One size does not fit all, after all: Evidence from Corporate Governance[*]

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Abstract

We identify well-governed companies by accounting for heterogeneity in their governance choices by using a unique dataset. We find that companies that depart from governance best practice because of genuine circumstances outperform all others and cannot be considered badly-governed at all. On the contrary, we find that mechanical adherence to best practice does not always lead to superior performance. We thus argue that flexibility in corporate governance regulation plays a crucial role, because companies are not homogenous entities.

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1 Introduction

In this paper, we investigate the effects of corporate governance on performance in the context of a flexible regulatory regime. The novel contribution of this study is the use of a unique dataset that identifies companies' governance behaviour across time and the level of information conveyed to market participants in order to understand: 1) to what extent the heterogeneity of companies is reflected in their governance choices and how it affects performance; 2) how market participants can effectively discriminate between well governed and badly governed companies; and 3) the workings of a flexible regulatory system, in the light of the widespread adoption of self-regulation in both OECD and non-OECD countries.

Academics and non-academics tend to quantify corporate governance by looking at various aspects like board characteristics, anti-takeover provisions, ownership structure, and then relate these to performance. The typical methodology quantifies adherence to certain provisions or the magnitude of some components. For instance Gompers, Ishii, and Metrick (2003) (henceforth GIM) construct an index based on the number of anti-takeover provisions in a company's charter and show that it is related to performance. La Porta et al. (2002) assume that corporate law can be significantly described by a set of measures quantifying investor protection. Commercial data agencies use a similar mechanical tick-box methodology to rate a company's quality of governance. However, recent empirical evidence[1] shows that this approach does not completely capture all aspects of corporate governance and consequently its association with performance.

One reason why establishing this link may prove empirically difficult could be that, in matters of corporate governance, *one-size-does-not-fit-all*. Consider the adoption of anti-takeover charter provisions ("ATPs") by a company. Most of the debate focuses on shareholders' welfare maximisation and it is widely argued that ATPs are likely to be a manifestation of managerial entrenchment and hence reduce shareholder value. However, we cannot completely rule out the possibility that managers pursuing shareholder value maximisation put such defences in place with the aim of either discouraging value decreasing takeovers or commanding high prices from good acquirers (Hannes 2002). In particular, when looking at various governance criteria, it may be realistic that in many cases deviating from a principle is optimal. In the end, a natural consequence of *one-size-does-not-fit-all* approach is multiple equilibria in company choices.

The presence of diversity amongst companies has crucial implications for research in corporate governance. An index which identifies better governed companies by analysing adherence to governance provision(s) discards relevant information and imposes a *one-size-fits-all* framework on what is expected from companies. This aspect is further complicated by the existence of heterogeneous corporate structures, which are left unexplained by more standard models. Not recognising the existence of heterogeneity among firms by *de facto* imposing *one-size-fits-all* approaches would raise efficiency issues. Indeed, there are many arguments for

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[1] The analysis over a more recent period by Core et al. (2006) shows that the index used by GIM is not statistically related to stock market performance. Bebchuck, Cohen, and Ferrell (2004) find that only some provisions, among the fourty-four used by GIM, are correlated with firm value and stockholder returns. Larcker et al. (2004) empirically demonstrate that the typical structural indicators of corporate governance have very limited ability to explain organisational performance and that the result of similar studies are often contradictory. Berglof and von Thadden (2000) criticise La Porta et al. for their controversial construction of investor protection indicators.

and against each regulatory proposal, recommendation or governance criteria. Further, it is well recognised that better governance can lead to better performance. This highlights the crucial importance of identifying good governance.

Most studies investigating the relation between corporate governance and operating performance focus on the US, where the approach to corporate governance is essentially mandatory in nature, as epitomised by the recent Sarbanes-Oxley Law. Such a system advocates a *one-size-fits-all* approach to corporate governance, as all companies have to comply with the law. However, in the rest of the world attention is focused in establishing codes and standards against which to assess companies. Therefore, the US is not representative of most countries. In the light of both the above discussion and the companies' heterogeneity, we investigate the governance behaviour in a flexible regulatory regime, where companies can make different governance choices reflecting their unique circumstances. In contrast to the law literature, in the empirical finance literature there are very few studies on the workings and effects of flexible regulation.

We chose UK as the setting of our analysis as it pioneered a principle-based approach to corporate governance. This approach consists of a Code of best practice, which contains principles and provisions relating to various aspects of governance in a company. It is characterised by voluntary compliance with the Code provisions, and mandatory disclosure: companies have to reveal in their annual reports whether they are complying with the Code and, if not, explain why (also known as the "comply or explain" approach). This regulation has been in force for about 15 years, thus making the UK an ideal environment for studying governance choices and their effects.

The data for our analysis comes from corporate governance statements contained in the annual reports of UK companies. We construct a unique dataset by hand collecting details of both compliance and explanation in case of non compliance for 245 non-financial companies over a six year period. We then measure the quality of corporate governance on the basis of compliance with the various provisions of the Code as well as on the quality of explanations given in case of non-compliance. In a nut-shell, our approach is based on the assumption that a firm that does not comply, but identifies specific circumstances justifying departure from best practice, is no less well-governed than a company which is fully compliant. This allows us to fine-tune the identification strategy for well-governed companies. We then use this measure to investigate the effect of governance on performance.

Our analysis highlights several interesting results. If corporate governance matters for performance, a measure that does not account for companies' different choices should fail to deliver such association. Indeed, we find that a measure which accounts for different choices by companies of corporate governance is *significantly associated* with performance as against measures based on a tick-box approach, *which are not*. We find that companies departing from best practice for valid reasons perform exceptionally well and out-perform the fully compliant ones. In contrast, mere compliance with the provisions of the Code does not necessarily result in better performance. Our findings are robust to various specifications: endogeneity, cross-sectional dependence and selection issues, different measures of performance and control variables, and alternative constructions of the corporate governance index. In light of the above discussion, our findings

could be interpreted as follows. We depart from the *one-size-fits-all* framework in corporate governance, by incorporating in our measure the reasons companies give for not complying. Companies, which have carefully thought about the application of the Code to their specific circumstances, are more likely to provide better explanations of their choice and are thus likely to be well-governed, which is reflected in their performance.

We contribute to the literature in various ways. First, we contribute to the emerging empirical literature on corporate governance by investigating its relationship to corporate performance. In this regard, we show that corporate governance is much more than ticking boxes. Second, we highlight the importance of the "comply or explain" approach embracing the *one-size-does-not-fit-all* concept. We show that companies indeed make heterogeneous governance choices. The flexibility of the "comply or explain" approach allows companies to choose the structure that best suits them. Our investigation shows that these choices are associated with superior performance. Our results also suggest that shareholders and, more generally, market participants do not pay sufficient attention to explanations. There is value in analysing explanations since explanations can help separate well-governed companies from badly governed ones.

To summarise, the existing evidence of the link between governance and performance is not conclusive. One reason for that could be that governance is badly measured since it is hard to imagine that governance systems are universally bad. Thus a better strategy to assess governance quality will be to take into account the specific circumstances facing companies. It would be however difficult for researchers to assess such circumstances since there is hardly any information available on it. It is in this context that the UK regulation might help as it requires companies to explain their decision of not complying with best practice. In this study we therefore analyse explanations and hypothesize that firms not complying but providing specific justifications in light of their unique circumstances are more likely to choose not to comply for good reasons than companies that do not comply and either not explain or provide a poor quality explanation. Such choices should be reflected in their performance. We test this hypothesis by relating corporate performance to two different measures of governance, one which just focuses on compliance versus non compliance and second which additionally classifies as well governed the non-compliant with good explanations. We then empirically test and find that the second measure of governance is significantly and positively associated with performance whereas the first is not. The above thus supports our hypothesis that firms providing good quality explanations are more likely to have thought about their optimal governance structure, which is reflected in their performance.

Finally, the analysis of corporate governance in the UK context has important regulatory and policy implications. An increasing number of countries are adopting or are in the process of implementing codes of best practice based on the UK model.[2] Analysis of such a system enables us to clearly infer corporate behaviour and consequently its effect on performance. More importantly, if companies have a choice, they can

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[2] According to the United Nations, the use of "comply or explain" mechanisms in countries allows investors and other stakeholders greater access to information about the corporation and is to be encouraged (Guidance on good Practices in Corporate Governance Disclosure, United Nations Conference on Trade and Development, 26 September 2005). Moreover, the World Bank Report on the Observance of Standards and Codes (ROCs) recommends to many countries the implementation of a code of corporate governance with mandatory reporting on a "comply or explain" basis.

signal to the market that they are different in order to attract external financing, especially so in governance regimes that are less transparent and provide less protection to minority shareholders.[3] Our study can thus give directions to policymakers in countries trying to implement corporate governance codes.[4]

The structure of the paper is as follows. Section 2 describes the institutional background in the UK and the relation to the existing literature. Section 3 discusses the motivation and underlying hypothesis, section 4 the hand-collected dataset and our measures of corporate governance. Sections 5 and 6 describe the methodology and results for operating performance. Section 7 relates governance to stock market returns and finally, section 8 concludes.

2   Background

The UK is a pioneer in corporate governance regulation. The UK's reaction to corporate governance failures in the 1980s (e.g., Maxwell Communications, Polly Peck, and BCCI) was not prescriptive and legislative like the recent Sarbanes-Oxley Act, and led the way to a new form of regulation known as the "comply or explain" approach.

The "comply or explain" approach was an innovation in corporate governance regulation introduced for the first time in 1992 by the Cadbury Report. The defining aspect of this approach was the introduction of a voluntary Code of best practice characterised by shareholder pressure for its adoption. In contrast to statutory law which imposes minimum standards, codes aim at improving corporate behaviour by raising standards through best practice. In particular, it is mandatory for companies to state in their annual reports whether they comply with the Code and to identify and give reasons for any areas of non-compliance in light of their own particular circumstances. As neither the form or content of this part of the statement are prescribed, companies have a free hand to explain their governance policies in the light of the principles. It is for shareholders to evaluate this part of the company's statement. According to Sir Adrian Cadbury, the "comply or explain" approach is preferable to statutory measures because it does not commit companies to a *one-size-fits-all* approach and thus diminishes the risk of complying with the letter, rather than the spirit of the Code.

The Code has since then been modified several times but has all along retained the original principle of the "comply or explain" approach. After the Cadbury Report, there have been various committees in the UK reporting on different aspects of corporate governance. The Combined Code published in June 1998, consolidates the work of all the earlier committees and was incorporated into the Stock Exchange Listing Rules in December 1998. The Combined Code was in force continuously for the period between 1998 to 2004, following which it was updated by the Higgs Committee recommendations. The Combined Code

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[3]As an example, in 2001 the Sao Paulo stock Exchange launched a new market segment, the Novo Mercato, to allow companies that want to differentiate themselves from the other Brazilian companies by following international best practice.

[4]Despite self-regulation and "comply or explain" mechanisms are no substitutes for real public enforcement systems (Rajan and Zingales 1998) and yet, they are not enforced by themselves and need to be used by market participants to promote good internal corporate governance, codes can coordinate information collection and establish standards (Berglof and Claessens 2004).

contains both principles and detailed provisions, on various aspects of governance (e.g., board structure, committees composition, and service contracts' length). The major provisions of the Combined Code are listed in Appendix 1. The fact that the Combined Code was in continuous operation between 1998 and 2004 gives us an opportunity to study its effect on corporate performance.

The concept of principles as opposed to strict regulation originating in the UK from the Cadbury Code in 1992, has been recommended internationally in the OECD Principles of Corporate Governance. The OECD Principles were agreed in 1999 and then revised in 2004 and have formed the basis for corporate governance initiatives in both OECD and non-OECD countries alike. The OECD principles do not advocate a *one-size-fits-all* approach to governance.[5] With the exception of the US, the majority of OECD countries and a great number of non-OECD countries have adopted corporate governance codes that work on the "comply or explain" principle.[6]

2.1   Literature review

There is a growing empirical literature exploring the relation between governance and performance. One strand of literature focuses on governance indices. In these papers indices are developed based on either compliance with governance provisions or the presence of certain provisions in their company's charter. The effect of these indices on performance is then analysed. In one of the most widely cited paper GIM create a corporate governance index of US firms to investigate the effects of better corporate governance on performance at the firm level. The authors find a positive relation between stock market returns and the governance index, but the effect of their index on operating performance is weak.

Black (2001), Durnev and Kim (2005), Klapper and Love (2004), and Black et al. (2005) analyse the impact of governance on operating performance and find a positive association. All these papers focus on emerging markets where they are more likely to find a strong relation between well-governed companies and performance. However, clear evidence for developed countries is missing. In fact, Bhagat and Black (2002) find no correlation between board independence and long-term firm performance. Other studies like Yermack (1996), or Klein (1998) report a negative relationship between proportion of independent directors and Tobin's q. All the above studies use a tick-box approach to develop measures of governance under the

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[5] To quote an OECD recommendation: "Companies should report their corporate governance practices, and in a number of countries such disclosure is now mandated as part of the regular reporting. In several countries, companies must implement corporate governance principles set, or endorsed, by the listing authority with mandatory reporting on a "comply or explain" basis. Disclosure of the governance structures and policies of the company, in particular the division of authority between shareholders, management and board members is important for the assessment of a company's governance." (OECD Principles of Corporate Governance, 2004)

[6] Examples of the adoption of the "comply or explain" mechanism to corporate governance can be found in many countries. The Hong Kong Code on Corporate Governance Practices is similar to the UK's Code. Singapore has a new 2005 revision of its Code of Corporate Governance, which is also very similar to the UK and Hong Kong Codes. In New Zealand, the Commission's consultation during 2003 elicited a clear preference for principles over rules. Also African countries are adopting similar approaches to the UK, for instance the King's Code in South Africa and the PSCGT Principles and Sample Code of Best Practice in Kenya. Among the other countries that chose the "comply or explain" approach we can also mention: Australia, Austria, Belgium, Canada, China, Germany, Indonesia, Ireland, Italy, Korea, Malaysia, Mexico, Poland, Portugal, Spain, and Sweden. See the World Bank Toolkit *Developing Corporate Governance Codes of Best Practice*, (2005) for a complete list.

one-size-fits-all framework. Our paper departs from this framework and allows for the fact that different companies make different choices, by using the quality of explanation as a proxy for that choice.

Chhaochharia and Grinstein (2005) assess the impact of a new set of governance rules introduced in 2002 by the U.S. Congress. They find, on average, a positive impact on the value for those firms which were non compliant with the rules before their introduction. However, such an impact is negative for small companies, for which the costs of implementation seem to be higher than the benefits, thus raising the issue about the optimality of a rigid system of governance. Landier, Sraer, and Thesmar (2005) develop an index of internal governance for a company by using the number of *"independently minded"* top executives. Their argument is that such executives even though they are formally under the CEO can influence him/her to not undertake value destroying projects. Using a large sample of US companies they provide robust empirical evidence that internal governance is strongly related to corporate performance. Their paper thus focuses on internal governance, whereas we refine the traditional measures of governance for diverse behaviour amongst companies.

We are not aware of any academic paper that analyses the effect of a flexible regulatory system on performance and, in our specific case, of the Combined Code. In our earlier paper, AB (2005), we document how compliance with provisions of the Combined Code evolves over time and analyse the explanations. We find that despite increasing adherence with the Code's principles, the quality of the explanations does not increase over time. Grinstein and Hribar (2004) investigate what reasons the compensation committee report gives for the bonus to executives in the U.S. They find that these committees are reluctant to provide such information, and in 49% of the cases they do not justify the bonus.

Most of the academic papers in the UK deal with the implementation of the Cadbury Committee recommendations (the forerunner of the Combined Code). Dahya et al. (2002) look at top management turnover and corporate performance for UK companies before and after the Cadbury Code. They find that poorer performance is associated with higher turnover and this relationship is significantly stronger following adoption of the Cadbury Code. They further conclude that this increased sensitivity to performance is mainly due to an increase in non-executive (or outside) directors. Similarly, Dedman (2003) investigates if the Cadbury Code has lead to reduction in managerial entrenchment. Based on a sample of UK listed firms between 1990 and 1995 she concludes that the Code has not reduced the agency problem of managerial entrenchment in large UK firms. However, similar to Dahya et al. (2002) she does find a relationship between company performance and CEO departure. Conyon and Peck (1998) study the impact of various governance variables and presence of remuneration committees on executive pay. They conclude that executive pay and corporate performance are more aligned in companies having a majority of non-executive directors and remuneration committees.

3 Motivation and underlying hypothesis

Many theoretical papers investigate the relationship between principals (investors, outsiders) and agents (managers, insiders). Agency costs are value loss to shareholders, which are sustained to limit adverse selection and moral hazard problems in insiders' actions. Jensen and Meckling (1976) define agency costs as the sum of monitoring costs, bonding costs, and residual loss, which are incurred by the principal to control and provide incentives to an agent. Many of these aspects take the form of complete or incomplete contracts (executive compensation schemes), but they may be also imposed by law. For example, the auditing requirements introduced by the Sarbanes-Oxley are additional costs borne by companies to improve the monitoring of potential corporate frauds. Good corporate governance should therefore limit the agency problems and prevent the insiders' misbehaviour, thus ensuring superior corporate performance: *"Good governance produces better operational performance through better allocation of resources and better management, creating wealth more generally"*[7].

The search for association between performance and corporate governance has been a constant topic of this empirical literature, but the results are mixed. One reason why establishing this link may be difficult from an empirical point is the common use of the *one-size-fits-all* approach to corporate governance. The quality of corporate governance is measured through indices, which take into account what should be expected from companies by imposing a *one-size-fits-all* framework. Using such a framework, a non compliant company will be unconditionally associated with a low score. However, the world is not black and white, and the diversity among companies clearly mitigates against such a view. There is indeed evidence that companies are heterogeneous and even similar firms make different choices (Himmelberg et. al (1999), Titman and Wessels (1988)) or have dissimilar practices (Bertrand and Schoar (2003)). Related studies show that governance structures evolve over time and across industries, and they are an endogenous response to the company's stage of development or industry conditions (Gillan et al. (2003), Boone et al. (2005), Agarwal and Knoeber (1996))[8]. For instance, consider the adoption of anti-takeover charter provisions ("ATPs"). In the literature, there are two contrasting arguments in favour or against the ATPs adoption. According to the "Disciplinary Hypothesis", hostile takeovers replace managers of badly run companies, thus being an effective threat against pursuing empire buildings or implementing pet projects. However, Stein (1988 and 1989) argues that the disciplinary argument is diluted if a market suffers from myopia, and Bebchuk and Stole (1993) demonstrate that in presence of takeover threat managers may under/over-invest in the light of short-term returns. On the contrary, the "Bargaining Power Hypothesis" states that managers can use ATPs to negotiate a higher takeover premium, thus benefiting the company's shareholders.[9] Even though in most of the cases ATPs are

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[7] The World Bank Toolkit *Developing Corporate Governance Codes of Best Practice*, (2005).

[8] Chidambaran, Palia and Zheng (2006) take the argument further and examine if better corporate governance "causes" better firm performance. Based on their analysis they conlcude that firms are in equilibrium and choose their governance endogenously.

[9] For an extensive discussion of the two approaches, see Hannes (2002). The paper highlights the wide divergence in actual takeover practices even among similar firms, arguing that the choice of ATPs adoption may be efficient for shareholders.

value decreasing, they may not always be so, and therefore would not be appropriate to assume governance failures where those defences genuinely promote shareholders' interests. The investigation using a *one-size-fits-all* methodology is therefore *a priori* problematic, as it imposes a strait-jacket on an otherwise flexible environment.[10]

To overcome the issues raised above, we approach the problem from a different and more appropriate perspective. We study the relation between corporate governance and performance in a *one-size-does-not-fit-all* regulatory regime. There are at least two main reasons for doing so. First, a flexible system is a better environment to investigate the relation between governance and performance, since, as argued above, governance choices are likely to be heterogeneous. Similarly, it is challenging to establish uniform criteria of good corporate governance for different firms as often there is no consensus even about the definition corporate governance, let alone what constitutes good governance.[11] Second, flexible approaches to corporate governance are being adopted worldwide, making it an interesting question to study from a policy perspective.

In light of this heterogeneity, we use UK as the setting of our analysis since it pioneered a flexible regulatory approach to corporate governance. The main premise of this approach is that because companies are different, it is not appropriate to impose a strict and rigid regulation common to all, but give companies the freedom to choose the structure that best suits them. General and widely accepted criteria of best practice are embodied in a Code: as they are general, they may not be suitable to all companies, who can opt-out of the Code by explaining the reasons. We therefore depart from a tick-box approach to corporate governance by taking into account the explanation provided by companies in case of departure from best practice and then investigate its relation with performance. The explanation specifies to what extent the company is different from the others and informs the shareholders of the motivation. Such reasons thus reveal information about why adherence to the Code provisions is not necessarily the optimal choice for a company, and what are the specific circumstances that have led departure from best practice. In other words, the companies through the explanation make clear why *one-size-fits-all* is not best for them. A company which has considered its circumstances and decided against compliance cannot by any means be classified as badly governed. Thus companies which provide informative justifications for their non-compliance are more likely to have weighed the pros and cons of complying before arriving at their decision. Such companies are therefore more likely to be well-governed. By a complementary argument, companies giving uninformative

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[10]Larcker, Richardson and Tuna (2004) question if corporate governance really matters in the form of the typical indicators of corporate governance used in academic research and institutional rating services. They argue that the contradictory results in the corporate governance literature are the consequence of an easy-way used to collect the governance indicators, some of which are likely to have measurement errors in the construction (e.g., board independence) or capture just a single aspect of corporate governance (e.g., anti-takeover provisions). This is because it is very difficult to capture all the various aspects of corporate governance, especially so in a rigid system where companies must comply with strict regulation and monitoring is relatively easy. There is however the dangerous possibility that, you might have ticked all the compliance boxes, but still be deficient in governance. For instance, Enron was 100% compliant under the existing US Code.

[11]In the inital section of the World Bank Toolkit "Developing Corporate Governance Codes of Best Practice", we find eight different quotes defining corporate governance, which highlights the difficulty of converging to a unique accepted definition of corporate governance,

explanations are not likely to be well-governed. Thus, from the analysis of the explanations provided we can infer the quality of companies' corporate governance.

In one of our earlier papers AB (2005), we show that some companies carefully explain the circumstances that have led departure from best practice whereas others give uninformative and standard explanations, while a significant minority do not provide any.[12] From a performance perspective, we investigate the value of the explanations, if any, and if shareholders should pay attention to them when scrutinising the reasons why commonly accepted best practice does not fit the company. If explanations matter, we should observe that companies providing this additional information should be associated with higher performance compared to those failing to provide it. In the end, if the world is not black and white and mechanical adherence to fixed provisions is not *per se* linked to superior corporate performance but diversity is, then *one-size-does-not-fit-all*, after all.

Our investigation follows logical steps. We first test if just compliance (along the lines of a box-ticking approach) or both compliance and explanation matter: the resulting evidence will tell us about the value of the explanation. We then investigate whether companies within the compliant and non-compliant groups exhibit heterogeneous behaviour, and what are the associations with performance.

If what we contend above is true, it then follows that governance choices should also be reflected in both company's operating performance and stock price. Anecdotal evidence suggests that, if there is any shareholder pressure on corporate governance it relates mainly to compliance rather than explanations and usually takes place after periods of bad performance.[13]

We therefore conjecture that both shareholders and markets do not seem to pay sufficient attention to explanations. Using stock market returns we can test if this is actually true with the following caveats. First, stock market returns are a noisy measure of performance and might be affected by different factors which are difficult to disentangle. Second, if markets are efficient, prices should have already incorporated the impact of various governance decisions (including explanations) into prices. This means that we should not be able to detect any differences in returns between the various groups. Our results would hence indicate whether market participants incorporate the information conveyed through the corporate governance statements into the price.

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[12] *"Instead of wholly embracing the changes, companies are merely ticking boxes to ensure that they comply with the bare minimum, rather than embracing the spirit. The annual reports are one of the few avenues open to companies to demonstrate their commitment. If they cannot or will not use them, the shareholders and potential investors may have to assume the worst".* (Simon Lowe, Head of Risk Management Services, Grant Thornton)

[13] See Arcot & Bruno (2005) and also refer to the case of WM Morrison. Morrison's case led to the following quote in the Financial Times, London dated 26/06/05 *"......The point is that comply or explain cannot work unless the explanation is subjected to critical examination and action by shareholders.......The problem is that UK fund managers and analysts are obsessed with companies' ability to hit an earnings number, while showing little interest in the financial and governance plumbing from which the numbers emerge."*

4 Data description

4.1 Corporate governance data

The Combined Code was in operation between 31st December 1998 and 30th June 2004. We analyse 245 UK non-financial companies, belonging to the FTSE350 index as of 31st December 2003, during this period. Financial companies are left out from the analysis, since the regulatory environment for financial companies differs significantly from non-financial ones. The specific regulations for financial companies, although not part of the Combined Code, may interact with its provisions and have implications for corporate governance (Levine (2004)).

We hand-collected the following information from the corporate governance section included in the annual reports, downloaded from the Mergent Online database, of each company for each available year:[14]

- The statement of compliance with the Combined Code and the exact explanations if any for each non-compliant provision;

- The Board of Directors' composition, with the indication of the total number of executive and non-executive directors, and the number of independent non-executive directors.

4.2 Analysis of the explanations

We classify the explanations provided for non-compliance with different provisions according to a common nomenclature. This requires some qualitative judgement on our part and necessarily contains some subjectivity, which we try to minimise in the light of objective and measurable criteria. The Code clearly states that the explanation should illustrate particular circumstances unique to the company that justify its non-compliance. We therefore classify the explanations by searching in the corporate governance statement for the presence of verifiable and specific elements relating to the firm.

The following examples illustrate our typology. Consider the following explanation given in BBA's 1998 Annual Report, relating to the non-identification of a senior non-executive director (SNED): *"The Board has not at present formally appointed a senior independent director, other than the Chairman, to whom concerns can be conveyed. Three new non-executive directors have been appointed within the last 12 months, and it is considered that the Board should be given time to settle into its new composition prior to taking such a decision"*. The statement highlights the existence of a new board composition and, because of that, the impossibility of identifying its most senior representative. The presence of objective and verifiable circumstances classify this explanation as an informative and genuine one, following the spirit of the legislation. In contrast, consider the following explanation (again pertaining to the absence of a SNED), given by Reuters in its 1999 Annual Report: *"The Board has not identified a senior independent*

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[14]We could not find information for all the companies for all years because specific annual reports were missing or the company was previously private.

non-executive director, as specified by the Code, because it considers such an appointment to be unnecessary at present". The reader of this explanation is not given any narrative explanation related to the reasons why such an appointment is considered to be unnecessary, and it is therefore a very standard and general explanation.

On the basis of the increasing level of informativeness and verifiability incorporated in the explanations, we use the following taxonomy:

- *No explanation (Type 0)*: No explanation is provided.

- *General (Type 1)*: A general or non-specific (to the company) explanation is provided. In this category we include explanations which use standard phrases and do not provide any specific details. For example, explanations asserting that the non-compliance is *"in the best interests of the company"*, *"a market practice"*, or simply *"as necessary"*

- *Inline (Type 2)*: An explanation which is general in nature but repeats words from the Combined Code provision. For instance, provision B1.10 states that *"remuneration committees should, within legal constraints, tailor their approach in individual early termination cases to the wide variety of circumstances"*. Some companies justify the rolling service contracts with more than one year notice period for executive directors in line with *"the mitigation of early termination"*, without giving any further details.

- *Limited (Type 3)*: An explanation which provides more information than *General* or *Inline* but still falls short of being unique to the company's circumstances. For example, in case of the non-compliances arising due to rolling service contracts of more than one year, some companies explain that this is place for *"guaranteeing long term projects"*. This adds some more information unlike the *General* or *Inline*. However, it still does not relate to the company's circumstances by making available further information about the company's development and projects which would help in verifying the explanation.

- *Transitional (Type 4):* An explanation which points to a transitional situation facing the company due to which it is temporarily not compliant. Examples include *"unforeseen resignation of a director"* or an *"internal restructuring arising due to a merger"*.

- *Genuine (Type 5):* Explanations are those that we judge "genuine" and in the spirit of the Combined Code. Such explanations are specific to the company, motivated in detail, and also the information given is verifiable. For instance, a pharmaceutical company justifies the 24 months' notice of termination for its directors *"to protect its intellectual property rights"*. This company further states that executive directors' service contracts contain *"gardening leave"*, competition and confidentiality clauses which are relevant to its business. The explanation thus provided is specific to the business/industry it is operating in and the justification for non-compliance is directly related to those circumstances.

Our classification of explanations is simple to implement and easy to replicate. We do not make any judgment as to whether the explanations provided are valid from a business perspective. We simply check their veracity in the context they refer to, for instance, if a company was under takeover threat or has a new board composition.

4.3 Corporate governance score

The UK Combined Code of corporate governance gives indications of good governance through its principles. If a company does not comply with those principles, it should not be penalized in terms of goodness of its governance, provided an explicative justification for its non-compliance is given. When evaluating the company's governance system, the mechanical distinction between compliant and non-compliant companies (C/NC) may not entirely describe the full picture under all its aspects, as a firm explaining in detail the reasons for its departure from best practice should not be viewed differently from a fully compliant one.

We therefore construct an appropriate corporate governance score *total score* reflecting the level of compliance with the Combined Code principles and the quality of explanations in case of non-compliance. Following our classification of the quality of explanations, we give 5 points in case of compliance with a provision and 5 points as well if the non-compliance is explained in detail. We give 4 points to transitional non-compliance situations, 3 points when the justification is limited, and 2 points if there is a mechanical quote of the Code statements. Finally, we give 0 or 1 point when no explanation or an uninformative explanation respectively, is given. Formally:

$$\text{Total Score} = (5 * \text{No. of compliances}) + (\Sigma \text{ Quality of explanation for non-compliances}) \tag{1}$$

Therefore, a company fully compliant on all 8 provisions has *total score* of 40, the same as a non compliant company giving all genuine explanations for its non-compliances. A company with just one non compliance classified under "type 4" has a *total score* of 39. A company with two non-compliances, one classified under "type 0" and the other "type 3" has a *total score* of 33, and so on.

4.4 Accounting and financial data

All the accounting information is downloaded from Worldscope and Amadeus, while stock market data is from Datastream. The accounting information is for the period until June 2005, the latest period available in Compustat Global at the time of the study. The monthly stock market data is collected from Datastream and was available until June 2005. Information about membership of the FTSE100 index is obtained from FTSE. The Fama-French factors (FF) for UK up to December 2000 were obtained from Tonks (2002) [15]. FF factors for the remaining period are calculated by the authors using all UK companies in the Datastream universe.

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[15]We wish to thank Alan Gregory and Ian Tonks for allowing us to kindly use their Fama-French factors upto December 2000.

4.5 Descriptive statistics

We limit our analysis to the description of our measure of corporate governance *total score* and of the accounting information used in the analysis.[16] Panels A and B of Table 1 provide summary statistics of corporate governance characteristics. Of the total 1287 firm-year observations, we could not classify 5 observations because of missing information. Of the remaining 1282 observations, in 417 cases companies are fully compliant. Following the GIM methodology, we compute the total number of non-compliances, which are on average 1.2 per company. The mean of *total score* is 36.39 and, the median is 37. Non-compliant companies with a *total score* greater than 37 have mainly (85%) one non-compliance classified as type 3 or above. On the contrary, a company with just one compliance but with a classification below "type 3" will have a score equal of less than 37. The minimum value of *total score* is 10 and the maximum is 40. The distribution is skewed towards the maximum value. In 55 cases, non-compliant companies have the highest score 40 (henceforth, TYPE5), which identifies the companies that carefully explain the reasons for departing from best practice. On the contrary, we identify 442 situations where companies either fail to provide any explanation or provide and explanation of Type 1, in at least one non-compliant provision: we identify such companies as TYPE0. The mean *total score* of these companies is significantly lower (31.85).

Panel C shows some accounting, financial, and board description of our sample. As the companies belong to the FTSE350 index, not surprisingly they are big in size, profitable in terms of ROA, and not highly levered.

We detect 377 cases of simultaneous membership to the FTSE350 and FTSE100 indices, and 315 cases where they are also cross listed in the US. Boards are relatively big, with an average each board consists of 9.57 members, the majority of whom are not independent.

Finally, Panel D illustrates the pairwise correlation among the variables. The tables shows there is no significantly high correlation between *total score* and accounting variables.

5 Methodology

We next discuss the econometric model used in our analysis. Our dependent variable measuring operating performance is industry adjusted return on assets (ROA). As discussed in Barber and Lyon (1996) and Core et al. (2006), ROA is a preferred measure of operating performance because: first, ROA is not affected by leverage, extraordinary items, and other discretionary items; second, it has more desirable distributional properties than return on equity (total assets are strictly positive, while equity can be zero or negative). We define ROA as the ratio of earnings before interests and taxes (EBIT) to total assets. We adjust for industry by subtracting the ROA of each company in each year with the median ROA of the respective Fama-French industry group.

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[16]A detailed analysis of trends of compliance and explanantion is present in Arcot and Bruno (2005), where, among others, we find an average 17% of companies failing to provide any explanation (Type 0) for the stated non-compliance for each year.

To find how corporate governance is related to future operating performance, we run the following OLS regression, time dummies, and robust standard errors clustered at the firm level.

$$Performance_{i,t+1} = \alpha + \beta \cdot CG_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \tag{2}$$

where $Performance_{i,t+1}$ is next year industry adjusted ROA and $CG_{i,t}$ is a vector of governance variables. The sign and the significance of the coefficient β will highlight the existence, if any, of an association between governance and performance.

We measure corporate governance under three different perspectives:

- compliant vs. non-compliant companies (C/NC), separated by box-ticking;

- the total number of non-compliances, (similar to the GIM methodology);

- *total score*, which takes into account the quality of the explanation given in case of non-compliance.

Similar to the GIM governance index, *total score* suffers from an invariant component over time as compliance is gradual, with few changes over time; hence, we therefore cannot use firms' fixed effects. In AB (2005) we show that compliant companies remain compliant over time and that the adoption of the provisions *in toto* happens smoothly across time[17], while a consistent portion in our sample are always or never in compliance. Moreover, the explanation provided in case of non compliance, and hence the overall score for non compliant companies, tends to remain the same. The inclusion of companies' fixed effects would therefore force identification of the *total score* from only these changes.[18]

Endogeneity, omitted variable bias, reverse causality and sample selection bias are common and recognized problems when analysing the relation between governance and performance. There is indeed some evidence that governance choices are endogenously driven by the realized performance.[19] To our knowledge, only Black et al. (2005) and Landier et al. (2005) make an attempt to control for these problems. In the absence of appropriate instruments, we tackle the problem from several different perspectives. We first investigate the relation of current governance structure with future (next year) operating performance. The one year lag between the two variables should *per se* limit endogeneity problems. In Section 6.2, we perform robustness checks to address endogeneity, reverse causality, cross-sectional dependence issues and alternative constructions of our corporate governance score. We also use different control variables, the ones that are usual suspects for being connected to a company's future performance and have been found to explain the cross-sectional and time-series variation in ROA: if our measure of governance is robust to the inclusion of these additional controls, this would indicate that the relationship is not spuriously caused by any of the omitted variables. In equation (2) we use the following control variables[20]:

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[17]On average, less than 10% of the companies in our sample become compliant every year.

[18]See GIM for a discussion of the issue.

[19]See Hermalin and Weisbach (2003) for a survey.

[20]For a detailed description and construction of the variables used in the analysis, refer to Appendix 2

- *Firm size*, captured by the logarithm of total assets and the age of a company. Despite the fact that our sample consists of big companies in terms of capitalization, relatively small or young companies may suffer from costs of compliance or need more time to consolidate their business and management structures.

- *Growth prospects*, measured by the logarithm of market-to-book ratio and 1-year growth rate of sales. A firm's growth prospect may affect the current performance or the governance's decisions.

- *Leverage*. It is widely argued in the literature that highly levered companies are more monitored; hence there is potentially more pressure on performance. We use the ratio of long term debt to total assets to capture this effect.

- *Current profitability*, defined as the ratio EBIT to sales or current ROA.

- *Capital intensity*, defined as the ratio of property, plants and equipment (PPE) to sales.

The evidence arising from equation (2), if any, will highlight the nature and the strength of the relation between corporate governance and future performance. In particular, it will illustrate if the above relation is driven by a mere adherence to provisions or a finer measure which takes into the value of explanations. If full adherence with the Code does not *per se* lead to superior corporate performance and the explanation adds significance to the governance-performance relation, then diversity plays an important role for future performance.

We then investigate the *"comply"* and the *"explain"* aspects of the governance system more carefully. We first test the association between different types of explanations and performance by using dummy variables that identify the various kinds of non-compliant companies. In particular, we use:

a) A dummy variable *TYPE5* which takes the value 1 if a company is non compliant with at least 1 provision but has maximum score 40 (giving all Type 5 explanations). These companies thus follow both the letter and the spirit of the regulation (doesn't comply but explains) and are hence is well-governed, which should be positively reflected in its performance The sign and the significance of the dummy variable coefficient will show the value of giving genuine (Type 5) explanations when departing from the *one-size-fits-all* approach, irrespective of the number of non-compliances;

b) A dummy variable *NC39* taking the value of 1 when the company does not provide Type 5 explanations for all its non-compliances. These companies follow the letter but not the spirit of the regulation (don't comply, but do not properly explain) and should have a lower performance than *TYPE5* companies. We compare the coefficient of the NC39 dummy with that of the *TYPE5* dummy;

c) A dummy variable *TYPE0* taking the value 1 if a company does not provide an explanation for any of its non-compliances or provides an explanation classified as Type 1, irrespective of the total number of non-compliances. These companies follow neither the letter nor the spirit of the regulation (don't

16

comply and provide very poor explanations), hence are more likely to have a bad governance structure, and the dummy coefficient should indicate a negative relation with performance.

To test the above, we run the following regressions:

$$ROA_{i,t+1} = \alpha + \beta \cdot TYPE5_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \tag{3a}$$

$$ROA_{i,t+1} = \alpha + \beta_1 \cdot TYPE5_{i,t} + \beta_2 \cdot NC39_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \tag{3b}$$

$$ROA_{i,t+1} = \alpha + \beta \cdot TYPE0_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}. \tag{3c}$$

The controls for these regressions are the same as those used in equation (2), with White's heteroskedasticity-consistent standard errors.

We then look at the "comply" pillar of the governance regulation. We observe that fully compliant companies are not a homogeneous group: in AB (2005) we show that among the members of the FTSE350, only 10% of the companies fully adopted the provisions of the Code in 1998, with an increase to 55% in 2004. A large proportion of companies therefore became fully compliant with the Code provisions after its introduction. This decision can be the result of either an endogenous optimization process or external pressures to comply.[21] We therefore investigate from a performance perspective whether always-compliant companies differ from those adopting-compliance, and if the adoption of the Code provisions has a positive impact. To test these relations, we separately run the following two regressions:

$$ROA_{i,t+1} = \alpha + \beta_1 \cdot ADOPCOMP_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \tag{4a}$$

$$ROA_{i,t+1} = \alpha + \beta_1 \cdot AFTERCOMP_{i,t} + \beta_2 \cdot TYPE5_{i,t} + \beta_3 \cdot NC39_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \tag{4b}$$

where:

- *ADOPCOMP* (*Adopted Compliance*) is a dummy variable assuming the value 1 if a company became compliant with all the Code provisions during the period analysed, 0 otherwise;

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[21] There are innumerable examples and anecdotal evidence of pressure to comply rather than explain in the companies' annual reports, in the press, and in the practitioners' reports (Coombers and Wong, 2004).

For instance, Pearson plc states in its 2002 annual report: "*Our second non-compliance with the Combined Code is that we have not named a senior independent director (SID). To date we have been satisfied with the practice that if any shareholder raises a concern or makes a complaint to the chairman, he is obliged to share it with the other directors. Pearson has also for some time been happy for non-executives to meet shareholders. However, recognising the appetite to formalise these processes, we do now intend to appoint a SID.*"

The following quote from the Financial Times of 10th March, 2005 illustrates the point "*Also there is a widespread feeling in the British boardrooms that institutional investors are responding too mechanistically to the 'comply of explain' approach of the Combined Code, paying to little attention to the circumstances of individual businesses and disregarding good explanations of non-compliance.*"

- *AFTERCOMP (After Compliance)* is a dummy variable assuming the value 1 for a company after it became compliant with the all the provisions of the code, 0 otherwise[22];

- *TYPE5* and *NC39* are dummy variables as defined before.

The reference group in each regression consists of:

- Equation 4(*a*) all the companies that did not change their status (either were always compliant or never compliant);

- Equation 4(*b*) all the companies that were always compliant with the code.

The controls for these regressions are again the same as those used in equation (2), with robust standard errors clustered at the firm level The results of the above regressions will indicate how companies adopting compliance perform with respect to those who were always compliant and never compliant companies and whether or not complying with Code but giving a good explanation is better than complying from a performance perspective.

6 Corporate governance and operating performance

6.1 Results

We discuss here the results found from the various models described in the preceding section. Table 2 shows the main result of our investigation for the whole sample relating to equation (2). The base model investigates if the separation between compliant and non-compliant companies is associated with performance, or if this relation is captured by the measure *total score* which takes into account the quality of explanations given. The tick-box exercise of splitting the companies between fully compliant versus non-compliant does not reveal any relation between corporate governance and future operating performance: the coefficient is not significant and even negative (-0.0029) (Panel A). Also the coefficient of the score constructed following the GIM methodology is not significantly associated with performance (Panel B). On the contrary, the coefficient of *total score*, that does not penalise companies for not complying with good reasons, shows a positive (0.0015) and significant (at 5% level) relation with operating performance (Panel C, column 2). We first include the control variables that are are commonly recognized to affect a company's corporate governance (see GIM, Core et al., Landier et al.): firm size, growth opportunities, and current profitability (Panel C, column 1). We then add further control variables, capturing leverage, development prospects, external monitoring and capital intensity (Panel C, column 2). The coefficient of *total score* remains positive and significant even after the inclusion of all the above control variables. One standard deviation increase in *total score*, increases industry adjusted ROA by 0.0072, a 15% increase relative to the sample average of

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[22]The dummy is therefore equal to 0 in case of always compliant companies, never compliant companies, and observations of the company before it became compliant with all the provisions of the Code.

4.9%. Consistent with prior research (e.g., Lang and Stulz (1994) or Black et al. (2005)), the coefficient on size is negative and significant. The coefficient of market-to-book ratio is positive and highly significant: the firm's growth prospects affects its future operating performances. A similar relation is found with the current profitability. Leverage is positive and significant and adds to the overall goodness of fit of the regression. The magnitude of the impact of *total score* on ROA is higher (0.0021) and highly significant (at 1%) within the sample of non-compliant companies (Panel C, column 3), highlighting the importance of giving narrative descriptions especially when departing from best practice, and how the explanation itself has to be considered as an indication of the quality of corporate governance.

The evidence we have shown so far suggests there is a positive relation between *total score* and operating performance, in other words, that explanation matters. This relation is robust to measurements specifications (see Section 6.2), an alternative measure of operating performance (net profit margin), and it is particularly strong within the sample of non-compliant companies. Shareholders should not therefore stop at the "comply box", but carefully scrutinize the explanations provided. Using such a method, they would be able to separate well-governed companies from badly-governed ones, which is not possible in a rigid *one-size-fit-all* governance system.

We now investigate the performance association of giving different types of explanations when non-complying with the Code. The results in Table 3 show that non-compliant companies with a *total score* of 40 (*TYPE5*) perform better than all the others, including the fully compliant ones. In particular, *TYPE5* companies are making an estimated industry adjusted ROA of 2.6% more than non *TYPE5* companies on average (Panel A). In Panel B, the test of differences of the coefficients *TYPE5* and *NC39* (non-compliant companies with score less than 40) has a p-value of 0.13. On the contrary, companies that either fail to provide an explanation for at least one of their non-compliances or provide a poor quality explanation (*TYPE0*) are the worst performers: they make an estimated industry adjusted ROA of 1.3% less than non-*TYPE0* companies on average (Panel C). These results highlight the positive and negative aspects of flexibility. In a flexible system, some companies do not comply for genuine reason, whereas others simply take advantage of the regulation by not complying and not explaining properly. We clearly observe that a positive use of flexibility (*TYPE5* companies) leads to higher future performance, whereas a misuse of flexibility (*TYPE0*) is associated with lower future performance. These results therefore provide further confirmation that compliance is not necessarily a prerequisite for having a good governance structure, and underline the importance of seeking better quality of explanations.

So far we have conjectured the existence of companies that abuse the flexibility allowed in the system, by neither complying nor explaining. These companies are associated with lower future operating performance than any other. It is however puzzling to observe that non compliant companies with *total score* 40 perform even better than fully compliant ones, which suggests that the picture is more complex and leads us to investigate the compliant group of companies in more detail. Such group consists of companies that have been always in compliance with the Code since its introduction, and companies that at some point and for some reason fully embraced its provisions. In what follows we investigate the associations of these companies

with performance (equation **??**).

Panel A of Table 4 shows that companies that adopted compliance with the Code ($ADOPCOMP$) perform significantly worse than those which remained always compliant the Code. Further Panel B shows that $TYPE5$ companies are similar to always compliant companies whereas companies adopting compliance even after they become compliant ($AFTERCOMP$) still underperform both always compliant companies and $TYPE5$ companies. This evidence casts doubts on the wisdom of compliance with all provisions of the Code, since it does not lead to higher performance. Put differently, full adherence to the Code's provisions might not necessarily be the optimal solution, which once again highlights the existence of heterogeneity even amongst the supposedly *"homogenous"* group of compliant companies. If evidence from Table 3 calls for more attention on explanations, the low performance association found in companies that adopted a *one-size-fits-all* model of corporate governance advocates less pressure towards compliance.

6.2 Robustness checks

Endogeneity and reverse causality   We first run the same regression for different specifications of the dependent variable and the controls to check if the governance measure is still robust to companies characteristics, this reduces causality problems. We first include the measure of return on assets as control (ROA) at time t instead of the measure EBIT/Sales: if the corporate governance variable is still statistically significant, it means that our results are less likely to be affected by autocorrelation issues. The coefficient of our measure of corporate governance is still positive and significant. We also use the logarithm of total sales instead of the logarithm of total assets and the ratio Debt/Equity instead of Debt/Assets: again our results are robust to these alternative specifications. We finally use net profit margin as an alternative measure of operating performance, defined as the ratio of net income upon sales. Our results still hold when using different performance measures. (Results not shown here)

We conduct a further analysis. We address the possible critique that performance directly determines a company's governance choice (hence invalidating the previous analysis) by performing a panel data version of causality test a la Granger in time series analysis. This test is used by Landier et al. (2005) and consists of running the following two regressions:

$$ROA_{i,(t+1)} \quad = \quad a + b * CG_{i,t} + c * ROA_{i,t} + Controls_{i,t} + e_{i,t} \tag{5a}$$

$$CG_{i,(t+1)} \quad = \quad \theta + \beta * CG_{i,t} + \delta * ROA_{i,t} + Controls_{i,t} + \mu_{i,t} \tag{5b}$$

where $ROA_{i,t}$ is the company i's ROA a time t and $CG_{i,t}$ is the measure *total score* of corporate governance at time t for the company i. If corporate performance influences a company's governance choice, we should not reject the hypothesis that $\delta > 0$ and $b = 0$. On the contrary, if δ is not significant while b is, it makes

more economic sense to talk about the positive effects of corporate governance on performance.[23] Table 5A shows that indeed it is not past performance to generate today's corporate governance.

Sample selection bias The main objective of our investigations is to establish the relation between governance and performance, which is different from inferring causality. After observing a positive relation between *total score* and future performance, we state that higher score companies have higher future ROA. This of course does not exclude selection effects, due to which other unobserved variables directly affect the governance's choices and performance. To correct for selection bias which may potentially overestimate the OLS coefficients and standard errors, we use the Heckman maximum likelihood estimation with robust standard errors. We prefer this method to the two-step estimation for two reasons. First, we observe the performance variables of all the companies in our sample (compliant, non compliant, adopting compliance), therefore the problem of unobserved dependent variables is not present. Second, maximum likelihood is more efficient than two-steps under the assumption of joint normality of the error terms.[24] As we do not have proper instruments, we conjecture the more plausible variables that might predict selection. In AB (2005) we show that membership to the FTSE100 index is slightly associated with higher compliance to the Code. Moreover, size is an important factor for the companies to sustain compliance costs (smaller of just listed companies may prefer to postpone compliance with the Code in order to stabilize the internal structure; for them, the costs of appointing for instance new executive directors may be too onerous). Finally, current performance may trigger instantaneous changes in the internal corporate governance, especially in case of bad performance.

Table 5B shows the results of the Heckman selection model, considering the membership to the FTSE100 index, the logarithm of total assets and ROA as selected variables. Our *total score* of internal corporate governance is still significant and positive. It is therefore very likely that our analysis does not suffer from sample selection bias.

Cross-sectional dependence Following the technique used by GIM (2003), we also use a variant of the Fama-MacBeth (1973) method by estimating annual cross section of our model, with statistical significance assessed within each year and across all years, and robust standard errors.

We therefore run our total score on one year future industry-adjusted ROA (IAROA), obtained by subtracting the median for this measure in the corresponding Fama-French industry group alongwith controls. In the spirit of Fama-MacBeth (1973), we use averages of the annual coefficients and time-series of the standard errors to draw inferences. However there is a potential concern about the autocorrelation of the coefficients. Since we have only six observations the estimate of autocorrelation based on those is likely to be imprecise. We therefore follow Fama-French(2002) and use a less formal approach. We assume that the standard errors of the average slopes have a first-order correlation of about 0.75, which is very conservative

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[23]See Landier et al., (2005), page 8, for a detailed description of this method.

[24]See Wooldridge, *Econometric Analysis of Cross Section and Panel Data* for a detailed description.

(our actual sample indicates that the first-order autocorrelation of the slopes is around 0.33). If we assume 0.75 than the standard error is inflated by 2.6457[25]. We therefore deflate our estimates of standard error by 2.6457 and then test for significance. The Fama-MacBeth average coefficient and standard error is shown in Table 5C. The unadjusted (raw) T-statistic based on the standard errors in Column 1 is 5.86 which after the adjustment is 2.21 and is still significant at the 10% level.

The average coefficient is thus significant and positive and very close to the estimate obtained in the basic regression and thus confirms the positive relation between our score and future operating performance.

Alternative constructions of the corporate governance score Our classification of the explanations given in case of non-compliance is based on six levels of informativeness. To limit further the subjectivity in the criteria used and show the our results are not driven by the chosen scaling factor, we group explanations using a narrower three-scale classification. The *total score rescaled* emphasises the level of verifiability of the explanations. Non compliances with lack of any explanation, remain classified as Type 0, and thus get zero points. Explanations which are general (Type 1), inline with the Code (Type 2) or whose content is not related to the company's unique circumstances (Type 3), are not fully verifiable. We then give them one point. Transitional situations (Type 4) and genuine explanations (Type 5) are all verifiable and therefore are given two points. Under the narrower classification, the maximum (resp. minimum) value of *total score rescaled* is 16 (resp. 5), with a mean of 15.04 and a standard deviation of 1.21.

For comparison with the *TYPE5* dummy, we define a dummy variable *NC16*, which takes the value 1 if a company is non compliant with at least 1 provision but has maximum rescaled score 16 (giving all Type 4 and 5 explanations). The new dummy *NC16* has 158 observations equal to 1. We finally define a dummy variable *NC15*, which take the value of 1 if a company has a *total score rescaled* less or equal than 15.

Table 5D shows the results of regressions (2), (3a), and (3b) when using the rescaled variables defined above. The analysis confirms the results shown in Tables 2 and 3. *Total score rescaled* shows a positive (0.0052) and significant (at 10%) relation with operating performance (Panel A). The coefficient of the impact of *total score rescaled* on industry adjusted ROA is higher (0.0075) and significant (at 5%) within the sample of non-compliant companies (Panel B), highlighting again the importance of giving narrative descriptions especially when departing from best practice. Panel C shows that non-compliant companies with a maximum *total score rescaled* of 16 (*NC16*) perform better than all the others, including the fully compliant ones. In particular, *NC16* companies are making an estimated ROA 2.0% more than non *NC16*, on average (Panel C).

Corporate governance and agency costs One of the potential explanations given for better performance by well-governed firms is lower agency costs. A possible source of agency costs is capital expenditure. Managers may undertake inefficient projects to extract private benefits. To examine the empirical relationship between capital expenditure and governance, we follow GIM and regress capital expenditure scaled by

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[25]Refer to Fama-French(2002) footnote 1 for details of correction.

sale adjusted for net Fama-French industry median on our measure of governance - *total score.* To control for growth opportunities and capital expenditure on current assets we include the log of market-to-book and PPE/Sales as control variables. We thus estimate the following equation additionally using year dummies and clustering robust standard errors at the firm level.

$$CAPEX/Sales_{i,t} = \alpha + \beta_1 * CG_{i,t} + \beta_2 * \log(MTB)_{i,t} + \beta_3 * PPE/Sales_{i,t} + \delta * YEAR + \epsilon_{i,t} \qquad (6)$$

where CG is measured using *Total Score.* We further run the above model by using dummies *TYPE5* and *TYPE0* (both defined in Section 5) instead of *total score.*

Our results of the above estimation are shown in Table 5E. The coefficient of *total score* (see Panel A) is negative and significant (at the 10% level) which suggests that high total score firms have lower capex than low total score firms. Further, Panel B shows that *TYPE5*, which as per our earlier results are the best performing firms, have the lowest capital expenditure compared to everyone else. Finally, the coefficient of *TYPE0* companies (Panel C) is positive (though not significant) indicating that they have the highest capital expenditure.

The above results alongwith our earlier analysis tell a consistent story. Managers of well-governed firms are less likely to undertake wasteful projects. In particular managers of *TYPE5* firms are the ones who are least likely to undertake unnecessary capital expenditure.

7   Corporate governance and stock market returns

7.1   Methodology

In this section we perform an analysis to test if the market participants pay attention to the explanations. The event study methodology is a common technique used to run such an investigation. We are however unable to carry out an event study because we do not know the exact day of the corporate governance decision. Typically such decisions are taken by companies throughout the year and announced immediately to the market, while we capture such information only from the companies' annual reports, which are usually published $4-6$ months after the financial year-end. Hence our analysis would suffer from measurement errors. Nevertheless, most companies provide explanations about their non-compliances only in their annual reports.

To overcome these problems, we use the long run event study methodology used by GIM (2003). We first separate companies into two portfolios based on the respective governance parameter. We construct the portfolios and calculate their value-weighted returns from July of t to June of $t+1$ based on compliance as at the end of calendar $t-1$. We perform this analysis for a six year period from July 1999 to June 2005. We begin in July 1999 since we have compliance data from December 1998 onwards. We then run the following regression for the difference in excess returns.

$$R_t = \alpha + \beta_1 * RMRF_t + \beta_2 * SMB_t + \beta_3 * HML_t + \varepsilon_t \qquad (7)$$

where $RMRF_t$, SMB_t (small minus big), and HML_t (high minus low) are the monthly Fama-French factors for the UK representing the market, size, and book-to-market factors respectively. R_t is the monthly excess return from a strategy involving going long in the compliant companies portfolio and short in the non-compliant companies portfolio. Therefore the *alphas* in this model can be interpreted as the monthly abnormal return in excess of what could be achieved by passive investment in these factors. If we observe a positive and significant *alphas* after controlling for the market factor, a firm's market capitalisation and book-to-market ratio, then the specific governance parameter is not incorporated in the stock prices. However, we must point out that unlike similar analysis by others (for e.g. GIM) we do not use the momentum factor in our regressions. The alphas in our results might thus be driven by the momentum factor.

7.2   Results

To test the effect of corporate governance on stock market returns we form the following two portfolios. The first portfolio is formed by going long in fully compliant companies and short in companies that are not fully compliant and calculate the monthly value-weighted returns from such a strategy. We then regress these monthly excess returns on the three Fama-French factors as in equation (7). Similarly, we form portfolios based on the *total score,* i.e., go long in the high score portfolios and short in the low score portfolio. We use the median score 37 as the cutoff. High score portfolio consist of all companies having a *total score* greater than 37 and the low score portfolio comprising of companies with scores equal to or lower than 37. We again estimate the model (7) using monthly value-weighted returns obtained by going long in the high score portfolio and shorting the low score portfolio.

If markets care about a particular governance parameter then this information should be incorporated into stock prices and we would not expect to find any abnormal returns by investing in such a strategy. Our results are presented in Table 6A. It is clear from the table that the abnormal return (α) of the portfolio formed on the basis of overall compliance is marginally negative but not statistically significant. This means that the investment on the basis on only compliance does not generate abnormal returns. On the other hand, the portfolio based on *total score* produces an abnormal return of approximately 1% a month and it is statistically significant. This suggests that markets have incorporated the effects of compliance with the Code into prices but not that of explanations, thus providing support to our hypothesis that monitoring by markets of corporate governance is focused on compliances with the Code (a tick-box approach) rather than both compliance and explanations.

In the previous sections, we have shown that the *total score* is associated with higher stock market performance. Since the market's monitoring is not based on explanations we should observe differences in stock market returns among various types of explanations. We therefore test if genuine explanations matter more and we form three sets of portfolios. In the first set we go long in non-compliant companies and having

a *total score* of 40 (NC40), in other words companies that give the highest quality explanations and go short in all other companies. The second set of portfolios comprises of going long in the NC40 companies and going short in fully compliant companies. The third set consists of going long in the NC40 companies and short in those companies which do not give an explanation (type 0 explanation) on at least one provision. As above we use returns from these strategies to estimate the model in equation (7). The results are shown in Table 6B.

The *alphas* from all three regressions are positive and significant in two out of the three cases. The results indicate that non-compliant companies with a score of 40 out-perform all others. They perform as expected better than companies giving no explanations and in those cases generating an abnormal return of 1.49% per month significant at the 5% level. Next they also out-perform fully compliant companies producing higher monthly returns to the extent of 1.09%. Finally the NC40 companies generate 0.90% higher returns per month as compared all other companies in the sample but this figure is not significant at the 10% level. This provides further support to our hypothesis, and shows that the market's monitoring is not based on explanations.

However, as already discussed above we must inject a note of caution here. Results using stock returns have market efficiency implications.[26] To quote GIM: *"If corporate governance matters for firm performance and this relationship is fully incorporated by the market, then a stock price should quickly adjust to any relevant change in the firm's governance [...] However, if governance matters but is not incorporated immediately into stock prices, then realized returns on the stock would differ systematically from equivalent securities."*

7.3 Robustness

To check for the robustness of the above results, we calculate returns from equally-weighted portfolio returns (instead of value-weighted returns) for all the above specifications. We then follow the same procedure as above and estimate equation (7) again. As it can be seen from the Table 7, all the *alphas* are positive. Besides with the exception of one portfolio (formed on the basis of high score and low score), all other *alphas* are significant. This shows that the test of our hypothesis is robust to alternative specifications.

8 Conclusions

The research for the link between corporate governance and performance has been a constant topic of the recent academic and non-academic literature. The key issue for all these studies has been the identification of an appropriate measure of good governance. In this paper, we contribute to the literature by developing a new measure of corporate governance under a framework, which assumes that companies are not homoge-

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[26]Our results are also obviously conditional on the asset pricing model. Most papers in the literature use the Fama-French model as we have done. A better approach would be to test if total score is one of the risk factors like HML and SMB. To make total score a risk factor we would require data for all the UK companies, which we do not currently have. Besides, the point of our tests is to explore market monitoring rather than explaining asset prices.

neous. We find evidence that a measure of corporate governance, which takes into account heterogeneity in governance choices, is positively associated with corporate performance.

Our analysis provides support for the principle that in corporate governance regulation *one-size-does-not-fit-all*. We find that companies that depart from best practice because of genuine circumstances outperform all others. On the contrary, mere adherence to general accepted principles of good corporate governance is not necessarily associated with superior performance.

Finally our paper also sheds light on the workings of a flexible regulatory regime. From a policy perspective, we highlight that flexibility, as opposed to mechanical adherence to a code of best practice, and the quality of information disclosed by firms are crucial for the success of such a regime. The microeconomic determinants of heterogeneous governance choices are left for future research.

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Table 1: Descriptive statistics

The following tables show governance, financial and correlation characteristics of the non-financial FTSE350 UK companies analysed over the period 1998-2004.

Panel A: Corporate governance index

Panel A shows the governance characteristics of our sample, which we could collect from the companies' annual reports, and which, we classify according to the total number of observations (Obs), the number of observations if a specific dummy is equal to one (Dummy=1), median value, mean value, standard deviation (Std. Dev.), minimum (Min) and maximum (Max) value. Dummy C/NC is a dummy variable which takes the value 1 of a company does not comply with all the provisions of the Combined Code of best practice, and 0 otherwise. Number of non-compliances indicates the average number of provisions a company is non-compliant with. *Total Score* is the governance score, constructing according a six points scale (from 0 to 5), which gives the maximum score (5) per provision in presence of compliance as well non compliance with adequate explanation. *Total Score* (All sample) refers to the entire sample, *Total Score* (NC only) refer to the subset of non-compliant companies. *TYPE5* is a dummy variable which takes the value 1 if a company is non compliant, but has the same *Total Score* as a fully compliant one. *TYPE0* is a dummy variable which takes the value 1 if a company either fails to provide an explanation for any of its non compliances or provides the lowest quality explanation i.e. type 1.

	Obs	Dummy=1	Median	Mean	Std. Dev.	Min	Max
Dummy C/NC	1282	417		0.3253	0.4687	0	1
Number of non-compliances	1282		1	1.2230	1.3032	0	7
Total Score (All sample)	1282		37	36.3947	4.8183	10	40
Total Score (NC only)	865		36	34.6567	5.0124	10	40
TYPE5	1282	55		0.04290	0.2027	0	1
TYPE0	1282	442		0.3448	0.4755	0	1

Panel B: Distribution of Total Score

Panel B shows the distribution of the governance variable *Total Score* of the pooled sample of 1282 observations for which we could classify the explanations according a six points scale (from 0 to 5). The score varies from a maximum of 40 to a minimum of 10. Total Score of 40 (All Sample) indicates all the company-year observations with maximum score 40, including the non compliant ones. total Score of 40 (NC only) indicates all the company-year observations with maximum score of 40 for the subset of non compliant companies.

Total score	Obs
40 (Compliant)	417
40(Non-compliant)	55
39	89
38	61
37	142
36	128
35	129
34	39
33	55
32	46
31	21
30	14
29	12
$<= 28$	74
Total	1282

Panel C: Accounting and other variables

Panel C shows accounting and financial characteristics, membership to the FTSE100 index, cross-listing in the US, board features of the non-financial FTSE350 UK companies analysed over the period 1998-2004.

Variable	Obs	Nos.	Mean	Std. Dev.	Min	Max
Total assets (£ million)	1281		3669.48	12100	18.32	172065
Age (years)	1154		39.52	34.57	1	124
Market to book ratio	1275		4.57	9.73	0.29	118.47
EBIT/Sales	1276		0.083	0.50	−11.99	0.57
Debt/Assets	1281		0.20	0.16	0	1.04
Growth of Sales	1276		0.18	0.81	−0.86	18.18
PPE/Sales	1276		0.71	1.38	0.0012	16.37
Return on Assets (ROA)	1281		0.096	0.088	−0.49	0.64
Ind. Adj,ROA*	1281		0.049	0.099	−0.57	0.65
Capex/Sales	1264		10.73	26.53	0	414.14
Ind. Adj. Capex/Sales	1264		4.38	24.50	−73.4	377.29
FTSE100	1282	377	0.29	0.46	0	1
Crosslisted in the US	1282	315	0.25	0.43	0	1
Board size	1286		9.57	2.46	4	21

*Industry adjusted ROA is return on assets adjusted by subtracting the median of the respective Fama-French industry group

Panel D: Correlations between variables

Panel D shows the pairwise correlation coefficients between the variables used in the analysis.

	Total Score	Ind Adj. ROA$_t$	Ind. Adj. ROA$_{t+1}$	Ln(Total Assets)	Ln (Age)	Ln (MTB)	EBIT/ Sales	Debt/ Assets	Growth of Sales	PPE/ Sales	Capex/ Sales
Total Score	1										
Ind Adj. ROA$_t$	0.010	1									
Ind. Adj. ROA$_{t+1}$	−0.0056	0.8631	1								
Ln(Total Assets)	0.2972	−0.1681	−0.1610	1							
Ln(Age)	−0.0242	−0.0597	−0.0677	−0.0356	1						
Ln(MTB)	−0.1444	0.3482	0.3515	−0.2309	−0.0723	1					
EBIT/Sales	−0.0331	0.3385	0.2955	0.1291	10.0468	0.0095	1				
Debt/Assets	0.0040	−0.0855	−0.0665	0.1916	−0.1013	−0.0726	0.1023	1			
Growth of Sales	−0.0122	−0.0814	−0.0949	−0.0900	−0.1248	0.0368	−0.4087	−0.0538	1		
PPE/Sales	0.0761	−0.2002	−0.1719	0.1822	−0.1452	−0.2831	−0.0364	0.3253	0.0276	1	
Ind. Adj. Capex/Sales	0.02	−0.2177	−0.1926	−0.0836	−0.1019	−0.0865	−0.4283	0.0727	0.2725	0.4116	1

Table 2: Corporate governance and operating performance

Ordinary least squares regression of one year future industry-adjusted Return on Assets (ROA) (adjusted by subtracting the median of the respective Fama-French industry groups) on: *Panel A*: *C/NC*, a dummy variable identifying full compliant companies=1 and non compliant companies=0; or *Panel B*: the total number of non-compliances. i.e. the corporate governance score constructed following the Gompers-Ishii-Metrick (GIM) methodology; or *Panel C*: the corporate governance variable *total score* that takes into account the companies' heterogeneity, and control variables and year dummies. Robust standard errors *clustered at the firm level* are reported in parentheses. ***, ** and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

	Panel A	*Panel B*	*Panel C*		
Dependent variable	**Ind. Adj. ROA$_{t+1}$**	**Ind. Adj. ROA$_{t+1}$**	**Ind. Adj. ROA$_{t+1}$**	**Ind. Adj. ROA$_{t+1}$**	**Ind. Adj. ROA$_{t+1}$**
C/NC	−0.0029				
	(0.0098)				
Number of non-compliances		−0.0023			
		(0.0034)			
Total Score			0.0014*	0.0015**	0.0021***
			(0.00081)	(0.00074)	(0.00081)
Ln (Total assets)	−0.0065*	−0.0071*	−0.0079*	−0.043	−0.0053
	(0.0040)	(0.0042)	(0.0041)	(0.0042)	(0.0049)
Ln (Age)	−0.0049	−0.0046	−0.0047	−0.0052	−0.0026
	(0.0044)	(0.0043)	(0.0042)	(0.0042)	(0.0045)
Ln (MTB)	0.036***	0.036***	0.036***	0.037***	0.040***
	(0.0064)	(0.0064)	(0.0064)	(0.0063)	(0.0077)
EBIT/Sales	0.057***	0.057***	0.057***	0.060***	0.054***
	(0.010)	(0.010)	(0.010)	(0.013)	(0.011)
Debt/Assets				−0.15***	−0.14***
				(0.037)	(0.037)
Growth of sales				−0.0000041	−0.00019
				(0.000049)	(0.000050)
PPE/sales				0.0028	0.0053*
				(0.0020)	(0.0031)
Sample	All	All	All	All	NC only
Year effects	Yes	Yes	Yes	Yes	Yes
Observations	1064	1064	1064	1063	717
R^2	0.26	0.26	0.27	0.31	0.34

NC is non-compliant, MTB is market-to-book ratio, PPE is property, plant and equipment.

Table 3: Corporate governance and operating performance

Table 3 presents the regressions results of one year future industry-adjusted Return on Assets (ROA) (adjusted by subtracting the median of the respective Fama-French industry group) on three different companies classifications, control variables, and year dummies. In *Panel A*, companies are classified under two sets, non compliant with *total score* 40 and all the others (fully compliant and non-compliant with *Total Score* less or equal than 39); *TYPE5* is a dummy variable assuming the value equal to 1 if a company is non compliant with a *Total Score* of 40 (in other words a non-compliant company giving the highest quality explanation), and zero in all other cases. In *Panel B* we include two dummy variables: *TYPE5* (as before) and *NC39*, which assumes the value 1 if a company is non-compliant with a *Total Score* less than or equal to 39. Companies that are fully compliant are therefore the reference group. Finally, in *Panel C* we classify companies under a different perspective: regardless of the total number of non-compliances, we analyse the effect of poor quality explanations on at least one provision of the Code. *TYPE0* is a dummy with value 1 if a company either fails to provide an explanation or provides an explanation classified as type 1, and the value 0 for all others. Robust standard errors *clustered at the firm level* are reported in parentheses. ***, ** and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

	Panel A	*Panel B*	*Panel C*
Dependent variable	**Ind. Adj. ROA$_{t+1}$**	**Ind. Adj. ROA$_{t+1}$**	**Ind. Adj. ROA$_{t+1}$**
Reference Group	Non-TYPE5	Fully compliant	Non-TYPE0
TYPE5	0.026**	0.025*	
	(0.013)	(0.014)	
NC39		−0.0014	
		(0.0079)	
TYPE0			−0.013*
			(0.0078)
Controls[27]	Yes	Yes	Yes
Sample	All	All	All
Year effects	Yes	Yes	Yes
Observations	1063	1063	1063
R^2	0.31	0.31	0.21

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[27]Controls used are ln(Total Assets), ln(Age), ln(MTB), EBIT/Sales, Debt/Assets, Growth of Sales and PPE/Sales.

Table 4: Corporate governance and operating performance

Table 4 presents the regressions results of one year future industry-adjusted Return on Assets (ROA)(adjusted by subtracting the median of the respective Fama-French industry groups) on specific corporate governance dummy variables, with control variables and year dummies. In *Panel A*, *ADOPCOMP* is a dummy assuming the value 1 if a company has become compliant with all the Code provisions during the period analysed. The reference group thus consists of all the companies that were either *always compliant* or *never compliant* with the Code. In *Panel B*, *AFTERCOMP* is a dummy variable that takes the value 1 for a *ADOPCOMP* company (defined above for Panel A) after it becomes compliant. *TYPE5* is a dummy variable assuming the value equal to 1 if a company is non compliant with a *Total Score* of 40 (in other words a non-compliant company giving the highest quality explanation), and *NC39*, assumes the value 1 for a company which is non-compliant with a *Total Score* less than or equal to 39. The reference group in *Panel B* is thus the *always compliant* company. Robust standard errors *clustered at the firm level* are reported in parentheses. ***, ** and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

	Panel A	*Panel B*
Dependent variable	**Ind. Adj. ROA_{t+1}**	**Ind. Adj. ROA_{t+1}**
Reference Group	Companies not changing their status	Always Compliant
ADOPCOMP	-0.022^{**}	
	(0.010)	
AFTERCOMP		-0.025^{*}
		(0.015)
TYPE5		0.0066
		(0.019)
NC39		-0.015
		(0.014)
Controls[28]	Yes	Yes
Year effects	Yes	Yes
Observations	1124	1124
R^2	0.16	0.16

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[28] Controls used are ln(Total Assets), ln(Age), EBIT/Sales, Debt/Assets, Growth of Sales and PPE/sales.

Table 5A: Corporate governance and operating performance: Robustness checks
- Granger causality -

Ordinary least squares regression with year dummies on a) The dependent variable is industry-adjusted ROA. ROA is adjusted by subtracting the median value of the corresponding Fama-French industry and is regressed on *Total Score* of corporate governance and ROA at time t; b) One year future *Total Score* of corporate governance on *Total Score* of corporate governance and ROA at time t. Robust standard errors *clustered at the firm level* are reported in parentheses. *** and * denote that the coefficient is statistically significant at the 1 or 10 percent levels respectively.

Dependent variable	ROA_{t+1}	Total Score$_{t+1}$
Total Score$_t$	0.0013**	0.76***
	(0.00055)	(0.034)
ROA$_t$	0.67***	−2.33
	(0.079)	(1.65)
Controls [29]	Yes	Yes
Sample	All	All
FF industry effects	Yes	Yes
Year effects	Yes	Yes
Observations	1069	842
R^2	0.51	0.73

[29] Controls used are ln(Total Assets), ln(Age), ln(MTB), Debt/Assets, Growth of Sales and PPE/Sales

Table 5B: Corporate governance and operating performance: Robustness checks
- Heckman selection -

Heckman partial maximum likelihood estimation with year dummies and robust standard errors clustered at firm level. The dependent variable is industry-adjusted ROA ROA is adjusted by subtracting the median value of the corresponding Fama-French industry. We use the same controls as in Table 2. The lower part of the table reports the selection equations. Robust standard errors *clustered at the firm level* are reported in parentheses. ***, ** and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

Dependent variable	$\mathbf{ROA}_{t+1}$	$\mathbf{ROA}_{t+1}$
Total Score	0.0014*	0.0014**
	(0.0016)	(0.00074)
Ln (Total assets)	−0.0078*	−0.0044
	(0.0041)	(0.0042)
Ln (Age)	−0.0046	−0.0051
	(0.0042)	(0.0042)
Ln (MTB)	0.035***	0.036***
	(0.061)	(0.0061)
EBIT/Sales	0.057	0.059***
	(0.010)	(0.013)
Controls[30]	No	Yes
Year effects	Yes	Yes
Selection equation		
FTSE100 dummy	0.21	0.23
	(0.26)	(0.26)
Ln (Total assets)	−0.15*	−0.14*
	(0.086)	(0.08)
ROA	−5.90***	−5.61***
	(0.73)	(0.78)
Sample	All	All
Observations	1079	1078
Log pseudolikelihood	1111.85	1143.56
ρ	0.72	0.71
	(0.076)	(0.077)

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[30]Controls used are EBIT/Sales, Debt/Assets, Growth of Sales and PPE/Sales.

Table 5C: Corporate governance and operating performance: Robustness checks
- Fama-MacBeth regression -

Ordinary least squares regression of the industry-adjusted ROA at t+1 on *Total Score* and control variables. ROA is adjusted by subtracting the median value of the corresponding Fama-French industry. The coefficients on *Total Score* and their robust standard errors (in parentheses) are reported. Regressions are run each period separately, and the Fama-MacBeth coefficient is computed. The t-statistic of the Fama-MacBeth coefficient is adjusted (based on Fama-French (2002)) assuming a coefficient of auto-correlation of 0.75. ***, ** and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

Dependent Variable	Ind. Adj. ROA_{t+1}	Obs	Ind. Adj. ROA_{t+1}	Obs
1998-99	0.0077	129	0.0018*	118
	(0.0012)		(0.0011)	
1999-00	0.00030	163	0.00056	136
	(0.00085)		(0.0018)	
2000-01	0.0019*	183	0.0023**	139
	(0.0011)		(0.0010)	
2001-02	0.0024**	192	0.0033	128
	(0.0010)		(0.0013)	
2002-03	0.00031	204	0.00015	115
	(0.0014)		(0.0021)	
2003-04	0.00094	196	0.0051	84
	(0.0021)		(0.0032)	
Fama-MacBeth	0.0011*	1067	0.0025**	720
	(0.00019)		(0.0036)	
Raw T-statistic	5.86		6.83	
Adjusted T-statistic	2.21*		2.58**	
Sample	All		NC only	

Table 5D: Corporate governance and operating performance: Robustness checks
- Total Score Rescaled -

Ordinary least squares regression, with control variables, of one year future industry adjusted Return on Assets (ROA) (adjusted by subtracting the median value of the corresponding Fama-French industry) on: - *Total Score-Rescaled*, the governance score constructed according a three points scale (from 0 to 2), which gives the maximum score (2) per provision in presence of compliance as well as non compliance with adequate explanation. The regression is run on the entire sample *(Panel A)* and within the subset of non-compliant companies. *Panel B*: - *NC16*, a dummy assuming the value 1 if a company is non-compliant with total score-rescaled 16, 0 otherwise. The omitted variable consists of all the compliant companies and non compliant companies with score less than 16. *Panel C*: - *NC16* and *NC15*, where *NC15* takes 1 if a company is non compliant with total score-rescaled less or equal than 15 *(Panel D)*. Robust standard errors *clustered at the firm level* are reported in parentheses. ***,**, and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

	Panel A	*Panel B*	*Panel C*	*Panel D*
Dependent variable	**Ind Adj. ROA**$_{t+1}$	**Ind Adj. ROA**$_{t+1}$	**Ind Adj. ROA**$_{t+1}$	**Ind Adj. ROA**$_{t+1}$
Total Score - Rescaled	0.0052*	0.0075**		
	(0.0031)	(0.0034)		
NC16			0.020*	0.016
			(0.011)	(0.011)
NC15				0.0075
				(0.062)
Ln (Total assets)	−0.0042	−0.005	−0.0039	−0.0041
	(0.0042)	(0.0048)	(0.0039)	(0.038)
Ln (Age)	−0.0053	−0.0027	−0.0057	−0.0060
	(0.0042)	(0.0045)	(0.0043)	(0.043)
Ln (MTB)	0.037***	0.040***	0.036***	0.036***
	(0.013)	(0.077)	(0.063)	(0.063)
EBIT/Sales	0.060***	0.055***	0.060***	0.061***
	(0.034)	(0.011)	(0.013)	(0.013)
Debt/Assets	−0.15***	−0.14***	−0.15***	−0.15***
	(0.037)	(0.037)	(0.037)	(0.037)
Growth of Sales	−0.000004	−0.00020	−0.000006	−0.000006
	(0.00005)	(0.000051)	(0.00005)	(0.00005)
PPE/Sales	0.0028	0.0053	0.0032	0.0033
	(0.0020)	(0.0032)	(0.0020)	(0.0020)
Sample	All	NC only	All	All
Year effects	Yes	Yes	Yes	Yes
Observations	1063	717	1063	1063
R^2	0.31	0.34	0.31	0.31

Table 5E: Corporate governance and agency costs

Panel A shows ordinary least squares regression of industry adjusted *Capital Expenditure to Sales ratio(* adjusted by subtracting the median value of the corresponding Fama-French industry) on: *Total Score* the corporate governance variable that takes into account both compliance and the quality of explanations provided in case of non-compliance, ln(market to book ratio), PPE/Sales and year dummies. *Panel B* shows the regression of one year future industry adjusted capital expenditure to sales ratio on a dummy variable TYPE5, controls and year dummies. *TYPE5* is a dummy variable assuming the value equal to 1 if a company is non compliant with a *Total Score* of 40 (in other words a non-compliant company giving the highest quality explanation), and zero in all other cases. *Panel C* shows the regression of one year future industry adjusted capital expenditure to sales ratio on a dummy variable *TYPE*0, controls and year dummies. *TYPE0* is a dummy with value 1 if a non-compliant company either fails to provide an explanation or provides an explanation classified as Type 1, and 0 otherwise. Robust standard errors *clustered at the firm level* are reported in parentheses. ***,**, and * denote that the coefficient is statistically significant at the 1, 5 or 10 percent levels respectively.

	Panel A	*Panel B*	*Panel C*
Dependent variable	**Ind. Adj. Capex/Sales$_{t+1}$**	**Ind. Adj. Capex/Sales$_{t+1}$**	**Ind. Adj. Capex/Sales$_{t+1}$**
Reference Group		Non-TYPE5	Non-TYPE0
Total Score	-0.2453^*		
	(0.1482)		
TYPE5		-6.8956^{**}	
		(2.8890)	
TYPE0			2.4823
			(1.6475)
Ln (MTB)	0.4181	0.4514	0.4616
	(1.1022)	(1.1056)	(1.1035)
PPE/Sales	7.2967*	7.2227*	7.2856*
	(3.9211)	(3.9055)	(3.9181)
Sample	All	All	All
Year effects	Yes	Yes	Yes
Observations	1186	1186	1186
R^2	0.18	0.18	0.18

Table 6A : Corporate governance and stock market performance

We estimate the Fama-French three factor regressions (see equation 7 of text) for value-weighted monthly returns of portfolios of firms. The portfolios are formed based on either overall compliance (i.e. compliance with all provisions) or companies with high *total score* (> 37) (which is the median). The portfolio returns are value-weighted returns which are the result of taking a long position in compliant companies (or high score companies) and a short position in non-compliant companies (or low score companies). The portfolios are reset in July of every year based on compliance at the end of the last calendar year. The explanatory variables are RMRF, SMB and HML. These variables are zero-investment portfolios designed to capture market, size and book-to-market effects respectively. The sample period is from July 1999 to June 2005. Standard errors are reported in parentheses and significance at the 10 percent, 5 percent and 1 percent levels is indicated by *, ** and *** respectively.

	α	RMRF	SMB	HML
Overall compliance v/s	-0.0021	-0.1029	-0.0806	-0.5713^{***}
Non-compliance	(0.0041)	(0.0935)	(0.1026)	(0.0980)
High score (> 37) **v/s**	0.0106^{*}	0.0355	0.3861^{***}	-0.4064^{***}
Low score (≤ 37)	(0.0058)	(0.1327)	(0.1457)	(0.1392)

Table 6B : Corporate governance and stock market performance

We estimate the Fama-French three factor regressions (see equation 7 of text) of value-weighted monthly returns of portfolios of firms. The portfolios are formed based on total scores. The portfolio returns are value-weighted returns which are the result of taking a long position in high score portfolios and a short position in low score portfolios. The portfolios are reset in July of every year based on score at the end of the last calendar year. The explanatory variables are RMRF, SMB and HML. These variables are zero-investment portfolios designed to capture market, size and book-to-market effects respectively. The sample period is from July 1999 to June 2005. Standard errors are reported in parentheses and significance at the 10 percent, 5 percent and 1 percent levels is indicated by *, ** and *** respectively.

	α	RMRF	SMB	HML
TYPE5 v/s	0.0092	0.3516***	0.0060***	−0.3813***
All others	(0.0056)	(0.1292)	(0.1418)	(0.1355)
TYPE5 v/s	0.0109*	0.3552**	0.0543	0.0880
Fully compliant	(0.0059)	(0.1344)	(0.1475)	(0.1409)
TYPE5 v/s	0.0149**	0.4271**	0.2980*	−0.7357***
TYPE0	(0.0070)	(0.1613)	(0.1771)	(0.1692)

Table 7: Corporate governance and stock market performance: Robustness checks

To check the robustness for the estimates of alpha we run the Fama-French three factor regressions (see equation 7 of text) using equally-weighted monthly returns of the above portfolios. All other details are similar to table 6A. The sample period is from July 1999 to June 2005. Standard errors are reported in parentheses and significance at the 10 percent, 5 percent and 1 percent levels is indicated by *, ** and *** respectively.

	α	RMRF	SMB	HML
Overall compliance v/s	-0.0009	-0.1326	-0.0229	-0.1283
Non-compliance	(0.0032)	(0.0743)	(0.0813)	(0.0780)
High score (> 37) **v/s**	0.0026	-0.0685	0.1211**	-0.1420***
Low score (≤ 37)	(0.0019)	(0.0433)	(0.0473)	(0.0454)
TYPE5 v/s	0.0126***	0.1598*	0.1722	-0.3552***
All others	(0.0041)	(0.0951)	(0.1039)	(0.0997)
TYPE5 v/s	0.0126***	0.2612	0.1899	-0.2302
Fully compliant	(0.0053)	(0.1220)	(0.1334)	(0.1279)
TYPE5 v/s	0.0143***	0.1711	0.2656**	-0.4230***
TYPE0	(0.0052)	(0.1193)	(0.1305)	0.1252

Appendix 1: Provisions of the Combined Code

1. **Separation Chairman and CEO (Provision A.2.1).** There are two key tasks at the top of every public company - the running of the board and the executive responsibility for the running of the company's business. There should be a clear division of responsibilities at the head of the company which will ensure a balance of power and authority, such that no one individual has unfettered powers of decision.

2. **Identification of a Senior Non-executive Director (SNED) (Provision A.2.1)**. Whether the posts (Chairman and CEO) are held by different people or by the same person, there should be a strong and independent non-executive element on the board, with a recognised senior member other than the chairman to whom concerns can be conveyed.

3. **Number of Non-executive Directors (Provision A.3.1)**. Non-executive directors should comprise not less than one third of the board.

4. **Proportion of Independent non-executive directors (Provision A.3.2).** The majority of non-executive directors should be independent of management and free from any business or other relationship, which could materially interfere with the exercise of their independent judgment.

5. **Service contracts's notice period (Provisions B.1.7 - B.1.8).** There is a strong case for setting notice or contract periods at, or reducing them to, one year or less.

6. **Nomination committee (Provision A.5.1).** Unless the board is small, a nomination committee should be established to make recommendations to the board on all new board appointments. A majority of the members of this committee should be non-executive directors.

7. **Remuneration committee (Provisions B.2.1 - B.2.2).** Companies should establish a formal and transparent procedure for developing policy on executive remuneration and for fixing the remuneration packages of individual directors. No director should be involved in deciding his or her own remuneration. Remuneration committees should consist exclusively of independent non-executive directors.

8. **Audit committee (Provision D.3).** The board should establish an audit committee of at least three directors, all non-executive, a majority of whom should be independent, with written terms of reference which deal clearly with its authority and duties.

Appendix 2: Accounting Variable Definitions

Variable	Definition	Source	Data Item
Sales		Worldscope	*SALES*
EBIT	Earnings before interest and taxes	Worldscope	*OPEINC*
Total Assets	Book Value of Assets	Worldscope	*TOTAST*
ROA	EBIT/Total Assets	Worldscope	*OPEINC/TOTAST*
Net Profit Margin	Net Income/Total Sales	Worldscope	*NETINC/SALES*
Market-to-Book ratio	Market Value/Book Value of Common Stock	Worldscope	*MCAPEQ*
EBIT/Sales	Earnings before Income and Taxes/Sales	Worldscope	*OPEINC/SALES*
Debt/Assets	Long Term Debt/Book Value of Assets	Worldscope	*LTDEBT/TOTAST*
Growth of Sales	1 year growth rate of sales	Worldscope	*NSALGR*
PPE/Sales	Property, Plant and Equipment/Sales	Worldscope	*NETPEQ/SALES*
Age	Year of incorporation	Amadeus	*YEARINC*
Capex/Sales	Capital Expenditure/Sales	Worldscope	*CAPESA*
External Finance Dependence (Rajan-Zingales 1998)	Capital Expenditure minus cash flows from operations/Capital Expenditure. Cash flow from operations is defined as the sum of cash flow from operations plus decrease in stocks, decreases in receivables and increases in payables	Worldscope	*(CAPEX-FFO-IDWCAP)/CAPEX*