents, which are used to gather data on 61 different issues in the following eight categories: 1) board of directors, 2) audit, 3) charter and bylaw provisions, 4) anti-takeover provisions, 5) executive and director compensation, 6) progressive practices, 7) ownership, and 8) director education (see Appendix A for a detailed overview of all rating criteria). Based on this information and an internal scoring system, ratings are calculated for each company.⁵

Two ratings are assigned to each company: one score relative to peers that are included in the stock index to which the company belongs, and one score relative to peers in the industry group. Furthermore, four different sub scores are calculated to provide a measure of a company's governance in a particular governance area. These four governance areas include: board of directors, takeover defences, executive and director compensation and ownership, and audit review. Higher values of these index numbers imply better alignment of shareholder and manager interests, more shareholder power, and more transparency. Besides the objectivity of the ratings and the broad range of governance variables included, the distinguishing feature of the CGQ index lies in its relative character, which ensures cross-sectional variability in corporate governance scores. The relative ranking opposes the absolute ratings that are used in for example the G-Index.

The CGQ database starts in 2002, but we restrict our analysis to the 2003 – 2005 ratings, as data on sub indices are not or only partially reported before 2003. The initial number

⁵ Please refer to www.issproxy.com for the exact methodology.

of companies in our sample is 4,950 in 2003 and increases to 5,260 in 2005. For our analysis, we match the corporate governance scores at the beginning of each year with financial data at the end of the respective year, where the latter is obtained from Compustat. We require that the firms in the sample have financial data available, which reduces our dataset to 11,572 observations (firm-years). After our initial analysis on the complete dataset, we select all equity and mortgage REITs, leading to an initial REIT sample size of 216 property companies in 2003, increasing to 228 property companies in 2005. The information criterion leads to a final REIT dataset of 509 observations (firm-years).

To get a first insight in the CGQ index, Panel A of Table I provides the average corporate governance scores of industries ranking in the top-5 and bottom-5 in 2005. For purpose of comparison, we use the company scores relative to the index to which the company belongs. The real estate sector scores remarkably well, together with the capital-intensive industry 'utilities'. Among the low-ranked industries, we find 'telecommunication services', 'media', and 'personal products'. According to Brounen and Eichholtz (2005), these three industries are characterized by relatively low corporate real estate ratios. The descriptives are surprising, given the empirical evidence that firms with a concentration of 'hard' capital already have fewer possibilities to engage in value-destructing behavior (Gertler and Hubbard 1988). This would make strong firm-level corporate governance less important.

In Panel B of Table I, the correlation statistics between the CGQ index and the four different sub indices are reported. Board, Compensation, Takeover and Audit are all positively correlated with the CGQ index, but the coefficient of Takeover is close to zero. Moreover, Takeover is negatively related with the other sub-indices. This makes intuitive sense, as firms have to comply with regulations, a variety of committees and public scrutiny regarding compensation schemes, board structure and audit practices, whereas they can decide more freely on the adoption of takeover provisions.

Panel C of Table I provides the summary statistics for the CGQ index of REITs relative to their index peers.⁶ The increasing governance scores show that firm-level corporate governance in REITs has strongly improved over the sample period. We also study how

⁶ The index governance scores of REITs are relative to four different indices: CGQ Universe, Russell 3000, S&P400 and S&P500.

governance scores differ between sectors in the REIT sample and find that diversified REITs score lowest (score: 41.1), whereas industrial and office REITs score highest (scores: 66.1 and 63.1 respectively). This indicates that there is more managerial freedom in diversified REITs and investors might therefore face higher agency costs. This is in line with evidence that property companies with a property focus outperform diversified property companies (Boer, Brounen and Op't Veld 2005; Eichholtz, Koedijk and Schweitzer 2001).

– Insert Table I here –

IV. Empirical Analysis: Firm Value and Operating Performance

A. Full sample: Governance, Firm Value and Operating Performance

It has been well-established in the literature that governance indices can explain part of the cross-sectional variation in firm valuation. Among others, Brown and Caylor (2006), Core et al. (2006), Durnev and Kim (2005), GIM, and LaPorta et al. (2002) find that companies with high governance ratings exhibit higher valuation as compared to their counterparts with a weak governance structure, indicating that investors incorporate ex-ante expectations on corporate governance in the stock price. A positive relation between corporate governance and operating measures of performance, such as return on equity, the net profit margin and sales growth, is less consistently documented.

We test the influence of corporate governance on firm value by regressing Tobin's Q (measured at time t), on the lagged CGQ index (measured at time $t-1$). Tobin's Q is defined as the market value of assets divided by the replacement costs of the assets. The market value of the assets is the sum of the book value of the assets and the market value of equity minus the book value of equity and deferred taxes. We assume that the replacement costs of the assets are the same as the book value of the assets.

Although estimating the effect of changes in the CGQ index on changes in firm value would establish a stronger causal link, the data force us to use a levels approach, as the time series over which the CGQ index is available covers a rather short time period and the CGQ index does not frequently change over time. A potential caveat is thus that our estimation possibly suffers from reverse causality, i.e. endogeneity. Firms with a higher market valuation could well be likely to establish a stronger governance structure, as they

have a regular need for outside financing and thus want to signal good governance practices to obtain a lower cost of capital (Klapper and Love 2004). Again, the limited time period over which data is available does not allow for solving the problem of endogeneity in the optimal way. Instead, we mitigate the reverse causality issue by including appropriate control variables in our estimation, an approach that is commonly used in the literature.⁷ First, following Shin and Stulz (2000), we include the natural logarithm of the firm's book value of assets and the firm's age. Second, we include a control variable for the debt-to-equity ratio, measured by the ratio of debt to total capital, to capture the effect of past financing decisions (Black et al. 2006). Third, we include the current and lagged value of return on equity to account for the influence of performance on firm valuation.

Following the analysis of corporate governance and firm value, we investigate whether a high corporate governance rating also enhances operational performance, following more efficient operations. Therefore, we study the impact of the CGQ index on four different measures of operating efficiency. Following GIM, we select return on equity (ROE), the net profit margin (NPM), and 5-year sales growth (SALES). Additionally, we use return on assets (ROA), as this measure might be preferable to ROE due to its more desirable distributional properties and because it is not affected by leverage and other items (Core et al. 2006). For the analysis on the REIT sample, we substitute SALES by the average 3-year growth in funds from operations per share (FFO). FFO is a widely recognized performance measure in the real estate industry, calculated by adding depreciation and amortization expenses back to earnings. In all estimations, we follow Core et al. (2006) and GIM and include the book-to-market (BM) value as a control variable.⁸ In the estimation with FFO as the dependent variable, we also include firm size (SIZE) in the model, proxied by the log of the book value of assets. We control for industry effects by including industry dummies in the regressions, using the industry classifications of ISS.⁹

Table II presents the summary statistics of a selection of financial and accounting variables for year 2005 and their correlations with the CGQ index. The average firm

⁷ See for example Bauer, Guenster and Otten (2005), Black et al. (2006), Drobetz et al. (2004) and Klapper and Love (2004).

⁸ We acknowledge that the equations estimating the effect of corporate governance on operating performance might be extended with more control variables. However, for reasons of comparability, we stick to methods used in the existing literature.

⁹ Industry classifications of ISS are similar to the more commonly used Fama and French (1997) industry classifications.

value in our sample is comparable to GIM, but the average operating performance is slightly lower than for example Core et al. (2006), which might be due to the inclusion of a substantial number of small caps in our sample. The correlation statistics show that firms with a high governance score tend to be well-performing large firms with low leverage. The correlation coefficient between Tobin's Q (BM-ratio) and the CGQ score is negative (positive), which is contrary to expectations. However, the preliminary figures in the table omit important determinants from the analysis.

– Insert Table II here –

We estimate OLS regressions to study the effect of corporate governance on firm value. Besides that, we estimate the models with curtailed regressions (1% at both sides) to reduce the influence of outliers and obtain similar results. Some comparable studies estimate yearly regressions and consequently calculate a Fama-MacBeth (1973) mean and t-statistic. This approach partially avoids the problems of serial correlation and cross-sectional dependence. However, our short time-series does not allow for the same methodology, so we exploit our dataset in a pooled setup. Ideally, we would estimate the panel in a firm fixed-effects setting with time-varying coefficients, but the CGQ index does not change frequently over time, so the estimation will not lead to proper results due to identification of the governance coefficient based on minor changes. Moreover, we expect that cross-sectional variation in corporate governance will be the driver of our results, rather than the small changes in governance over time (Zhou 2001). Therefore, we use a time fixed-effects approach and adjust standard errors to account for serial correlation within the firm-cluster, following Rogers' (1993) method.

The regression results are presented in Table III. Panel A shows the results for firm value, whereas Panel B shows the results for operating performance. Coefficients of time and industry dummies are omitted. We first estimate the model with the overall CGQ index and subsequently use the four governance subscores, Audit, Compensation, Takeover and Board, respectively. In Panel A, the coefficients on the CGQ index and its subscores are significantly positive, except for the 'takeover' subscore. In terms of economic significance, the effects of governance on firm value are strong: a one point increase in the overall CGQ index (range 1 – 100) leads to a 0.3% increase in the median Tobin's Q, whereas a one point increase in the CGQ sub-indices (range 1 – 5) leads to a 3% to 5%

percent increase in the median Tobin's Q. These findings indicate that firms with high rated corporate governance standards are valued higher by the market.

The non-significant effect of the governance sub-index 'takeover' on firm value indicates that investors either not care about or do not pay attention to the adoption of anti-takeover provisions, contrasting investor scrutiny regarding executive compensation or board structure. Finally, the signs on the control variables are in line with expectations: firm value is higher for young and small companies, with strong past performance.

Although we exploit a database that has not been widely used in corporate governance studies hitherto, our results for the full sample of 5000 firms confirm previous findings by for example Brown and Caylor (2006), Durnev and Kim (2005), GIM and Klapper and Love (2004). This contrasts criticism on empirical governance-performance studies that findings are often index-specific (Sonnenfeld 2004).

Panel B shows several interesting findings, which are estimated using median (least-absolute-deviation) regressions to reduce the influence of outliers, following Core et al. (2006), GIM and Klapper and Love (2004). First, we document that the CGQ index is positively related to the performance measures return on equity and the net profit margin, which is in line with GIM, who find evidence that firms with weaker shareholder rights have weaker operating performance. However, the results of GIM lack statistical significance, whereas our results are statistically strong. With respect to return on assets, the significantly positive coefficient is similar to Core et al. (2006) and Klapper and Love (2004), who find a significantly positive relation between return on assets, the G-Index and the CLSA index respectively. Regarding economic significance of our findings, we note that the relation between the governance index on the one hand, and the return on equity and net profit margin on the other hand, are particularly strong: a one point increase in the CGQ index leads to a 2.7% (2.2%) increase in return on equity (net profit margin). For return on assets, the economic significance of the coefficient is lower, but still considerable.

The sign on the control variable is in line with expectations: operating performance is negatively related to the book-to-market value. For panel B, the goodness of fit of the model is represented by the pseudo R-squared. At first sight, the figures seem to be quite

low, which can be partially attributed to the method we use. Furthermore, Brown and Caylor (2006) also use the CGQ index in combination with the same methodological setup and document similar explanatory power for their models.

– Insert Table III here –

B. REITs: Governance, Firm Value and Operating Performance

The results for the complete CGQ dataset confirm existing empirical evidence that well-structured corporate governance leads to better operating performance, even though the results are based on an index that has not been widely used in corporate governance research before. Moreover, the market seems to value strong firm-level corporate governance and incorporates this information ex-ante, leading to higher valuations for well-governed firms. For REITs, the distinct legal environment leads to two competing hypotheses: under the substitution hypothesis, we argue that the naturally strong institutional setting in which REIT managers operate makes it less costly to deviate from the optimal corporate governance structure. As investors especially value strong corporate governance mechanisms in weak institutional settings (Durnev and Kim 2005; Klapper and Love 2004), a weak relation between the CGQ index and REIT value can be expected. With respect to operating performance, strong firm-level corporate governance cannot enforce REIT managers to enhance operating performance to the same extent as compared to firms operating in a non-restricted legal environment, so the relation between corporate governance and operating performance is expected to be weak as well.

On the other hand, the depreciation expense is excluded from the distribution requirement, which leaves REIT management with discretionary cash flows (Kallberg, Liu and Srinivasan 2003). Moreover, the restrictions of the REIT structure on ownership concentration might reduce the pressure of the market for corporate control. Under the complement hypothesis, firm-level corporate governance mechanisms are an important addition to the legal setting in which REITs operate. Therefore, one would expect the relation between corporate governance and firm value to be similar to other industries. With respect to operating performance, stronger firm-level corporate governance would lead to less managerial entrenchment and thus more efficient operations.

To test the hypotheses, we repeat the analysis of the previous section, but instead of analysing the complete CGQ dataset, we now focus on the REIT sample. We replace industry dummies by dummies that correspond to REIT investment focus (diversified, industrial, mortgage, office, residential, retail and other). Data is collected from SNL. Table IV reports the results, where Panel A presents the results for firm value and Panel B presents the results for operating performance. Coefficients of time and investment focus dummies are omitted. We first estimate all models with the overall CGQ index and subsequently use the four sub-indices. Contrasting the full sample results, we find no evidence that REITs with higher corporate governance ratings have a higher firm value. This supports the substitution hypothesis: the strong institutional setting in which REITs operate seems to reduce the importance of firm-level corporate governance for investors. Therefore, a lower corporate governance rating does not directly lead to lower firm value, which is in line with findings by Durnev and Kim (2006) and Klapper and Love (2004).

In Panel B of Table IV, we document no significant evidence on the relation between corporate governance and operating performance in REITs. In line with evidence on firm value, this is contrasting the full sample results, where we documented that lower corporate governance scores lead to lower operating performance. We can explain the lack of a significant relation between corporate governance and operating performance in REITs by the restricted environment in which REIT managers operate. The obligation to obtain at least 75% of income from real estate investments limits operational freedom, so managers can influence operating performance to a lesser extent, independent of the structure of corporate governance.

Related to the real estate literature, our results are not only in line with, but also add to the findings of Hartzell et al. (2006), as we find similar results while using an aggregate governance index rather than a combination of individual governance measures. However, our results are contrasting several previous studies that have documented a significantly positive relation between firm value and managerial ownership (Capozza and Seguin 2003; Han 2006) and between firm value and identity of management (Capozza and Seguin 2000). This inconsistency can be explained in four ways. First, the CGQ index includes insider holdings in the ratings criteria, but this is just one element of the total governance index. Moreover, the presence of director shareholdings rather than the variation in the level of insider holdings is reflected. Second, Agrawal and Knoeber

(1996) show that the effect of insider shareholdings on firm performance is only present when included as the single governance mechanisms. The effect disappears when other corporate control mechanisms are included in the regression. This indicates that alternative corporate governance measures might be interdependent, and explains the inconsistency between our results and Capozza and Seguin (2003; 2006) or Han (2006). Third, Capozza and Seguin (2000) document that REITs with external management have less cash flow available for distribution as compared to REITs with internal management. Although the identity of management is not specifically addressed in the CGQ index, we expect the influence of external management on operating performance to be limited in our sample, as the number of REITs with this structure has decreased dramatically over the past few years. Fourth, we execute our study during a more recent period and we use a larger sample of REITs than comparable studies.

– Insert Table IV here –

The REIT results at first sight show that the structure of corporate governance does not matter for performance. We argue that this result might be due to a ‘REIT effect’: the distinct legal setting in which REITs operate limits managerial freedom through the obligation to pay out at least 90% of net earnings and through operational restrictions. Deviating from the optimal governance structure is therefore less costly. However, there are alternative explanations for this REIT effect. First, there is considerable variation in the discretionary cash flow available to REIT managers. Therefore, corporate governance might not be a driver of performance when examining the cross-section of REITs, but only for REITs that are awash with cash. Second, the lack of a relation between corporate governance and performance in our sample of REITs might be inherent to the nature of the product – real estate. Property companies are highly transparent, as the individual properties in the portfolio are relatively easy to value. The REIT industry is very capital-intensive as the asset base of these companies mainly consists of fixed assets, and expenses on intangible assets such as for example marketing and R&D are limited. Therefore, there might be less scope for agency problems. Third, our results might be driven by the specific governance index that we exploit.

C. Control Samples

To investigate the alternative explanations for the REIT effect, we conduct three robustness checks. First, we create a sample based on a selection of capital-intensive companies. To this end, we match the REIT sample with companies that have a comparable corporate real estate ratio. Second, to test whether our results are driven by the specifics of the CGQ index, we repeat our analysis with the REITs in the G-Index, which was first constructed and exploited by GIM and later used by for example Core et al. (2006) and, specifically for the real estate sector, by Bianco et al. (2007). Third, we split the REIT sample in a selection that is cash constrained and a selection that is cash rich.

C.I. Firms with High Corporate Real Estate Ratios

REITs are typically companies with a relatively large percentage of fixed assets. Gertler and Hubbard (1988) show that companies with a concentration of ‘hard’ capital have fewer possibilities to engage in value-destructing behavior, which might be an alternative explanation to our findings. So, as a first robustness check, we construct a control sample that consists of companies with high corporate real estate ratios (CRERs). Following the methodology of Brounen and Eichholtz (2005), this ratio quantifies relative real estate ownership in the following way:

$$(1) \quad CRER = \frac{PPE}{Total\ Assets}$$

Where PPE represents Compustat item ‘Property, Plant and Equipment’ and Total Assets is the book value of a firm’s total assets. We exclude REITs from the total CGQ sample, sort the remainder on their CRERs and match it to the REIT sample on a yearly basis. After collecting the necessary accounting data, this leads to a control sample of 545 observations (firm-years). To test whether our results for REITs can be explained by the relatively high share of fixed assets, we estimate regressions similar to the analysis in sections IV.A and IV.B. Again, we include industry dummies to correct for industry effects. For the models with operating measures as the dependent variables, we estimate median (least-absolute-deviation) regressions to correct for outliers.

Table V presents the results. Panel A shows that the average CGQ score of companies in the control sample is 50.5. The average CGQ score for the control sample ranges from 49.4 in 2003 to 54.1 in 2005 (not reported), which is substantially lower as compared to

the average CGQ score for REITs, which is 64.5 in 2005 (see Table I). In Panel B, we find that the CGQ index is significantly and positively related to firm value and operating performance, except for the performance measure 'sales growth'. This is similar to the results for the complete sample. The coefficients are economically significant as well: a one point increase in the CGQ index leads to a 0.2% increase in the median Tobin's Q and to a 3.4% increase in ROE.

The presence of a relation between corporate governance and performance in our control sample of companies with a high CRER makes it unlikely that the lack of findings regarding the governance-performance relation in the real estate sector are the result of the high percentage of fixed assets in REITs. This confirms the possible existence of a 'REIT effect' in explaining the lack of a relation between firm-level corporate governance and performance in U.S. REITs.

– Insert Table V here –

C.II. REITs in G-Index Sample

In Sections IV.A and IV.B, we frequently compare our results to those of Core et al. (2006) and GIM. These authors derive their governance index, which is the so-called G-Index, from publications of the Investor Responsibility Research Center. However, the G-Index includes takeover provisions only. One could argue that our findings cannot be compared with GIM directly, as the CGQ index incorporates a much broader range of corporate governance mechanisms. As a robustness check, we therefore repeat our governance-performance analysis of REITs with the G-Index. This additional analysis has parallels with Bianco et al. (2007). We collect data from RiskMetrics (formerly IRRC), which contains bi-annual ratings on approximately 2,000 U.S. companies. We select all REITs in the sample years 2004 and 2006 and collect financial information from Compustat. This leads to a total sample of 113 observations (firm-years).

Panel A of Table VI shows the average number of takeover provisions in place for the REIT sample and the total G-Index sample, respectively. We note that the G-Index has a range from 1 to 24, where each point represents a takeover provision. So, a lower score implies less restricted shareholder rights. The descriptive statistics show that REITs have less takeover provisions in place as compared to the full sample, which means that

shareholder rights are relatively strong in REITs. In Panel B, we present the results of the regression analysis, in which we use Tobin's Q, ROE, ROA and FFO growth as dependent variables respectively. Contrasting Core et al. (2006) and GIM, we do not find a statistically significant relation between the G-Index, firm value and operating performance. These findings confirm the results we documented for REITs in the previous section, where we exploited the CGQ index. The lack of a relation between the G-Index, firm value and operating performance supports the findings of Bianco et al. (2007), who argue that a governance index solely based on takeover provisions is not a suitable governance proxy for the real estate sector.

— Insert Table VI here —

C.III. REITs with High versus Low Payout Ratios

While the 90% distribution requirement of REITs is a distinguishing feature, setting them apart from regular corporations, it has been well-documented that this requirement is generally not binding. Among others, Wang et al. (1993) find that the average ratio of dividends to net income is 1.65, whereas Kallberg, Liu and Srinivasan (2003) document a median ratio of dividends to income of 1.11. This indicates that various expenses —most importantly the depreciation expense —leave discretionary cash flows for REIT managers. REITs that distribute cash flows in excess of the distribution requirement will return to the capital market more frequently and are subject to additional scrutiny of the capital market. In this way, shareholders benefit from the strong institutional setting of REITs and from additional monitoring by the market. Contrasting, shareholders of REITs that retain excess cash flows are more likely to face agency problems as in regular C-corporations, even if these problems probable have a lower magnitude due to the 90% distribution requirement.

To test this hypothesis, we adapt the payout measure of Wang et al. (1993) by calculating the ratio of dividend payout to *free cash flows* rather than to *net income* for each REIT, where the free cash flows include net income before extraordinary items plus the depreciation expense. This accurately determines the availability of discretionary cash flows in REITs. An alternative measure of free cash flow would be FFO, but this measure excludes cash outflows such as amortization and cash inflows such as gains from property sales.

Subsequently, we split the REIT sample on the median in a subsample of 'high payout' REITs and a subsample of 'low payout' REITs.¹⁰ Panel A of Table VII presents descriptive statistics for both samples. Corporate governance ratings are on average slightly higher for REITs that distribute most of their cash flows, but there are similar levels of cross-sectional variation in both samples.

Panels B and C of Table VII show the subsample results for the OLS regression of Tobin's Q on the governance index and control variables. Coefficients of year dummies, sector dummies and financial variables are omitted. Panel B contains the REITs that distribute most of their free cash flows. For these firms corporate governance is not a significant determinant of firm value. Deviating from the optimal governance structure is less costly, as free cash flow is scarce and managers are frequently scrutinized by the capital market. In Panel C, we show the results for the subsample of REITs that retain more discretionary cash from expenses. In this case, corporate governance does matter for REIT value. The coefficients in columns (2) to (5) indicate that especially a well-structured board is reflected in REIT valuation. Nevertheless, the results for the cash rich REITs still differ considerably from the results that we documented for our sample of 5,000 regular C-corporations, for which the audit and compensation indices were significant as well.

In general, corporate governance is less important for REITs than it is for regular corporations, as the payout restrictions act as a safety net for investors. However, the discretionary cash flows created by the various expenses still offer the opportunity for managerial entrenchment. Indeed, for REITs that do not distribute these additional cash flows, a strong internal corporate governance mechanism seems to be value-enhancing, although other governance mechanisms are less important than for regular corporations. We attribute this to the strong institutional governance setting surrounding REITs: the REIT effect.

— Insert Table VII here —

¹⁰ Ideally, we would also take variables such as growth, REIT type and capital structure into account when separating the sample, as these are well-documented determinants of dividend payout. However, this is beyond the goal of this robustness check and would lead to analytical problems due to the small subsamples.

V. Concluding Remarks

Although the relation between corporate governance and performance has been studied extensively in the corporate finance literature, it has been investigated only partially for listed property companies. Most of the real estate literature investigates the effect of a combination of individual corporate governance elements on performance. This study fills the empirical gap by investigating the aggregate effect of corporate governance on performance, using a corporate governance index (CGQ) that is provided by a leading governance-rating agency, Institutional Shareholder Services, and that covers a far greater number of REITs than other corporate governance indices.

REIT managers operate in a restricted setting. On the one hand this reduces the agency conflict by curbing managerial freedom, which might substitute the need for alternative corporate governance mechanisms and raise industry-wide governance standards. On the other hand, the legal restrictions might increase managerial entrenchment, thereby increasing the need for strong firm-level monitoring mechanisms.

In line with the substitution hypothesis, we document for the REIT sample that our CGQ index is neither related to REIT value, as measured by Tobin's Q, nor to any of the three operating measures of performance, ROA, ROE, and FFO growth. These results contrast the consensus in the existing literature and the empirical evidence that we document for the complete CGQ sample. Moreover, our findings are supported by evidence on two control samples and an additional robustness check. The first control sample exists of companies with relatively high corporate real estate ratios (CRERs), for which we find a relation between the CGQ index and performance, leading to the conclusion that the results we find for REITs are probably not driven by the assets they invest in. The second control sample is constructed by selecting all REITs in the G-Index, for which we do not find evidence of a relation between governance and performance either, implying that our results are not driven by the peculiarities of our dataset. However, when distinguishing high payout from low payout REITs, we find that governance does matter for the valuation of the latter. Comparing the results for the subsample of cash-rich REITs to the results for the sample of 5,000 regular C-corporations, we document that a broader range of governance variables affects valuations for the second group. Our results corroborate with expectations that

corporate governance has less impact on firm performance in strongly regulated business environments, as documented by Durnev and Kim (2005) and Klapper and Love (2004). We therefore explain the weak relation between corporate governance and performance in REITs as a 'REIT effect'.

To conclude, we note that our paper has three caveats. First, we argue that corporate governance is static and that cross-sectional differences rather than time-series changes explain the effect of corporate governance on performance, but the short time span does not allow us to test how severe the endogeneity issue actually is. Second, the relatively small sample of REITs does not allow us to dig very deep into the REIT sample. This would for example be preferable in section C.III. However, this is inherent to research on listed real estate companies and cannot be solved appropriately at the moment. Countries all over the world converge towards standards for listed property companies comparable to U.S. REITs. This will likely broaden the scope of future corporate governance research in the real estate sector. Third, our index allows us to focus on all measures of corporate governance, but not ownership concentration. As institutional ownership is increasing in REITs and the role of shareholders is becoming more prominent, future research might incorporate this external governance mechanism in the analysis.

Reference list:

Agrawal, A, and CR Knoeber 1996. Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders. *Journal of Financial and Quantitative Analysis* 31:377-397.

Ambrose, BW, and P Linneman 2001. REIT Organizational Structure and Operating Characteristics. *Journal of Real Estate Research* 21:141-162.

Bauer, R, N Guenster, and R Otten 2005. Empirical Evidence on Corporate Governance in Europe: The Effect on Stock Returns, Firm Value, and Performance. *Journal of Asset Management* 5:91-104.

Bianco, C, C Ghosh, and CF Sirmans 2007. The Impact of Corporate Governance on the Performance of REITs. *Journal of Portfolio Management* 33:175-191.

Black, BS, H Jang, and W Kim 2006. Does Corporate Governance Predict Firms' Market Values? Evidence from Korea. *Journal of Law, Economics, and Organization* 22:366-413.

Boehren, O, and BA Odegaard 2003. Governance and Performance Revisited. In *ECGI Working Paper*. ECGI Working Paper.

Boer, D, D Brounen, and H Op't Veld 2005. Corporate Focus and Stock Performance: International Evidence from Listed Property Markets. *Journal of Real Estate Finance and Economics* 31:263-81.

Brounen, D, and PMA Eichholtz 2005. Corporate Real Estate Ownership Implications: International Performance Evidence. *Journal of Real Estate Finance and Economics* 30:429-45.

Brown, LD, and ML Caylor 2006. Corporate Governance and Firm Valuation. *Journal of Accounting and Public Policy* 25:409-434.

Cannon, SE, and SC Vogt 1995. REITs and Their Management: An Analysis of Organizational Structure, Performance and Management Compensation. *Journal of Real Estate Research* 10:297-317.

Capozza, DR, and PJ Seguin 2000. Debt, Agency, and Management Contracts in REITs: The External Advisor Puzzle. *Journal of Real Estate Finance and Economics* 20:91-116.

— 2003. Inside Ownership, Risk Sharing and Tobin's q-Ratios: Evidence from REITs. *Real Estate Economics* 31:367-404.

Chan, SH, WK Leung, and K Wang 1998. Institutional Investment in REITs: Evidence and Implications. *Journal of Real Estate Research* 16:357.

Core, JE, WR Guay, and TO Rusticus 2006. Does Weak Governance Cause Weak Stock Returns? An Examination of Firm Operating Performance and Investors' Expectations. *Journal of Finance* 61:655-87.

Cremers, M, and VB Nair 2005. Governance Mechanisms and Equity Prices. *Journal of Finance* 60:2859-2894.

Derwall, J, N Guenster, R Bauer, and K Koedijk 2005. The Eco-Efficiency Premium Puzzle. *Financial Analysts Journal* 61:51-63.

Downs, DH, ZN Guener, and GH Patterson 2000. Capital Distribution Policy and Information Asymmetry: A Real Estate Market Perspective. *Journal of Real Estate Finance and Economics* 21:235-250.

Drobetz, W, A Schillhofer, and H Zimmermann 2004. Corporate Governance and Expected Stock Returns: Evidence from Germany. *European Financial Management* 10:267-293.

Durnev, A, and EH Kim 2005. To Steal or Not to Steal: Firm Attributes, Legal Environment, and Valuation. *Journal of Finance* 60:1461-1493.

Eichholtz, PMA, K Koedijk, and M Schweitzer 2001. Global Property Investment and the Costs of International Diversification. *Journal of International Money & Finance* 20:349-366.

Eichholtz, PMA, and N Kok 2007. The EU REIT and the Internal Market for Real Estate. EP Federation, editor. Brussels.

– 2008. How Does the Market for Corporate Control Function for Property Companies? *Journal of Real Estate Finance & Economics* 36:141-163.

Fama, EF, and KR French 1997. Industry Costs of Equity. *Journal of Financial Economics* 43 2:153-93.

Fama, EF, and JD MacBeth 1973. Risk, Return, and Equilibrium: Empirical Tests. *Journal of Political Economy* 81:607.

Friday, HS, and GS Sirmans 1998. Board of Director Monitoring and Firm Value in REITs. *Journal of Real Estate Research* 16:411.

Friday, HS, GS Sirmans, and CM Conover 1999. Ownership Structure and the Value of the Firm: The Case of REITs. *Journal of Real Estate Research* 17:71.

Gertler, M, and RG Hubbard 1988. *Financial Factors in Business Fluctuations* Kansas City: Federal Reserve Bank of Kansas City.

Ghosh, C, and CF Sirmans 2003. Board Independence, Ownership Structure and Performance: Evidence from Real Estate Investment Trusts. *Journal of Real Estate Finance & Economics* 26:287-318.

Gompers, PA, J Ishii, and A Metrick 2003. Corporate Governance and Equity Prices. *Quarterly Journal of Economics* 118:107.

Han, B 2006. Insider Ownership and Firm Value: Evidence from Real Estate Investment Trusts. *Journal of Real Estate Finance and Economics* 32:471-93.

Hartzell, JC, JG Kallberg, and CH Liu 2004. The Role of Corporate Governance in Initial Public Offerings: Evidence from Real Estate Investment Trusts. Working Paper.

Hartzell, JC, L Sun, and S Titman 2006. The Effect of Corporate Governance on Investment: Evidence from Real Estate Investment Trusts. *Real Estate Economics* 34:343-76.

Howe, JS, and JD Shilling 1990. REIT Advisor Performance. *American Real Estate and Urban Economics Association Journal* 18:479-500.

Jensen, MC 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review* 76:323-329.

Kallberg, JG, CH Liu, and A Srinivasan 2003. Dividend Pricing Models and REITs. *Real Estate Economics* 31:435-450.

Klapper, LF, and I Love 2004. Corporate Governance, Investor Protection, and Performance in Emerging Markets. *Journal of Corporate Finance* 10:703-728.

La Porta, R, F Lopez-De-Silanes, A Shleifer, and R Vishny 1998. Law and Finance. *Journal of Political Economy* 106.

— 2000. Agency Problems and Dividend Policies Around the World. *Journal of Finance* 55.

— 2002. Investor Protection and Corporate Valuation. *Journal of Finance* 57:1113-1155.

Ling, DC, and M Ryngaert 1997. Valuation Uncertainty, Institutional Involvement, and the Underpricing of IPOs: The Case of REITs. *Journal of Financial Economics* 43:433-456.

Rogers, W 1993. Regression Standard Errors in Clustered Samples. *Stata Technical Bulletin* 13:19-23.

Shin, HH, and RM Stulz 2000. Firm Value, Risk, and Growth Opportunities. NBER, Cambridge, MA, USA.

Sonnenfeld, J 2004. Good Governance and the Misleading Myths of Bad Metrics. *Academy of Management Executive* 18:108-113.

Wei, P, C-H Hsieh, and CF Sirmans 1995. Captive Financing Arrangements and Information Asymmetry: The Case of REITs. *Real Estate Economics* 23:385-94.

Zhou, X 2001. Understanding the Determinants of Managerial Ownership and the Link between Ownership and Performance: Comment. *Journal of Financial Economics* 62:559-71.

Table I. Summary Statistics Corporate Governance Quotient Index

Panel A. CGQ Index Scores – All Industries				
	2005			
	<i>CGQ</i>	<i>SD</i>		
<i>Top-5</i>				
Real Estate	64.5	28.6		
Utilities	63.1	28.2		
Banks	60.2	26.7		
Pharmaceuticals & Biotechnology	56.7	26.0		
Insurance	54.5	28.2		
<i>Bottom-5</i>				
Hotels, Restaurants and Leisure	46.4	27.5		
Telecommunication Services	42.4	27.1		
Household & Personal Products	41.0	26.2		
Food Beverage & Tobacco	38.0	30.1		
Media	35.6	29.8		
Panel B. Correlations Between Subindices				
	<i>CGQ</i>	<i>Board</i>	<i>Compensation</i>	<i>Takeover</i>
<i>Board</i>	0.78***			
<i>Compensation</i>	0.52***	0.24***		
<i>Takeover</i>	0.04***	-0.11***	-0.08***	
<i>Audit</i>	0.44***	0.36***	0.10***	-0.05***
Panel C. CGQ Index Scores - Real Estate				
	2003	2004	2005	
<i>Governance index</i>	<i>CGQ</i>	<i>CGQ</i>	<i>CGQ</i>	
Mean	50.5	54.6	64.5	
Standard deviation	26.8	29.3	28.6	
<i>Subindex means</i>				
<i>Board</i>	3.1	3.5	3.4	
<i>Compensation</i>	3.4	3.5	3.4	
<i>Takeover Defenses</i>	2.7	3.4	3.5	
<i>Audit</i>	3.5	3.8	3.3	
Number of firms	216	210	228	

Note: Panel A of Table I shows the average ISS Corporate Governance Quotient scores for industries ranking in the top-5 and in the bottom-5 of the CGQ universe in 2005. The ratings criteria on which the ratings are based are provided in Appendix A. Range of scores is 1 – 100. Panel B provides the pairwise correlations between the CGQ index and the four subindices. Panel C shows the CGQ Index scores for the sample of U.S. REITs, from 2003 to 2005. Scores on subindices are provided in the lower part of the table, range of subscores is 1 – 5.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Table II. Summary Statistics of Complete Sample (2005)

	Mean	Median	SD	Corr. with CGQ
Tobin's Q	2.16	1.52	1.89	-0.06***
ROE	2.94	9.37	53.46	0.01***
ROA	1.84	3.83	25.30	0.12***
Size (log)	2.56	2.59	1.02	0.37***
Leverage	0.69	0.02	3.24	-0.18***
BM-ratio	0.43	0.43	0.56	0.01***

Note: Table II provides full sample summary statistics for a selection of financial and accounting measures in 2005. The last column provides the pairwise correlation for each of the variables with the CGQ index.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Table III. Corporate Governance, Firm Value and Operating Performance: Full Sample

Panel A: Tobin's Q – All Industries					
	(1)	(2)	(3)	(4)	(5)
CGQ Index	0.004 (5.25) ^{***}				
Audit Index		0.057 (3.66) ^{***}			
Compensation Index			0.046 (2.99) ^{***}		
Takeover Index				0.021 (1.35)	
Board Index					0.069 (3.69) ^{***}
Size (log)	-0.393 (7.57) ^{***}	-0.359 (7.20) ^{***}	-0.359 (7.10) ^{***}	-0.341 (6.94) ^{***}	-0.382 (7.36) ^{***}
Age (log)	-0.160 (2.08) ^{**}	-0.111 (1.47)	-0.146 (1.94) [*]	-0.117 (1.55)	-0.141 (1.85) [*]
ROE	0.001 (1.88) [*]	0.001 (1.65) [*]	0.001 (1.67) [*]	0.001 (1.65) [*]	0.001 (1.66) [*]
ROE _{t-1}	0.001 (1.80) [*]	0.001 (1.79) [*]	0.001 (1.80) [*]	0.001 (1.79) [*]	0.001 (1.79) [*]
Leverage	0.002 (0.28)	0.002 (0.27)	0.002 (0.28)	0.002 (0.28)	0.002 (0.27)
Intercept	2.895 (14.39) ^{***}	2.765 (13.65) ^{***}	2.854 (13.92) ^{***}	2.810 (12.22) ^{***}	2.854 (14.31) ^{***}
Year Fixed Effects	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y
<i>n</i>	11572	11572	11572	11572	11572
Adjusted R ²	26.53%	26.67%	26.63%	26.56%	26.71%
Panel B: Operating Performance – All Industries					
	ROE	ROA	Sales Growth	NPM	
CGQ Index	0.027 (8.56) ^{***}	0.006 (5.17) ^{***}	0.000 (0.08)	0.022 (9.16) ^{***}	
BM-ratio (log)	-17.023 (63.50) ^{***}	-4.649 (52.32) ^{***}	-7.885 (22.12) ^{***}	-5.229 (25.52) ^{***}	
Intercept	3.295 (3.39) ^{***}	3.477 (10.48) ^{***}	0.974 (0.75)	-1.654 (2.20) ^{**}	
Year Fixed Effects	Y	Y	Y	Y	
Industry Fixed Effects	Y	Y	Y	Y	
Median Adjusted	Y	Y	Y	Y	
<i>n</i>	11572	11572	11572	11572	
Pseudo R ²	4.89%	8.09%	4.56%	0.65%	

Note: Panel A of Table III presents the results of the OLS regression of Tobin's Q on the CGQ index and control variables. In column (1), the CGQ index is the main explanatory variable, whereas the results

columns (2) to (5) are estimated using the subindexes Audit, Compensation, Takeover, and Board, respectively. Tobin's Q is defined as the book value of assets plus the market value of equity minus the book value of equity and deferred taxes, the control variables include current and lagged return on equity (ROE), the natural logarithm of the book value of assets (Size), the natural logarithm of age, the debt ratio (Leverage), year dummies and industry dummies (based on ISS industry classification). Panel B provides the estimation results of the median regressions for return on equity (ROE), return on assets (ROA), the sales growth, and the net profit margin (NPM) on the CGQ index, the natural logarithm of the book-to-market ratio (BM), year and industry dummies. *t*-statistics based on Roger's (1993) clustered standard errors are in parentheses.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Table IV. Corporate Governance, Firm Value and Operating Performance: REITs

Panel A: Tobin's Q – REITs					
	(1)	(2)	(3)	(4)	(5)
CGQ Index	0.001 (1.32)				
Audit Index		-0.008 (0.47)			
Compensation Index			0.002 (0.10)		
Takeover Index				0.016 (0.78)	
Board Index					0.037 (1.33)
Size (log)	-0.119 (1.75)*	-0.102 (1.57)	-0.104 (2.30)**	-0.101 (1.56)	-0.122 (1.65)
Age (log)	0.258 (2.11)**	0.255 (2.04)**	0.257 (3.08)***	0.264 (2.11)**	0.246 (2.08)**
ROE	0.001 (4.42)***	0.001 (4.43)***	0.001 (2.26)**	0.001 (4.28)***	0.001 (4.72)***
ROE _{t-1}	0.000 (6.53)***	0.000 (7.23)***	0.000 (8.64)***	0.000 (7.09)***	0.000 (5.71)***
Leverage	-0.042 (1.88)*	-0.043 (1.91)*	-0.042 (2.04)**	-0.043 (1.88)*	-0.042 (1.94)*
Intercept	1.453 (7.55)***	1.494 (7.66)***	1.465 (9.36)***	1.375 (6.05)***	1.422 (8.03)***
Year Fixed Effects	Y	Y	Y	Y	Y
Sector Fixed Effects	Y	Y	Y	Y	Y
<i>n</i>	509	509	509	509	509
Adj R ²	13.03%	12.71%	0.13	12.81%	13.41%
Panel B: Operating Performance – REITs					
	ROE	ROA	FFO growth	NPM	
CGQ Index	-0.015 (1.26)	0.001 (0.23)	-0.001 (1.60)	-0.008 (0.23)	
BM-ratio (log)	-10.842 (9.47)***	-2.343 (4.96)***	-0.091 (4.68)***	-3.313 (0.94)	
Size (log)			0.036 (4.55)***		
Intercept	5.395 (6.05)***	5.086 (12.89)***	-0.072 (3.00)***	16.912 (5.33)***	
Year Fixed Effects	Y	Y	Y	Y	
Sector Fixed Effects	Y	Y	Y	Y	
Median Adjusted	Y	Y	Y	Y	
<i>n</i>	509	509	509	509	
Pseudo R ²	1.25%	2.67%	2.16%	3.76%	

Note: Panel A of Table IV presents the OLS regression results for the REIT sample of Tobin's Q on the CGQ index and control variables. In column (1), the CGQ index is the main explanatory variable, whereas columns (2) to (5) are estimated with subindexes Audit, Compensation, Takeover and Board respectively. Tobin's Q is defined as the book value of assets plus the market value of equity minus the book value of equity and deferred taxes. The control variables include current and lagged return on equity (ROE), the log of the book value of assets (Size), the log of age and the debt ratio (Leverage), year dummies and sector dummies. Panel B provides the estimation results of the median regression, with return on equity (ROE), return on assets (ROA), and 3-year growth in funds from operations per share (FFO growth) on the CGQ index, as dependent variables respectively. We include the natural logarithm of the book-to-market ratio (BM), size, year dummies and sector dummies as control variables. *t*-statistics based on Roger's (1993) clustered standard errors are in parentheses.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Table V. Control Sample: Firms with High Corporate Real Estate Ratios

Panel A: Descriptives Control Sample					
	<i>Mean</i>		<i>SD</i>		
CGQ	50.47		27.89		
Tobin's Q	1.33		0.53		
Panel B: Tobin's Q and Operating Performance					
	(1)	(2)	(3)	(4)	(5)
CGQ Index	0.003 (1.89)*	0.034 (3.69)***	0.012 (1.84)*	-0.003 (0.13)	0.022 (3.15)***
BM-ratio (log)		-18.686 (20.00)***	-4.632 (6.94)***	-8.659 (3.88)***	-5.528 (8.23)***
Size (log)	-0.217 (2.99)***				
Age (log)	0.098 (0.75)				
ROE	-0.000 (0.44)				
ROE _{t-1}	0.001 (0.41)				
Leverage	-0.113 (2.43)**				
Intercept	0.939 (4.73)***	3.626 (13.82)***	3.732 (1.59)	-0.510 (5.18)***	3.313 (1.38)
Year Fixed Effects	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y
Median Adjusted	N	Y	Y	Y	Y
N	545	545	545	545	545
Adj R ²	17.14%				
Pseudo R ²		11.39%	12.59%	11.87%	1.98%

Note: The control sample used in Table V is constructed by matching the REIT sample with regular corporations that have a similar corporate real estate ratio (CRER). Panel A shows the descriptives. In Panel B, column (1) shows the results of the OLS regression of Tobin's Q on the CGQ index and control variables. The control variables include current and lagged return on equity (ROE), the natural logarithm of the book value of assets (Size), the natural logarithm of age, the debt ratio (Leverage), year dummies and industry dummies. Tobin's Q is defined as the book value of assets plus the market value of equity minus the book value of equity and deferred taxes. Columns (2) through (5) provide the estimation results of the median regressions for return on equity (ROE), return on assets (ROA), the sales growth and net profit margin (NPM) on the CGQ index and the natural logarithm of the book-to-market ratio (BM), year dummies and industry dummies. *t*-statistics based on Roger's (1993) firm clustered standard errors are in parentheses.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Table VI. Control Sample: REITs in G-Index

Panel A. Descriptives G-Index				
	2004		2006	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
GIM sample	9.05	2.56	9.02	2.52
REIT sample	7.67	2.11	8.34	2.21
Panel B. Tobin's Q and Operating Performance				
	(1)	(2)	(3)	(4)
G-Index	0.009 (0.61)	-0.460 (-0.98)	-0.234 (-1.33)	-0.038 (-1.01)
BM-ratio		-14.415 (-1.51)	-3.707 (-2.61)**	-0.316 (-2.19)**
Size (log)	-0.194 (-2.78)**			-0.005 (-0.06)
Age (log)	0.134 (0.88)			
ROE	0.005 (2.77)**			
ROE _{t-1}	0.007 (8.56)***			
Leverage	-0.010 (-4.72)***			
Intercept	2.659 (8.04)***	20.860 (3.24)***	6.755 (3.05)***	0.431 (1.74)*
Year Fixed Effects	Y	Y	Y	Y
Median Adjusted	N	N	N	N
<i>n</i>	113	113	113	113
Adj R ²	27.83%	7.04%	6.64%	8.96%

Note: Panel A of Table VI presents descriptives of the G-Index for the full sample and the REIT sample. The G-Index is derived from the IRRC data provided by RiskMetrics. Column (1) of Panel B shows the results of the OLS regression of Tobin's Q on the G-Index and control variables. The control variables include current and lagged return on equity (ROE), the natural logarithm of the book value of assets (Size), the natural logarithm of age, the debt ratio (Leverage), year dummies and industry dummies. Tobin's Q is defined as the book value of assets plus the market value of equity minus the book value of equity and deferred taxes. Columns (2) through (4) provide the estimation results of the median regressions for return on equity (ROE), return on assets (ROA), and funds from operations (FFO) on the G-Index and the natural logarithm of the book-to-market ratio (BM), year dummies and industry dummies. *t*-statistics based on Roger's (1993) firm clustered standard errors are in parentheses.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Table VII. Corporate Governance and Firm Value in REITs: High vs. Low Payout

Panel A: Descriptives REIT Subsamples					
	CGQ Index		Tobin's Q		
	Mean	SD	Mean	SD	
Low Payout	50.01	30.13	1.22	0.54	
High Payout	52.75	29.08	1.30	0.31	
Panel B: REITs – High Payout Ratio					
	(1)	(2)	(3)	(4)	(5)
CGQ Index	0.001 (1.22)				
Audit Index		-0.016 (1.26)			
Compensation Index			-0.011 (0.79)		
Takeover Index				0.008 (0.48)	
Board Index					-0.002 (0.13)
Intercept	1.386 (8.12)***	1.438 (8.34)***	1.384 (8.09)***	1.339 (7.71)***	1.380 (8.08)***
Control Variables	Y	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y
Sector Fixed Effects	Y	Y	Y	Y	Y
<i>n</i>	249	249	249	249	249
Adj R ²	30.35%	30.51%	30.18%	30.11%	30.04%
Panel C: REITs – Low Payout Ratio					
	(1)	(2)	(3)	(4)	(5)
CGQ Index	0.003 (2.00)**				
Audit Index		-0.004 (0.15)			
Compensation Index			0.019 (0.59)		
Takeover Index				0.022 (0.50)	
Board Index					0.097 (2.60)***
Intercept	1.580 (6.16)***	1.669 (6.38)***	1.610 (5.65)***	1.516 (3.62)***	1.403 (6.18)***
Control Variables	Y	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y
Sector Fixed Effects	Y	Y	Y	Y	Y
<i>n</i>	233	233	233	233	233

Adj R ²	12.48%	11.52%	11.63%	11.65%	14.50%
--------------------	--------	--------	--------	--------	--------

Note: Panel A of Table VII contains the descriptive statistics of the REIT subsamples with low and high payout ratios, respectively. Panel B presents the OLS regression results for the 'high payout' REIT subsample of Tobin's Q on the CGQ index and control variables. In column (1), the CGQ index is the main explanatory variable, whereas columns (2) to (5) are estimated with subindexes Audit, Compensation, Takeover and Board respectively. Tobin's Q is defined as the book value of assets plus the market value of equity minus the book value of equity and deferred taxes. The control variables include current and lagged return on equity (ROE), the log of the book value of assets (Size), the log of age and the debt ratio (Leverage), year dummies and sector dummies. Panel C provides the OLS regression results for the 'low payout' REIT subsample of Tobin's Q on the CGQ index and control variables. *t*-statistics based on Roger's (1993) clustered standard errors are in parentheses.

* (**) (***) indicates significance at the 10% (5%) (1%) level.

Appendix A: Ratings Criteria ISS Corporate Governance Quotient

Board		State of Incorporation
1	Board Composition	33-40 Takeover Provisions Applicable Under State Law - Has Company Opted Out?
2	Nominating Committee	
3	Compensation Committee	
4	Governance Committee	Executive and Director Compensation
5	Board Structure	41 Cost of Option Plans
6	Board Size	42-43 Option Re-pricing
7	Changes In Board Size	44 Shareholder Approval of Option Plans
8	Cumulative Voting	45 Compensation Committee Interlocks
9	Boards Served On –CEO	46 Director Compensation
10	Boards Served On –Other Than CEO	47 Pension Plans For Non-Employee Directors
11	Former CEO's	48 Option Expensing
12	Chairman/CEOs Separation	49 Option Burn Rate
13	Board Guidelines	50 Corporate Loans
14	Response To Shareholder Proposals	
15	Board Attendance	Qualitative Factors
16	Board Vacancies	51 Retirement Age for Directors
17	Related Party Transactions	52 Board Performance Reviews
		53 Meetings of Outside Directors
Audit		54 CEO Succession Plan
18	Audit Committee	55 Outside Advisors Available to Board
19	Audit Fees	56 Directors resign upon job change
20	Auditor Rotation	
21	Auditor Ratification	Ownership
		57 Director Ownership
Charter/Bylaws		58 Executive Stock Ownership Guidelines
22-27	Features of Poison Pills	59 Director Stock Ownership Guidelines
28-29	Vote Requirements	60 Officer and Director Stock Ownership
30	Written Consent	
31	Special Meetings	Director Education
32	Board Amendments	61 Director Education
33	Capital Structure	

Note: Appendix A provides the ratings criteria used by Institutional Shareholder Services to construct the CGQ index. To come to the final rating, some of the criteria are also looked at in combination, under the premise that corporate governance is enhanced when selected combinations of these criteria are adopted.
Source: Institutional Shareholder Services (2008)