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Political Science

Essays in Corporate Finance

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To Supriya, With Love

Abstract

This thesis is divided into three chapters. Even though the three chapters have different aims, they all concerned with corporate finance. The first chapter concerns venture capital and chapters two and three deal with corporate governance.

The first chapter deals with a special kind of security used in venture capital contracting -participating convertible preferred stock. Participating Convertible Preferred (PCP) stock is similar to convertible preferred stock but comes with participation rights. Participating rights allow the holder to participate in earnings along with common shareholders. PCPs play an important role in venture capital exits. The two major forms of exit observed in venture capital are initial public offerings (IPOs) and trade sale. Typically, a PCP stake is converted into common equity during an IPO exit but not converted in case of trade sales. We develop a model where VCs can signal the quality of their venture by costly conversion. We show that PCPs have the required features to implement the signalling mechanism. VCs signal by converting their PCP stake into common equity, when they exit from the venture and in the process give up some of their cash flow rights. We show that this can also help in alleviating the problem of entrepreneurial effort. Finally, we derive empirical implications for the two forms of exit.

The second and third chapters are concerned with corporate governance. Firstly, we examine the effectiveness of the "comply or explain" approach to corporate governance in the UK. Using a unique database of 245 non-financial companies for the period 1998 – 2004, we perform a detailed analysis of both the degree of compliance with the provisions of the corporate governance code of best practice (Combined Code), and

the explanations given in case of non-compliance. We rank the quality of explanations based on their information content. We find an increasing trend of compliance with the provisions of the Combined Code, but also a frequent use of standard and uninformative explanations when departing from best practice. We then use this data to analyse the extent of moral hazard problem in different groups of companies and the role of monitoring in alleviating it.

The third chapter extends the above analysis. We use the dataset to identify well-governed companies by accounting for heterogeneity in their governance choices and investigate its association with performance. We find that companies that depart from governance best practice because of genuine circumstances outperform all others and cannot be considered badly-governed. 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.

Contents

Abstract	3
Contents	5
List of Tables	7
Acknowledgements	10
Introduction	12
1 Participating Convertible Preferred Stock in Venture Capital Exits	16
1.1 Introduction	16
1.2 The Model	20
1.3 First Best	24
1.3.1 Entrepreneur's Incentives	24
1.4 Conversion as a Signal	26
1.4.1 Conversion without exit choice	26
1.4.2 Exit choice without conversion	28
1.4.3 Exit choice with conversion	29
1.4.4 Other equilibria	32
1.4.5 Out of equilibrium beliefs	34
1.5 Exit, signalling and incentives	36
1.5.1 Optimal security design	37

Contents	6
1.6 Comparative statics	38
1.6.1 Empirical implications	40
1.7 Conclusion	41
Appendix 1.A Appendix to Chapter1	42
References	46
2 In Letter but not in Spirit: An Analysis of Corporate Governance in the UK	50
2.1 Introduction	50
2.2 Background	52
2.2.1 Related Literature	53
2.3 Data Description	54
2.3.1 Descriptive Statistics	56
2.4 Non-compliances and explanations	57
2.4.1 Compliance	57
2.4.2 Number of non-compliances	58
2.5 Quality of Explanations	58
2.5.1 Transition Matrix	64
2.6 Hypotheses and Empirical Set-up	65
2.6.1 FTSE100 membership	65
2.6.2 Cross-listing	66
2.6.3 Ownership	67
2.6.4 Empirical Setup	68
2.7 Results	69
2.8 Robustness and concluding remarks	72
2.9 Tables	74
Appendix 2.A Appendix to Chapter 2	92
2.A.1 Provisions of the Combined Code analysed	92
2.A.2 Evolution of the UK Code over time	95
2.A.3 Detailed Provisionwise Analysis	96
References	102

3 One Size does not fit all, after all: Evidence from Corporate Governance	106
3.1 Introduction	106
3.2 Literature review	110
3.3 Motivation and underlying hypothesis	112
3.4 Data description	115
3.4.1 Corporate governance data	115
3.4.2 Corporate governance score	116
3.4.3 Accounting and financial data	116
3.4.4 Descriptive statistics	117
3.5 Methodology	118
3.6 Corporate governance and operating performance	123
3.6.1 Results	123
3.6.2 Robustness checks	125
3.7 Corporate governance and stock market returns	130
3.7.1 Methodology	131
3.7.2 Fama-French Factors	132
3.7.3 Results	133
3.8 Conclusions	135
3.9 Tables	137
Appendix 3.A Appendix to Chapter 3	151
3.A.1 Accounting Variable Definitions	151
References	152

List of Tables

2.1	Yearwise Distribution	74
2.2	Industrywise Distribution	74
2.3	Ownership Structure	75
2.4	Yearwise Non-Compliances and Explanations	75
2.5	Provisionwise Non-Compliances and Explanations	75
2.6	Industrywise Non-Compliances and Explanations	76
2.7	Number of Non-compliances	77
2.8	Yearwise Quality of Explanations	78
2.9	Provisionwise Quality of Explanations	79
2.10	Quality of Explanations	80
2.11	Transition Matrix	81
2.12	FTSE100 Membership and Compliance	82
2.13a	FTSE100 Membership and Explanations	83
2.13b	FTSE100 Membership and Explanations	84
2.14	Crosslisting and Compliances	85
2.15a	Crosslisting and Explanations	86
2.15b	Crosslisting and Explanations	87
2.16	Ownership and Compliances	88
2.17a	Ownership and Explanations	89
2.17b	Ownership and Explanations	90
2.18	Speed of Compliance	91

3.1	Descriptive Statistics: Corporate Governance Index	137
3.2	Descriptive Statistics: Distribution of Total Score	138
3.3	Descriptive Statistics: Accounting and other variables	138
3.4	Descriptive Statistics: Correlation between Variables	139
3.5	Corporate Governance and Operating Performance	140
3.6	Corporate Governance and Operating Performance	141
3.7	Corporate Governance and Operating Performance	142
3.8a	Robustness Checks: Granger Causality	143
3.8b	Robustness Checks: Heckman selection	144
3.8c	Robustness Checks: Fama-MacBeth Regression	145
3.8d	Robustness Checks: Total Score Rescaled	146
3.8e	Corporate Governance and Tobin's Q	147
3.8f	Corporate Governance and Agency Costs	148
3.9a	Corporate Governance and Stock Market Performance	149
3.9b	Corporate Governance and Stock Market Performance	149
3.10	Corporate Governance and Stock Market Performance: Robustness Checks	150

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Introduction

The thesis consists of three chapters dealing with issues in corporate finance and consists of two distinct parts. The first part, Chapter 1 which is theoretical in nature deals with securities used in venture capital contracting and its implications for exit by the venture capitalist. It develops a theoretical model to explain the use of a particular kind of security -participating convertible preferred stock in venture capital contracting. The theme of the second part is corporate governance Chapters 2 and 3 empirically analyse the workings of a flexible regulatory system of corporate governance using an unique dataset of UK companies. Chapter 2 studies the "comply or explain" system of corporate governance in the UK with a detailed analysis of compliance with a code of best practice i.e. the Combined Code and the explanations provided in case of non-compliance. Chapter 3 then uses the above data to develop a novel measure of corporate governance and relates it to corporate performance.

Various types of convertible securities are widely used in venture capital contracting. Participating Convertible Preferred (PCP) stock is one of them. It is similar to convertible preferred stock but comes with participation rights. Participating rights allow the holder to participate in excess earnings with the common shareholders in case of liquidation. Two of the most common forms of exits observed in venture capital are initial public offerings (IPOs) and trade sales or mergers (TS). Most venture capital agreements provide for mergers or trade sale as a liquidation event, in which case the venture capitalist (VC) holding a PCP stake is entitled to participation/preferred rights.

In contrast, most agreements provide for automatic conversion of the convertible stake into common equity in case of an IPO. There is therefore a clear dichotomy in the treatment of "participation/preferred rights" of the VC based on the type of exit i.e. IPOs and TS. In giving up the participation and preferred rights during an IPO the VC in many cases is giving up a substantial portion of his cash flow rights. The question that we address in Chapter 1 is why is the VC prepared to give up his rights in case of IPO and why not in case of a TS? We present a model in this chapter, which argues that VCs can signal the quality of their portfolio firms while exiting through an IPO using costly conversion. We show that the participation and convertibility features of PCPs can be used to implement costly conversion. The VC signals to the investors by converting the PCP stake into common equity, when exiting from the venture in an IPO. Signalling is important in case of an IPO since investors in an IPO are relatively uninformed about the firm as compared to those in a TS. We further show that this can also help in alleviating the problem of entrepreneurial effort. Finally based on the model we derive empirical implications for both forms of exit.

Corporate governance failures can have significant economic consequences at both macro and micro levels, for markets, market players, economic growth, firms and consumers. Consequently, investors have started leveraging corporate governance while building their portfolios so as to enhance long-term investment returns, mitigate risks and more generally build a better picture of their portfolio companies. Recent corporate failures on both sides of the Atlantic has focused attention on the different forms of corporate governance regulation. In this part of the thesis we study the workings of a flexible regulatory regime of corporate governance and its effect on firm performance. The data for our analysis comes from corporate governance statements contained in the annual reports of UK companies. We use the UK as the setting of our study because the UK pioneered a new flexible approach to corporate governance regulation, known as the "comply or explain" system, which is characterised by voluntary compliance with a code of best practice and mandatory disclosure. We build a unique dataset by hand collecting details of both compliance with the recommended principles of best practice and explanation given in case of non-compliance, for 245 non-financial companies over a six-year period.

In Chapter 2 we use this data to build a complete picture of the "comply or explain" system by highlighting both the benefits and drawbacks of the system. We find that the Code works effectively in encouraging compliance. Compliance is monotonically increasing from 1998 – 99 to 2003 – 04 but differs significantly among groups of companies. However the analysis of the explanations highlights drawbacks in the system. Firstly, for a significant minority of non-compliances no explanations are provided. Secondly, we find that in a great majority of the cases the explanations are standard and uninformative. The propensity to give general explanations is further amplified where agency problems are likely to be serious, e.g. in family-owned companies. Finally, on average, companies tend to either stick to the same explanation from one year to next or straightaway move to compliance. The analysis suggests that companies do not use the flexibility allowed by the Code to fine-tune their governance to changing circumstances. Rather, firms often seem to make a fundamental choice between compliance and non-compliance.

The voluntary nature of corporate governance in the UK gives us an opportunity to study a company's response to it, in light of the monitoring it faces. We identify three distinct groups of companies, those belonging to the FTSE100 index, cross-listed on other exchanges (especially in the US) and family-owned companies and then hypothesize (mainly based on past literature) their reaction to the code. We empirically test these hypothesis using our dataset. In line with our hypothesis, we find strong evidence that companies cross-listed in the US are more likely to comply. We find weak evidence that FTSE100 and non-Family owned companies are more likely to comply. As regards explanations, we find strong evidence that both FTSE100 companies and companies cross-listed in the US, when non-compliant, are more likely to provide better explanations and less likely to provide lower quality explanations. And finally there is some evidence that family owned companies give lower quality explanations. Our analysis thus helps shed light on the extent of moral hazard problem facing different groups of companies and the role of monitoring through various means to overcome it.

The search for the link between corporate governance and performance has been a constant topic in the recent academic and non-academic literature. The key issue in most studies has been the identification of an appropriate measure of good governance. In Chapter 3, we build a new measure of corporate governance under a framework which assumes that companies are heterogeneous, based on the above data. We measure corporate governance by constructing a score which does not penalise companies for not fully complying with the Code, provided a valid justification is given. Our score takes into account both the level of compliance with the various provisions of the Code, and the quality of explanations given in case of non-compliance: a higher score does not necessarily mean higher compliance, but might be a result of non-compliance coupled with good explanations. We find that our measure of corporate governance is positively and significantly associated with better performance (measured using both stock market as well as operating performance), as against measures based on a tick-box approach, which are not. Further, companies departing from best practice for valid reasons perform exceptionally well and even out-perform the fully compliant ones. In contrast, mere compliance with the provisions of the Code does not necessarily result in better performance.

We thus show that companies, which have carefully thought about the application of the Code to their specific circumstances, are more likely to be well-governed, and this is reflected in their performance. We thus argue that flexibility in corporate governance regulation plays a crucial role, because companies are not homogenous entities.

The analysis of corporate governance in the UK context has both 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. 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 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. Our study can thus give directions to policy-makers in countries trying to implement corporate governance codes.

1

Participating Convertible Preferred Stock in Venture Capital Exits

1.1 Introduction

Convertibles are the most commonly used securities in venture capital contracting particularly so in the US. Among these, convertible preferred stock is the security of choice. Kaplan and Strömberg (2003) document that nearly 80% of all venture contracts use convertible preferred stock. They also find that in nearly 50% of the cases the convertible preferred is participating. Preferred stockholders have preference both in dividends and liquidation proceeds compared to common stockholders. "Participating" preferred are securities which participate in excess earnings¹ with the common shareholder over and above their preferred dividend. One of the most important features of these securities is that they allocate different cash flow rights depending on whether exit occurs through a trade sale (TS), in which the company is sold either to a trade buyer or acquired by another company, or an Initial Public Offering (IPO). We give below simple examples which illustrate this feature.

Assume that a venture capitalist's (VC) investment entitles him to \$5 million in a given venture in the form of a Convertible Preferred (CP), convertible into 50 percent of the common equity. Further assume that the company is finally liquidated for \$12 million. The VC then can either convert his stake to common equity and receive 50% of the proceeds i.e. \$6 million or he does not convert and can receive his preferred proceeds i.e. \$5 million.

¹Excess earnings here refers to the cashflows that equity holders are entitled to after all debt/preferred claims have been met.

Participating Convertible Preferred (PCP) stock is similar to convertible preferred stock, with participation rights. Participating rights allow the holder to participate in excess earnings with the common shareholders in case of liquidation. In our example assume now that the PCP holder is entitled to participation rights of 50 percent. If the VC converts his PCP stake to common equity he is entitled to \$6 million (i.e. 50% of \$12 million), but if he chooses not to convert he is entitled to \$5 million (his preferred claim) plus shares to the extent of 50 percent in the remaining equity pool of \$7 million (i.e. \$12 million minus \$5 million), thus giving him a total of \$8.5 million. It is clear from the above examples that the cash flow rights to the holder of the PCP varies depending on whether he converts his stake or not. The participating feature thus makes conversion more costly for the VC, in particular when the firm's value is high.

There is a dichotomy in the treatment of "participation/preferred rights" of the VC based on the type of exit i.e. IPOs and Trade Sales/Mergers. Most VC investment agreements explicitly treat TS as a liquidation event, in which case the venture capitalist is entitled to participation/preferred rights. In contrast, the same agreements provides for automatic conversion of the convertible stake into common equity in case of an IPO. In giving up the participation and preferred rights during an IPO the VC in many cases is giving up a substantial portion of his cash flow rights. The question we address in this chapter is why is the VC prepared to give up his rights in case of IPO and why not in case of a TS?

We begin by exploring the existing explanations for the use and conversion of PCPs. A major reason for use of PCPs is the protection it affords VCs from unscrupulous entrepreneurs. This has been eloquently described in the Hotmail Corporation case study (Mukherjee (1999)). During negotiations with the VC the entrepreneurs were concerned that the investors were receiving participating preferred stock in their first round of investment. The entrepreneurs felt this was unfair because the investors "double-dipped," meaning that they got back their original investment and then shared in the remaining equity pool. The VCs in the case-study countered that the clause was important to create a disincentive for the entrepreneurs to sell the company early in life at a low price. In other words, if the venture is sold very early in its life the entrepreneur will be entitled to a return only after all the claims of the VC and other investors are satisfied. If this is a valid reason for the issue of these securities (other claims could also fulfill

this role), it still does not answer the question posed above i.e. why are they treated differently in different exit situations?

We propose that VCs use PCPs to signal the quality of a firm. Our assumption is that signalling is particularly important in an IPO since the new shareholders are relatively uninformed about company's value. In contrast, in case of a TS bidding firms have the opportunity to conduct due diligence and they also tend to be peers from the same industry having in-depth knowledge and are thus relatively well informed. We will argue that the VCs convert their stake into common equity and accept a lower stake in case of exits through IPOs to signal the quality of the venture to investors but do not do so in case of TS since the buyers are relatively well informed about the value of the firm. Thus the relative costs (as compared to TS) of exiting through an IPO creates the possibility of a signalling equilibrium in which good firms choose that route. Such an "ex-post" equilibrium can also provide ex-ante incentives to the entrepreneur, since after an IPO the VC exits and the entrepreneur remains in control of the venture. In contrast, in a TS the entrepreneur loses control of her venture. Thus exit through an IPO, provided it happens only when firm value is high has the desirable property of rewarding the good entrepreneur with control. This view stands in sharp contrast to the "double dipping" argument previously described.

Kaplan and Strömberg (2003) document that the automatic conversion provision kicks in, only if the company completes an IPO at a price which is on a median around 3.0 times greater than the stock price of the latest financing round. This ratio is significantly higher if the price of the prior investment rounds is considered. It is therefore quite clear that the VC is not prepared to give up control as well as participation/preferred rights unless he is assured of a high exit value which supports our argument for the use of PCPs.

The role of VCs in certifying IPOs has been well documented. Megginson and Weiss (1991) provide support for the certification role of venture capitalists in bringing new issues to market. They show that the presence of venture capitalists in the offering firm certifies the quality of the issue through their investment in financial and reputational capital. By comparing the costs of going public (including underpricing, underwriting spreads etc.) for a group of VC backed IPOs with a control sample of non-VC backed offers, they find that the costs of going public for VC backed IPOs is significantly lower than those for non-VC backed IPOs. They however contend that the mere presence of

the VC is enough to certify the venture, we take this a step further and argue that VCs use the conversion of their stake to signal the quality of the venture.

Black and Gilson (1997) endorse the view that relinquishing control back to entrepreneurs is a way to reward good entrepreneurs. They argue that in a stock market based system like the US (unlike a bank based system like Germany) there is an implicit contract between the VC and the entrepreneur in which the VC agrees to give control back to the entrepreneur, if the venture does well, by exiting through an IPO. In case of a TS control of the venture is transferred to the acquirer whereas in IPOs control remains with the entrepreneur. The authors argue that the opportunity to acquire control is a powerful incentive for the entrepreneur much beyond the purely financial gain arising out of an appreciation of her stake. Our model while formalising the above argument additionally points to the signalling role of PCPs in the VCs' exit decisions.

To our knowledge Hellmann (2004) is the only other paper that deals with the use of convertible preferred stock in venture capital exits. In his paper Hellmann using a double moral hazard model shows that pure equity is the optimal security for this problem. Convertible preferred equity preserves balanced incentives if the venture remains independent (i.e. an IPO), but allow the VC to extract additional rents if it gets acquired (in a TS). The model therefore contends that these securities are useful in providing incentives to entrepreneurs *after the exit event*. It is an empirical fact that VC and entrepreneurs have lock-in periods (usually 6 months) attached to their stakes and usually cannot exit in an IPO. The exit event normally signals that the VC cannot add any further value and IPO signals that the VC is confident of the entrepreneurs ability to manage. Also unlike the pre-IPO stage, post-IPO the VC is no longer involved in running the venture. He is simply interested in giving up his stake from the venture as soon as possible. It is therefore not clear why optimal incentives for post-IPO effort to the entrepreneur should be an issue to the VC.

We also contribute to the literature on VC exits. Berglöff (1994) and Bascha and Walz (2001) model the trade-offs between IPOs and TS. In both these papers and also in the paper by Hellmann (2004) there are conflicts between the entrepreneur and VC on the most appropriate method of exit from a venture. Convertible securities can help in the selection of the optimal exit strategy by allocating control rights suitably. In our model we abstract from this conflict and instead focus on how convertibles help in resolving information asymmetry and provide ex-ante incentives to the entrepreneur.

This chapter is also related to the work of Faure-Grimaud and Gromb (2004) and Aghion, Bolton and Tirole (2001) who examine how liquidity shocks affect a venture capitalist's desire to exit an investment. In Faure-Grimaud and Gromb (2004), emphasis is on the impact of the stock price informativeness on exit decisions and incentives. Some of our comparative statics deal with the ability of the stock market to accurately price IPOs and can be seen as complementing their study.

Finally, Gilson and Schizer (2002) provide a tax explanation for the use of convertible preferred stock. They argue that the use of these kind of securities triggers a tax subsidy for the intensely incentivised management compensation structures that are central to venture capital contracting.

The structure of the chapter is as follows. *Section 1.2* describes the set-up of the model, *Section 1.3* sets out the first-best incentives of the entrepreneur and the choices facing the VC, *Section 1.4* looks at the various signalling equilibria, *Section 1.5* describes incentives in the context of signalling, *Section 1.6* the comparative statics and their empirical implications and finally *Section 1.7* concludes. Most of the proofs are provided in the appendix.

1.2 The Model

Consider a model with three dates, universal risk neutrality and no discounting. An entrepreneur has a project requiring an investment K . Lacking the financial means she approaches a competitive VC to set-up the project.

Contracts: The VC gets a proportion f of the cash flows. For the moment we think of the security held by the VC as convertible preferred equity. Moreover, the stake comes with participation rights and like described in the earlier section the VC can convert his stake, at a cost, into a fraction q ($< f$) of common equity. The entrepreneur is the residual claimant.

The issue of security design has received considerable attention in the theoretical VC literature. Most papers justify or conclude albeit for different reasons that convertible equity is the optimal security in VC contracting. We approach the issue from a different perspective. We take the equity claim as given and we focus our analysis on the convertible features associated with it. We will discuss later the issue of optimal security design.

Project: After the investment is made at $t = 1$ either the venture is good firm with a value of V^H with probability p or mediocre with value V^L (where $V^H > V^L$). The entrepreneur provides effort at cost e which affects the probability of success of the venture. If she exerts effort the probability of the venture being good is p and 0 otherwise. The effort provided is unobservable and costly.

After the value realization, an investment of I is needed to take the venture forward. This investment is valuable and has a constant rate of return of x . Thus the overall value of the firm after investment is either $V^H(1+x)$ or $V^L(1+x)$ as the case may be. We assume that unless this investment I is made, the venture's value is zero. Both the good and mediocre projects are positive NPV i.e. $V^L(1+x) \geq K + I$, it is therefore worthwhile to invest. However, neither the entrepreneur nor the VC can invest in the project:

- The entrepreneur because she is wealth constrained.
- The VC because he wants to exit the investment as, for e.g. in Faure-Grimaud and Gromb (2004). We consider that VCs have liquidity needs and take the (extreme) view that they must exit the investment and have no funds to inject at this stage. The justification for this is the fact that VCs generally tend to invest in firms through a limited partnership. These limited partnerships have a finite life of 10 – 12 years after which they are dissolved. VCs thus tend to invest in the first 5 – 6 years of the partnership after which they stop investing. They then try and exit their investments so that the partnership can be dissolved. We wish to capture the exit motive of the VCs by this assumption. The VC is at the stage where he has finished investing and is now interested in exiting the venture².

We can also think of K and I as start-up and late-stage investments respectively. The start-up investment can in fact be a series of smaller amounts k_1, k_2, \dots, k_n provided in stages on achievement of certain milestones by the VC as is usually the case in VC investing and the investment I is late stage investment. It is well known that investors providing start-up financing are distinct from those investing at later stages. The description in the preceding paragraph aims to capture this fact for our model.

²Another interesting research question is to investigate why VCs partnerships have limited life (See Sahlman (1990)). We ignore this question and take this feature as given, but explore in our setting the implications of this for the form of exit.

The venture value can be observed only by the insiders i.e. the entrepreneur and the venture capitalist. The outside investors (both trade buyers and IPO investors) cannot observe the value at the time of investing I .

Exits: The only method of raising I is either through a Trade Sale (TS) or an Initial Public Offering (IPO).

- **Trade Sale (TS):** Trade buyers know V .
- **Initial Public Offerings (IPO):** IPO investors know V only with probability $r < 1$.

Our assumption is that buyers in a TS are more informed (and we analyse the case where they are fully informed for simplicity) than the buyers in an IPO. From an informational point of view it is well known that shares in an IPO are normally sold to buyers through an intermediary. The investors in an IPO do not have access to the books of the company and usually have to rely on the recommendations of the intermediary. On the other hand trade buyers (in an acquisition) who make an offer are given access to the company's books and can conduct due diligence and also in most of the cases being from the same industry have a deep knowledge of the industry. Other papers in the literature make similar assumptions. Chemmanur and Fulghieri (1999) assume that transactions between the firm and outside investors are characterised by asymmetric information. In their model a single large investor (like in a TS), can overcome this asymmetry with lower cost as compared to investors in an IPO who face a higher cost because of duplication and free-rider problems. Cumming and MacIntosh (2003) assume that information asymmetry is highest in case of IPOs. They point out that in an IPO investors have to rely on market intermediaries to price a issue, whereas in an acquisition the new owner is typically a strategic acquirer - a firm in the same or similar line of business who has a keen understanding of the firm's technology and its potential marketability.

Preferences: Both the VC and the entrepreneur may get *private benefits* from the project.

The entrepreneur derives a private benefit if she is in control of the project. This usually happens in case of an IPO, where the entrepreneur is left in control after the VC exits. We therefore assume that the private benefit that the entrepreneur gets after an IPO, B , is greater than that after a TS, b . The existence of private benefits of

control is a well-documented empirical fact and is also widely used in the control literature (see Zingales (1995)). Empirical evidence suggests that entrepreneurs continue to be involved with the firm even after the IPO. Kaplan, Sensoy and Strömberg (2005) analyse the evolution of 49 venture backed firms from early business plan to public company and provide evidence about the involvement of founders (entrepreneurs) in their ventures. At the time of the business plan, founders are involved with the companies either as a top executive or director in 100% of the firms analysed. By the time of the IPO, 92% of the firms continue to have the founder either as a top executive or director. The idea that those founders enjoy greater non-pecuniary benefits can be justified by the fact that the study also finds that the founder is the CEO in 77% of the cases at the time of business plan and remains so in 57% of the cases at the time of the IPO. Besides other papers in the literature also make similar assumptions for e.g. Black and Gilson (1997). Finally, practitioners also agree with this fact. A note by a leading law firm Baker and McKenzie on venture capital exit routes³ says that "An exit through the stock market seems to be favoured by management, since it allows them to remain in place and in control."

We similarly assume that the VC gets a private benefit if the firm is good and the exit is through an IPO. We think of this private benefit as a reputation effect. Amit et al. (1998) show that VCs might try to acquire reputation for presenting only high quality ventures in IPOs. Besides it is well known that IPOs are the "most glamorous form" of exits⁴. Most VCs want to try and exit through an IPO to prove themselves (see Gompers (1996)). It is therefore reasonable to assume that IPOs are associated with a greater reputation effect for VCs than TS. Thus the VC gets a private benefit, only if he exits through an IPO and not a TS. Additionally even when exiting through an IPO the reputation gain is definitely likely to be higher if the VC brings a good firm to the market as compared to a bad firm. We therefore assume that the VC gets a private benefit Z only if the venture is good and the method of exit is an IPO and 0 in all other cases.

Control: Finally in our model we assume that the VC is in control and makes all exit decisions. The fact that VC has a major role to play in exit decisions has been

³ Available at www.bakernet.com/BakerNet/Practice/Corporate

⁴ The National Venture Capital Association, the trade body of VCs in the US on its website. (www.nvca.org). points out that "The initial public offering is the most glamorous and visible type of exit for a venture investment. In recent years technology IPOs have been in the limelight during the IPO boom of the last six years."

documented empirically. Bienz and Walz (2006) analyse the structure and evolution of decision and control rights for a sample of 464 contracts between the VC and entrepreneur in Germany. They find that with the passage of time the VC gets more exit rights while relinquishing some of his operational rights. Exit rights gives the VC control over the exit decision.

Further in any model it is easy to come up with parameter values such that if the entrepreneur is in control the VC doesn't break even. In such cases giving control to the VC is a pre-requisite to get the project off the ground. However, joint control might emerge in equilibrium for firms with low funding needs. Our analysis is therefore relevant for start-ups and early stage ventures, which are typically characterised, by high external funding needs.

1.3 First Best

1.3.1 Entrepreneur's Incentives

Assume initially that the entrepreneur cares only about private benefits. For reasons already described above we focus on IPOs and TS as methods of exit. Thus the entrepreneur's incentives to create a venture is given by

$$p[\mu B + (1 - \mu)b] + (1 - p)[\gamma B + (1 - \gamma)b] \geq e + [\gamma B + (1 - \gamma)b] \quad (1.1)$$

where

p is the probability that the venture is good if the Entrepreneur exerts effort, 0 otherwise.

μ is the probability of an IPO given that the venture is good.

γ is the probability of an IPO given that the venture is mediocre.

B is the private benefit the entrepreneur gets if the exit is through an IPO.

b is the private benefit the entrepreneur gets if the exit is through a Trade Sale and without loss of generality that in the sequel $b = 0$.

Finally, e is the dis-utility of effort incurred by the entrepreneur.

Thus the entrepreneur's incentive compatibility simplifies to

$$pB[\mu - \gamma] \geq e \quad (1.2)$$

From the above it is clear that the entrepreneur's incentives to exert effort increases with μ , the probability of an IPO when the firm value is high, and decreases with the probability of an IPO when the firm value is mediocre.

Our assumption that the entrepreneur is motivated solely by private benefits is an extreme case. We only need that the private benefits are different for IPO and TS. If the entrepreneur also cared about monetary benefits, the analysis would not be invalidated as rewarding her with an IPO would be a way to reduce the cost of providing incentives.

1.3.1.1 VCs' Choices

The VC on the other hand is concerned with both cash flows and private benefits. He must choose the method of exit. IPOs maximise the incentives of the entrepreneur, however informationally they are at a disadvantage compared to a TS. Also given the informational asymmetry between the insiders and the investors, the VC of the good venture might not get a fair price.

If there were no information asymmetries between the VC and the investors, the venture will have to offer the following stakes in return for the investment I .

If the venture's value was V^H then the investor would demand a share S_H which is as follows.

$$S_H = \frac{I}{V^H(1+x)} \quad (1.3)$$

On the other hand if the venture's value is V^L then the investor will be given a stake of S_L in the venture defined as follows.

$$S_L = \frac{I}{V^L(1+x)} \quad (1.4)$$

Assuming instead that outside investors hold some prior beliefs α that the quality of the venture is good.

$$S_A = \frac{I}{[\alpha V^H + (1-\alpha)V^L](1+x)} \quad (1.5)$$

Consider now the situation from the point of view of a VC who holds a stake of f , that may be converted prior to raising new capital into q . Suppose that the venture is successful with value, V^H , and the VC knows that, he then faces the following trade-off:

- Sell his stake as it is to investors with most optimistic beliefs i.e. highest α . Given that we are considering the strategic choice faced by a VC who knows V^H this

amounts to choosing the form of exit involving the best informed buyers; which is the TS;

- The VC can consider the possibility of using the exit mode to signal additional information to the market.

It would be appropriate if the VC chose IPO as the method of exit when $V = V^H$ as it will efficiently reward the entrepreneur, but the VC might be reluctant to do so under our assumption that other things being equal investors in an IPO are less informed. It is therefore precisely when the firm value is high that the VC may prefer to go for a more informed audience, in other words a TS.

The problem is that because of the informational disadvantage of the IPO, the good venture does not always get a fair value for the venture. We argue that VCs' can signal the firm's type by converting their preferred convertible stake into common equity in case of an IPO. The signal is costly since the VC has to give up his preferred rights. In what follows we look at the various possibilities of signalling.

1.4 Conversion as a Signal

We argue that one of the ways in which the VC can ensure a fair value for his stake as well as preserve incentives for the entrepreneur is to signal to the market by converting his PCP stake. To be effective in conveying additional information to the market the signalling action should have the following features. First to be effective, a signal has to be costly. Second, it has to be more costly for the bad type than for the good type. As discussed earlier PCPs have the feature whereby on conversion the stake q that the VC gets is lower than his original stake f . Conversion thus clearly satisfies the first feature. We now look at the conditions under which the second feature can be satisfied.

1.4.1 Conversion without exit choice

We begin by investigating whether a signalling equilibrium exists if there is only one method of exit available. VCs thus cannot choose the method of exit but they can convert their PCP stake to signal to the market. Denote by $r_B \in \{r, 1\}$ the probability that a given investor discovers the true value of V after having invested.

The VC can try and signal his type by converting his preferred stake f to common equity q . We look for a separating equilibrium in which the VC of good firm converts

whereas the VC of the mediocre does not. The analysis of the equilibrium is constructive. A set of investor beliefs is specified, and a program that assures that firms behave accordingly is constructed. We begin by assuming that investors believe that the VC of the good firm converts his stake to common equity to signal his type. Therefore if the investors observe conversion they think that the venture is good and mediocre otherwise. Based on their beliefs they accordingly demand a suitable stake in return for their investment. Denote by $Z_r \in \{0, Z\}$ the VC's private benefits, where $Z_r = Z$ if the exit is through an IPO.

For such an equilibrium to exist the following incentive compatibility conditions must be satisfied.

$$q(1 - S_H)V^H(1 + x) + Z_r \geq f(1 - S_L)(1 + x) [r_B V^H + (1 - r_B)V^L] + Z_r \quad (1.6)$$

$$f(1 - S_L)V^L(1 + x) \geq q(1 - S_H)(1 + x) [r_B V^L + (1 - r_B)V^H] \quad (1.7)$$

If the venture is good the investors accept a stake S_H (1.3) in return for their investment. The first condition (1.6) simply states that the VC's payout from the good venture after conversion of his stake into common equity is greater than not converting and being unsure of the price that will be offered by the investors. Investors offer the correct price with a probability of r_B . In line with our assumption the good VC gets a private benefit Z_r in case of a successful exit.

Similarly, the condition (1.7) states that it is not worthwhile for the VC of the mediocre firm to mimic a good firm. By converting his stake to mimic the good, the mediocre firm is offered the price of the good firm for the investment I . However, once having bought a stake in the venture the investor knows the true value of the firm with probability r_B . The above conditions lead to the following proposition:

Proposition 1 *There does not exist a separating equilibrium in which the good VC can signal the firms' type by converting his convertible preferred stake into common equity, if both types have only one available exit strategy.*

Proof. See the appendix. ■

It is thus not possible for a VC who has no control over the exit decision but who can only convert his holdings to signal the type of company to the market. The reason

is that even though the good VC is prepared to convert to signal his type, it is easy for the mediocre VC to mimic the good. Converting requires the VC to lose $f - q\%$ of his shares. This is less costly when the company is mediocre so if this is the only instrument available, the mediocre will always mimic.

If there exists no separating equilibrium the VC of the good firm will not convert, since conversion results in a lower stake. The above result clearly depends upon the fact that there is only one available exit strategy and the fact the investors after their investment know the true value of the firm with probability r_B .

Finally, notice that if there is only method of exit available it is difficult to satisfy the entrepreneur's IC. The entrepreneur's IC (1.2) can be satisfied provided there is a difference in the probabilities of exit through an IPO, in particular when $\mu > \gamma$. In the above situation since there is only one method of exit there is no way of satisfying her IC, and motivating her to exert effort.

1.4.2 Exit choice without conversion

Consider now the opposite case where VCs hold a share f , of common equity without any conversion rights. However, they can exit through either an IPO or TS. Now they can use the method of exit to try and signal their type to the market.

We analyse whether a separating equilibrium is possible in which the good exits through an IPO and the mediocre through a TS. Once again the analysis of the equilibrium is constructive. Investor beliefs are that firms exiting through an IPO are good and those that exit through a TS are mediocre. The incentive compatibility conditions for such an equilibrium are:

$$f(1 - S_H)V^H(1 + x) + Z \geq f(1 - S_L)V^H(1 + x) \quad (1.8)$$

$$f(1 - S_L)V^L(1 + x) \geq f(1 - S_H)(1 + x)[rV^L + (1 - r)V^H] \quad (1.9)$$

The first condition (1.8) is the IC for the good VC which simply states that the overall payoff to the good VC when he exits through an IPO is greater than exiting through a TS. When the good VC exits through an IPO additionally he also gets the private benefit Z or reputation effect described above. Note that the good VC does not get the private benefit Z , if he exits through a TS.

Similarly, the second condition is the IC for the mediocre VC. It states that it is worthwhile for the mediocre VC to exit through a TS rather than an IPO. Anyone exiting through a TS is believed to be mediocre and investors pay a price S_L for the initial stake. Subsequently, TS investors know the true value of the venture (with probability 1) and pay the actual price for the remaining stake of the VC. In contrast, in case of an IPO investors pay the actual price of the venture for the VCs' remaining stake, only with a probability $r < 1$.

The good VC's IC (1.8) will always be satisfied but the mediocre VCs' IC (1.9) will never be satisfied. Since $V^H > V^L$, for all values of $r < 1$, $[rV^L + (1 - r)V^H]$ will be greater than V^L and by definition $(1 - S_H)$ is greater than $(1 - S_L)$. The right hand side of (1.9) will always be greater than the left hand side and mediocre's IC can never be satisfied. Therefore a separating equilibrium in which VCs' hold common equity stakes and the good exits through an IPO and the mediocre using a TS does not exist. Similarly, it can be shown that a separating equilibrium with VCs' holding common equity and the good exiting through a TS and the mediocre by an IPO does not exist. The above leads us to the following proposition.

Proposition 2 *There does not exist a separating equilibrium in which VCs can signal their firms' type by choosing an exit strategy (either IPO or TS), if VCs hold common equity.*

Proof. Refer to discussion above. ■

The above result obtains because the mediocre VCs' incentive compatibility condition cannot be satisfied. Unlike the case with conversion but no exit choice, in which conversion imposes a cost, here the mediocre VC is always better off mimicking the good since there is no cost to that strategy. As a result a separating equilibrium cannot exist without conversion and consequently in such a situation both the good and mediocre VC will pool and choose the same exit strategy. Again both the good and mediocre VCs choosing the same method of exit is not good for the entrepreneur's incentives and her IC (1.2) cannot be satisfied.

1.4.3 Exit choice with conversion

In this section we look at the presence of a separating equilibrium when both trade sale and IPO are available to the VCs as exit strategies and the VCs hold a PCP stake, which they can convert. We look for a separating equilibrium in which the good

converts and exits through an IPO whereas the mediocre does not convert and exits through a TS. Thus investors beliefs are that the venture is good, if they observe that the VC has converted his stake and is exiting through an IPO, and mediocre otherwise. In case of an exit through an IPO, the investors do not know the true value of the firm even after investment. They observe the true value only with probability r .

Our approach is again constructive. The incentive compatibility conditions for such an equilibrium given the investors beliefs are as follows:

$$[q(1 - S_H)V^H(1 + x)] + Z \geq f(1 - S_L)V^H(1 + x) \quad (1.10)$$

$$f(1 - S_L)V^L(1 + x) \geq q(1 - S_H) [rV^L + (1 - r)V^H] (1 + x) \quad (1.11)$$

For a separating equilibrium to exist the investors believe that the VC converting his stake is good and accept a stake S_H from that venture. The first condition (1.10) simply states that the good VC is better off converting (and accepting a stake q) and paying a price S_H for the investment rather than not converting (and retaining the stake f) being mistaken for a mediocre one and exiting through a TS. As described in the setup above the VC gets a private benefit of Z in case of successful IPO for a good firm. It should be clear from the condition that for the conversion signal to be credible $q < f$.

The second condition (1.11) similarly states that it is not worthwhile for the mediocre to mimic the good and exit through an IPO. The mediocre is better off not converting and exiting through a TS. However, even when he converts, the mediocre firm is not assured of a high valuation for the remaining stake. Investors (in an IPO) realise the true value of the venture with probability r and only with the complementary probability $(1 - r)$ the firm is mistaken for the good. These conditions yields the following proposition

Proposition 3 *There exists a fully separating equilibrium in which the good VC converts his stake into common equity and exits through an IPO provided*

$$1) q \in \left\{ \frac{f(1-S_L)V^H(1+x)-Z}{(1-S_H)V^H(1+x)}, \frac{f(1-S_L)V^L}{(1-S_H)[rV^L+(1-r)V^H]} \right\}$$

$$2) Z \geq Z_{\min} = f \frac{V^H}{V^L} [V^L(1+x) - I] \left[\frac{\Delta V(1-r)}{rV^L+(1-r)V^H} \right]$$

The VC of the mediocre venture does not convert and exits through a trade sale.

Proof. See Appendix ■

We define the range in which a fully separating equilibrium exists as $q \in (\underline{q}_{FS}, \overline{q}_{FS})$. The upper bound of the range i.e. \overline{q}_{FS} , defines the threshold above which the mediocre VC no longer finds it worthwhile to exit through a TS. Similarly, below the lower bound \underline{q}_{FS} the good VC's payoff from the TS is greater than that of the IPO. Thus a fully separating equilibria in which the good converts and exits through an IPO whereas the mediocre does not convert and exits through a TS exists only if q lies in this range. Notice that condition (1) implies that $q < f$, indicating that conversion must be costly (see Appendix for proof).

The other necessary condition for a separating equilibria to exist is that the private benefits Z should be at least equal to Z_{\min} as in condition (2) where ΔV is equal to $(V^H - V^L)$. The reason why separation is not possible with $Z = 0$ is because a combination of exit choice (through IPO) and conversion imposes a cost on both types. However, this cost is higher for the good type than for the mediocre one. The only possibility then for having a separating equilibrium is that the good type should be more willing to pay this cost than a mediocre type (in a way not dissimilar from Allen and Faulhaber (1989)). This happens only when Z is sufficiently large. The good VC thus converts to a lower stake and exits through an IPO because of the reputation (private benefit Z) he gains from bringing a good firm to the market. This is crucial because given our assumption of TS being informationally more efficient than an IPO the firm does not gain in terms of valuation in an IPO vis-a-vis a TS.

Next, can we have a separating equilibrium with $q = f$? Without conversion, the mediocre type will be tempted to go for an IPO, since he stands a better chance of not being detected, than sticking to his postulated equilibrium strategy of a TS. Forcing conversion to a lower stake as a prelude to an IPO is a way to deter the mediocre from mimicking the good type.

Exiting through an IPO is good for the entrepreneur's incentives. Empirical evidence also suggests that exiting through an IPO is the holy grail of VC investing. It is well documented that returns from an IPO to VCs are much higher than any other form of exit. It is also a requirement of most venture agreements that convertible stakes are automatically converted into common equity in case of IPOs when certain conditions are satisfied.

1.4.4 Other equilibria

1.4.4.1 Semi-separating equilibria

We also look at the range of q in which there is a possibility of a semi-separating equilibria. In this section we therefore look at the possibility that the VC of the good firm does an IPO with probability μ and a TS otherwise. We investigate whether it is possible to have an equilibrium under such circumstances. For the good VC to be willing to randomize between separating by converting and exiting through an IPO and pooling by not converting and exiting through a TS, the payoff must make the VC indifferent between the two. Again for the signal to be credible we need $q < f$. The condition for the existence of such a hybrid or semi-separating equilibrium is thus:

$$[q(1 - S_H)V^H(1 + x)] + Z \geq f(1 - \widehat{S})V^H(1 + x) \quad (1.12)$$

$$f(1 - \widehat{S})V^L(1 + x) \geq q(1 - S_H) [rV^L + (1 - r)V^H] (1 + x) \quad (1.13)$$

This condition is similar to those of the fully separating equilibria, the only difference being that in case of a TS the investors can no longer conclude that the venture is mediocre. The investors know that a firm doing an IPO is good, whereas a firm raising investment through a TS might be good or mediocre. The investors update their prior probabilities of good and mediocre i.e. α and $(1 - \alpha)$ with the additional information about the probability of the good performing an IPO i.e. μ . Using Bayesian updating the investors arrive at the new share for companies performing TS i.e. \widehat{S} . This share \widehat{S} is given by the following relationship:

$$\widehat{S} \left[\frac{(1 - \mu)\alpha}{(1 - \mu)\alpha + (1 - \alpha)} V^H(1 + x) + \frac{(1 - \alpha)}{(1 - \mu)\alpha + (1 - \alpha)} V^L(1 + x) \right] = I \quad (1.14)$$

Proposition 4 *There exists semi separating equilibria in which the good VC randomises between converting his PCP stake (and exiting through an IPO) and not converting (and exiting through a Trade Sale) provided*

$$1) q \in \left\{ \frac{f(1 - \widehat{S})V^H(1 + x) - Z}{(1 - S_H)V^H(1 + x)}, \frac{f(1 - \widehat{S})V^L}{(1 - S_H)[rV^L + (1 - r)V^H]} \right\}$$

$$2) Z \geq Z_{\min} = f \frac{V^H}{V^L} [V^L(1 + x) - I] \left[\frac{\Delta V(1 - r)}{rV^L + (1 - r)V^H} \right]$$

The VC of the mediocre venture does not convert and exits only through a trade sale.

Proof. See Appendix ■

Again similar to the condition on q for a fully separating equilibria, the range of q which supports the semi-separating equilibria is defined as $q \in (\overline{q_{SS}}, \underline{q_{SS}})$. Note that the value of Z_{\min} which supports the separating equilibria is the same for both the fully separating and the semi-separating equilibria. Z_{\min} is the minimum reputation gain required for the good VC to exit through an IPO. The fully separating equilibrium and the semi-separating equilibria differ only in terms of the probability of exiting through an IPO in the high state. The payoffs to a VC if exit is through an IPO is the same for both fully separating and semi-separating equilibria. Therefore the value of Z_{\min} is the same for both equilibria.

The payoff to the good VC when he does not exit through an IPO in a semi-separating equilibria is higher than in a fully separating equilibrium. This is reflected in the upper bound of q in a semi-separating equilibria $\overline{q_{SS}}$, being lower than that of the fully separating equilibrium i.e. $\overline{q_{FS}}$.

Comparing the range of q for a fully separating and semi-separating equilibria it can be shown that $\underline{q_{FS}} > \underline{q_{SS}} > \overline{q_{FS}} > \overline{q_{SS}}$.

It is clear from the above discussion that lower values of q in the range support a fully separating equilibria, medium values support both fully separating and semi-separating equilibria and low values support only a semi-separating equilibria.

Lower values of q increase the payoffs when the good VC does not convert. However the lower bound of q in case of the fully separating equilibria is higher than that of semi-separating equilibria. This is because in case of the fully separating equilibria if the good does not convert and exits through a TS he is mistaken for the mediocre and gets only the price offered to the mediocre for the initial investment. This is lower than the price the VC is offered in a semi-separating equilibria, since in a semi-separating equilibria the good and mediocre might pool in case of a TS and the price offered reflects that.

Finally, the lower range supports only a semi-separating equilibria because the upper bound is the value of q below which the mediocre VC is not prepared to exit through a TS. The VC gets a higher price in a semi-separating equilibria, because of pooling, than in a fully separating equilibria. Hence the upper bound of q in a fully-separating equilibria is greater than that of the semi-separating equilibria.

It is clear from the above discussion that certain values of the parameters support both a semi-separating as well as fully separating equilibria. However, the probability of exiting through an IPO given V^H , is lower in the case of semi-separating equilibria as compared to the fully separating equilibrium. Thus from a point of view of incentivising the entrepreneur, it is optimal for VCs to commit to exit through an IPO all other things being equal.

1.4.4.2 Pooling equilibria

There is always the possibility of a pooling equilibria for all parameter values. In a pooling equilibria both the good and the mediocre venture exit using the same method. The entrepreneur therefore does not have an incentive to exert effort and work for a good outcome.

1.4.5 Out of equilibrium beliefs

In the above section we constructed separating equilibria in which the VC of the good firm converted his stake and exits through an IPO whereas the VC of the mediocre firm does not convert and exits through a TS. In this section investigate if these actions by the good and mediocre VCs dominate the other possible actions open to them. We analyse the incentives to deviate for the good and the mediocre VC separately.

1.4.5.1 Good VC deviations

We have already arrived at the parameter values which ensure that the payoff to the good VC of conversion and exit by IPO is greater than not converting and exit through a TS. The other actions of the good VC that need to be evaluated are:-

1. *Conversion and TS*

The good VC's IC condition in case of a separating equilibrium is given by equation (1.10). This condition ensures that the payoff to a good VC when he converts and exits through an IPO is greater than not converting and exiting through a TS. This means that if equation (1.10) is satisfied then the VC would not prefer converting and exiting through a TS, since by conversion he gets a lower payoff as compared to not converting

2. *No conversion and IPO*

Second, we evaluate the case if the good VC does not convert and tries to exit through an IPO. Assume that following this out of equilibrium deviation, investors believe that the firm is mediocre. The payoff that the good VC gets will therefore be

$$f(1 - S_L)(1 + x)[rV^H + (1 - r)V^L] \quad (1.15)$$

The investors pay the mediocre firm's price for the initial investment and since exit is through an IPO investors pay V^H only with probability r . The payoff to the good VC (1.15) is lower in value than the payoff from not converting and exiting through a TS. We have already shown in Section 4.3 that the good VC prefers conversion and IPO to not converting and TS. He will therefore not prefer this deviation since it yields a lower payoff. Thus the good VC's equilibrium choice of converting and exit through an IPO dominates all other options.

1.4.5.2 Mediocre VC deviations

We similarly analyse the out-of-equilibrium choices of the mediocre VC and compare the payoffs with the equilibrium choice. The mediocre VC's equilibrium choice is not to convert and exit through a TS. We have already derived parameter values which ensures that choice. Therefore, the other actions that we need to evaluate are:-

1. *Conversion and TS*

From equation (1.11) it is quite clear that the VC would definitely not prefer conversion and exit through a TS, since on conversion he gets a lower payoff.

2. *No Conversion and IPO*

If the mediocre VC decides not to convert and exits through an IPO, then given our assumption investors will assume that he is exiting from a mediocre firm. This is because the VC of the good venture converts and then exits through an IPO. Since investors assume he is mediocre they will offer a valuation of $V^L(1+x)$ for his stake. His payoff is thus $f(1 - S_L)V^L(1+x)$ which is exactly equal to his equilibrium payoff from the TS. Thus there is no reason for the VC to prefer one over the other. We therefore assume that in such a circumstance the VC will not convert and exit through a TS.

Based on the above we can conclude that in case of both the good and the mediocre VCs there exists some out-of-equilibrium beliefs that guarantee their equilibrium choices

of IPO and TS respectively. Those beliefs satisfy standard refinements such as the Cho and Kreps (1987) intuitive criterion ensuring that their equilibrium choices will dominate all other options available.

1.5 Exit, signalling and incentives

It is clear from the discussion above that there exists a separating equilibrium in which the good converts and exits through an IPO whereas the mediocre does not convert and exits through a TS. Given that the entrepreneur's private benefits are maximised in an IPO, exit through an IPO by the good venture can be used to reward her efforts, since the success of the venture depends on her efforts. In contrast, if the venture is mediocre the VC exits through a TS and the entrepreneur does not get any private benefits.

Suppose now that the private benefit Z that the VC gets on exiting a good venture through an IPO is stochastic with a probability distribution $h(Z)$ and cumulative probability distribution $H(Z)$. One of the reasons for assuming Z to be stochastic is the fickleness of the IPO market. It is well known that IPO markets tend to operate in cycles with periods of intense activity followed by quiet periods. In a quiet period even with a good venture, it might not be always possible for the VC to exit through an IPO.

Given the above scenario we look at the probability of an IPO if the venture is successful. If no PCPs (or convertible securities) are in place then the VC has no means to signal the quality of the venture to the investors. In such a case no separation between the good and mediocre ventures is possible and only a pooling equilibrium exists. In a pooling equilibrium the probability μ of an IPO when the venture is good is equal to γ the probability of an IPO when the venture is mediocre. As already pointed out earlier such an equilibrium is not good for the entrepreneur's incentives. The entrepreneur is motivated to exert effort and increase the probability p of the venture being good so that exit is through an IPO and the entrepreneur is in control of the venture. However the probability of an exit through an IPO being the same for both good and mediocre ventures in a pooling equilibrium, the entrepreneur is better off not exerting effort.

If PCPs are in place then there exists the possibility of conversion by the VC to signal the quality of the venture. In particular, we have shown that there exists a separating

equilibrium in which the good converts and exits through an IPO whereas the mediocre VC does not convert and exits through a TS. One of the necessary conditions for the existence of such an equilibrium is $Z \geq Z_{\min}$. If this condition is satisfied then a separating equilibrium is possible in which $\mu = 1$ and $\gamma = 0$ i.e. the good exits through an IPO and the mediocre via a TS. This equilibrium is good for entrepreneur incentives since it rewards the entrepreneur with control of the venture.

We now discuss below if indeed there are parameter values of q and f which ensures that both a separating equilibrium exists and at the same time the entrepreneur is incentivised. The conditions which ensure that a separating equilibrium exists is given in Proposition 3. We first note that Z_{\min} is lower if f is lower. It is thus easier to achieve a separating equilibrium if the initial stake of the VC is not too high. If we pick the highest value of q , \overline{qFS} , since this minimises the cost of signalling for the VC, the cost $f - \overline{qFS}$ is increasing in f which means that the VC loses more when his initial investment is bigger. This suggests that a separating equilibrium is more likely if the value of f is not too high.

As discussed above the value of q is pinned down by \overline{qFS} and provided that K is not too large, we will always be able to find a value of f small enough such that the entrepreneur's IC is satisfied.

$$(1 - H(Z_{\min}))B \geq e/p \quad (1.16)$$

Therefore we have

Lemma 1 *If $K \leq \overline{K}$, there exists values of q and f such that a separating equilibrium exists and is compatible with the entrepreneur choosing high effort.*

Proof. *See discussion above.* ■

Thus there exists values of q and f such that the VC is prepared to provide funds upto the value of K .

1.5.1 Optimal security design

We have so far abstracted from the issue of optimal security design. Our results are that for a separating equilibrium to exist, it is necessary that $q < f$. PCPs with their participating and convertibility features are a way to implement this outcome. This still leaves unanswered the question of how to best design the initial stake.

Given the two point support in our model (V^H and V^L) our focus on straight equity is without loss of generality. A combination of risky debt and equity can replicate the payoffs from any optimal security. It would be therefore straightforward to extend our argument to a situation where the VC holds both debt and equity and could possibly convert (at some cost) one or both securities in case of an IPO.

More generally, the conclusion that we can draw from our analysis is that the informed party (the VC in our case) should hold a claim that is sufficiently information sensitive, such that converting it to a lower stake conveys some information. We conjecture the existence of a trade-off between how much of the claim the VC needs to give up for this action to be a credible signal, and the information sensitivity of that claim.

Finally in a more general model the issues of security design and convertibility should be jointly considered. Our point is simply that the optimal security should have a convertibility feature for any chance of it being used in signalling.

1.6 Comparative statics

We have in the previous sections looked at the conditions required for the existence of the separating equilibria. In this section we look at how the ranges are affected by changes in different parameter values.

Lemma 2 *The minimum private benefit Z_{\min} required to sustain a separating equilibrium (i) increases with $(1 - r)$, the difference in values of the good and mediocre firms ΔV , with the value of the good firm V^H and with the VC's stake after conversion q (ii) decreases with value of the mediocre firm V^L and the amount of investment raised I .*

Proof. Rearranging Z_{\min} we have $Z_{\min} = \frac{q}{V^L}[V^H(1 + x) - I](1 - r)\Delta V$, the statics then follow. ■

Both $(1 - r)$ and ΔV can be thought of as measures of information asymmetry which the outside investors face. An increase in the information asymmetry implies that the good VC requires a higher private benefit Z to convince him to exit through an IPO. Further, an increase in information asymmetry increases the probability that the mediocre VC gets if he exits through an IPO by mimicking the good VC. A higher Z in such circumstances ensures that the good VC gets a higher payoff on exit through

an IPO. Similarly, a higher Z is required to enable the good VC to separate in case of a higher q , since again a higher q increases the incentives of the mediocre to mimic. In this context it is important to note that the private benefit Z enjoyed by the VC of the good venture in case of a successful exit through an IPO, is not available to the VC of the mediocre venture even when he exits through an IPO. It is for this reason that Z plays such a crucial role in our analysis in sustaining a separating equilibria.

An increase in the value of the good firm V^H increases the incentives of the VC of the good firm to exit through a TS hence an increase in Z is required to preserve incentives for exiting through an IPO.

An increase in V^L with all other things remaining constant reduces the information asymmetry thus, requiring a lower Z to sustain the separating equilibrium

Finally, an increase in the amount of investment I required increases the stakes S_H and S_L that both the good and mediocre have to give up. However, it affects the mediocre more than the good venture reducing the incentives of the mediocre to mimic and thus a lower Z .

Lemma 3 *In a fully separating equilibrium the range of q (or f) supporting the equilibria (i) increases as r increases; (ii) increases as Z increases; (iii) decreases as V^H increases ;and (v) decreases as V^L increases.*

Proof. See Appendix ■

An increase in r means that the probability that investors know the true value of firm is very high. Increase in r slackens the incentive compatibility condition for the mediocre VC and in the limit when $r = 1$ the investors know the true value of the mediocre firm. Overall this increases the range in which a separating equilibrium is supported.

An increase in Z increases the payoff which a good VC gets on exiting through an IPO and makes it attractive for the good VC to exit through an IPO. It therefore supports a higher range of parameters for the separating equilibrium.

An increase in the value of the good firm V^H reduces the range of the fully separating equilibria since it affects the incentive compatibility conditions for both the good and mediocre VCs. It increases the payoff to the good if he does not convert and exits through a TS and also to the mediocre if he mimics the good. Overall this has the effect of reducing the range supporting the separating equilibrium.

Higher V^L increases the payoff of a mediocre VC if he exits through a TS and also the payoff to a good VC if he does not convert and exits through a TS, thus reducing the range supporting the equilibrium.

1.6.1 Empirical implications

The first implication concerns the probability of revelation of the firm quality r in case of an IPO. As r increases the range supporting a separating equilibrium also increases. It can be reasonably assumed that r is high for informationally efficient markets like the US and UK as compared to others. In these markets there are a lot of analysts following stocks and the probability of getting the value of a stock right after an IPO is therefore relatively high implying a high r . We are thus likely to observe more exits through an IPO in such markets. Whereas in markets where r is low the range of parameter values supporting the equilibrium is also lower. This will deter a lot of VCs who might thus not find it worthwhile to exit through an IPO. This could possibly be a reason why we observe more exits through an IPO in the US than in any other market. Also for very low values of r (i.e. $r \rightarrow 0$) a separating equilibrium cannot be sustained at all. Thus the use of Convertible securities is itself redundant. This is again borne out by empirical and anecdotal evidence. The use of such securities outside the US is not so wide-spread.

The second implication concerns the private benefits of control Z for the good VC. These can be interpreted as reputation effects which help VCs establish themselves among their investors. The range that supports a separating equilibria is higher if the distribution of Z is higher in the sense of first order stochastic dominance. In the dominant distribution it is more likely that $Z \geq Z_{\min}$, which makes it easier to give incentives to the entrepreneur through more IPOs. In the real world, Z is likely to be higher for younger VCs who need to establish their reputations as compared to older more established VCs. This means that the model predicts that we will observe more exits through IPOs by younger VCs as compared to older VCs. This has been empirically confirmed by Gompers (1996) who observes grandstanding by younger VCs. He finds that younger VCs are more likely to exit through a venture using an IPO as compared to older more established VCs.

The value of Z itself increases with an increase in the information asymmetry $(1-r)$. Again it can be argued that the information asymmetry is higher for European markets

as compared to the US. This means that the private benefit Z required for the VC to do an IPO in Europe is higher than the US. This is another reason why we observe more venture capital exits in the US through IPOs in contrast to other markets.

During periods of high activity in the VC market like the dot-com bubble we would expect valuations of all companies to be high. This means that both V^H and V^L will be high. Higher valuations for companies as discussed above leads to an increase in the range supporting the separating equilibria. The reason for this being that increase in valuations of firms increases the payoff that a firm gets by not converting and exiting through a TS. Thus counterintuitively, our model predicts that increases in valuation of both the good and mediocre companies leads to lower exits through IPOs.

1.7 Conclusion

This chapter presents a signalling model of exits by VCs. We argue that participating convertible preferred securities can be used by VCs to signal the quality of the venture at the time of exit. Exit through an IPO also helps in incentivising entrepreneurs, since they are rewarded with control after the VC exits. On the other hand in a trade sale(TS) the entrepreneur normally loses control of her venture. However, from the VCs point of view IPOs are at an informational disadvantage as compared to a TS. The VCs are therefore reluctant to exit through an IPO.

PCPs can help solve this problem. By converting their PCP stake into common equity VCs signal the quality of their venture. We show based on our model that there exists a separating equilibrium in which the VC of the good venture converts his stake and exits through an IPO whereas the mediocre venture exits through a TS. This also rewards the entrepreneur with control if the venture is good. We thus provide an explanation for the commonly observed phenomenon in venture capital exits i.e. automatic conversion of VC's stake in case of an IPO.

Based on the model we derive comparative statics and arrive at empirical implications some of which have been confirmed by previous work.

Appendix 1.A Appendix to Chapter1

Proof(Proposition 1). The incentive compatibility condition (1.6) for the good can be simplified and rewritten as follows

$$\frac{q(1 - S_H)}{f(1 - S_L)} \geq \frac{[r_B V^H + (1 - r_B)V^L]}{V^H}$$

Similarly the IC (1.7) for the mediocre can be rewritten as

$$\frac{q(1 - S_H)}{f(1 - S_L)} \leq \frac{V^L}{[r_B V^L + (1 - r_B)V^H]}$$

The above conditions will be satisfied only if

$$\frac{V^L}{[r_B V^L + (1 - r_B)V^H]} \geq \frac{[r_B V^H + (1 - r_B)V^L]}{V^H}$$

Simplifying the above leads us to the following condition

$$0 \geq (V^H - V^L)^2$$

which can never be satisfied for any values of V^H and V^L , which means that there exists no separating equilibrium. ■

Proof (Proposition 3). The condition (1.10) for the good can be simplified and rewritten as

$$q \geq \frac{[f(1 - S_L)V^H(1 + x)] - Z}{(1 - S_H)V^H(1 + x)} \quad (1.17)$$

Similarly (1.11) can be rewritten as

$$q \leq \frac{f(1 - S_L)V^L}{(1 - S_H)[rV^L + (1 - r)V^H]} \quad (1.18)$$

Thus a fully separating equilibrium exists if q lies within the values shown above. This gives the first condition for the existence of the fully separating equilibria. We derive below the minimum value of Z , Z_{\min} which ensures that q lies in the range described by (1.17) and (1.18). The above conditions imply that

$$\frac{f(1 - S_L)V^L}{(1 - S_H)[rV^L + (1 - r)V^H]} \geq \frac{[f(1 - S_L)V^H(1 + x)] - Z}{(1 - S_H)V^H(1 + x)} \quad (1.19)$$

Rearranging and simplifying (1.19) gives us the minimum value of Z , Z_{\min} for which a fully separating equilibria exists.

We now show that $f > q$ in the above equilibrium. Rearranging (1.18) we have

$$f \geq \frac{q(1 - S_H)[rV^L + (1 - r)V^H]}{(1 - S_L)V^L} \quad (1.20)$$

From the above $f > q$ if $\frac{(1 - S_H)[rV^L + (1 - r)V^H]}{(1 - S_L)V^L} > 1$, which we can rewrite as $\frac{(1 - S_H)}{(1 - S_L)} * \frac{[rV^L + (1 - r)V^H]}{V^L}$.

$\frac{(1 - S_H)}{(1 - S_L)}$ is greater than 1 since by definition $S_L > S_H$.

Also, $\frac{[rV^L + (1 - r)V^H]}{V^L} > 1$, since $rV^L + (1 - r)V^H > V^L$. Therefore $f > q$. ■

Proof (Proposition 4). We can arrive at the range which supports the semi-separating equilibrium using a similar method used above for the fully separating equilibrium. The condition (1.12) for the good can be simplified and rewritten as

$$q \geq \frac{[f(1 - \hat{S})V^H(1 + x)] - Z}{(1 - S_H)V^H(1 + x)} \quad (1.21)$$

Similarly (1.13) can be rewritten as

$$q \leq \frac{f(1 - \hat{S})V^L}{(1 - S_H)[rV^L + (1 - r)V^H]} \quad (1.22)$$

Thus a semi-separating equilibrium exists if f lies within the values shown above. This gives the first condition for the existence of the semi-separating equilibria. Similarly we derive below the minimum value of Z , Z_{\min} which ensures that f lies in the range described by (1.21) and (1.22). The above conditions imply that

$$\frac{f(1 - \hat{S})V^L}{(1 - S_H)[rV^L + (1 - r)V^H]} \geq \frac{[f(1 - \hat{S})V^H(1 + x)] - Z}{(1 - S_H)V^H(1 + x)} \quad (1.23)$$

Rearranging and simplifying (1.23) gives us the minimum value of Z , Z_{\min} above which the semi-separating equilibria exists. ■

Proof (Lemma 7). The comparative statics of the various parameters supporting the fully separating equilibrium is arrived at by differentiating the upper and lower bounds with the respective parameters. For ease of exposition we calculate the impact on the range by restating and differentiating the upper and lower bounds wrt f . The results hold if the effects are calculated w.r.t. q .

(i) With respect to r

Differentiating the lower and upper bound of f with respect to r we have $\frac{\partial f_{FS}}{\partial r} = \frac{q(1-S_H)[V^L-V^H]}{(1-S_L)V^L}$ which can be further simplified as $\frac{\partial f_{FS}}{\partial r} = \frac{-q(1-S_H)V^L[V^H-V^L]}{(1-S_L)[rV^L+(1-r)V^H]^2}$. Thus $\frac{\partial f_{FS}}{\partial r} < 0$. Also the upper bound $\overline{f_{FS}}$ does not depend on r and hence does not change with r . Thus an increase in r results in the lower bound $\underline{f_{FS}}$ decreasing which causes the entire range to increase.

(ii) With respect to Z

Only the upper bound $\overline{f_{FS}}$ depends on Z . On inspecting the value $\overline{f_{FS}} = \frac{q(1-S_H)V^H(1+x)+Z}{(1-S_L)V^H(1+x)}$ we can immediately see that an increase in Z increases $\overline{f_{FS}}$. The value of $\underline{f_{FS}}$ does not depend on Z and thus is not affected by it. Therefore an increase in Z result in an increase in the range of f supporting the equilibria.

(iii) With respect to V^H

Differentiating the upper and lower bounds of f with respect to V^H we have the following:

$$\frac{\partial f_{FS}}{\partial V^H} = \frac{q}{(1-S_L)} \left[\frac{I[rV^L + (1-r)V^H]}{[V^H(1+x)]^2} + (1-S_H)(1-r) \right]$$

which is clearly > 0 . Thus $\frac{\partial f_{FS}}{\partial V^H} > 0$. Similarly $\frac{\partial \overline{f_{FS}}}{\partial V^H} = \frac{qI-Z}{(1-S_L)[V^H]^2(1+x)}$ which is < 0 . Thus an increase in V^H leads to an increase in $\underline{f_{FS}}$ and a decrease in $\overline{f_{FS}}$ which has the effect of decreasing the range supporting the equilibria.

(iv) With respect to V^L

Differentiating the upper and lower bounds of f with respect to V^L we have the following:

$$\frac{\partial f_{FS}}{\partial V^L} = q(1-S_H) \left\{ \frac{I}{(1-S_L)^2[V^L(1+x)]^2} [r + (1-r)\frac{V^H}{V^L}] - \frac{(1-r)}{[V^L]^2} \frac{V^H}{(1-S_L)} \right\}$$

The above expression is positive if

$$\frac{I}{(1-S_L)^2[V^L(1+x)]^2} [r + (1-r)\frac{V^H}{V^L}] \geq \frac{(1-r)}{[V^L]^2} \frac{V^H}{(1-S_L)}$$

Simplifying it can be shown that it is not true, thus $\frac{\partial f_{FS}}{\partial V^L} < 0$.

Similarly,

$$\frac{\partial \overline{f_{FS}}}{\partial V^L} = -\frac{q(1-S_H)V^H(1+x)+Z}{V^H(1+x)} \frac{I}{(1-S_L)^2} \frac{1}{[V^L(1+x)]^2}$$

which is clearly < 0 .

Thus an increase in V^L causes both the lower bound and upper bound to decrease resulting in an decreased range of f supporting the separating equilibria. ■

References

- [1] Aghion, P., P. Bolton and J. Tirole, 2000, Exit Options in Corporate Finance: Liquidity versus Incentives, mimeo, University of Toulouse
- [2] Allen, F. and G. R. Faulhaber, 1989, Signaling by Underpricing in the IPO Market, *Journal of Financial Economics* 23, 303-323
- [3] Amit R., J. Brander and C. Zott, 1998, Why do Venture Capital Firms Exist? Theory and Canadian Evidence, *Journal of Business Venturing*, 13, 441-466
- [4] Bartlett, J. W., 1995, *Equity Finance: Venture Capital, Buyouts, Restructurings and Reorganizations*, Vol. 1-3, Panel Publishers, New York, USA
- [5] Bascha, A., and U. Walz, 2002, Convertible securities and optimal exit decisions in venture capital finance, *Journal of Corporate Finance*, September, 7(3), 285-306
- [6] Berglöf, E., 1994, A Control Theory of Venture Capital Finance, *Journal of Law, Economics and Organization*, 10(2), 247-267
- [7] Bienz, C., and U. Walz, 2007, Evolution of decision and control rights in venture capital contracts: An empirical analysis, RICAFE Working Paper No. 040, London School of Economics
- [8] Black, B. S., and R. J. Gilson, 1997, Venture capital and the structure of capital markets: banks versus stock markets, *Journal of Financial Economics*, 47(3), 243-277

-
- [9] Casamatta, C., 2003, Financing and Advising: Optimal Financial Contracts with Venture Capitalists, *Journal of Finance*, 58(5), 2059-2086
- [10] Cornelli, F. and O. Yosha, 2003, Stage Financing and the Role of Convertible Debt, *Review of Economic Studies*, 70(1), 1-32
- [11] Chemmanur, T. J. and P. Fulghieri, 1999, A Theory of the Going-Public Decision, *Review of Financial Studies*, 12(2), 249-279
- [12] Cho, I. and D. M. Kreps, 1987, Signaling Games and Stable Equilibria, *Quarterly Journal of Economics*, 102(2), 179-222
- [13] Cumming, D. J. and J. G. MacIntosh, 2003, Venture-Capital Exits in Canada and the United States, *The University of Toronto Law Journal*, 53(2), 101-199
- [14] Dessein, W., 2005, Information and Control in Alliances & Ventures, *Journal of Finance*, 60(5), 2513-2550
- [15] Dessi, R., 2004, Start-up Finance, Monitoring and Collusion, forthcoming, *The Rand Journal of Economics*
- [16] Faure-Grimaud, A., and D. Gromb, 2004, Public Trading and Private Incentives, *Review of Financial Studies*, 17(4), 985-1014
- [17] Gompers, P. A., 1995, Optimal investment, monitoring and the staging of venture capital, *Journal of Finance*, 50, 1461-1489
- [18] Gompers, P. A., 1996, Grandstanding in the venture capital industry, *Journal of Financial Economics*, 42, 133-156
- [19] Gompers, P. A., and J. Lerner, 1999, *The Venture Capital Cycle*, Cambridge, Mass., MIT Press
- [20] Green, R., 1984, Investment incentives, debts and warrants, *Journal of Financial Economics* 13, 115-136
- [21] Grinblatt, M. and C. Y. Hwang, 1989, Signalling and the Pricing of New Issues, *Journal of Finance*, 44, 393-420
- [22] Hellmann, T., 1998, The Allocation of Control Rights in Venture Capital Contracts, *Rand Journal of Economics*, 29:1, Spring, 57-76

-
- [23] Hellmann, T., 2002, A theory of Strategic Venture Investing, *Journal of Financial Economics*, 64(2), 285-314
- [24] Hellmann, T., and M. Puri, 2002, Venture Capital and the Professionalization of Start-up Firms: Empirical Evidence, *Journal of Finance*, 57(1), 169-197
- [25] Hellmann, T., 2004, IPOs Acquisitions and the Use of Convertible Securities in Venture Capital, mimeo, Sauder School of Business, University of British Columbia, Canada
- [26] Kaplan, S., and P. Strömberg, 2001, Venture Capitalists as Principals: Contracting, Screening and Monitoring, *American Economic Review*, Papers and Proceedings, 91(2), 426-430
- [27] Kaplan, S., and P. Strömberg, 2003, Financial Contracting Meets the Real World: An Empirical Study of Venture Capital Contracts, *Review of Economic Studies*, 70(2), 281-315
- [28] Kaplan, S., B. A. Sensoy and P. Strömberg, 2005, What are Firms? Evolution from Birth to Public Companies, mimeo, University of Chicago, Graduate School of Business
- [29] Marx, L., 1998, Efficient Venture Capital Financing Combining Debt and Equity, *Review of Economic Design*, 3, 371-387
- [30] Megginson, W. L. and K. A. Weiss, 1991, Venture Capitalist Certification in Initial Public Offerings, *Journal of Finance* 46(3), 879-903
- [31] Mukherjee, P., 1999, *Hotmail Corporation*, Case Study, Graduate School of Business, Stanford University
- [32] Repullo R., and J. Suarez, 2004, Venture Capital Finance: A Security Design Approach, *Review of Finance*, 8(1), 75-108
- [33] Sahlman, W., 1990, The structure and governance of venture capital organizations, *Journal of Financial Economics*, 27, 475-521
- [34] Schmidt, K., 1999, Convertible Securities and Venture Capital Finance, Mimeo, University of Munich

-
- [35] Spence, A.M., 1974, *Market Signalling*, Cambridge, Mass., Harvard University Press
- [36] Stein, J., 1992, Convertible bonds as backdoor equity financing, *Journal of Financial Economics*, 32, 3-21
- [37] Welch, I., 1989, Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings, *Journal of Finance* 44(2), 421-449
- [38] Zingales, L., 1995, Insider Ownership and the Decision to Go Public, *The Review of Economic Studies*, 62(3), 425-448

2

In Letter but not in Spirit: An Analysis of Corporate Governance in the UK

2.1 Introduction

The UK's response to corporate governance failures in the 1980s (such as the Maxwell Communications, Polly Peck and BCCI scandals) has been quite different from the recent Sarbanes-Oxley Act in the US. Instead of a prescriptive and legislative regulation it has adopted a "comply or explain" approach¹. Its defining aspect is a voluntary code of best practice which companies are free to choose to follow. Companies in their annual reports must state whether they comply with the code and identify reasons for any areas of non-compliance. Thus, the main strength of the "comply or explain" approach is that it eschews a *one size fits all approach* and allows flexibility to companies.

The "comply or explain" approach provides us with an unique opportunity to assess the voluntary approach to corporate governance in terms of actual rather than formal implementation of the code, i.e. have the companies embraced the genuine spirit of the code or do they simply follow the letter of its recommendations? More generally, the UK approach to corporate governance has been adopted as a benchmark by numerous countries². The answers to the above questions will not only suggest improvements

¹According to Sir Derek Higgs (the author of the Higgs Report on the role and effectiveness of non-executive directors published in January 2003) "*It (the "comply or explain" approach) offers flexibility and intelligent discretion and allows for valid exception to the sound rule. The brittleness and rigidity of legislation cannot dictate the behaviour, or foster the trust. I believe that is fundamental to the effective unitary board and to superior corporate performance.*" The Higgs report was sought by the UK government in response to the recent corporate governance failures in the US. The above statement is contained in the introductory letter of the Higgs Report to the Chancellor of the exchequer.

²In particular, the OECD in its 2004 Principles of Corporate Governance, states that countries should follow a flexible regulatory mechanism of corporate governance.

to the functioning of the code in the UK, but also highlight to other countries in the process of setting up their governance systems the conditions under which such an approach will function most effectively.

We analyse 245 non-financial UK companies, listed on the London Stock Exchange and part of the FTSE350 index over 1998 - 2004. The Combined Code (henceforth, the Code), applicable to all listed companies in the UK, was in operation during this time. We construct a unique dataset by hand-collecting information from the Corporate Governance statements included in their annual reports. Amongst other things, we collect details of each company's compliance with the provisions of the Code and the exact explanations provided in case of non-compliance.

We begin by evaluating compliance with the Code's various provisions. We observe a monotonic increase in the propensity to comply with the provisions over time. By the end of 2004, more than half of the companies in our sample are fully compliant with the Code (as compared to 10% in 1998), and on average less than 10% of all firms do not comply with any given single provision.

Next we examine the non-compliant companies' explanations. We find that firms often give uninformative explanations of why they do not comply with a given provision. Specifically, we rank explanations from the least informative to the most informative, based on the level of detail given by the company. First, for an average of 17% of provisions not complied with over the sample period, no explanations are provided. Second, even among those that provide explanations in 50% of the cases, these are standard and uninformative.

We then explore how the explanations evolve over time. We find that companies that do not comply in a year provide the same explanation, year after year as their explanations rarely change. Companies that cease to comply with a provision tend not to provide an informative explanation as to why this is the case. Therefore firms seem to be making a fundamental choice between compliance or non-compliance, rather than using the flexibility given by the code.

The voluntary nature of the corporate governance further enables us to identify the intensity of moral hazard problems in various groups of companies' based on their response to the code. We would expect groups of companies which are more strongly monitored like those belonging to the FTSE100 index or cross-listed on other exchanges to be more likely to comply with the code as well as provide better explanations in case

of non-compliance. By empirically analysing compliances and explanation for different groups of companies, we find evidence that companies belonging to the FTSE100 index and companies cross-listed on US exchanges are more likely to comply with the Code as compared to companies not part of the FTSE100 index or those not cross-listed. FTSE100 companies and cross-listed companies are also more likely to provide better quality explanations. Further, we find some evidence that family owned companies are less likely to comply or provide better quality explanations. The results thus point to the fact that the severity of the agency problem is different in different groups of companies.

The chapter develops as follows. *Section 2.2* provides the background to the evolution of corporate governance in UK. *Section 2.3* describes the data. *Sections 2.4* and *2.5* analyses the trends in compliances and explanations in an univariate setting. *Section 2.6* sets out the hypotheses and empirical strategy. *Section 2.7* describes the results and finally *Section 2.8* presents additional robustness checks and concludes..

2.2 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 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 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 is prescribed, companies have a free hand to explain their governance policies in the light of the Code. 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”. 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 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 2.A.1 and Appendix 2.A.2 traces the evolution of the code over time.

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.³ 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.⁴

2.2.1 Related Literature

The empirical literature on corporate governance, especially in the US context, is vast (see Becht, Bolton and Röell (2002) for a detailed survey). To the best of our knowledge, there is no other academic paper that analyses the implementation of the Combined Code in detail. Most of the existing studies deal with the implementation of some of the

³To 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)

⁴Examples 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.

recommendations of the Cadbury Committee. Our study is the first to comprehensively analyse the working of the "comply or explain" system in the UK over a period of time. We analyse not only the level of compliance with the individual provisions of the Combined Code of best practice, but also the quality of explanations provided in case of non-compliance.

Dahya, McConnell and Travlos (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 led to reduced managerial entrenchment. Based on a sample of UK listed firms between 1990 and 1995, she finds that the Cadbury 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.

Canyon 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.

Furthermore there are studies by accountancy firms and consultancies which look at the degree of compliance with the Combined Code. Grant Thornton (an accountancy firm) produces an annual Corporate Governance Review. The review sets out the compliance of FTSE350 companies with the Combined Code and the explanations provided for the internal control provisions of the code. Similarly, the consulting firm Deloitte has recently produced a report on the effectiveness of the Directors Remuneration Report for the Department of Trade and Industry. However, such studies are narrower in scope and focused only on specific aspects of the Code.

2.3 Data Description

We analyse 245 non-financial companies belonging to the FTSE 350 index as of 31st December 2003, for the period from 1st December 1998 to 30th June 2004. We exclude the 105 financial companies because the regulatory environment for those companies

differs significantly from that of non financial companies. Those regulations, although not part of the Combined Code, may well interact with its provisions, and have implications for corporate governance.

The Combined Code consists of a total of 11 provisions, out of which we analyse the following eight provisions relating to:

1. The separation of Chairman and CEO.
2. The appointment of a Senior Non-executive Director.
3. The total number of Non-executive Directors.
4. The proportion of Independent non-executive directors.
5. The terms of Service contracts.
6. The nomination committee.
7. The remuneration committee.
8. The audit committee.

The following three provisions were not analysed.

1. Directors' re-election.
2. Pay linked to performance.
3. Internal control systems

All companies in the sample complied or intended to comply on provision relating to directors' re-election. Judging the effective level of compliance of the provisions pertaining to pay-linked to performance and internal controls required additional information which is not available to us.

For each year, we hand-collected the following information from the corporate governance statements and directors' remuneration reports in each company's annual report.

- The statement of compliance with the eight provisions of the Combined Code, and the exact explanation given in case of non compliance.

- The Board of Directors' composition, with the indication of the total number of executive and non-executive directors, and that of independent non-executive directors.
- The composition of the audit, remuneration, and nomination committee,

The annual reports are downloaded from the Mergent Online database. Information is missing for some companies in some years. This could be due to a new company listing during the sample period or Mergent Online's data being incomplete.⁵ We collect cross-listing information from Compustat Global. Information about the membership to the FTSE100 index is obtained from FTSE.

Finally, we collect ownership data for two periods, i.e. 31/12/1998 to 30/06/1999 and 01/07/2003 to 30/06/2004. The ownership data for the first period is obtained from Faccio and Lang (2002) and pertains to 1996. Ownership for UK companies is fairly stable and therefore we use it as a reasonable approximation of the ownership structure for 1998 – 99. Data for the last period was gathered from Thomson One Banker Ownership module. Thomson Ownership data being available quarterly, we use data for the quarter which is closest to the financial year-end of the company.

2.3.1 Descriptive Statistics

Table 2.1 shows the total number of companies in our sample for each period. As the companies do not have the same financial year ending, we group them in homogeneous periods. Each time period includes all companies having their financial year endings between 1st July and 30th June (inclusive). The first period however is much shorter, since the Combined Code came into effect only from 31st December 1998. We thus have a total of 1,287 company-year observations divided into six time periods. With the exception of the first two periods, we have at least 200 companies in each period. The table further shows the number of companies in each period belonging to the FTSE100 index and those that are cross-listed on other exchanges across the world.

Table 2.2 shows the sample's industry composition. We classify companies in 12 industry groups as in Campbell (1996). The companies in our sample are spread evenly across the 12 industry groups. All industry groups, except petroleum have 100 or more observations.

⁵Table 1 gives details of the number of companies for which information is available in each period.

Finally, Table 2.3 provides a classification of our sample by Ownership Structure. The ownership structure is calculated at the 10% threshold. A company is said to be owned by a particular type of shareholder if their percentage holding in the company exceeds 10%. We classify ownership into different categories a la Faccio & Lang (2002):

- *Family*: A family (including an individual) or a firm that is unlisted on any stock exchange.
- *Non Family*: A firm which either widely held (has no single shareholder) at the 10% level or whose shareholders are widely held.
- *State*: A national government, local authority or government agency.
- *Miscellaneous*: Charities, voting trusts, employees, cooperatives etc.

The table shows that a majority of firms during both periods have dispersed ownership structures. Companies owned by families form a greater proportion 30% during 1998 – 99 as compared to 15% in 2003 – 04.

2.4 Non-compliances and explanations

This section presents the trends in the degree of compliance with the Code across years classified into various groups.

2.4.1 Compliance

Table 2.4 presents the periodwise percentage of fully compliant companies. A company is said to be fully compliant in a given period if it is compliant with all the eight provisions of the Code. The table shows that the overall compliance rate is monotonically increasing over time. The percentage of companies complying with all the provisions increases from 10% in 1998 – 99 to 56% in 2003 – 04. The average across all periods is 33%. FTSE100 members have a higher rate of compliance (37%) as compared to non-FTSE100 firms (31%). The percentage of cross-listed companies which are fully compliant with the Code is 42%, against 31% for non-crosslisted companies. Family-owned companies show a lower rate of compliance (20%) than non-family owned companies (43%).

Table 2.5 presents the provisionwise analysis of compliances and explanations. The average percentages of compliances are very high (more than 85%) for five of the

eight provisions analysed. The compliance percentage is highest (96%) for the provision pertaining to the number of non-executive directors, and lowest (57%) for the duration of service contracts. The percentage of non-compliances for which an explanation is provided is close to or above 70% for all the provisions. Provisions pertaining to audit committee and nomination committee show the highest proportion of cases when an explanation is provided (90%), whereas the remuneration committee is associated with the lowest number of cases when an explanation is present (69%).

Table 2.6 presents the industrywise classification of non-compliances and explanations. The percentage of companies fully compliant is highest for Utilities. It ranges from a maximum of 44% (Utilities) to a minimum of 23% (Construction).

2.4.2 Number of non-compliances

In Table 2.7 we present the average number of non-compliances per non-compliant company. The average number of non-compliances decreases monotonically from 2.05 in 1998 – 99 to 1.57 in 2003 – 04. FTSE100 firms have lower average number of non-compliances (1.65), as compared to non-FTSE100 firms (1.87). Cross-listed companies which do not comply with the Code have a lower average number of non compliances (1.66), as compared with non-crosslisted (1.86).

The average number of non compliances is significantly higher for family owned companies in both the periods (2.35 versus 1.59). The average number of non compliances in family owned companies increase in 2003 – 04 as compared to 1998 – 99 (2.26 versus 2.58), whereas it falls for non-family companies (1.87 versus 1.29). In particular, in the period 2003 – 04 the average number of non compliances of family owned companies is two times that of non-family companies (2.58 versus 1.29).

Table 2.6 presents the industrywise picture of non-compliances. The average number of non compliances per company is highest for capital goods (2.12), and lowest for basic industry (1.60).

2.5 Quality of Explanations

Flexibility is the crucial aspect of the “comply or explain” approach to corporate governance. Companies can either comply with the provisions of the code or, they can opt out by providing a suitable explanation. The explanation given when departing from best practice is therefore representative of the companies’ flexibility when choosing

their optimal governance structure. The Combined Code does not prescribe a format that companies have to follow when giving such an explanation, but simply says that the explanation has to be narrative and refer to the company's unique circumstances:⁶

We however find different degrees of "narration" and "specific circumstances" in the explanations given in the annual reports. In particular, some explanations are more informative and provide more detail than others. Consider the following examples of explanations:

- *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 (BBA 1998).*
- *In determining its overall policy in respect of service contracts, the Committee aims to balance the costs associated with any early termination provisions with the need to protect GlaxoSmithKline's intellectual property rights. The Committee maintains a close watch, through its advisors, on trends in contractual terms amongst other companies in the competitor panel and in the wider market place. It is committed to ensuring that, in achieving this balance, its processes are fair, while limiting as far as possible the scope for 'rewarding failure'. The Committee has considered the recent guidance produced by the Association of British Insurers and the National Association of Pension Funds in the UK. It will take this into account, alongside market practice, when reviewing contractual terms. Executive Directors are employed on service contracts under which the employing company is required to give 24 calendar months' notice of termination and the Executive Directors are required to give 12 calendar months' notice. Executive Directors' service contracts contain 'garden leave', non-competition, non-solicitation and confidentiality clauses.*

⁶ "In the first part of the statement, the company will be required to report on how it applies the principles in the Combined Code. We make clear in our report that we do not prescribe the form or content of this part of the statement, the intention being that companies should have a free hand to explain their governance policies in the light of the principles, including any special circumstances applying to them which have led to a particular approach. It must be for shareholders and others to evaluate this part of the company's statement. [...] In our report we make clear that companies should be ready to explain their governance policies, including any circumstances justifying departure from best practice; and that those concerned with the evaluation of governance should do so with common sense, and with due regard to companies' individual circumstances." (Points 4 and 6 of the Preamble to the Combined Code)

The Remuneration Committee currently believes that one year contracts would not be in the best interest of GlaxoSmithKline with regard to offering a globally competitive overall remuneration package and securing maximum protection for its intellectual property rights.

The Remuneration Committee believes that the current termination payments due under Executive Director's contracts are justified because they represent fair and reasonable compensation in the event that the contracts are terminated, given market practice and the associated restrictions arising from the need to protect intellectual property. (GlaxoSmithKline, 2002).

The contents of above mentioned explanations are narrative and contain verifiable and specific elements, unique to the company. BBA, for instance, justifies the non appointment of a senior figure in the board with the presence of new board members and the consequent difficulty to appoint a senior figure in such a newly constituted board.

On the contrary, consider the following explanations:

- *The Board has not identified a senior independent non-executive director, as specified by the Code, because it considers such an appointment to be unnecessary at present (Reuters 1999).*
- *The board believes that this arrangements (i.e. service contracts greater than 12 months) are in the best interests of the company (Rentokil Initial 1998).*
- *Although Mr Wilson has the combined role of Group Chairman and Chief Executive, the Board considers that the requirements of the Code are satisfied and that the combination of these roles does not work to the disadvantage of the Company or its shareholders (Wilson Bowden plc 2001).*
- *The company ensures that it recruits to the board only individuals of sufficient calibre, knowledge and experience to fulfil the duties of a director appropriately. The company does not have any non-executive directors on the board (A.2.1, A.3.1, A.3.2, A.6.1). The directors are mindful of the provisions of the Combined Code in this regard and regularly review the situation. The company's nomination committee is made up of the chairman and managing directors. There are no non-executive members on the committee (A.5.1).*

The company does not have a formal remuneration committee (B.1.1-3, B.1.9-10, B.2.1-6, C.2.3) but the emoluments of the directors are the subject of appraisal by the chairman and the managing directors taking into account individual performance and market conditions.

The company does not have an audit committee (C.2.3, D.3.1, D.3.2) but the board as a whole regularly monitors internal controls and also ensures that an objective and professional relationship is maintained with the auditors. (W.M. Morrison 2004).

The above explanations clearly fail to identify specific circumstances for departing from best practice. For instance, Reuters justifies the non appointment of a senior figure in the board as simply necessary at the present, without further details. Such explanation is far less informative and detailed than the one provided by BBA. At the extreme, the company W.M. Morrison does not give any explanation as to why there are no executive directors on the board.

We therefore classify the explanations of non-compliances by searching for the presence of *verifiable and specific* elements relating to the company's circumstances in their narrative statements. Such classification requires some subjectivity, which we try to limit by using an objective criteria of classification based on both verifiability and informativeness. We do not make any judgement as to whether the explanations provided are valid from a business perspective. So, in that respect, our identification can be termed optimistic. Our classification of explanations is simple to implement and easy to replicate, since it classifies explanations from the least to the most informative, after checking for their actual veracity. We use the following classification:

- *No explanation (Type 0)*: When 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 e.g. 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 for *"the mitigation of early termination"*, without giving any further details. Therefore, when a circumstance or words from the combined code provision is repeated in the company's corporate governance statement without any additional information we classify this as an Inline (Type 2) explanation.

- *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 e.g., 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 clarifying 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 and motivated in detail and also the information given is verifiable. We actually checked if the information reported was referring to the company's unique circumstances and if it was correct. For instance, the pharmaceutical company *GlaxoSmithKline* 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. We therefore classify such explanations as *Genuine* and accord it the highest quality in our scheme.

In what follows we analyse the quality of explanations given by various companies using different methods of classification.

Table 2.8 presents the yearwise distribution of the quality of explanations according to our classification. An average 17% of non-compliers (across all years) provide no explanations at all. When an explanation is given, the majority of times it is either *General (Type 1)* (26%) or *Inline (Type 2)* (25%). In fact, Type 1 and Type 2 explanations together account for more than 50% in most years. Of the remaining explanations, *Transitional (Type 4)* accounts for 16% followed by *Genuine (Type 5)* at 9% and *Limited (Type 3)* with 8%. These statistics highlight the tendency to give explanations with little information when departing from best practice. In fact, the average quality of explanation is constantly between 2 and 3, with a peak of 2.63 in 2003 – 04 (see Graph 1).

We also analyse (table not shown) the percentage distribution of the quality of explanations by industry. Petroleum companies give explanations with an average quality of 3.11, followed by Basic Industry with an average quality 2.98. The high average in both these industries, are in fact driven by a higher frequency of *Genuine (Type 5)* explanations. For Basic Industry Type 4 and Type 5 explanations comprise nearly 50% of the total. In contrast, Capital Goods have a higher proportion of Types 0, 1 and 2 explanations (nearly 90% of the total), thus reducing the average quality to 1.46.

Table 2.9 shows that explanations for non-compliance with the senior non executive director provision perform the best in the sample. Overall, they have one of the lowest percentage of no explanations (11%), and the highest percentage of Type 5 explanations (18%). The provisions relating to the Audit and Nomination Committee have the lowest percentage of Type 0 explanations (9%). There were no Type 5 explanations for the provisions pertaining to separation of the roles of CEO/Chairman and the recommended number of non executive directors in the board. Explanations related to the Remuneration Committee tend to be general (Type 1, 44%). When we group Type 1, Type 2 and Type 3 explanations, and Type 4 and 5 together, we observe that the majority of companies do not give detailed explanations, especially in case of non compliance with the Nomination Committee (76%). All these results have to be judged, in light of the fact that there are fewer companies which are not compliant with provisions relating to the audit, nomination and remuneration committee as compared

to the provisions relating to the senior non executive director or to the length of service contracts.

We believe that an important determinant of the quality of explanations is their diversity. For instance, in the case of the designation of a senior non executive director, companies offer a variety of circumstances to justify non-compliance: some companies point to the risk of division in the board, others to the existence of a strong non-executive presence on the board etc. In contrast, some companies justify the non-compliance with the Remuneration Committee provision as to be "*in the company's best interest*" or because "*the company's interests are aligned with the other shareholders*". Similar explanations are often given when the majority of non executive directors are not independent. For instance, some companies state that the arrangements in place are "*appropriate for the nature and culture of the company*", or the appointed non-executives have "*deep industry knowledge*". In our view, diversity of explanations are an important factor which make the "comply or explain" approach work (see Appendix 2.A.3 for a detailed discussion).

In summary, when analysing any one of the eight principles we find that out of one hundred company-year observations, roughly ninety comply. Out of the remaining ten cases, two do not provide any explanation and with the exception of the senior non executive director and audit committees, there are then six instances of unconvincing explanations. Pertinently, we identify approximately two cases of genuine explanations. Furthermore there is possibly a positive time trend with regard to the quality of explanations as the percentage of specific explanations improves after 2001, but on diminishing non-compliances.

Table 2.10 presents the quality of explanations for different categories and the patterns are similar to those observed for explanations. FTSE100 companies on average give higher quality explanations than non-FTSE100 companies. Cross-listed companies tend to give an average higher quality of explanation (2.50) than those not cross-listed (2.08). The average quality of explanation provided by a non-family company is higher (2.56) than that provided by a family owned company (2.18).

2.5.1 Transition Matrix

The Transition Matrix presented in Table 2.11 analyses further patterns in explanations. The matrix traces how an explanation evolves from one type to another (or

directly to compliance), from one period to the following one. In all rows (except Type 4) we observe that the diagonal elements have the highest percentage, which indicates the tendency to stick to the same explanation (or no explanation) year after year. Only in case of transitional explanations, a change to compliance dominates. Importantly, the second highest transition for all explanations (except Type 4) is to comply. This means that companies either stick to the same explanation or comply.

2.6 Hypotheses and Empirical Set-up

In this section, we investigate if indeed the Code has succeeded in addressing moral hazard issues either through compliance or through the explanations which companies provide. The main objective of the Code is to limit agency problems between shareholders and management and amongst shareholders. The Code being voluntary, and further since there is no regulator designated to monitor the compliance with the Code, we should expect to see differences in patterns of compliance and explanations, amongst different groups of companies. Specifically, based on the descriptive statistics, we identify three such groups of companies:

- Companies belonging to the FTSE100 index.
- Companies cross-listed on other exchanges.
- Family owned companies.

We discuss below each group in turn to develop our hypotheses.

2.6.1 FTSE100 membership

Companies belonging to the FTSE100 index are amongst the largest companies on the London Stock Exchange. They are usually the most high profile companies on the exchange and are closely tracked both in the financial media and by analysts. They attract a lot of attention since the performance of the FTSE100 index is widely regarded as a proxy for the general health of the market. Besides there is an emerging literature which suggests that media coverage has an effect on the firm policies, particularly on governance violations. Dyck, Volchkova and Zingales (2007) analyse the actions of an investment fund in Russia, the Hermitage Fund, that consciously used a

media strategy for companies in its investment portfolio which it felt were guilty of corporate malfeasance. The authors find that increased coverage in the press (especially the Anglo-American media) increases the probability that a governance violation is reversed. The reasons for such behaviour is the detrimental effect that media coverage (of violations) has on the managers' as well as on the regulators' reputations.

It is therefore straightforward to extend the above argument to companies belonging to the FTSE100 index. Given the higher level of monitoring we should expect lower moral hazard issues amongst FTSE100 companies. Since the Code is based on "comply or explain" a company can "explain" rather than comply with the provisions of the Code, we should therefore expect to find FTSE100 companies giving better quality explanations. However, the behaviour of companies as regards compliances is not clear-cut. This will depend on how the markets and the media perceive non-compliances. Anecdotal evidence suggests that a box-ticking mentality prevails, which is biased towards compliance with the Code.⁷ In such circumstances we would indeed expect to observe FTSE100 companies more likely to comply with the code. However, it can equally be argued that a company not complying with some provisions of the code but explaining the reasons for not doing so, is also following the code and market participants should recognise that. Overall thus the effect of FTSE100 membership on the probability of compliances is likely to be ambiguous.

2.6.2 Cross-listing

The next group that we investigate are companies cross-listed on other exchanges. Our earlier section shows that amongst companies that cross-list, most (around 90%) cross-list on US exchanges.

The ability of controlling shareholders or managers to take private benefits from their firms is an important aspect of corporate governance as it represents an important source of potential agency conflicts with shareholders. A number of papers have suggested that one useful way to "bond" managers not to take excessive private benefits is to cross-list the firm's stock on an exchange that imposes higher legal and regulatory costs than the firm's primary exchange. Coffee (2002) and Stulz (1999) were the

⁷The following quote from the Financial Times of 10th March, 2005 further illustrates the point "Also there is a widespread feeling in the British boardrooms that institutional investors are responding too mechanistically to the 'comply or explain' approach of the Combined Code, paying too little attention to the circumstances of individual businesses and disregarding good explanations of non-compliance."

first to propose the bonding hypothesis. Coffee's studies emphasise the legal "bonding" mechanisms to which the firm is exposed on cross-listing in the US. The firm can now be subject to enforcement by the SEC and also faces prospect of class action from investors. In the case of UK firms it can plausibly be argued that there is no additional benefit from "bonding" since they already operate in a sophisticated regulatory and legal regime, unlike firms from less developed markets. Even if there are no legal reasons to "bond" for UK firms, Coffee argues we have to consider the role of "reputational intermediaries" in the US markets, such as underwriters (in the case of capital-raising listings), auditors, debt-rating agencies, securities analysts as well as the exchange themselves (via listing requirements), in providing additional scrutiny or monitoring. Cross-listing is therefore likely to encourage companies to comply especially on those provisions which form part of the listing requirements in the other exchange. Managers of companies may also use cross-listing to signal that they are honest. We would expect such managers to be less subject to agency problems. Given their reputation for honesty, we should thus observe managers providing better quality explanations in case of non-compliances. Thus cross-listed companies should definitely do better in terms of explanations and probably in terms of explanations too as compared to companies not cross-listed.

2.6.3 Ownership

Finally, we investigate the impact of ownership structure on moral hazard. Ex-ante we would expect the agency problem in family-owned companies to be lower than in companies with dispersed owners, since interests between managers and owners are better aligned. Also communication between owners and managers are much likely to be better in family-owned companies than those with dispersed owners. However, the combined code provisions place a lot of emphasis on board composition and independence. In fact seven of the eight provisions pertains in some way to this feature of the code. The monitoring function in a family owned company is usually performed by the family, who are typically the largest shareholders which in turn leads to non-compliance with the provisions of the combined code (especially those pertaining to independence of directors and committees etc.). Similarly, as regards explanations since family-companies are monitored by the family and we would expect them to communicate directly with the family owners and not necessarily in the annual report. Therefore even though we

expect family firms to be better monitored this is more likely to be done privately by family rather than publicly in the market.

In case of family firms we would expect agency problems to arise between a dominant coalition of management and controlling (family) shareholders and non-controlling shareholders. Ali, Chen and Radhakrishnan (2007) analyse disclosures by family firms and find that for a sample of US firms between 1998 to 2002, family firms tend to disclose less information about their corporate governance practices than non-family firms. According to them "*Maintaining lack of transparency of corporate governance practices may facilitate getting family members on board without much interference from non-family shareholders.*" Besides, it is difficult to see how dispersed small shareholders can exert pressure to force the dominant coalition to either comply or explain. Given the above we hypothesize that family ownership will lead to lower compliances as well as lower quality explanations.

2.6.4 Empirical Setup

In order to test our hypotheses, we regress the compliance dummy and dummies for types of explanations against each of the following: FTSE100 dummy, Cross-listing dummy and Family Ownership dummy alongwith controls.

$$\text{Compliance dummy}_t = f_t(X_t, \text{Controls}_t) + \epsilon_t \quad (2.1)$$

$$\text{Type5 dummy}_t = f_t(X_t, \text{Controls}_t) + \epsilon_t \quad (2.2)$$

$$\text{Type0 dummy}_t = f_t(X_t, \text{Controls}_t) + \epsilon_t \quad (2.3)$$

where Compliance dummy (model 2.1) is a variable which takes the value 1 if a company is compliant with all eight provisions of the combined code in a particular year and 0 otherwise. Type 5 dummy (model 2.2) takes a value 1 if a company in any year gives at least one explanation of Type 5 for any of its non-compliance and 0 otherwise. Type0 dummy (model 2.3) assumes a value 1 if a company either does not give an explanation of gives a Type 1 explanation for at least one of its non-compliances and 0 otherwise.

X_t is an independent variable which can be one of the following depending on the hypothesis being tested.

- FTSE100 dummy which assumes a value of 1 if the company is part of the FTSE100 index during that year and 0 otherwise.
- Cross-listing dummies for US, Europe and others. The dummy US has a value 1 if the company is cross-listed on any exchange in the US and 0 otherwise. Similarly EU is assigned a value 1 if the company is cross-listed on any European exchange and 0 otherwise. Finally, Others has a value of 1 if the company during the year is listed any other exchange (not in the US or Europe) across the world.
- A Family dummy with a value 1 if a company at the 10% threshold is owned by a family or unlisted company and 0 otherwise.

We control for various firm characteristics which might affect a company's decision to comply with the code. In particular, we control for age, growth opportunities, profitability and leverage⁸. We use log of Age, log of market to book value of equity calculated at the end of the financial year, return on assets defined as earnings before interest and tax upon total assets and leverage defined as the long term debt upon total assets. Additionally, we also control for industry characteristics (based on the 12 industry groups in Campbell (1996)) and time by using industry and year dummies respectively.

We run a probit regression using the above models and calculate pooled robust standard errors by clustering at the firm level. The variable of interest in the regressions is X_t and its coefficient will indicate the incremental probability of complying/explaining of a company belonging to a particular group.

2.7 Results

Table 2.12 presents the results of the probit regression based on the model (3.8) with the FTSE100 dummy as the independent variable. Panel A shows the results of the regression without industry and time dummies. Panel B adds industry dummies to the model and Panel C shows results with both industry and time dummies. The results

⁸We do not control for size, since membership of FTSE100 index and the Cross-Listing dummies themselves proxy for size.

show that the FTSE100 dummy is both positive and significant (at the 10% level) in two of the three specifications, suggesting that companies belonging to the FTSE100 index are more likely to comply with the Code than non-FTSE100 companies. The results show that there is a 9% higher chance of FTSE100 companies complying as compared to non-FTSE100 companies. However, with the inclusion of both industry and year effects this incremental probability drops to 7% and the coefficient is no longer statistically significant.

Table 2.13a shows the results of a probit regression using model (2.2) once again with the FTSE100 dummy as the independent variable. The results shows that the coefficient of the FTSE100 dummy is positive and significant (at the 5% level) in all the three specifications. This indicates that FTSE100 companies have an approximately 7% (varying between 6.4% to 7.2% based on the specification) greater probability of providing a Type 5 explanation as compared to non-FTSE100 companies. This effect is robust and the coefficient is significant even in the full specification when we include all controls, industry and year dummies. Table 2.13b shows the results of model (2.3) for FTSE100 dummies. The coefficient of the FTSE100 dummy in all the panels is negative and significant (at the 5% level). Thus FTSE100 companies display a lower propensity of providing a Type 1 or no explanation for non-compliances. Once again this effect is robust across all specifications and the difference in probabilities is over 10%.

Table 2.14 shows the results of regression of model (3.8) with the cross-listing dummies as the independent variables. The dummy US is positive and significant (at the 10% level) in all three specifications, whereas the dummies EU and Others are positive but not significant at all. The results therefore show that as regards compliance, cross-listing in the US matters but not anywhere else. In fact, companies cross-listed in the US have a 11% greater chance of complying with the Code as compared to companies which are not cross-listed. These results thus provide clear support for the bonding hypothesis. Only companies cross-listed in the US "bond" as argued above either for legal reasons or because they face additional scrutiny. We do not observe any impact of listing on other exchanges (other than the US) since presumably those markets are not as developed as London.

Tables 2.15a and 2.15b testing the effect of cross-listing on explanations show a similar pattern. Companies cross-listed on US exchanges are more likely to provide a

Type 5 (highest quality) explanation and less likely to provide either a Type 1 or no explanation. Companies cross-listing in the US are around 10% (varying from 9.7% to 12.4% and significant at the 5% level) more likely to provide a Type 5 explanations. As a matter of fact, none of the companies cross-listed on EU and other exchanges provide any Type 5 explanation. Table 2.15*b* shows that the coefficient for US is negative and significant at the 5% level. This indicates that as compared to companies that are not cross-listed, companies cross-listed in the US have an approximately 14% lower probability (varying from -15.5% to -12%) of either providing no explanation or a Type 1 explanation. Once again coefficients of those cross-listed in the EU and Others are not significant.

Tables 2.16, 2.17*a* and 2.17*b* present the results of the above models using family dummies. Before discussing the results we must add a caveat here. Our data on ownership is not complete. We have data on ownership only for two periods i.e. the first and last. Ownership data for periods in between are missing which might affect the results. Table 16 provides weak support for our hypothesis. The family dummy in the regressions are negative and significant (at the 5% and 10% levels respectively) in two out of the three specifications. This indicates that family companies are less likely to comply with the code as compared to non-family companies. Table 2.17*a* shows that none of the family dummies in the regression with Type 5 variables are significant. This suggests that there is no difference in the probabilities of giving a Type 5 explanation between family owned companies and others. Finally, we find weak evidence to suggest that family owned companies are more likely to give a Type 1 or no explanation (Table 2.17*b*). The coefficient of the family dummy is positive but significant only in one specification.

To summarise, we find strong evidence that companies cross-listed in the US are more likely to comply. We find weak evidence (not robust across all specifications) that FTSE100 and non-Family owned companies are more likely to comply. As regards explanations, we find strong evidence that both FTSE100 companies and companies cross-listed in the US, when non-compliant, are more likely to provide better explanations and less likely to provide lower quality explanations. And finally there is some evidence that family owned companies give lower quality explanations.

2.8 Robustness and concluding remarks

In other regressions (not presented) we investigate the effects of various groups on Type 2 and Type 3 explanations. The results are qualitatively similar to those presented above. We have shown that as expected FTSE100 and Cross-listed companies face greater scrutiny. Family companies whereas do not seem to face much monitoring from outside shareholders.

Given the above, it would be interesting to check the amount of time companies in various groups take to move from non-compliance to compliance. Since these companies (FTSE100, Cross-listed etc.) do not face the same level of agency problems, they should be subject to lower pressure to comply as compared to their counterparts. By a similar argument, we would expect companies giving lower quality explanations to face the greatest pressure to comply as compared to those giving higher quality explanations.

To test the above we calculate the average time taken to compliance by companies in the various groups. Table 2.18 presents the results of this analysis. We observe that FTSE100 companies overall take an average of 2.58 years to comply as compared to 2.32 years for non-FTSE100 companies. Similarly, companies cross-listed in the US on average take a longer time 2.47 years to comply compared to 2.36 years for companies not cross-listed. Family companies at 2.95 years on average take lesser time to comply than non-family companies (3.04 years). The results thus confirm our ex-ante expectations, companies that can afford to remain non-compliant for longer (like the FTSE100, Cross-listed), take more time to comply. However we must point out that none of the differences between the groups are statistically significant.

As regards the speed of compliance given the quality of explanation we find that the overall time to compliance for our entire sample is 2.39 years and if we exclude transitional explanations (Type 4)⁹ companies giving no explanation (Type 0) comply the quickest with an average of 2.55 years as against the slowest 3.70 years taken by companies giving a Type 5 explanation. The differences in speed as compared to the Type 5 speed are statistically significant. This confirms the idea that good explanations can be a way to fend off shareholder pressure to comply.

Our preceding analysis shows that monitoring of companies varies based on the group to which they belong. Further, anecdotal evidence suggests that if at all there is any

⁹Companies giving transitional explanations by definition should comply the fastest. The results clearly show this.

shareholder pressure on corporate governance issues, this usually takes place after periods of bad performance. The case of W.M. Morrison can be used to illustrate this form of shareholder activism. W.M. Morrison has always been not compliant with most (i.e., six out of eight) provisions of the code and either no explanation was offered or a poor quality explanation was provided by the company. Shareholders apparently did not raise this issue as long as the performance of the company was good. In 2004, W.M. Morrison completed the takeover of Safeway, after which (in July), W.M. Morrison announced its first profit warning in its 106 year history. This was followed by three more warnings in quick succession, which led to shareholder pressure and the appointment of David Jones as its first non-executive director in March 2005. In its annual meeting in May 2005 the company revealed its inability to forecast the financial position for the coming year. Shareholder pressure further intensified which led to the appointment of three more independent non-executive directors in July 2005 and a fourth in September 2005. In the meantime the CEO of the company, Bob Stott resigned and Sir Ken Morrison stepped back from operational responsibilities. It is easy to check that although until July 2004, the stock price performance of Morrison was in line with the market. After that date, Morrison significantly under performed the FTSE100 index to the extent of nearly 40% upto July 2005.

We believe that Morrison's case illustrates some features common to many companies. In particular it makes the point that the intervention by shareholders in matters of corporate governance is usually not pre-emptive. This highlights, possibly a significant cost of the flexibility offered by the Code, in that it does not foster shareholders' incentives to take pre-emptive actions. Our analysis therefore suggests that the monitoring function is working for some kinds of companies but not under all circumstances.

2.9 Tables

TABLE 2.1. Yearwise Distribution

This table shows the total number of companies analysed across the different periods.

	1998 – 99	1999 – 00	2000 – 01	2001 – 02	2002 – 03	2003 – 04	All
Companies	162	200	222	232	240	231	1287
Of which							
FTSE100	42	58	64	75	70	68	377
Crosslisted in							
-USA	37	47	54	60	62	57	317
-Others	2	3	4	4	6	4	23

TABLE 2.2. Industrywise Distribution

The table classifies the total company year observations based on their industry group, as in Campbell (1996).

Industry	Company year observations
Petroleum	41
Consumer Durables	178
Basic Industry	200
Food & Tobacco	222
Construction	232
Capital Goods	240
Transportation	231
Utilities	118
Textiles and Trade	90
Services	176
Leisure	137
<i>Total Observations</i>	<i>1287</i>

TABLE 2.3. Ownership Structure

The table shows the ownership structure of companies in the first (1998-99) and last period (2003-04). Ownership is calculated at the 10% threshold. The ownership data for the period 1998-99 is imputed from the Faccio & Lang (2002), available on the Journal of Financial Economics website. Data for the period 2003-04 is from Thomson Ownership.

	1998 – 99	2003 – 04
Non-family Companies	80	174
Family Companies	57	32
State Companies	1	0
Miscellaneous	9	5
Total	147	211

TABLE 2.4. Yearwise Non-Compliances and Explanations

The table shows the yearwise compliance percentage of fully compliant companies (compliant with all eight provisions of the code). The compliance percentage is shown for various categories for each period.

Period	FTSE100		Cross-listed		Family Owned		All
	Yes	No	Yes	No	Yes	No	
1998 – 99	14.3%	8.3%	15.4%	8.1%	8.8%	10.0%	9.9%
1999 – 00	17.2%	19.7%	17.3%	20.7%			19.0%
2000 – 01	26.6%	24.1%	32.8%	23.2%			24.8%
2001 – 02	42.3%	29.9%	45.6%	31.0%			34.1%
2002 – 03	48.6%	57.1%	54.1%	39.0%			42.1%
2003 – 04	60.3%	54.6%	67.2%	53.5%	40.6%	60.9%	56.3%
Average	37.1%	30.7%	41.8%	30.5%	20.2%	43.9%	32.6%

TABLE 2.5. Provisionwise Non-Compliances and Explanations

The table shows the provisionwise distribution of non-compliances and explanations. % *Compl* indicates the percentage of companies compliant with the provision analysed across all the periods. % *Expln* is the percentage of non-compliances for which explanations are provided across all periods.

Industry	% Compl	% Expln
CEO/Chairman	89.9%	86.2%
SNED	76.5%	89.1%
Number of NEDs	95.5%	74.1%
Independent NEDs	92.1%	72.3%
Service Contracts	56.7%	85.5%
Remuneration. Committee	86.6%	69.4%
Audit Committee	91.7%	90.6%
Nomination Committee	88.2%	90.7%
All provisions	32.6%	83.0%

TABLE 2.6. Industrywise Non-Compliances and Explanations

The table shows the industrywise distribution of non-compliances and explanations. *% Compl* indicates the percentage of companies compliant with all eight provisions analysed. *Average NC* is the average number of provisions on which companies are not compliant. *Average Expln* is the average number of non-compliances for which explanations are provided. *Gap* is the difference between *Average NC* and *Average Expln*, and it indicates the average number of non-compliances for which no explanations are provided.

Industry	% Compl	Average NC
Petroleum	31.7%	1.93
Consumer Durables	26.4%	1.69
Basic Industry	30.4%	1.60
Food & Tobacco	40.0%	1.93
Construction	23.1%	1.62
Capital Goods	34.7%	2.12
Transportation	39.0%	1.62
Utilities	44.1%	1.88
Textiles and Trade	30.0%	1.79
Services	36.9%	1.97
Leisure	27.7%	2.01
Average	32.6%	1.81

TABLE 2.7. Number of Non-compliances

The table shows the average number of non-compliances (per non-compliant company) for various classifications for each period. The difference between average non-compliances of the two respective categories is shown in the difference column (Diff). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively based on a t-test.

Period	FTSE100			Cross-listed			Family Owned			All
	Yes	No	Diff.	Yes	No	Diff.	Yes	No	Diff.	
1998 – 99	1.78	2.15	-0.37	2.00	2.07	-0.07	2.27	1.87	0.41*	2.05
1999 – 00	1.79	2.05	-0.26	1.79	2.04	-0.25				1.98
2000 – 01	1.70	1.92	-0.22	1.66	1.92	-0.26				1.86
2001 – 02	1.65	1.75	-0.10	1.62	1.75	-0.13				1.72
2002 – 03	1.36	1.66	-0.30	1.38	1.65	-0.26				1.58
2003 – 04	1.48	1.61	-0.13	1.36	1.63	0.27	2.58	1.29	1.29***	1.57
All periods	1.65	1.87	-0.22***	1.66	1.86	-0.22**	2.35	1.59	0.76***	1.81

TABLE 2.8. Yearwise Quality of Explanations

The table shows the percentage of Type 0, 1, 2, 3, 4 and 5 explanations for each period. *Type 0* indicates absence of explanation; *Type 1* indicates a general explanation provided; *Type 2* is an explanation Inline with the Code; *Type 3* is a Limited explanation; *Type 4* indicates Transitional circumstances; *Type 5* is a genuine explanation. The quality of explanation provided as per the above classification is increasing from 0 to 5 (see Section 5 in the paper for a complete description). *Wt. Avg.* is the mean of the weighted average quality of explanation of each company during the year, calculated by weighting all the explanations given by a company with its respective type.

Period	Type 0	Type 1	Type 2	Type 3	Type 4	Type 5	Wt. Avg.
1998 – 99	19.3%	24.7%	21.3%	6.7%	20.7%	7.3%	2.18
1999 – 00	18.1%	26.9%	26.3%	8.4%	10.9%	9.4%	2.07
2000 – 01	16.8%	30.3%	24.5%	10.0%	9.0%	9.4%	2.04
2001 – 02	16.7%	27.0%	27.8%	7.2%	12.2%	9.1%	2.15
2002 – 03	16.4%	23.2%	25.9%	7.7%	19.6%	7.3%	2.23
2003 – 04	12.6%	20.8%	23.3%	5.7%	30.2%	7.6%	2.63
All periods	17.1%	26.0%	24.9%	7.8%	15.8%	8.5%	2.19

TABLE 2.9. Provisionwise Quality of Explanations

The table shows the percentage of Type 0, 1, 2, 3, 4 and 5 explanations of each provision. *Type 0* indicates absence of explanation; *Type 1* indicates a general explanation provided; *Type 2* is an explanation Inline with the Code; *Type 3* is a Limited explanation; *Type 4* indicates Transitional circumstances; *Type 5* is a genuine explanation. The quality of explanation provided as per the above classification is increasing from 0 to 5 (see Section 5 in the paper for a complete description). *Wt. Avg.* is the mean of the weighted average quality of explanation of each company during the year, calculated by weighting all the explanations given by a company with its respective type.

Provision	Type 0	Type 1	Type 2	Type 3	Type 4	Type 5
CEO/Chairman	13.9%	19.2%	11.5%	32.3%	22.3%	0.0%
SNED	10.9%	19.9%	0.0%	25.5%	25.8%	17.9%
Number of NEDs	25.9%	36.2%	15.5%	0.0%	22.4%	0.0%
Independent NEDs	27.7%	41.6%	11.9%	0.0%	11.9%	6.9%
Service Contracts	17.7%	22.2%	39.2%	3.4%	8.9%	8.7%
Remuneration Committee	30.6%	44.1%	4.7%	0.6%	14.7%	5.9%
Audit Committee	9.4%	20.8%	35.9%	0.9%	25.5%	7.6%
Nomination Committee	9.3%	15.9%	60.2%	0.0%	9.9%	3.9%
All Provisions	17.1%	26.0%	24.9%	7.8%	15.8%	8.5%

TABLE 2.10. Quality of Explanations

The table shows the average quality of explanations for various classification for each period. The weighted average quality of explanation for each company is first calculated by weighting each explanation given by its respective type, which is then used to calculate the mean for all companies in that group. The difference between average quality of the two respective categories is shown in the difference column (Diff). *, **, and *** indicate significance at the 10%, 5%, and 1% level respectively.

Period	FTSE100			Cross-listed			Family Owned		
	Yes	No	Diff	Yes	No	Diff	Yes	No	Diff.
1998 – 99	2.22	2.16	0.06	2.32	2.13	0.18	2.16	2.17	-0.01
1999 – 00	2.34	1.96	0.38***	2.47	1.93	0.56***			
2000 – 01	2.37	1.91	0.46**	2.53	1.88	0.66***			
2001 – 02	2.36	2.06	0.30	2.52	2.03	0.49**			
2002 – 03	2.42	2.17	0.25	2.49	2.15	0.34			
2003 – 04	3.01	2.49	0.53*	2.80	2.58	0.22	2.22	2.98	-0.76**
Average	2.42	2.10	0.32***	2.50	2.08	0.42***	2.18	2.56	-0.38**

TABLE 2.11. Transition Matrix

The table shows the evolution of the quality of explanations given by a company from one period to the next. *Type 0* indicates absence of explanation; *Type 1* indicates a general explanation provided; *Type 2* is an explanation inline with the Code; *Type 3* is a limited explanation; *Type 4* indicates transitional circumstances; *Type 5* is a genuine explanation. The figures are in percentages and have to be read row-wise, e.g. the figures in the column Type 0 indicate the total percentage of explanations (across all periods) that either remained Type 0 (52.23% of the cases) or moved to Type 1 (6.07%), Type 2 (4.86%), Type 3 (2.43%), Type 4 (8.50%), Type 5 (0.40%) or Compliance (25.51% of the cases) in the next period.

		TO						
		Type 0	Type 1	Type 2	Type 3	Type 4	Type 5	Compliance
FROM	Type 0	52.23	6.07	4.86	2.43	8.50	0.40	<i>25.51</i>
	Type 1	2.67	70.05	6.68	1.07	8.56	0.8	<i>10.16</i>
	Type 2	4.37	0.87	65.60	0.00	8.45	1.17	<i>19.53</i>
	Type 3	0.92	1.83	5.50	66.97	11.93	0.92	<i>11.93</i>
	Type 4	1.52	1.52	1.52	0.51	<i>10.66</i>	0.51	83.76
	Type 5	1.67	0.83	1.67	0.83	8.33	74.17	<i>12.50</i>
	Compliance	0.39	0.27	0.37	0.13	<i>0.49</i>	0.01	98.33

TABLE 2.12. FTSE100 Membership and Compliance

This table shows the results of a marginal effects probit regression. The dependent variable is Compliance dummy which takes a value of 1 if a company is compliant with all the eight provisions of the Combined Code and 0 otherwise. The independent variables are FTSE100 dummy which has a value of 1 if the company is member of the FTSE100 index and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log(market to book value of equity), Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Compliance dummy	Compliance dummy	Compliance dummy
FTSE100 dummy	0.0938* (0.0505)	0.0912* (0.0523)	0.0681 (0.0557)
Ln (Age)	-0.0468** (0.0187)	-0.0448** (0.0189)	-0.0456** (0.0198)
Ln (MTB)	-0.0580** (0.0237)	-0.0814*** (0.0261)	-0.0571** (0.0275)
ROA	0.0512 (0.2671)	0.2133 (0.2763)	0.2589 (0.2736)
Debt/Assets	0.1456 (0.1482)	0.1231 (0.1565)	0.0393 (0.1635)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	1087	1087	1077
Wald χ^2	17.86	23.72	119.45
Prob > χ^2	0.0031	0.0699	0.0000
Log Likelihood	-666.22	-659.61	-595.19
R ²	0.0278	0.0374	0.1245

TABLE 2.13a. FTSE100 Membership and Explanations

This table shows the results of a marginal effects probit regression. The dependent variable is a Type 5 dummy which takes a value of 1 if a company gives an explanation of Type 5 (highest quality) on any of its non-compliance in a particular year and 0 otherwise. The independent variables are FTSE100 dummy which has a value 1 if the company is a member of the FTSE100 index in that year and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log (market to book value of equity), Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Type 5 dummy	Type 5 dummy	Type 5 dummy
FTSE100 dummy	0.0722** (0.0381)	0.0635** (0.0350)	0.0709** (0.0364)
Ln(Age)	0.0270* (0.0148)	0.0187 (0.0129)	0.0175 (0.0126)
Ln(MTB)	-0.0032 (0.0131)	-0.0014 (0.0139)	-0.0061 (0.0143)
ROA	0.0172 (0.1548)	0.0186 (0.1214)	0.0260 (0.1233)
Debt/Assets	0.1711* (0.0947)	0.2251*** (0.0769)	0.2377*** (0.0774)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	1087	1087	1077
Wald χ^2	16.29	32.97	45.54
Prob > χ^2	0.0061	0.0047	0.0015
Log Likelihood	-326.49	-303.39	-295.58
R²	0.0416	0.1094	0.1298

TABLE 2.13b. FTSE100 Membership and Explanations

This table shows the results of a marginal effects probit regression. The dependent variable is a Type 0 Dummy which takes a value of 1 if a company either gives no explanation or an explanation of Type 1 (lowest quality) on any of its non-compliance in a particular year and 0 otherwise. The independent variables are FTSE100 dummy which has a value 1 if the company is a member of the FTSE100 index in that year and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log(market to book value of equity), Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Type 0 dummy	Type 0 dummy	Type 0 dummy
FTSE100 dummy	-0.1375*** (0.0486)	-0.1148** (0.0510)	-0.1013** (0.0534)
Ln(Age)	0.0298 (0.0199)	0.0364* (0.0210)	0.0364* (0.0216)
Ln(MTB)	0.0572** (0.0226)	0.0490** (0.0241)	0.0306 (0.0256)
ROA	-0.2398 (0.2660)	-0.2164 (0.2729)	-0.2273 (0.2656)
Debt/Assets	0.1064 (0.1623)	0.0837 (0.1663)	0.1361 (0.1728)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	1087	1087	1077
Wald χ^2	15.48	30.80	80.25
Prob > χ^2	0.0085	0.0093	0.0000
Log Likelihood	-677.94	-659.93	-622.35
R ²	0.0237	0.0496	0.0940

TABLE 2.14. Crosslisting and Compliances

This table shows the results of a marginal effects probit regression. The dependent variable is Compliance Dummy which takes a value of 1 if a company is compliant with all the eight provisions of the Combined Code and 0 otherwise. The independent variables are Cross-Listing dummies for US, Europe and Others which have a value of 1 if the company has a secondary listing in any other stock exchange in either the US, Europe or any other countries (for e.g. Australia, South Africa) respectively and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log(market to book value of equity), Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Compliance dummy	Compliance dummy	Compliance dummy
Cross-Listing dummies			
-US	0.1015* (0.0610)	0.1098* (0.0637)	0.1167* (0.0678)
-Europe	0.0381 (0.1536)	0.0290 (0.1578)	-0.0063 (0.1392)
-Others	0.0706 (0.1201)	0.0674 (0.1315)	0.0632 (0.1258)
Ln(Age)	-0.0462** (0.0190)	-0.0429** (0.0196)	-0.0440** (0.0204)
Ln(MTB)	-0.0593** (0.0241)	-0.0853*** (0.0261)	-0.0639** (0.0281)
ROA	0.1462 (0.2858)	0.3285 (0.2918)	0.3846 (0.2938)
Debt/Assets	0.1597 (0.1494)	0.1315 (0.1580)	0.0434 (0.1656)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	1087	1087	1077
R ²	0.0287	0.0391	0.1278

TABLE 2.15a. Crosslisting and Explanations

This table shows the results of a marginal effects probit regression. The dependent variable is a Type 5 dummy which takes a value of 1 if a company gives an explanation of Type 5 (highest quality) on any of its non-compliance in a particular year and 0 otherwise. The independent variables are Cross-Listing dummies for US, Europe and Others which have a value of 1 if the company has a secondary listing in any other stock exchange in either the US, Europe or any other countries (for e.g. Australia, South Africa) respectively and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log(market to book value of equity), Return on Assets defined as earnings before interest and taxes divided upon total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Type5 dummy	Type5 dummy	Type5 dummy
Cross-Listing dummy -US ¹⁰	0.1239*** (0.0557)	0.0965** (0.0483)	0.0979** (0.0486)
Ln(Age)	0.0246* (0.0150)	0.0192 (0.0128)	0.0181 (0.0126)
Ln(MTB)	-0.0110 (0.0140)	-0.0057 (0.0143)	-0.0093 (0.0148)
ROA	0.1355 (0.1580)	0.1216 (0.1258)	0.1251 (0.1282)
Debt/Assets	0.1563* (0.0930)	0.2266*** (0.0774)	0.2355*** (0.0779)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	1087	1087	1077
Wald χ^2	16.53	32.14	46.63
Prob > χ^2	0.0055	0.0062	0.0011
R ²	0.0595	0.1203	0.1385

TABLE 2.15b. Crosslisting and Explanations

This table shows the results of a marginal effects probit regression. The dependent variable is a Type 0 Dummy which takes a value of 1 if a company either gives no explanation or an explanation of Type 1 (lowest quality) on any of its non-compliance in a particular year and 0 otherwise. The independent variables are Cross-Listing dummies for US, Europe and Others which have a value of 1 if the company has a secondary listing in any other stock exchange in either the US, Europe or any other countries (for e.g. Australia, South Africa) respectively and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log(market to book). Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Type0 dummy	Type0 dummy	Type0 dummy
Cross-Listing dummy			
-US	-0.1558*** (0.519)	-0.1199** (0.0569)	-0.1251** (0.0581)
-Europe	0.0652 (0.1458)	0.1913 (0.1826)	0.2884 (0.1841)
-Others	-0.4632 (0.0925)	-0.0151 (0.0942)	-0.0107 (0.0942)
Ln(Age)	0.0324 (0.0203)	0.0400* (0.0214)	0.0413* (0.0220)
Ln(MTB)	0.0624*** (0.0227)	0.0556** (0.0244)	0.0389 (0.0261)
ROA	-0.4150 (0.2782)	-0.3555 (0.2887)	-0.3746 (0.2831)
Debt/Assets	0.1058 (0.1641)	0.0958 (0.1696)	0.1590 (0.1772)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	1087	1087	1077
R²	0.0253	0.0499	0.0979

TABLE 2.16. Ownership and Compliances

This table shows the results of a marginal effects probit regression. The dependent variable is Compliance dummy which takes a value of 1 if a company is compliant with all the eight provisions of the Combined Code and 0 otherwise. The independent variables are Family dummy which has a value of 1 if the company is owned at the 10% level by a family or unlisted company and 0 otherwise, Ln(Age) is log(age), Ln(MTB) is log(market to book value of equity), Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Compliance dummy	Compliance dummy	Compliance dummy
Family dummy	-0.1318** (0.0599)	-0.1295* (0.0639)	-0.0455 (0.0766)
Ln(Age)	-0.0270 (0.0231)	-0.0194 (0.0237)	-0.0156 (0.0276)
Ln(MTB)	-0.0663** (0.0320)	-0.0815** (0.0362)	-0.0639 (0.0366)
ROA	-0.0705 (0.3289)	0.0795 (0.3371)	0.4164 (0.3621)
Debt/Assets	0.2709 (0.1807)	0.1556 (0.1957)	-0.1782 (0.2236)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	342	342	339
Wald χ^2	16.24	23.71	98.78
Prob > χ^2	0.0062	0.0702	0.0000
Log Likelihood	-217.98	-214.12	-172.65
R²	0.0360	0.0531	0.2317

TABLE 2.17a. Ownership and Explanations

This table shows the results of a marginal effects probit regression. The dependent variable is a Type 5 dummy which takes a value of 1 if a company gives an explanation of Type 5 (highest quality) on any of its non-compliance in a particular year and 0 otherwise. The independent variables are Family dummy which has a value of 1 if the company is owned at the 10% level by a family or unlisted company and 0 otherwise, Ln(Age) is $\log(\text{age})$, Ln(MTB) is $\log(\text{market to book value of equity})$, Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. *Panel A* shows results without industry and year dummies. *Panel B* includes industry dummies based on the industry group of the company. *Panel C* includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Type5 dummy	Type5 dummy	Type5 dummy
Family dummy	0.0013 (0.0329)	-0.0001 (0.0309)	-0.0167 (0.0221)
Ln(Age)	0.0308** (0.0142)	0.0242** (0.0119)	0.0205** (0.0993)
Ln(MTB)	-0.0137 (0.0154)	-0.0124 (0.0151)	-0.0128 (0.0121)
ROA	0.2223 (0.1551)	0.2209 (0.1507)	0.2308 (0.1277)
Debt/Assets	0.1443* (0.0918)	0.2088** (0.0919)	0.2308 (0.0837)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	342	318	309
Wald χ^2	12.22	30.50	50.75
Prob > χ^2	0.0318	0.0065	0.0001
Log Likelihood	-87.55	-76.93	-68.40
R²	0.0482	0.1454	0.2334

TABLE 2.17b. Ownership and Explanations

This table shows the results of a marginal effects probit regression. The dependent variable is a Type 0 Dummy which takes a value of 1 if a company either gives no explanation or an explanation of Type 1 (lowest quality) on any of its non-compliance in a particular year and 0 otherwise. The independent variables are Family dummy which has a value of 1 if the company is owned at the 10% level by a family or unlisted company and 0 otherwise. Ln(Age) is $\log(\text{age})$, Ln(MTB) is $\log(\text{market to book value of equity})$, Return on Assets defined as earnings before interest and taxes divided by total assets and Debt/Assets defined as total debt divided by total assets. Panel A shows results without industry and year dummies. Panel B includes industry dummies based on the industry group of the company. Panel C includes both industry 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Type0 Dummy	Type0 Dummy	Type0 Dummy
Family dummy	0.0952* (0.0601)	0.0919 (0.0634)	0.0372 (0.0680)
Ln(Age)	0.0238 (0.0202)	0.0181 (0.0226)	0.0196 (0.0254)
Ln(MTB)	0.0635*** (0.0247)	0.0677** (0.0268)	0.0514* (0.0260)
ROA	0.0582 (0.3260)	0.0483 (0.3467)	-0.1272 (0.3133)
Debt/Assets	0.0613 (0.1793)	0.1410 (0.1874)	0.2722 (0.1971)
Industry dummies	No	Yes	Yes
Year dummies	No	No	Yes
Observations	342	332	315
Wald χ^2	12.74	23.46	76.95
Prob > χ^2	0.0259	0.0531	0.0000
Log Likelihood	-193.14	-185.45	-152.03
R²	0.0301	0.0536	0.1971

TABLE 2.18. Speed of Compliance

The table shows the average number of years and average number of stages for companies in various categories, giving a particular type of explanation to move to compliance. The difference between speed of the two respective categories is tested for statistical significance using a T-test. Similarly, the differences in the overall speed of compliance given the quality of explanation is tested for statistical significance with that of the Type 5 explanation and *, **, and *** indicate significance at the 10%, 5%, and 1% level respectively.

From Explanation	FTSE100		Cross-listed		Family Owned		All
	Yes	No	Yes	No	Yes	No	
Type 0	2.77	2.50	2.72	2.49	4.00	2.58	2.55***
Type 1	3.00	3.11	3.00	3.09	3.25	4.13	3.08**
Type 2	2.87	2.52	2.67	2.61	3.33	2.17	2.63***
Type 3	3.23	3.00	3.10	3.12	1.00	3.84	3.11*
Type 4	1.19	1.21	1.29	1.19	1.00	1.29	1.21
Type 5	3.10	4.30	3.25	4.00	0.00	4.43	3.70
All Types	2.58	2.32	2.47	2.36	2.95	3.04	2.39

Appendix 2.A Appendix to Chapter 2

2.A.1 Provisions of the Combined Code analysed

- **Chairman and CEO**

Principle

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. (Section 1, A.2.)

Code Provision

A decision to combine the posts of chairman and chief executive officer in one person should be publicly justified. (A.2.1)

- **Senior Non-executive Director (SNED)**

Code Provision

Whether the posts 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. The chairman, chief executive and senior independent director should be identified in the annual report. (A.2.1)

- **Board Composition and Non-Executive directors**

Principle

The board should include a balance of executive and non-executive directors (including independent non-executives) such that no individual or small group of individuals can dominate the board's decision taking. (A.3)

Code Provisions

- Non-executive directors should comprise not less than one third of the board (A.3.1)
- 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. Non-executive directors considered by the board to be independent should be identified in the annual report (A.3.2)

- **Service Contracts and Compensation**

Code Provisions

- There is a strong case for setting notice or contract periods at, or reducing them to, one year or less. Boards should set this as an objective; but they should recognise that it may not be possible to achieve it immediately. (B.1.7)

- If it is necessary to offer longer notice or contract periods to new directors recruited from outside, such periods should reduce after the initial period. (B.1.8)

- **Nomination Committee**

Principle

There should be a formal and transparent procedure for the appointment of new directors to the board.

Code Provision

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, and the chairman should be either the chairman of the board or a non executive director. The chairman and members of the nomination committee should be identified in the annual report (A.5.1)

- **Remuneration Committee**

Principle

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. (B.1)

Code Provisions

Remuneration committees should consist exclusively of non-executive directors who are independent of management and free from any business or other relationship, which could materially interfere with the exercise of their independent judgment. (B.2.2)

- **Audit Committee**

Principle

The board should establish formal and transparent arrangements for considering how they should apply the financial reporting and internal control principles and for maintaining an appropriate relationship with the company's auditors. (D.3)

Code Provision

The board should establish an audit committee of at least three directors, all non-executive, with written terms of reference which deal clearly with its authority and duties. The members of the committee, a majority of whom should be independent non executive directors, should be named in the report and accounts. (D.3.1)

2.A.2 Evolution of the UK Code over time

	Cadbury Report December 1992	Combined Code June 1998	Revised Combined Code July 2003		
In force for companies with year-end on or after	30/06/1993	31/12/1998	31/10/2004		
Principle	Comply or Explain	Comply or Explain	Comply or Explain		
Provision	Recommendation	Recommendation	No of Prov.	Recommendation	No of Prov.
Chairman/CEO	Separation	Separation	1	Separation	1
Role of the Chairman	Running the board	Running the board	1	Clear functions enumerated	1
Independence of the Chairman	Not specified	Not specified	0	Stringent criteria (8)	2
Role of senior non-executive dir (SNED)	Not present	Senior member other than the chairman to whom concerns can be conveyed	1	Available to shareholders if they concerns cannot be solved through normal channels	1
Non-Executive Directors (NEDs)	≥ 3	$\geq \frac{1}{3}$ of the board	1	$\geq \frac{1}{2}$ of the board	1
Independent NEDs	Not specified	Majority	1	Majority excluding the chairman	1+1 principle
Criteria of independence	Not specified	Not specified	0	Stringent criteria (7)	
Nomination Committee Criteria	Majority NEDs Not stated	Majority NEDs Not stated	1	Majority NEDs Stringent criteria	1 5
Audit Committee	≥ 3 NEDs	≥ 3 majority independent	2	≥ 3 independent NEDs	7
Remuneration Committee	≥ 3 NEDs	only INEDs	6	≥ 3 independent NEDs	4+1 principle
Service Contracts' duration	3 years	≤ 1 year	2	≤ 1 year	2

2.A.3 Detailed Provisionwise Analysis

In what follows, we will provide a detailed analysis of the compliances and the explanations related to each provision of the Code. In particular, we will discuss the trend in compliance, the quality and the most used explanations.

- *Chairman/CEO* (A.2.1)

The general *principle* indicates the division between who is in charge of running the board and who has executive powers as best practice. The specific *code provision* specifies the figures of who should run the board (the chairman) and who should run the company's business (the chief executive office, CEO), claiming that these two roles should not be combined. The provision however does not explicitly take into account the figure of the "executive chairman". There are some cases where the executive chairman is formally separated from the CEO, but with some executive powers of decision. This generates a unequal interpretation of the principle. In fact, in presence of an executive chairman separated from the CEO, some companies claim to be fully compliant, while some others state the non compliance in the matter and provide a justification.

The different interpretation of the provision appears in our data. We find 40 companies with an executive chairman that do not consider it a point of not compliance, and 6 companies recognizing the executive role of the chairman and providing an explanation. In both circumstances, a decreasing trend in the percentage of non compliance appears. Clearly, the magnitude of the non compliance differs: when the presence of an executive chairman is considered a matter of not compliance, the percentage of not-compliant companies is about 10% more than the case when only what it is stated in the corporate governance statement is considered (20%).

- *Senior Non-Executive Director* (A.2.1)

The Combined Code states that, irrespective of whether the roles of chairman and CEO are combined, board members should address any concerns about the combined role of Chairman/CEO or the Chairman's acts to a senior non-executive director (SNED). The provision aim at limiting the likelihood that the power is too heavily concentrated in the hands of an executive director and a chairman.

The creation of this "trinity" at the top of a company (Chairman, CEO, SNED) has attracted criticism of possible divisions on the board.

The absence of a SNED is one of the most occurrent non-compliance items, together with the service contracts' length. The overall trend shows a constant decreasing number of the non-compliances, from about 43% in the first period to below the 10% in the last period, when only one company refrains from providing any sort of explanation. We found a great variety in the explanations provided, which we carefully analysed. Of the all provisions analysed, the absence of a SNED has the highest number of Type 5 explanations (18%). Explanations falling in the Type 3 and Type 4 taxonomy are the most commonly used (25%).

We further check the inter-temporal consistency of the explanations. We find that all the companies initially stating that the SNED "is not necessary" or "the chairman is enough, hence it is not appropriate to nominate a SNED", end up in changing their prospective and complying. A similar trend is found in the explanations justifying the absence of a SNED because of the chairman's independency or the strong NEDs' presence and calibre. Furthermore, the only company not appointing a SNED because it feels it is not "appropriate for the nature and culture of the company", eventually complies.

Finally, we examine the likelihood of not appointing a SNED and combining the CEO/Chairman roles. Roughly 1 out of 4 companies with an executive chairman in every period does not opt for nominating a SNED. The same choice is made in a lower percentage by the companies with combined role CEO/Chairman. Both decisions are quite debatable in the light of the SNED function. Indeed, the SNED should limit potential pitfalls connected with the chairman's conduction in the board, even more when there is not a complete separation of executive powers and "*a clear division of responsibilities at the head of the company*".

- *Non-executives representation (A.3.1)*

The Combined Code does not assess neither the definition of a non-executive director or his role. Only recently, the revised Combined Code contains, for the first time, a formal description of a non- executive director's role and increases the non executive representation in the board from one third to one half.

In matter of non compliance, we find very few companies with a total number of non-executive directors comprising less than one third of the board since the beginning of our sample. The percentage of not compliances is constantly decreasing and well below the 10% across all the periods analysed. In the last period, only 1.7% of the companies do not comply. However, non compliant companies with this provision either do not provide any justification or give a general explanation.

- *Independent non-executive directors (A.3.2)*

This is perhaps one of the most indeterminate and vague provision of the Combined Code, because a definition of "independence" is not given. The assessment of independency is indeed left to the board's judgment, which may be biased towards "too wide" and general views of managerial freedom from any business interference. This lack has been recently filled by the Revised Combined Code, where there is a more comprehensive definition of independence.

In line with the general pattern, there is a monotonically increase in the compliance rate, up to 95% in the last period. In the earlier periods, we can observe few cases where the non executives' independence is not stated, a tendency that disappears in the years. Other more common explanations justify departure from best practice with the experience and independent view of the managers.

- *Service Contracts and Compensation (B.1.7, B.1.8)*

The innovative aspect introduced by the Combined Code is that all executive directors must have rolling service contracts with the company terminable on one year notice. This should limit the due compensation to be paid in case of early termination and incentive the CEO dismissal in case of poor performance of the company. The non compliance in respect with the service contracts' provision is the most common matter of violation of the Combined Code, although strongly decreasing across years. It falls from 66% in the first period to 20% in the last period, with an average 10% drop between two consecutive periods.

The Combined Code partially works with regard to the quality of the explanations. In the last period, there are no Type 1 explanations, and no companies declare that "*there are no plans to amend the service contracts*", "*the existing service contracts need to guarantee long-term projects*" or that "*non compliance is in the company's interest*". Very few companies still argue that the non-compliance

with the provision helps in retaining and attracting managers of sufficient calibre or expertise, or simply assert that it is "*a common market practice*". It is however surprising to observe a non-decrease in the lack of any justification. Further, it is quite controversial and only slightly decreasing over periods, the fact that some companies do not explicitly highlight the presence of contracts with notice of more than one year in the corporate governance statement as a matter of non compliance. The above companies might have misinterpreted the code provisions, since a justification regarding the executives with a pre-Combined Code service contract of more than 1 year should be present. More serious is the case of the companies neither making a non-compliance statement nor providing a justification.

Finally, we analyse the intertemporal consistency of the explanations. The companies asserting the necessity of having contracts with more than one year notice in order to "*retain or attract high calibre managers*", easily change their explanation. In particular, of the total 42 companies claiming the need of contracts with more than 1 year's notice periods, only 3 companies remain consistent with this explanation. On the contrary, 22 companies opt for compliance, 9 companies declare that the new hired executive directors will be compliant with the code provision and 8 companies modify the existing explanation; of these 8 companies, 5 eventually move towards compliance. A similar pattern appears also in the justifications related to the "*nature of the industry*" or to "*a common widespread market practice*", or when it is stated to be "*in the company's best interest*". Of the 6 companies asserting their unconditional willingness of not modifying the existing contracts, 6 end up in complying with no motivations underlying their change in intentions, while 3 opt for other kinds of explanation.

- *Remuneration Committee* (B.2.2)

Despite not very high the percentage of non compliances, the code provision related to the existence and composition of a remuneration committee is very interesting. This is the only case, among all analysed provisions, where the percentage of non-compliances is not decreasing across years, and always above the average 10%. To this percentage of non-compliant companies, we might add some "suspicious" cases of asserted independence. In fact, some companies state the independence of their non-executives despite an existing long tenure or the exis-

tence of business relations. The companies believe that the independence view of the non-executives is not affected by the above situations. However, these justifications may be quite controversial in the light of the effective independence.

The most common explanation provided is related to the firm's belief that the Chairman (when not considered independent) or the CEO "*should serve on the remuneration committee*", with no further clarifications though. The quality of the explanations, when any, is standard. Overall, Type 0 and Type 1 explanations are far commonly used by the largest majority of companies. It is surprising to observe the relative high number of companies providing no explanations in case of not compliance: only in the period 2002/03, the lack of explanations amounts to 31% of the companies.

We however observe an inconsistency in our data. We indeed check whether the total number of members constituting the remuneration committee is greater than the total number of declared independent non executive directors. Quite unexpectedly, we found some cases where the above inequality is holding. In order to rule out any possible inaccuracy, we analysed again the annual reports in question. Again quite surprising, we had the confirmation of the accuracy in our data, together with a sort of inconsistency in the contents of the annual reports. The companies at hand assess in the *Board of directors's* section the non independence of some of the non-executive directors, who are on the contrary considered independent when part of the remuneration committee. We report an example of the apparent existing inconsistency provided by British American Tobacco (2000):

Directors. The board of the Company currently has 7 non executive Directors. The majority of the non-executive Directors are independent as set out in the Code. In this context, two of the non-executive Directors are not considered to be independent *for all purposes* because of the shareholders they represent

The Remuneration Committee. The Committee comprises all the no-executive Directors. The Board continues to consider that all non-executive Directors on the Remuneration Committee are independent *for these purposes*"

Therefore, the level of independence of non-executives constituting the board of directors is differently judged when the same are members of the remuneration committee.

- *Audit Committee (D.3.1)*

The percentage of non compliant companies is below 13% each period and does not follow a specific pattern. Non compliance with this provision is related to 3 aspects: when there is not a majority of independent non-executive directors, or the committee is not exclusively made of non-executives directors, or the number of its members is inferior to 3. In the majority of the non compliant cases, the committee consists of a number of members less to 3. It is also interesting to observe that almost half of the compliant companies have an overall number in the audit committee not exceeding the 3 members, the minimum required by the Combined Code. Apart from the transitional explanations, the most frequent used explanations concern the size of the board and the assertion of the manager's experience. It is always surprising to observe some companies not providing any explanation (on average 10%).

- *Appointments to the Board (A.5.1)*

Differently from the remuneration and audit committees' provisions, independency of non executives is not required for the composition of the nomination committee. A majority of non-executive members should comprise the committee, which may not be constituted if the board is small. The Code Provision however does not define specific circumstances or examples under which a board is considered to be small. Of the total 54 non compliant companies, on average they have a smaller number of members in the board as compared with the entire sample, particularly in the non-executive component. In line with the general trend, we observe a strong decrease in the non compliances related to the existence and the composition of a nomination committee: this percentage goes from 21% to 4.3% in the last period.

References

- [1] Ali, A., Chen, T. and Radhakrishnan, S., 2007, Corporate disclosure by family firms, *Journal of Accounting & Economics*, 44, 238-286.
- [2] Becht, Marco, Patrick Bolton and Ailsa Röell, 2003, Corporate governance and control, *Handbook of the Economics of Finance 1A*, George Constantinides, Milton Harris, and René Stulz, eds. (Elsevier Science, London).
- [3] Bhagat, Sanjai and Bernard S. Black, 1999, The uncertain relationship between board composition and firm performance, *Business Lawyer* 54, 921-964.
- [4] Black, B.S., and J.C.Coffee Jr, 1994, Hairl Britannia?:Institutional investor behavior under limited regulation, *Michigan Law Review* 92, 1997-2087
- [5] Burkart, M., D.Gromb and F.Panunzi, 1997, Large shareholders, monitoring, and the value of the firm, *Quarterly Journal of Economics* 112, 693-728
- [6] Campbell, John Y., 1996, Understanding risk and return, *Journal of Political Economy* 104, 298-345
- [7] Claessens, S., 2003, "Corporate Governance and Development", *Global Corporate Governance Forum Working Paper*
- [8] Coffee, J.C., 2002, Racing towards the top? The impact of cross-listing and stock market competition on international corporate governance, *Working Paper No. 205*, Columbia Law School, New York.

-
- [9] Committee on Corporate Governance, 1998, Final Report [*Hampel Report*], (Gee Publishing, London).
- [10] Committee on the Financial Aspects of Corporate Governance (Cadbury Committee), 1992, Report with the Code of Best Practice [*Cadbury Report*], (Gee Publishing, London).
- [11] Conyon, M. and C.Mallin, 1997, A review of compliance with Cadbury, *Journal of General Management* 22, 24-37.
- [12] Conyon, M.J. and S.I.Peck, 1998a, Board control, remuneration committees and top management compensation, *Academy of Management Journal*, 41(2), 146-157.
- [13] Conyon, M.J. and S.I.Peck, 1998b, Recent developments in UK corporate governance, *Britain's Economic Performance*, T.Buxton, P.Chapman and P.Temple, eds. (Routledge, London, New York).
- [14] Coombes, P., and S.C. Wong, 2004, Why codes of governance work, *McKinsey Quarterly*, 2, 48-53
- [15] Co-ordinating Group on Audit and Accounting Issues [CGAA], 2003, *Final Report*, DTI, London.
- [16] Dahya, J., J.J.McConnell and N.G.Travlos, 2002, The Cadbury committee, corporate performance and top management turnover, *Journal of Finance* 57(1), 461-483.
- [17] Davies, P.L., 1997, Institutional Investors as Corporate Monitors in the UK, *Comparative Corporate Governance*, 74, 47-76
- [18] Dedman, E., 2000, An investigation into the determinants of UK board structure before and after Cadbury, *Corporate Governance* 8(2), 133-152.
- [19] Dedman, E., 2003, Executive turnover in UK firms: the impact of Cadbury, *Accounting and Business Research* 33, 33-50.
- [20] Deloitte, 2004, *Report on the impact of the directors remuneration report regulation*, Deloitte and Touche LLP, London.
- [21] Durnev A., and E.Han Kim, 2005, To steal or not to steal: Firm attributes, legal environment and valuation, *Journal of Finance* 60(3), 1461-1493.

-
- [22] Dyck, A., N. Volchkova and L. Zingales, 2007, The Corporate Governance Role of the Media: Evidence from Russia, *mimeo*, Graduate School of Business, University of Chicago.
- [23] Faccio, M., and H.P.Lang, 2002, The ultimate ownership of western European corporations, *Journal of Financial Economics* 65(3), 365-395
- [24] FRC, 2003, *The Combined Code on Corporate Governance July 2003*, Financial Reporting Council, London.
- [25] Gompers, P., J.Ishii and A.Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118(1), 107-155.
- [26] Grant Thornton, 2003, *FTSE 350 Corporate Governance Review*, Grant Thornton Risk Management Services, London.
- [27] Higgs, D., 2003, *Review of the Role and Effectiveness of Non-executive Directors*, DTI, London.
- [28] ICAEW, 1999, Internal Control-Guidance for Directors on the Combined Code [*Turnbull Report*], Institute of Chartered Accountants in England and Wales, London.
- [29] Jones, I. and Pollitt M., Understanding how issues in corporate governance develop: Cadbury report to Higgs review, *Corporate Governance*, 12(2), 162-171.
- [30] La Porta, R., F.Lopez-de-Silanes and A.Shleifer, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.
- [31] La Porta, R., F.Lopez-de-Silanes, A.Shleifer and R.W.Vishny, 2002, Investor protection and corporate governance, *Journal of Financial Economics* 58, 3-27.
- [32] Mayer C., 1997, Corporate governance, competition and performance, *Journal of Law and Society* 24(1), 152-176.
- [33] OECD, 2004, OECD Principles of Corporate Governance.
- [34] Parkinson, J., and G.Kelly, The combined code on corporate governance, *Corporate Governance*, *Political Quarterly* 70(1),101-107.
- [35] Stulz, R. M., 1999, Globalization, corporate finance and the cost of capital, *Journal of Applied Corporate Finance*, 12, 8-25.

[36] Smith, R., 2003, Audit Committees Combined Code Guidance [*Smith Report*], Financial Reporting Council, London.

[37] Study Group on Directors Remuneration, 1995, Directors' Remuneration: Report of a Study Group by Sir Richard Greenbury [*Greenbury Report*], Gee Publishing, London.

3

One Size does not fit all, after all: Evidence from Corporate Governance

3.1 Introduction

In this chapter, 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 and 2) how market participants can effectively discriminate between well governed and badly governed companies.

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. Commercial data agencies use a similar mechanical tick-box methodology to rate a company's quality of governance. However, recent empirical evidence¹ shows

¹The 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 forty-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.

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 some cases deviating from a principle is optimal.

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 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 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. We therefore investigate the governance behaviour in a flexible regulatory regime, where companies can make different governance choices reflecting their unique circumstances.

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. 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 about 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. Thus supporting 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 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 chapter is as follows. Section 3.2 discusses the relation to the existing literature. Section 3.3 discusses the motivation and underlying hypothesis, section 3.4 the hand-collected dataset and our measures of corporate governance. Sections 3.5 and 3.6 describe the methodology and results for operating performance. Section 3.7 relates governance to stock market returns and finally, section 3.8 concludes.

3.2 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 papers 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.

²According 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.

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

⁴Despite 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 (Berglöf and Claessens 2004).

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 *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 the earlier chapter 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 led 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.

3.3 Motivation and underlying hypothesis

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))⁵. 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.⁶ Even though in most of the cases ATPs are 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.⁷

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

⁵Chidambaram, Palia and Zheng (2006) take the argument further and examine if better corporate governance “causes” better firm performance. Based on their analysis they conclude that firms are in equilibrium and choose their governance endogenously.

⁶For 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.

⁷Larcker, 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.

governance.⁸ 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 to 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 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 Chapter 2, 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.⁹ 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

⁸In the initial 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.

⁹"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)

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.

3.4 Data description

3.4.1 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:¹⁰

- 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.

We then classify explanations using the method described in Chapter 2 of the thesis.

¹⁰We could not find information for all the companies for all years because specific annual reports were missing or the company was previously private.

3.4.2 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:

$$\text{Total Score} = (5 \times \text{No. of compliances}) + (\sum \text{Quality of explanation for non-compliances}) \quad (3.1)$$

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.

3.4.3 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 at the time of the study. Similarly, monthly stock market data is collected from Datastream until June 2005. Information about membership of the FTSE100 index is obtained directly from FTSE. The Fama-French

factors as described later were calculated using the entire universe of UK companies from Datastream.

3.4.4 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.¹¹ Tables 3.1 and 3.2 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 or 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 an 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).

Table 3.3 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.

¹¹A detailed analysis of trends of compliance and explanation 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.

Finally, Table 3.4 illustrates the pairwise correlation among the variables. The tables shows there is no significantly high correlation between *total score* and accounting variables.

3.5 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 it belongs to. Many papers in the literature use Tobin's Q as the measure of performance. Tobin's Q is not our preferred measure of performance since alongwith performance it also captures growth opportunities. Tobin's Q is thus a valuation measure rather than a pure operating performance measure. Nevertheless we check the robustness of our results with Tobin's Q by suitably controlling for growth opportunities.

To find how corporate governance is related to future operating performance, we run the following regression with time dummies,

$$Performance_{i,t+1} = \alpha + \beta \cdot CG_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \quad (3.2)$$

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);
- 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.

We use pooled OLS regressions with robust standard errors clustered at the firm level to assess statistical significance. An alternative, would have been to use panel data regression with firm fixed effects and time-varying coefficients. We did not use this alternative since our *total score* suffers from an invariant component over time as compliance is gradual, with few changes. In Chapter 2, we see that compliant companies remain compliant over time and that the adoption of the provisions *in toto* happens smoothly across time¹², 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. We therefore do the next best thing and control for industry fixed effects by using industry-adjusted measures of performance.

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.¹³ 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 3.6.2, 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 (3.2) we use the following control variables¹⁴:

- *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 capitaliza-

¹²On average, less than 10% of the companies in our sample become compliant every year.

¹³See Hermalin and Weisbach (2003) for a survey.

¹⁴For a detailed description and construction of the variables used in the analysis, refer to Appendix 2

tion, 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 (3.2), 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 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:

$$ROA_{i,t+1} = \alpha + \beta \cdot TYPE5_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \quad (3.3a)$$

$$ROA_{i,t+1} = \alpha + \beta_1 \cdot TYPE5_{i,t} + \beta_2 \cdot NC39_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \quad (3.3b)$$

$$ROA_{i,t+1} = \alpha + \beta \cdot TYPE0_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}. \quad (3.3c)$$

The controls for these regressions are the same as those used in equation (3.2), with White's heteroskedasticity-consistent standard errors clustered at the firm level.

We then look at the "comply" pillar of the governance regulation. We observe that fully compliant companies are not a homogeneous group: in the previous chapter 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.¹⁵ We therefore investigate from a performance perspective whether always-compliant companies differ from those adopting-

¹⁵There 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

compliance, and if the adoption of the Code provisions has a positive impact. To test these relations, we separately run the following two regressions:

$$ROA_{i,t+1} = \alpha + \beta_1 \cdot ADOPCOMP_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \quad (3.4a)$$

$$ROA_{i,t+1} = \alpha + \beta_1 \cdot AFTERCOMP_{i,t} + \beta_2 \cdot TYPE5_{i,t} + \beta_3 \cdot NC39_{i,t} + \delta \cdot Controls_{i,t} + \varepsilon_{i,t}, \quad (3.4b)$$

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;
- *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 otherwise¹⁶;
- *TYPE5* and *NC39* are dummy variables as defined before.

The reference group in each regression consists of:

- Equation 3.4(a) all the companies that did not change their status (either were always compliant or never compliant);
- Equation 3.4(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 (3.2), 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.

to the 'comply or explain' approach of the Combined Code, paying to little attention to the circumstances of individual businesses and disregarding good explanations of non-compliance."

¹⁶The 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.

3.6 Corporate governance and operating performance

3.6.1 Results

We discuss here the results found from the various models described in the preceding section. Table 3.5 shows the main result of our investigation for the whole sample relating to equation (3.2). 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 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 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 3.6.2), an alternative measure of operating performance (net profit margin), and it is particularly strong within the sample of non-compliant companies.

We now investigate the performance association of giving different types of explanations when non-complying with the Code. The results in Table 3.6 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 3.4).

Panel A of Table 3.7 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 3.6 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.

3.6.2 Robustness checks

3.6.2.1 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.

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:

$$ROA_{i,(t+1)} = a + b * CG_{i,t} + c * ROA_{i,t} + Controls_{i,t} + e_{i,t} \quad (3.5a)$$

$$CG_{i,(t+1)} = \theta + \beta * CG_{i,t} + \delta * ROA_{i,t} + Controls_{i,t} + \mu_{i,t} \quad (3.5b)$$

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. Table 3.8a shows that indeed it is not past performance that generate today's corporate governance. The results suggest that changes in total score happen before changes in corporate performance. This does not completely rule out the possibility that governance changes occurs in response to an expectation of future bad performance. However, without an instrument we cannot completely address this critique.

3.6.2.2 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.¹⁷ As we do not have proper instruments, we conjecture the more plausible variables that might predict selection. In Chapter 2 we saw that membership to the FTSE100 index is slightly as-

¹⁷See Wooldridge, *Econometric Analysis of Cross Section and Panel Data* for a detailed description.

sociated 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 3.8b 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.

3.6.2.3 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 along with 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 (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 2.6457¹⁸. 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 3.8c. 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.

¹⁸Refer to Fama-French(2002) footnote 1 for details of correction.

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.

3.6.2.4 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 that 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 takes the value of 1 if a company has a *total score rescaled* less or equal than 15.

Table 3.8d shows the results of regressions (3.2), (3a), and (3b) when using the rescaled variables defined above. The analysis confirms the results shown in Tables 3.5 and 3.6. *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).

3.6.2.5 Corporate governance and Tobin's Q

As discussed above a lot of the papers in the literature relate corporate governance to Tobin's Q. Tobin's Q is a valuation measure which incorporates the future growth opportunities facing the firm. Similar to ROA, we estimate the following model with Tobin's Q, time dummies and robust standard errors clustered at the firm level.

$$\text{Industry Adjusted } Q_{i,t+1} = \alpha + \beta \cdot CG_{i,t} + \delta \cdot \text{Controls}_{i,t} + \varepsilon_{i,t}, \quad (3.6)$$

where $CG_{i,t}$ is a vector of governance variables described above. The sign and the significance of the coefficient β will highlight the existence, if any, of an association between governance and performance. We follow Kaplan and Zingales (1997) method for the computation of Tobin's Q and also compute the median Q in each year in each of the 48 Fama-French industry classification. Industry adjusted Q is then defined as the firm Q minus industry-median Q.

However, as pointed we need to control for growth opportunities in the above model. Therefore, in addition to the standard controls for size proxied by *log of Assets* and *log of Age*, we use *R&D Expenditure to Sales* ratio, *Capex to Assets* ratio and average *long term growth* estimates of the company's earnings by analysts available in IBES dataset as controls for growth opportunities. These are typically the most commonly used measures for growth opportunities in the literature. Both R&D expenditure and Capital expenditure are likely to be higher for growing companies whereas the long term growth is a direct estimate of the company's growth in the coming years. The problem we face is that since data for both R&D expenditure and long term growth rate not being available for a lot of companies the sample size for the analysis is considerably reduced.

The results of the analysis are shown in Table 3.8e. The results are very similar to those with operating performance (ROA). The coefficient of the dummy measuring overall compliance is negative and not significant. The coefficient of total number of non-compliances is negative but not significant. However, the total score coefficient is positive as well as statistically significant (at the 10% level). These results once again confirm our earlier analysis i.e. a measure of governance based solely on compliances is not associated with Q whereas one based on both compliance and explanation is associated with Tobin's Q.

3.6.2.6 Corporate governance and agency costs

One of the potential explanations given for better performance by well-governed firms is lower agency costs. A possible way of inferring agency costs is to analyse 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 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 robust standard errors clustered at the firm level.

$$\text{Industry Adjusted CAPEX/Sales}_{i,t} = \alpha + \beta_1 * CG_{i,t} + \beta_2 * \log(MTB)_{i,t} + \beta_3 * PPE/Sales_{i,t} + \epsilon_{i,t} \quad (3.7)$$

where CG is measured using *Total Score*. We further run the above model by using dummies *TYPE5* and *TYPE0* (both defined in Section 3.5) instead of *total score*.

Our results of the above estimation are shown in Table 3.8f. 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.

3.7 Corporate governance and stock market returns

In this section we perform an analysis to test if the market participants pay attention to the information being provided in the corporate governance statements. We must point out that the nature of the analysis in this section is different from that in the

previous sections. Whereas so far we investigated the impact of corporate governance on operational performance, the focus of this section is stock returns which is related to information being captured in stock prices and has implications for market efficiency. We test whether the compliance information and explanations given by companies in their annual reports (public information) is reflected in stock prices. These tests should reveal whether such information is used by the market in monitoring the companies.

We 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.

3.7.1 Methodology

The event study methodology is a common technique used for 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 estimate the following four-factor model of Carhart(1997).

$$R_t = \alpha + \beta_1 * RMRF_t + \beta_2 * SMB_t + \beta_3 * HML_t + \beta_4 * MOM_t + \varepsilon_t \quad (3.8)$$

where $RMRF_t$, SMB_t (small minus big), HML_t (high minus low) and MOM_t (momentum) 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, book-to-market ratio and momentum then the specific governance parameter is not incorporated in the stock prices.

3.7.2 Fama-French Factors

Unlike the US the Fama-French factors, SMB_t (small minus big), HML_t (high minus low) and MOM_t (momentum) are not readily available for the UK. To estimate the model we calculated the Fama-French factors based on all listed UK companies for which data was available on Datastream. Briefly, the procedure we follow is given below.

The Fama/French factors are constructed using the six value-weight portfolios formed from the intersection of size (market capitalisation) and book-to-market ratio. The portfolios, which are constructed at the end of each June, are the intersections of 2 portfolios formed on size (market capitalisation) and 3 portfolios formed on the ratio of book equity to market equity. The size breakpoint for year t is the median market equity at the end of June of year t . The book-to-market breakpoints are the 30th and 70th percentiles calculated based on book values at the end of the last fiscal year divided by market values at the end of December $t-1$.

SMB (Small Minus Big) is then the average return on the three small portfolios minus the average return on the three big portfolios.

$$SMB = 1/3(SmallValue+SmallNeutral+SmallGrowth) - 1/3(BigValue+BigNeutral+BigGrowth)$$

HML (High Minus Low) is the average return on the two value portfolios minus the average return on the two growth portfolios,

$$HML = 1/2(SmallValue + BigValue) - 1/2(SmallGrowth + BigGrowth)$$

RMRF, the excess return on the market, is the return from the FTSE All Share index minus the one-month Treasury bill rate.

To construct the MOM (momentum) factor we use six value-weight portfolios formed on size and prior (2-12) returns. The portfolios, which are formed monthly, are the intersections of two portfolios formed on size (market capitalisation) and 3 portfolios formed on prior (2-12) return. The monthly size breakpoint is the median market equity. The monthly prior (2-12) return breakpoints are the 30th and 70th percentiles.

MOM is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios,

$$MOM = 1/2(SmallHigh + BigHigh) - 1/2(SmallLow + BigLow)$$

Further details of the construction of these factors are available in Fama and French (1993) and Carhart(1997).

3.7.3 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 (3.8). 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 (3.8) 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 3.9a. It is clear from the table that the abnormal return (α) of the portfolio formed on the basis of overall compliance as well as the *total score* are both not statistically significant. This means that the investment on the basis on only compliance does not generate abnormal returns and that the market has already incorporated these effects into prices.

Since it is our contention the market's monitoring is not based on explanations, but rather on compliances we should observe differences in stock market returns among various types of explanations. We therefore test if *TYPE5* explanations matter more by forming three sets of portfolios. In the first, we go long in non-compliant companies and having a *total score* of 40 (*TYPE5*), 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 *TYPE5* companies and going short in fully compliant companies. The third set consists of going long in the *TYPE5* companies and short in those companies which do not give any explanation at all on at least one provision. As above we use returns from these strategies to estimate the model in equation (3.8). The results are shown in Table 3.9b.

The *alphas* from all three regressions are positive and significant in all the three cases. The results indicate that *TYPE5* out-perform all others. They perform as expected better than companies giving no explanations and in those cases generating an abnormal return of 1.33% per month significant at the 10% level. Next they also out-perform fully compliant companies producing higher monthly returns to the extent of 1.33% significant at the 5% level. Finally the *TYPE5* companies generate 1.10% higher returns per month as compared all other companies in the sample, significant at the 10% level. This provides further support to our contention, that the market's monitoring is not based on explanations but rather on compliance with the code.

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 (3.8) again. As can be confirmed from Table 3.10 we find results which are similar to those found with value-weighted portfolios. This shows that the tests are robust to alternative specifications.

To summarise, we find evidence that there is no difference in performance between Compliant and Non-Complaint portfolios and also between High Score and Low Score portfolios. However, we find significant differences in performance between *TYPE5* companies and other. We confirm that *TYPE5* companies out-perform all others. This suggests that the market's monitoring is based on compliance with the code rather than explanations.

Finally, as already discussed above we must inject a note of caution here. Results using stock returns have market efficiency implications.¹⁹ 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.”*

3.8 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 homogeneous. 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.

¹⁹Our 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.

Finally this chapter 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.

3.9 Tables

TABLE 3.1. Descriptive Statistics: Corporate Governance Index

This table 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 if 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, constructed according to 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

TABLE 3.2. Descriptive Statistics: Distribution of Total Score

This table 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

TABLE 3.3. Descriptive Statistics: Accounting and other variables

This table shows accounting and financial characteristics, membership to the 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

TABLE 3.4. Descriptive Statistics: Correlation between Variables

This table 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 3.5. 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>		
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* (0.00081)	0.0015** (0.00074)	0.0021*** (0.00081)
Ln (Total assets)	-0.0065* (0.0040)	-0.0071* (0.0042)	-0.0079* (0.0041)	-0.043 (0.0042)	-0.0053 (0.0049)
Ln (Age)	-0.0049 (0.0044)	-0.0046 (0.0043)	-0.0047 (0.0042)	-0.0052 (0.0042)	-0.0026 (0.0045)
Ln (MTB)	0.036*** (0.0064)	0.036*** (0.0064)	0.036*** (0.0064)	0.037*** (0.0063)	0.040*** (0.0077)
EBIT/Sales	0.057*** (0.010)	0.057*** (0.010)	0.057*** (0.010)	0.060*** (0.013)	0.054*** (0.011)
Debt/Assets				-0.15*** (0.037)	-0.14*** (0.037)
Growth of sales				-0.0000041 (0.000049)	-0.00019 (0.000050)
PPE/sales				0.0028 (0.0020)	0.0053* (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 and PPE is property, plant and equipment.

TABLE 3.6. Corporate Governance and Operating Performance

This table 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
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** (0.013)	0.025* (0.014)	
NC39		-0.0014 (0.0079)	
TYPE0			-0.013* (0.0078)
Controls*	Yes	Yes	Yes
Sample	All	All	All
Year effects	Yes	Yes	Yes
Observations	1063	1063	1063
R²	0.31	0.31	0.21

*Controls used are $\ln(\text{Total Assets})$, $\ln(\text{Age})$, $\ln(\text{MTB})$, EBIT/Sales , $\text{Debt}/\text{Assets}$, Growth of Sales and PPE/Sales .

TABLE 3.7. Corporate Governance and Operating Performance

This table 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.

	<i>Panel A</i>	<i>Panel B</i>
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*	Yes	Yes
Year effects	Yes	Yes
Observations	1124	1124
R²	0.16	0.16

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

TABLE 3.8a. 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** (0.00055)	0.76*** (0.034)
ROA _{t}	0.67*** (0.079)	-2.33 (1.65)
Controls *	Yes	Yes
Sample	All	All
FF industry effects	Yes	Yes
Year effects	Yes	Yes
Observations	1069	842
R ²	0.51	0.73

*Controls used are ln(Total Assets), ln(Age), ln(MTB), Debt/Assets, Growth of Sales and PPE/Sales.

TABLE 3.8b. 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	ROA _{t+1}	ROA _{t+1}
Total Score	0.0014* (0.0016)	0.0014** (0.00074)
Ln (Total assets)	-0.0078* (0.0041)	-0.0044 (0.0042)
Ln (Age)	-0.0046 (0.0042)	-0.0051 (0.0042)
Ln (MTB)	0.035*** (0.061)	0.036*** (0.0061)
EBIT/Sales	0.057 (0.010)	0.059*** (0.013)
Controls*	No	Yes
Year effects	Yes	Yes
Selection equation		
FTSE100 dummy	0.21 (0.26)	0.23 (0.26)
Ln (Total assets)	-0.15* (0.086)	-0.14* (0.08)
ROA	-5.90*** (0.73)	-5.61*** (0.78)
Sample	All	All
Observations	1079	1078
Log pseudolikelihood	1111.85	1143.56
ρ	0.72 (0.076)	0.71 (0.077)

*Controls used are EBIT/Sales, Debt/Assets, Growth of Sales and PPE/Sales.

TABLE 3.8c. 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 (0.0012)	129	0.0018* (0.0011)	118
1999-00	0.00030 (0.00085)	163	0.00056 (0.0018)	136
2000-01	0.0019* (0.0011)	183	0.0023** (0.0010)	139
2001-02	0.0024** (0.0010)	192	0.0033 (0.0013)	128
2002-03	0.00031 (0.0014)	204	0.00015 (0.0021)	115
2003-04	0.00094 (0.0021)	196	0.0051 (0.0032)	84
Fama-MacBeth	0.0011* (0.00019)	1067	0.0025** (0.0036)	720
Raw T-statistic	5.86		6.83	
Adjusted T-statistic	2.21*		2.58**	
Sample	All		NC only	

TABLE 3.8d. 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>	<i>Panel D</i>
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* (0.0031)	0.0075** (0.0034)		
NC16			0.020* (0.011)	0.016 (0.011)
NC15				0.0075 (0.062)
Ln (Total assets)	-0.0042 (0.0042)	-0.005 (0.0048)	-0.0039 (0.0039)	-0.0041 (0.038)
Ln (Age)	-0.0053 (0.0042)	-0.0027 (0.0045)	-0.0057 (0.0043)	-0.0060 (0.043)
Ln (MTB)	0.037*** (0.013)	0.040*** (0.077)	0.036*** (0.063)	0.036*** (0.063)
EBIT/Sales	0.060*** (0.034)	0.055*** (0.011)	0.060*** (0.013)	0.061*** (0.013)
Debt/Assets	-0.15*** (0.037)	-0.14*** (0.037)	-0.15*** (0.037)	-0.15*** (0.037)
Growth of Sales	-0.000004 (0.00005)	-0.00020 (0.000051)	-0.000006 (0.00005)	-0.000006 (0.00005)
PPE/Sales	0.0028 (0.0020)	0.0053 (0.0032)	0.0032 (0.0020)	0.0033 (0.0020)
Sample	All	NC only	All	All
Year effects	Yes	Yes	Yes	Yes
Observations	1063	717	1063	1063
R²	0.31	0.34	0.31	0.31

TABLE 3.8e. Corporate Governance and Tobin's Q

Ordinary least squares regression of industry-adjusted Tobin's Q (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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Ind. Adj. Tobin's Q	Ind. Adj. Tobin's Q	Ind. Adj. Tobin's Q
<i>C/NC</i>	-0.0349 (0.3041)		
Number of non-compliances		-0.1475 (0.1627)	
Total Score			0.0845* (0.0469)
Ln (Total assets)	-0.2779* (0.1549)	-0.2966* (0.1562)	-0.3349** (0.1652)
Ln (Age)	0.0001 (0.0870)	0.0127 (0.0872)	0.0090 (0.0845)
R&D Exp/Sales	0.1588 (0.1157)	0.1742 (0.1294)	0.1720 (0.1276)
Long Term Growth	2.8486 (3.8515)	2.4656 (3.5874)	2.3465 (3.6171)
Capex/Assets	0.1314 (0.0864)	0.1334 (0.0881)	0.1345 (0.0877)
Sample	All	All	All
Year effects	Yes	Yes	Yes
Observations	284	273	273
R ²	0.20	0.21	0.22

TABLE 3.8f. 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, $\ln(\text{market to book ratio})$, 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 *TYPE0*, 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.

	<i>Panel A</i>	<i>Panel B</i>	<i>Panel C</i>
Dependent variable	Ind. Adj. Capex/Sales _{t+1}	Ind. Adj. Capex/Sales _{t+1}	Ind. Adj. Capex/Sales _{t+1}
Reference Group		Non- <i>TYPE5</i>	Non- <i>TYPE0</i>
Total Score	-0.2453* (0.1482)		
TYPE5		-6.8956** (2.8890)	
TYPE0			2.4823 (1.6475)
Ln (MTB)	0.4181 (1.1022)	0.4514 (1.1056)	0.4616 (1.1035)
PPE/Sales	7.2967* (3.9211)	7.2227* (3.9055)	7.2856* (3.9181)
Sample	All	All	All
Year effects	Yes	Yes	Yes
Observations	1186	1186	1186
R²	0.18	0.18	0.18

TABLE 3.9a. Corporate Governance and Stock Market Performance

We estimate the Fama-French three factor regressions (see equation 3.8 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, HML and MOM. These variables are zero-investment portfolios designed to capture market, size, book-to-market and momentum 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	MOM
Overall compliance v/s	-0.0030	-0.1152	-0.0927	-0.5587***	-0.0629
Non-compliance	(0.0042)	(0.0943)	(0.1033)	(0.0988)	(0.0627)
High score (> 37) v/s	0.0087	0.0113	0.3622**	-0.3815***	-0.1243
Low score (≤ 37)	(0.0059)	(0.1329)	(0.1456)	(0.1393)	(0.0885)

TABLE 3.9b. Corporate Governance and Stock Market Performance

We estimate the Fama-French three factor regressions (see equation 3.8 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, HML and MOM. These variables are zero-investment portfolios designed to capture market, size, book-to-market effects and momentum 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	MOM
TYPE5 v/s	0.0110*	0.3745*	0.0285	-0.4048***	-0.1171
All others	(0.0058)	(0.1295)	(0.1419)	(0.1357)	(0.0862)
TYPE5 v/s	0.0134*	0.3872**	0.0857	0.0552	0.1638*
Fully compliant	(0.0059)	(0.1332)	(0.1459)	(0.1396)	(0.0886)
TYPE5 v/s	0.0133*	0.4071**	0.2783	-0.7151***	-0.1026
TYPE0	(0.0072)	(0.1629)	(0.1784)	(0.1707)	(0.1084)

TABLE 3.10. 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 3.8 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	MOM
Overall compliance v/s Non-compliance	-0.0018 (0.0033)	-0.1449* (0.0747)	-0.0339 (0.0814)	-0.1161 (0.0783)	-0.0618 (0.0495)
High score (> 37) v/s Low score (\leq 37)	0.0020 (0.0019)	-0.0768* (0.0433)	0.1136** (0.0472)	-0.1336*** (0.0454)	-0.0421 (0.0287)
TYPE5 v/s All others	0.0132*** (0.0043)	0.1673* (0.0963)	0.1789* (0.1050)	-0.3626*** (0.1010)	0.0375 (0.0639)
TYPE5 v/s Fully compliant	0.0140** (0.0054)	0.2804** (0.1227)	0.2071 (0.1337)	-0.2493* (0.1286)	0.0965 (0.8130)
TYPE5 v/s TYPE0	0.0141** (0.0054)	0.1690 (0.1213)	0.2637** (0.1322)	-0.4209*** (0.1271)	-0.0106*** (0.0804)

Appendix 3.A Appendix to Chapter 3

3.A.1 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
Tobin's Q	(Total Assets + Market Value of Equity - Book Value of Equity)/Total Assets	Worldscope	As shown in definition
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	CAPETA
Capex/Assets	Capital Expenditure/Total Assets	Worldscope	CAPETA
R&D/Sales	R&D Expenditure/Sales	Worldscope	RDSALE
Long Term Growth	Long term growth estimate of earnings	IBES	LTG
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

References

- [1] Agarwal, A. and C. R. Knoeber, 1996, Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders, *Journal of Financial and Quantitative Analysis*, 31(3), 377-397.
- [2] Barber B. M., J. D. Lyon, 1996, Detecting long-run abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics*, 41, 359-399
- [3] Bebchuk, L. A, and L. Stole, 1993, Do Short-Term Managerial Objectives Lead to Under- or Over-Investment in Long-Term Projects? *Journal of Finance*, 48, 719-729.
- [4] Bebchuk, L.A., A. Cohen, and A. Ferrell, 2004, What Matters in Corporate Governance?, Harvard Law School John M. Olin Center Discussion Paper No. 491
- [5] Becht, M., P. Bolton and A. Röell, 2003, Corporate governance and control, *Handbook of the Economics of Finance* 1A, George Constantinides, Milton Harris, and René Stulz, eds. (Elsevier Science, London).
- [6] Berglof, E., and E. L. von Thadden, 2000, The Changing Corporate Governance Paradigm: Implications for Transition and Developing Countries, ABCDE Proceedings, The World Bank.
- [7] Berglof, E., and S. Claessens, 2004, Enforcement and Corporate Governance, *Policy Research Working Paper Series* 3409, The World Bank

- [8] Bhagat, S., and B. Black, 2002, The Non-Correlation Between Board Independence and Long-Term Firm Performance, *Journal of Corporation Law* 27, 231-273.
- [9] Black, B. S., 2001, The Corporate Governance Behavior and Market Value of Russian Firms, *Emerging Markets Review*, 2, 89-108
- [10] Black, B. S., H. Jang and W. Kim, 2005, Does Corporate Governance Predict Firms' Market Values? Evidence form Korea, forthcoming *Journal of Law, Economics and Organization*.
- [11] Boone, A., L. C. Field, J. M. Karpoff, C. G. Raheja, 2005, The Determinants of Corporate Board Size and Composition: An Empirical Analysis, forthcoming *Journal of Financial Economics*.
- [12] Boot, A. W. A, R. Gopalan, A. V. Thakor, 2006, The Entrepreneur's Choice between Private and Public Ownership, *Journal of Finance*, 61(2), 803-836.
- [13] Brickley, J., J. Coles, and G. Jarrell, 1997 Leadership structure: separating the CEO and chairman of the board, *Journal of Corporate Finance*, 4,189-220.
- [14] Burkart, M., D. Gromb, and F. Panunzi, 1997, Large shareholders, Monitoring, and the Value of the Firm, *Quarterly Journal of Economics*, 112, 693-728.
- [15] Carhart, M.,1997, On Persistence in Mutual Fund performance, *Journal of Finance*, 52(1), 57-82
- [16] Chhaochharia, V., Y. Grinstein, 2005, Corporate Governance and Firm Value-the Impact of the 2002 Governance Rules, forthcoming *Journal of Finance*.
- [17] Chidambaran, N. K., D. Palia and Y. Zheng, 2006, Does Better Corporate Governance 'Cause' Better Firm Performance?, *mimeo*, available at SSRN: <http://ssrn.com/abstract=891556>
- [18] Claessens, S., 2003, "Corporate Governance and Development", *Global Corporate Governance Forum Working Paper*
- [19] Coombes, P., and S. C. Wong, 2004, Why codes of governance work, *McKinsey Quarterly*, 2, 48-53
- [20] Committee on Corporate Governance, 1998, Final Report [*Hampel Report*], (Gee Publishing, London).

- [21] Committee on the Financial Aspects of Corporate Governance (Cadbury Committee), 1992, Report with the Code of Best Practice [*Cadbury Report*], (Gee Publishing, London).
- [22] Conyon, M. and C. Mallin, 1997, A review of compliance with Cadbury, *Journal of General Management* 22, 24-37.
- [23] Conyon, M. J. and S. I. Peck, 1998a, Board control, remuneration committees and top management compensation, *Academy of Management Journal*, 41(2), 146-157.
- [24] Conyon, M. J. and S. I. Peck, 1998b, Recent developments in UK corporate governance, *Britain's Economic Performance*, T.Buxton, P. Chapman and P. Temple, eds. (Routledge, London, New York).
- [25] Core, J., G. Wayne and T. Rusticus, 2006, Does Weak Governance Cause Weak Stock Returns? An Examination of Firm Operating Performance and Investors' Expectations, *Journal of Finance*, 61, 655-687.
- [26] Cremers, K. J. M. and V. B. Nair, 2005, Governance Mechanisms and Equity Prices, forthcoming *Journal of Finance*
- [27] Dahya, J., J. J. McConnell and N. G. Travlos, 2002, The Cadbury committee, corporate performance and top management turnover, *Journal of Finance* 57(1), 461-483.
- [28] Dedman, E., 2000, An investigation into the determinants of UK board structure before and after Cadbury, *Corporate Governance* 8(2), 133-152.
- [29] Dedman, E., 2003, Executive turnover in UK firms: the impact of Cadbury, *Accounting and Business Research* 33, 33-50.
- [30] Demirguc-Kunt, A. and V. Maksimovic, 1998, Law, finance, and firm growth, *Journal of Finance*, 53(6), 2107-2137.
- [31] Developing Corporate Governance Codes of Best Practice, 2005, Global Corporate Governance Forum Toolkit, The World Bank
- [32] Djankov, S., C. McLiesh, and A. Shleifer, 2006, Private Credit in 129 Countries, NBER Working Paper No. 11078

-
- [33] Durnev A., and E. H. Kim, 2005, To steal or not to steal: Firm attributes, legal environment and valuation, *Journal of Finance* 60(3), 1461-1493.
- [34] Fama, E. F., and J. D. MacBeth, 1973, Risk, Return, and Equilibrium: Empirical Tests, *Journal of Political Economy*, 81, 607-636.
- [35] Fama, E. F., and K. R. French, 1993, Common Risk factors in the Returns on Bonds and Stocks, *Journal of Financial Economics*, 53, 3-53.
- [36] Fama, E. F., and K. R. French, 2002, Testing Trade-off and Pecking Order Predictions about Dividend and Debt, *Review of Financial Studies* 15, 1-37.
- [37] FRC, 2003, *The Combined Code on Corporate Governance July 2003*, Financial Reporting Council, London.
- [38] Gillan, S., J. Hartzell, and L. Starks, 2003, Explaining corporate governance: boards, bylaws, and charter provisions, Working Paper, University of Delaware and University of Texas.
- [39] Gompers, P., J. Ishii and A. Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118(1), 107-155.
- [40] Grinstein Y., and P. Hribar, 2004, CEO Compensation and Incentives: Evidence from M&A Bonuses, *Journal of Financial Economics*, 71, 119-143.
- [41] Hannes, S., 2002, The Hidden Virtue of Anti-takeover Defenses, Harvard Law School Discussion Paper No. 354.
- [42] Hermalin, B., and M. Weisbach, 1991, The Effects of Board Composition and Direct Incentives on Firm Performance, *Financial Management*, 20, 101-112.
- [43] Hermalin, B., and M. S. Weisbach, 2003, Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature, *Economic Policy Review*, 9, 7-26.
- [44] Hermalin, B., and M. S. Weisbach, 2005, Corporate Reform and Governance, Working Paper
- [45] Himmelberg, C., R. G. Hubbard, and D. Palia, 1999, Understanding the determinants of managerial ownership and the link between ownership and performance, *Journal of Financial Economics*, 53, 353-384.

-
- [46] Higgs, D., 2003, *Review of the Role and Effectiveness of Non-executive Directors*, DTI, London.
- [47] Jensen, M. C., and W. H. Meckling, 1976, Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure, *Journal of Financial Economics*, 3, 305-360.
- [48] Jones, I. and M. Pollitt, Understanding how issues in corporate governance develop: Cadbury report to Higgs review, *Corporate Governance*, 12(2), 162-171.
- [49] Klapper, L. F. and I. Love, 2004, Corporate Governance, Investor Protection and Performance in Emerging Markets, *Journal of Corporate Finance*, 10, 703-728.
- [50] Klein A., 1998, Firm Performance and Board Committee Structure, *Journal of Law & Economics*, 41(1), 275-303.
- [51] La Porta, R., F. Lopez-de-Silanes and A. Shleifer, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.
- [52] Landier, A., D. Sraer and D. Thesmar, 2005, Bottom-Up Corporate Governance, Working Paper
- [53] Lang, L., and R. Stulz, 1994, Tobin's q, Diversification and Firm Performance, *Journal of Political Economy*, 102, 1248-1280
- [54] Levine, R., 2004. The Corporate Governance of Banks - a concise discussion of concepts and evidence, Policy Research Working Paper Series 3404, The World Bank
- [55] Larcker, F, A. Richardson, and I. Tuna, 2004, Does corporate governance really matter?, mimeo, The Wharton School, University of Pennsylvania
- [56] OECD, 2004, OECD Principles of Corporate Governance.
- [57] Owen G.,T. Kirchmaier and J. Grant, 2005, Corporate Governance in the US and Europe: Where Are We Now?, Palgrave Macmillan Ltd, England.
- [58] Parkinson, J., and G. Kelly, The Combined Code on corporate governance, *Corporate Governance*, *Political Quarterly* 70(1),101-107.
- [59] Petersen, M. A., 2005, Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches, NBER Working Papers 11280

-
- [60] Rajan, R. and L. Zingales, 1998, Financial Dependence and Growth, *The American Economic Review*, 88, 559-586.
- [61] Rajan, R. and L. Zingales, 1998, Which Capitalism? Lessons from the East Asian Crisis, *Journal of Applied Corporate Finance*, 11, 40-48
- [62] Romano, R. 2004, The Sarbanes-Oxley Act and the Making of Quack Corporate Governance, *New York University Law and Economics Working Papers*, Paper 3.
- [63] Tirole, J., 2001, Corporate Governance, *Econometrica*, 69(1), 1-35.
- [64] Titman, S. and R. Wessels, 1998, The Determinants of Capital Structure Choice, *Journal of Finance*, 43, 1-19
- [65] Tonks, I., 2002, Performance Persistence of Pension Fund Managers, UBS PRP Discussion Paper No.1, FMG London School of Economics
- [66] Yermack D., 1996. Higher Market Valuation of Companies with a Small Board of Directors, *Journal of Financial Economics*, 40, 185-211.
- [67] Wooldridge, J. M., 2002, *Econometric Analysis of Cross Section and Panel Data*, The MIT Press