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The extent and determinants of narrative disclosures of risk management in annual reports of UK listed companies

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LIST OF ABBREVIATIONS AND ACRONYMS

ACCA	Association of Certified Chartered Accountants
Cadbury Code	Report of the Committee on the Financial Aspects of Corporate Governance (Cadbury 1992)
Combined Code	The Combined Code on Corporate Governance (FRC 2003)
DTI	Department of Trade and Industry
EC	European Commission
ECGI	European Corporate Governance Institute
EU	European Union
FRC	Financial Reporting Council
FRS	Financial Reporting Standard
Hampel Report	Committee on Corporate Governance: Final Report (Hampel 1998)
Higgs Report	Review of the role and effectiveness of non-executive directors (Higgs 2003)
ICAEW	Institute of Chartered Accountants in England and Wales
ICS	Internal Control Systems
iNED-Ratio	Independent Non-Executive Director Ratio
LSE	London Stock Exchange
NED-Ratio	Non-Executive Director Ratio
ROCE	Return on Capital Employed
Turnbull Guidance	Guidance on Internal Control (Turnbull 1999)
UK	United Kingdom
UKLA	United Kingdom Listing Authority
US	United States of America

1. INTRODUCTION AND OVERVIEW

1.1 Introduction

The concept of risk stems from the inability to see into the future. As Shaw (2003) describes, cause and effect can be separated over time as well as over geographical location. Coupled with what he describes as a cyclic cause-effect-feedback-learning system a complex environment is created. In fact, it is so complex that it seems impossible to determine all decisions taken by oneself and other people up to the present, their outcome, how they correlate and how these effects influence an intended outcome. But even if it was possible, there would still be an element of uncertainty because of our inability to accurately predict uncontrolled events, such as thunderstorms, earthquakes, etc. Bernstein (2001) put it simpler but added an element of management when he came to the conclusion that:

> *risk in our world is nothing more than uncertainty about the decisions that other human beings are going to make and how we can best respond to those decisions.*

It is important to remember at this point that risk can be defined as unintended outcome (Shaw 2003). This can be positive or negative; often described as upside risk or downside risk respectively. Bernstein's (2001) definition of risk seems useful since it contains the notion that it is possible to influence outcomes as a response to unforeseen effects. Meulbroek (2001) argues that businesses always had some form of systems to deal with this. But the systems were fragmented and scattered across enterprises. However, as these enterprises are linked in both a legal and economical context, it is important to link these systems and make them centrally manageable and transparent. It is important to control and manage risk, since it is impossible to opt out. The outcomes of a business will be influenced by other factors whether they were taken into account or not. Power (2004) argued that risk control and management is also important since it enables corporations to optimise their insurance premiums and cover. Especially important when risks are self-insured.

The Cadbury Code (Cadbury, 1992) and especially the Turnbull Guidance (Turnbull 1999) focused on risk management. This brought the concept of 'risk' to the very centre of corporate governance and linked the idea to internal control (Spira and Page 2002). Today, Corporate Governance is high on the agenda of many national and international

bodies. The European Commission (EC) is addressing Corporate Governance in conjunction with the company law reform in their Action Plan (EC 2003a). In fact, the former EU Market Commissioner Bolkestein is reported to have said that company law and corporate governance is right at the centre of the political agenda (European Corporate Governance Institute, 2003). That corporate governance is an important subject in the UK can be seen from the response to consultation preceding the EU's Action Plan. Approximately a quarter of the comments came from the UK (EC 2003b). Also, Lance (2001) argued that the UK would be the country with the most corporate control activities. In the view of Solomon and Solomon (2004) the UK was the world leader in corporate governance. Ever since the Cadbury Code companies in the UK were encouraged to comply with the *spirit rather than the letter* (Cadbury 1992, p. 12 par 1.10), as opposed to the rule-based Sarbanes-Oxley Act (USA, 2002) in the United States. Carey and Turnbull (2001) emphasised the importance of this open textured regulation. This is, however, not unchallenged. Paragraphs 5.18 to 5.24 of the Government's paper on Modernising Company Law (DTI 2004) deal with civil and criminal sanctions for violations of the Combined Code (FRC 2003). Dewing and Russell (2004) acknowledged that a *command-and-control regulation* could lead to the proliferation of unnecessary, complex rules but argue in favour of a centralised *body of stature* to provide interpretation and enforcement of a corporate governance code. Today, Sec. 17.19(a) and 23.46 of the Listing Rules (UKLA, 2004) compel all listed companies in the UK to comply with the Combined Code. However, the only sanction available is delisting from the London Stock Exchange (LSE), which is likely to be out of proportion for the majority of violations. Also, Section 7 of the Financial Services and Markets Act 2000 contains a duty to observe good corporate governance practices. It fails, however, to give a clear indication of possible sanctions for non-compliance. Consequently the sampled companies disclosed only 67.2% of all mandatory disclosures.

The self-regulating, comply or explain approach lead to varying degrees of information provided by companies about their risk management systems. Solomon et al. (2000) found that there is a strong need for increased corporate risk disclosure that would help to improve portfolio investment decisions. Studies predating the current Turnbull Guidance, such as Garsombke (1979), showed that risk and disclosures are not casually related in the United States (US). Nair and Frank (1980), as well as Benjamin and Stanga

(1977) showed that different users of annual reports require disclosure of different information. Kahl and Belkaoui (1981) showed that there is low consensus between producers and users of disclosed information. Of course, the research of the early 1980s would have to be repeated to see whether the conclusions still hold true today. Developments in stakeholder, political cost, legitimacy and, of course, agency theory might have changed disclosure behaviour and perception of importance of disclosure in recent years. However, Proctor and Miles (2003, p. 191) said that c*urrent disclosure regime leaves much to be desired.*

An important counterpoint to risk-related reporting should be considered. Following portfolio theory, conceived by Markowitz (1952), it is possible for the shareholders to diversify unsystematic risk away. So, why should a business invest in risk control and management systems when it will not create additional cash flow or shareholder value? And why should shareholders be interested in it? First of all it should be remembered that not all investors are able to diversify. There could be, for instance, the outright buyer of a business who has not the ability to invest sufficiently in other businesses to diversify his or her unsystematic risk. Another point was described by Stulz (2001). He argued that having no risk management system in place could lead to higher volatility in cash-flows; it could result in unexpectedly low cash flows that cause indirect costs for the shareholders, since share prices are based on the market's expectation of future cash flows. Risk management does, however, come with an inherent problem. Power (2004) argued that risk management systems could start to manage their own risk. In this line of thought risk management could come to a point where directors are not mostly concerned with making business judgements but 'defendable' decisions. In this way nurturing a defensive culture and ultimately stifling entrepreneurial action. Power (2004) believes that this holds true especially in an environment with many potentially very costly and reputation damaging corporate liability litigation cases.

The Financial Reporting Council (FRC) (2004) announced that they have set-up a group to review the Turnbull Guidance. The Group is looking into various areas of the code. Hodge, C., observing member of the FRC Group, said that one particular part of this review is the disclosure requirements (personal communication, September 7, 2004).

1.2 Objective of Research

The paper endeavours to find the determinants of narrative statements in annual reports from companies in one business sector about risk management systems and internal control. The knowledge about quantity, and more importantly determinants is valuable to policy makers. Regulators in the UK have so far avoided a *box-ticking-exercise* (Solomon and Solomon 2004) in terms of corporate governance. The US took a more prescriptive approach with the Sarbanes-Oxley Act (USA, 2002). Policy makers in the UK are currently reviewing risk-reporting regulation. Although limited by design, knowledge from this research could deliver hints for their future regulation and provide an impetus for more empirical research.

1.3 Summary of Methodology

UK companies listed under business support and services sector were chosen as the sample population. From 71 companies, 50 sample units were drawn by random sampling without replacement. The latest available annual reports from the 50 sampling units were collected. The annual reports from two sampling units did not contain the required information and were consequently eliminated from the sample. Preliminary calculations uncovered two outliers which were also eliminated.

The determinants should be established by linear multiple regression. Ten predictor variables were selected based on literature and set in a theoretical framework. The predictors contained two different measurements as proxy for company size. In order to avoid collinearity between the two predictors, two separate models were calculated with one size predictor each.

The constant in the regression models was a self-constructed disclosure index. The Turnbull Guidance and FRS 13 were distilled to 71 items which could be reported by any one sampling unit, providing content validity to this paper. The scoring was recorded dichotomously resulting in an unweighted index measuring information quantity.

1.4 Summary of Results

Model 1 containing capital employed as proxy for size, and the remaining eight predictors explained 44.8% of variation in the dependent with variations in the predictors. The effect size was F=3.25 at 0.01 significance level. Model 2 containing turnover as size predictor and the same remaining eight predictors as in Model 1 was able to explain 44.3% of variation of the dependent. Effect size was F=3.19 at 0.01 significance level.

The significant determinants of Model 1 was capital employed and average substantial shareholding. In Model 2, turnover was the significant determinant. Average substantial shareholding was just above the 0.05 significant threshold. Insignificant in both models were, audit committee size, freefloat, gearing, ratio of independent non-executive directors on the audit committee, ROCE, internal audit, and ratio of non-executive directors on the board.

1.5 Overview of the Project

This paper is divided into four chapters. This opening chapter provides a summary of the project and an overview of the following chapters. The second chapter establishes the theoretical framework of disclosure behaviour in quite some detail. Since there is no single theory to explain disclosure behaviour, the interacting theories of the framework are central to understanding the results. Chapter two then goes on to provide an overview of previous research in the field. The theoretical framework together with previous research provide the basis of the hypotheses development. Chapter three deals with research methodology. The closing chapter four contains the findings, the conclusions drawn from it, the limitations and further research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This chapter sheds some light on the theoretical framework on corporate disclosure behaviour. It does then proceed to introduce the predictor variables in the context of the theoretical framework and develop the research hypotheses based on previous research.

Considerable research has been undertaken into social disclosure. Many researchers have striven to explain why businesses choose to disclose information. A number of theories have been developed and used in an attempt to explain business managers' disclosure behaviour. However, no single theory can fully explain the reasons why companies choose to disclose or withhold information. It is, rather, a framework of theories within which context this study should be understood.

2.1 Agency Theory and Asymmetric Information

Adam Smith (1776, book I, chapter VII), in his discussion about wages, recognised that there may be conflicting interests between masters and workers. In modern agency theory they would be described as principals and managers, their agents. The key aspect of agency theory in the context of this study is the information gap between managers and principals. Managers may get information in the course of their close day-to-day involvement with the business which is not available to the principals. This information can be of two different types. It could be about actions unobserved by the principals, i.e. hidden action, or about information unavailable to, or ignored by the principals, i.e. hidden knowledge. This information in literature is sometimes termed private knowledge or adverse selection. The terms can be confusing, as adverse selection is rather a possible outcome from this asymmetric information.

Many scholars, Eng et al. (2001), for instance, realised that information is an important factor in the agency relationship and its cost. It is argued that this information asymmetry can entail cost. For instance, Jensen and Meckling (1976), and Watts (1977) argue that disclosure reduces agency cost. The managers may make choices and

decisions which are influenced by moral hazards, i.e. make use of private information unobservant of the principal's interest. Hodgson (2004) emphasised that the cost only arises if the agent's choices and decisions are influenced by interest discrepant from the interest of the principal. Either the principal will have to pay some information rent to the agent in order to reach an efficient use of economic resources, or the principals risk choices and decision affected by adverse selection or moral hazard. (Jones and Butler 1992). Copeland and Galai (1983), Diamond and Verrecchia (1991), Welker (1995), Coller and Yohn (1997) and Healy et al (1999), to name a few, all supported the main argument that revealing information lowers information asymmetry and thus reduces cost of capital. There are two main rationales developed by scholars to explain how information asymmetry can affect cost.

Kyle (1985) argued that asymmetric information amongst stock market participants could impose adverse selection costs on liquidity traders and market makers. Market makers can recoup their cost by widening bid/ask spreads. Scholars have hence tried decomposing this spread into several cost parameters. Glosten and Harris (1988) decomposed the spread into three contributors: order processing, inventory holding, and adverse selection. Madhavan et al. (1997) decomposed the spread into four parameters: asymmetric information, cost of supplying liquidity, the probability that a transaction takes place inside the spread, and the autocorrelation of order flow. Both models ultimately fail in providing a perfect tool to predict the cost of asymmetric information. However, the models indicate that lowering information asymmetry and thus adverse selection does lower the bid/ask spread and hence the cost of equity.

Admati and Pfleiderer (1988), in their study of market microstructure, showed that adverse selection reduces market liquidity and increases price volatility. In support, Lang and Lundholm (1996) found that more analysts follow firms with superior disclosure policies. The enhanced transparency added by analysts was found to be a significant contributor to the inverse relation of analysts with the adverse selection parameter (Brennan and Subrahmanyam 1995). Butterworth (2001) argued that more transparency allows the market to evaluate a company more accurately. This does not necessarily mean at a higher equilibrium price (Madhaven 2000). The main argument here seems intuitive: more information lowers adverse selection, volatility, and increases market

liquidity by allowing the market to channel all information into the price and avoid surprises. Some studies are indicative to that argument. Firth (1980) found that more information is disclosed voluntarily by small companies (but not large companies) before raising finance. Lang and Lundholm (2000) found evidence that companies increased their information disclosure activities over a sustained period of time (six to nine months) before seasoned equity offerings

There are counter-arguments to be considered. Cost of equity capital is a theoretical construct and therefore difficult to measure. Many scholars have used liquidity or bid-ask spread as proxies for cost of capital measurement, e.g. Healy et al. (1999) or Coller and Yohn (1997). Some others like Botosan (1997), or Botosan and Plumlee (2002) sought a direct link. Their calculations are based on assumption and forecasts and therefore cannot provide complete certainty.

Also, Kim and Verrecchia (1994) delivered a rationale that disclosure does not always lead to minimisation of information asymmetry. If an announcement is interpreted differently by different market participants, there is a possibility that information asymmetry is increased by a disclosure.

2.2 Positive Accounting Theory and Political Cost

Positive accounting theory provides another starting point for thought. Watts and Zimmerman (1978), by examining lobbying behaviour of oil companies in the US during the 1970s, developed the positive accounting theory. At the heart of this theory, they argued that managers make accounting choices in their own self-interest. They argued that:

> *…corporations employ a number of devices, such as social responsibility campaigns in the media government lobbying and selection of accounting procedures to minimize reported earnings.*

High earnings, so their argument, may cause an adverse reaction from the public since it could be associated with monopoly rent and the company could also be exposed to adverse political action. These adverse political actions could cause costs, e.g. legal cost

for a company opposing political actions, labour unions demanding increased salaries (Watts and Zimmerman, 1978). Sethi (1977) said earlier that companies are permanently …*under attack from every quarter.* There are several theories revolving around these two thoughts, which will be discussed below. Panchapakesan and McKinnon (1992) and Lemon and Cahan (1997) sought to explain disclosure behaviour with positive accounting theory. It is worth noting that positive accounting theory as perceived originally by Watts and Zimmerman (1990) refers only to accounting figures reported and influenced accounting choices. C*ampaigns in the media*… (Watts and Zimmerman, 1978) are only undertaken to lower profits recognised in the profit and loss account. Therefore, broadening positive accounting theory to disclosures in the annual report, as Panchapakesan and McKinnon (1992) and Lemon and Cahan (1997) tried, is not without problems. Disclosures in annual reports are not as costly as an advertisement campaign and therefore do not substantially lower profits in the accounts. Additionally, disclosures in annual reports are not as visible as a media campaign and, therefore, create a problem with the second argument concerning political cost advanced by Watts and Zimmerman (1990). In positive accounting theory, accounting choices are made in the self-interest to avoid political cost. Watts and Zimmerman (1990, p. 133) corroborated in their review that positive accounting theory with regards to

> *political cost as a function of reported profits. Thus, an incentive to manage reporting accounting numbers.*

It seems intuitive that companies not only manage accounting figures but other disclosures as well in an endeavour to avoid political cost. They might, for instance, choose to signal to the market that they employ superior risk management systems to avoid stricter regulation by extending their relative disclosures.

2.3 Signalling Theory

Signalling theory should also be considered in the context of disclosure. Spence (1973, 1974) developed a theory, by examining the job market, where the sending of signals was used to convince others of the presence of a certain quality. Spence (1976) and Ross (1979) found that companies with positive information (superior performance) wish to identify themselves by broadcasting information to the market. Generally well performing companies might signal their success to the market by increasing their

disclosures. Grossmann (1981), Milgrom (1981), Verrecchia (1983) and Dye (1986) all supported this line of thought. Trueman (1986) argued that firms would signal superior management. Djankov et al. (2001) argued that when firms communicate to the market they contribute to the accumulation of reputation which could in turn significantly help to maximise future performance.

2.4 Stakeholder Theory

To whom may the signals be sent? Dodd (1932) argued that a business is only private property in a qualified sense, and that society would demand that business is carried on in such a way as to safeguard the interests of those who deal with the company, even if that means that the rights of the owners are curtailed. A trade-off between conflicting interests of shareholders and stakeholders is implied. Consequently, Boulton et al (2000) argued that directors should neither act in the best interest of the shareholders nor stakeholders, but in the company's best interest. They argued that the integration of stakeholders interests can provide real benefits for shareholders. Crane and Matten (2004) referred to this as an enlightened self-interest. But even if it were accepted that shareholders are interested not only in short-term wealth maximisation but in longer-term goals, the theory still raises questions. Neither shareholders nor stakeholders have unitarian interests. Various stakeholder groups, for instance, might have conflicting interests. Meeting some of the interests of the stakeholders might have no effect on the company at all, thus negating the enlightened self-interest argument. Sterling (1990) and Chambers (1993) also called for a more cautious approach. They claimed that utility maximisation could always be the underlying rationale in all disclosure behaviour, even when other factors triggered one particular disclosure. Nevertheless, communication with stakeholders is important. Gray et al. (1996) was able to show that agents used information to manipulate stakeholders in order to gain their support. Therefore, despite above described dilemma, it is worth exploring the relationship between companies and the outside world in more detail.

2.5 Legitimacy Theory

Boulton et al. (2000) argued that a company's success would depend on its ability to connect its own assets with the assets of others (i.e. stakeholders) and exploit the dynamics between these assets to create and realise value. Moon and Bonny (2001) argued that it would be crucial to form successful relationships with diverse stakeholders. It is that thought of explicit or implicit contract that can be found again in legitimacy theory. Suchman (1995, p. 574) defined:

> *Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.*

A strong link to ethics and Wieland's (2003) concept of Corporate Citizenship becomes apparent[1]. Guthrie and Parker (1989) argued that legitimacy theory is closely related to social contract theory. This theory hypothesized that morality is based on uniform social accords that best serve the interests of those who make the agreements. Shocker and Sethi (1974) argued that such a contract with explicit and implicit terms is conceived to exist between an organisation and the public at large.

Legitimacy theory has various dimensions. Suchman (1995, p. 576) explained that organisational structures, such as capitalism for instance, endeavour to gain acceptance, i.e. legitimacy and institutionalisation from society by making it seem natural and meaningful. On an organisational level, legitimacy theory underpins above macro-theoretical dimension and is sometimes referred to as strategic legitimacy theory. Underlying this level …*is a process, legitimation, by which an organization seeks approval* [or avoidance of sanction] *from groups in society* (Kaplan and Ruland, 1991, p. 370). This process level is divided into four phases. In the first phase legitimacy is to be established. Hearit (1995, p.2) said that a company needed to take into account the socially constructed expectations in its early stages. Elkington (1997) explained that these expectations constitute a superordinate system that encompasses economic, environmental and social factor relationships. The second phase is maintaining legitimacy. Ashford and Gibbs (1990, p. 183) argued that activities of this phase would involve ongoing role performance and …*symbolic assurances that all is well*…and attempts to foresee and prevent challenges to legitimacy. The next phase is extending legitimacy.

[1] Although the important link to business ethics is apparent, it remains largely unconsidered in this paper. Risk disclosures, the focus of this study, is not strongly linked to business ethics.

Ashford and Gibbs (1990. p. 180) described that in this phase management undertakes intense and proactive attempts to win confidence and support from a variety of potential constituents. The last phase is defending legitimacy. Legitimacy is a dynamic construct. Community expectations may change and organisations may lose legitimacy even if they have not changed their activities (Deegan et al. 2002, p. 319-320).

The above described phases do not necessarily follow a prescribed order. Hybels (1995, p. 243) postulated that it is important to examine the relevant stakeholders and how each influences the flow of important resources either by direct control or by the communication of good will. From this it seems important that the fitting information is given to any one stakeholder group. Matthews (1993, p. 350) concluded that if an actual or potential disparity exists between a value system of an organisation and society there would be a threat to its legitimacy; the social contract could be withdrawn. Conversely, successful communication that the company does act in compliance with the terms of the social contract and is contributing more benefits to the society than cost, it will be posited to perform better. Carruther (1995, p. 324) said that *organisations are not only granted legitimacy, but sometimes they go out and get it.* This would explain the advertisement of BP plc. in The Economist (2004) in which they report exclusively on their contribution to the performing and visual arts. Matthews (1993, p. 36) dichotomised between managers who disclose information on moral grounds, i.e. presenting the company to act within the terms of the contract, and on pragmatic grounds, i.e. organisational legitimacy is the motivating factor.

Disclosures can be made in various forms. Patten (2002, p.153) and others recognised the importance of the media as a catalyst to increased pressures from stakeholders, not dissimilar to the concept of vulnerability in political cost theory. This study, however, concentrates exclusively on disclosures made in the annual report. Deegan et al. (2002) examined disclosure behaviour of an Australian mining and petroleum company and showed that the company had disclosure reactions to concerns of the community. Patten (1992) researched change of disclosure behaviour after the Exxon-Valdez disaster. He found that all North American petroleum companies responded to the disaster except Exxon itself; fitting somewhat into the above described findings of O'Donovan (2002). This study also showed that in this incident companies did take a

proactive approach to counteract the risk of lowered legitimacy even though the companies themselves were not involved in the disaster.

On a side note it should be mentioned that researchers, such as Diamond (1985) and King et al. (1990) argued that companies would disclose information to reduce transaction cost. In their line of thought, companies disclose performance forecasts in order to reduce the incentive to acquire private knowledge or, as in Skinner (1994), avoid litigation. However, this theory is time sensitive and is therefore regarded less important for disclosures in annual reports.

2.6 Hypotheses Development

Positive accounting theory and, more importantly, political cost theory suggest that disclosures from companies are attempts to reduce political cost. Stakeholder theory considers the expectations' impact of the different stakeholder groups on disclosure behaviour. Legitimacy theory, in contrast, does not make the assumption of rational, wealth-maximising individuals acting within an efficient market. Both stakeholder theory and legitimacy theory consider organisations as part of a wider social system. Only stakeholder theory, however, recognises that some individual parts of this social system are more powerful than others. Legitimacy theory, on the other hand, treats the social system as a whole. The assumptions of above discussed theories are not dissimilar, rather they offer alternative insights into motivations of disclosure behaviour. It is not possible to isolate one theory to explain disclosure behaviour fully. But theories are also not competing. They offer alternative ways to comprehend the concepts behind corporate disclosure. The theories in fact build a framework within which paradigmatic pluralism enhances the understanding of the multitude of issues within the underlying rationales.

2.7 Previous Research

A substantial body of research into determinants of corporate disclosure has been developed. Please see Table 1 for a summary of frequently cited literature in this field.

The very early empirical research was conducted by Cerf (1961) and Singhvi and Desai (1971). Already at this early stage, earnings margin and size amongst others were found important as factors influencing disclosure. During the 1970s, most research on information disclosure concentrated on the US. Beaver (1978, p. 44) observed that the US Securities and Exchange Commission (SEC) issued *more accounting releases since 1972 than it had in the previous 26 years.*

Since then disclosure policy has become more comprehensive and diversified and so have the determinants used in research. In this paper these determinants or independent variables, will be called predictors following the explanations by Field (2000). Land and Lundholm (1993) and Wallace et al. (1994) grouped predictors into three segments: structure, performance, and market related which are not mutually exclusive.

Land and Lundholm (1993) defined structure related as characteristics that are likely to remain stable for a longer period of time. In this study, audit committee size, average substantial shareholding, capital employed, freefloat, gearing, independent non-executive directors on audit committee ratio, internal audit, non-executive director ratio, and turnover represent structure related predictors. Profitability (ROCE)is related to performance. Market related predictors are not included, as this research is solely based on information derived from annual reports.

2.8 Predictors: Capital Employed and Turnover

Size was probably the most commonly used predictor in previous studies. Ball and Foster (1982) argued that size could be used as surrogate in almost all information theories. They are more likely to have larger groups of stakeholders and consequently attract more media attention which could increase vulnerability to political cost and threaten legitimacy. Especially the impact of the media should not be disregarded in academic studies (Zingales 2000). Size is helping larger corporations to produce information that they are willing to disclose. More formal internal information is produced in order to keep all parts of the business informed in the normal course of business. This information can easily be transformed and publicised. The marginal cost of disclosing and presenting information is lower than for smaller firms. Additionally,

Dye (1985) and Meek et al. (1995) found that the larger corporation has fewer competitive disadvantages by disclosing information. A number of different surrogates to measure size have been used throughout literature. Turnover, number of employees, total assets, market capitalisation to name but a few.

Legitimacy theory receives a special role for rationales behind size predictors. Especially Lemon and Cahan (1997) acknowledged this. Clarke and Gibson-Sweet (1999) showed empirically that larger companies and firms in sectors with high public presence were more inclined to use their annual reports to disclose their benefits to the community and environment. Dissenting from Toms (2000) and somewhat contradicting to the main argument of legitimacy theory, O'Donovan (2002) found, based on experimental evidence, that the lower the organisation's perceived legitimacy, the less likely it is that they bother to provide social and environmental disclosure. Whether this can be broadened remains to be seen.

There are several surrogates to measure the size of a company. Total assets were used in many previous studies, such as Cooke (1989b) and Inchausti (1997). Capital employed was used in this study as measures of size. This measure does have the advantage over total assets that positions that do not add size, such as provisions for liabilities and charges are not included. It is, however, acknowledged that the effect can be expected to be minimal on the outcome. This slight advantage is set against an also slight disadvantage. Capital employed is not universally defined and, hence, computed differently. Again, the effect of this can be expected to be minimal on the outcome. Capital employed is computed as suggested by the Association of Chartered Certified Accounts (ACCA), total assets minus current liabilities.

H1: Capital employed is positively related to risk disclosure.

Due to the absence of a commonly defined size measurement, companies vary in size depending on the measurement employed. To partly offset this effect, turnover is introduced as a second size predictor. This second size predictor is likely to correlate to a certain extent with capital employed. The research hypothesis is as follows:

H2: Turnover is positively related to risk disclosure.

2.9 Predictor: Gearing

The picture becomes less clear for gearing. Malone et al. (1993) argued that highly geared companies may disclose more information to satisfy their lenders' needs. As stated earlier, Jensen and Meckling (1976) were amongst the first to argue that information disclosure is correlated to agency cost. This correlation could become more significant since lenders transfer wealth to managers and shareholders.

The argument that the reduction or removal of information asymmetry reduces capital cost was extended to the cost of loan capital. Clarkson et al (1996) found that more information from the borrower reduces uncertainty in the risk estimates of the lender and ultimately lowers the cost of debts. Hossain et al. (1995), Brennan and Hourigan (2000), as well as Etteredge et al. (2002) confirmed a positive correlation between gearing and information disclosure with their studies.

But risk and the users' needs do not necessarily positively correlate. Buzby (1974) found that correlation between relative importance of the items and the extent of their disclosure is low. McKinnon and Dalimunthe (1993), Meek et al. (1995), Raffournier (1995), Inchausti (1997), and Patton and Zelenka (1997) found no significant correlation between gearing and information disclosure in the countries they researched[2]. The research hypothesis is as follows:

H3: Gearing is positively related to risk disclosure

2.10 Predictor: NED-Ratio

Agency theory is the main driver for the selection of the predictors: Non-Executive-Director ratio (NED-Ratio), average substantial shareholding, free float, size of audit committee, independent Non-Executive-Director ratio (iNED-Ratio), and internal audit.

The costs associated with the partition of ownership and management, as described above, is well developed and acknowledged. The Higgs Report (Higgs 2003) and its integration into the new Combined Code is an example of one of the more recent

[2] Meek et al. (1995) for the UK amongst other countries

regulatory developments in the UK in an attempt to reduce agency cost. The emphasis was put on Non-Executive Directors and the new notion of their independence was introduced. There are only a few studies that linked corporate governance structures to disclosure. Ho and Wong (2001) examined companies listed in Hong Kong and related their disclosures to independent directors, audit committee and other variables. Their study confirmed a positive correlation between audit committee and a negative correlation between family members on the board and disclosure. Although they did not establish a direct causal relation between non-executive directors and disclosure, they did prove that members of the board can influence disclosure. The research hypothesis is as follows:

H4: Non-Executive Director Ratio is positively related to risk disclosure

2.11 Predictors: Audit Committee Size and iNED Ratio

The new Combined Code recommends that the audit committee should consist of at least three independent non-executive directors. Neither the chairman nor the chief executive officer should sit on the audit committee. The audit committee functions as control organ of the company. The strong link to agency theory, i.e. principal controls agents, is obvious. Although there is no previous research into the correlation of audit committee and its structure to disclosure, the new emphasis placed on the independence of non-executive directors coupled with agency theory provide sufficient support to include the following two predictors: Audit Committee size and iNED ratio. iNED ratio is the percentage of independent non-executive directors on the audit committee. The research hypotheses are as follows:

H5: Audit Committee size is positively related to risk disclosure

H6: iNED ratio is positively related to risk disclosure

2.12 Predictor: Average Substantial Shareholding

As early as Cerf (1961), ownership has been a subject of study in connection with disclosure; it is a fairly intuitive choice. The concept of partition of ownership and

management lies at the very heart of agency theory. However, Raffournier (1995) could not find a correlation of significance. Two different predictors are used for this study to mirror two different aspects of ownership.

The impact of ownership structure was researched by Shleifer and Vishny (1986) who concluded that large shareholdings do have an impact on management[3]. McKinnon and Dalimunthe (1993) confirmed a positive relationship between powerful shareholders and disclosure. The first ownership predictor in this study is a proxy measure of influential shareholders. It follows the line of thought of Ho and Wong (2001) who studied the impact of dominant personalities on disclosure. Influential shareholders could gain private knowledge and hence create adverse selection or moral hazard cost. Therefore, institutional shareholding has been used as surrogate for information asymmetry literature. It could be argued that a company could counteract this cost by making information required by a few available to all.

It could also be argued that power derived from concentrated ownership can be used more efficiently to control the agent and to extract more information. Shleifer and Vishny (1997) argued that larger shareholders exercise a better monitoring of management than numerous small shareholders. Stricter monitoring does not necessarily mean more disclosures, as influential shareholders may have other ways of receiving information than the annual report.

Information about 'Dominant personality' as developed by Ho and Wong (2001) is usually unavailable from the annual report and is anyway difficult to measure. Instead, the total shareholdings of all substantial shareholders as disclosed in the annual report was divided by the total number of substantial shareholders. A mean substantial shareholding percentage was arrived at. Higher percentages suggest higher concentrated shareholdings commanding a higher degree of influence. Smaller percentages suggest the opposite. There is, of course, a caveat in this approximation. It does not allow for investment management funds and other institutional investors. The research hypothesis is as follows:

[3] They did, however, not explicitly establish a relationship from institutional shareholding to disclosure.

H7: Average Substantial Shareholding is positively related to risk disclosure.

2.13 Predictor: Freefloat

The measure of average substantial shareholding alone as an indicator of ownership structure would be imperfect. It would be possible to arrive at a relatively high average substantial holding of, for example, 10% with one shareholder holding 10% of the shares. The remaining 90% could be held by numerous small shareholders. The same average substantial shareholding of 10% could be shown for a company with, for example, 6 substantial shareholders holding 10% each. The six shareholders in the second example would command 60% of the shares between them. Two substantially different situations that indicate different power sharing scenarios. Therefore, freefloat as another predictor is introduced. Freefloat measures the percentage of shares not held by substantial shareholders. Higher values of this predictor indicate more diffused power. Again, institutional investors may present a caveat in the argument.[4]. The research hypothesis is as follows:

H8: Freefloat is positively related to risk disclosure

2.14 Predictor: Internal Audit

The last structural predictor is internal audit. The predictor is a dichotomous measure. Value one was recorded for the presence of an internal audit function, or nil for no internal audit function. Neither the Combined Code nor other guidance explicitly defines the exact functions of the internal audit function. It is left to the individual business to define what exactly the internal audit function entails and how it is fitted into the organisation. Since this study does not measure quality but quantity a categorical approach was chosen. Inchausti (1993), Singhvi and Desai (1971) and Raffournier (1995), as opposed to Firth (1979), found a positive relationship between audit (firms) and disclosure. This relationship has not been researched very extensively. However, findings from earlier studies, as well as strong support from agency and signalling theory coupled with some support from political cost theory sufficiently support the inclusion of this variable.

[4] Please see a more detailed discussion on institutional shareholder activism below.

H9: Internal Audit is positively related to risk disclosure.

2.15 Predictor: Return on Capital Employed (ROCE)

From the very early studies, scholars have used performance as a predictor of disclosure. Cerf (1961) being possibly the first one, Lang and Lundholm (1993) found higher disclosure scores for companies that perform well. Such a positive correlation is not obvious. Shareholders might be less suspicious and lenders might have a reduced need for information when a company performs well. Particularly if it performs well over a sustained period of time. Consequently, Singhvi and Desai (1971) found earnings margin an insignificant predictor. When a company is not performing well or is wealth destructive, a positive relation becomes even more difficult to explain. A loss making company, or a company in distress should increase disclosure in order to reduce information asymmetry, increase transparency, reduce uncertainty in risk estimations by lenders, maintain or improve liquidity and consequently reduce cost of capital. Skinner (1994), in fact, did find that firms disclose information pre-empting bad news.

The findings of the previous studies could be explained, however, with signalling theory. Companies performing well might use this opportunity to signal their success to the market by increasing their disclosures. Grossmann (1981), Milgrom (1981), Verrecchia (1983) and Dye (1986) all supported this line of thought. Trueman (1986) argued that firms would signal superior management

Company performance, i.e. success, can is defined in many different ways. This paper concentrates on profitability as calculated by accountants. All other aspects of success, e.g. triple bottom line, and similar concepts of non-accounted for or non-financial success are left to the side. The research hypothesis is as follows:

H10: ROCE is positively related to risk disclosure.

Table 1 – Previous important research

Citation	Country	Sample	Index	Significant predictors	Insignificant predictors
Singhvi and Desai (1971)	USA	100 listed companies plus 55 unlisted companies	34 items similar to Cerf (1961) Measuring Quality	Listing status (categorical)	Earnings margin Total Assets Number of stockholders CPA firm (dichotomous size measure) Rate of Return
Buzby (1975) (Non-parametric model)	USA	44 listed companies plus 44 companies with shares traded 'over the counter'	39 weighted items based on survey. Measuring quantity as well as quality	Asset size	Listing status
Stanga (1976)	USA	80 companies named in 'Fortune 1000' list.	79 weighted items based on survey	Industry sector	Net sales (Stanga (1976) hypothesised that the net sales of all Fortune 1000 companies had too little variance to be significant)
McNally et al. (1982)	New Zealand	103 listed companies	41 weighted items based on survey Measuring quantity and quality	Size (total assets)	Rate of return (net income - total assets ratio) Growth (total assets)

Citation	Country	Sample	Index	Significant predictors	Insignificant predictors
Lang and Lundholm (1993)	US	751 companies	Rating of Financial Analysts Federation Corporation	Size Performance Weak relation between stock return and earnings Security issuance	Return variability
Hossain et al. (1995)	New Zealand	40 listed New Zealand companies randomly selected plus all 15 firms listed in New Zealand and overseas	95 unweighted items based on prior research	Size (total assets) Foreign Listing Leverage	Assets-in-place (net fixed assets to total assets) Type of auditor (dichotomous Big 6 or not)
Meek et al. (1995)	US, UK France, Germany, and The Netherlands	116 US, 64 UK, 16 French, 12 German, and 18 Dutch companies selected from Business Week 1000, Financial Times UK Top 500, and Financial Times European Top 500	85 unweighted items	Size Country Listing status Industry	Leverage Multinationality Profitability

Citation	Country	Sample	Index	Significant predictors	Insignificant predictors
Raffournier (1995)	Switzerland	161 companies	24 or 30 items for individual company or consolidated group reports respectively.	Size Internationality	Leverage Profitability Ownership structure Auditor's size Percentage of fixed assets Industry Type
Gray et al. (1995)	US and UK	116 US and 64 UK listed companies	128 unweighted items	Listing status (listed internationally vs. nationally) Country	
Inchausti (1997)	Spain	49 companies	50 unweighted items	Size (total assets & sales) Auditing (dichotomous for audited by Big 6) Stock exchange (dichotomous for listed on more than one stock exchange)	Profitability Leverage
Patton and Zelenka (1997)	Czech Republic	50 stock listed companies	37 unweighted items in 'narrow index', 12 items in 'somewhat broader index', and 17 items in 'broad' index	Type of auditor (dichotomous for Big 6) Number of employees Listing status Return on equity	Total assets Industry

Citation	Country	Sample	Index	Significant predictors	Insignificant predictors
Cooke (1989a)	Sweden	90 listed and unlisted companies	224 unweighted items	Size (irrelevant whether measured as total assets, sales, or number of shareholders Listing status	Parent company relationship
Schadewitz and Blevins (1998)	Finland	256 interim reports	29 unweighted items	Business risk Capital Structure Size Market maturity Governance Growth	Market Risk Stock Price Adjustment
Ferguson et al. (2002)	Hong Kong	142 listed companies	93 unweighted items	Firm type Size Leverage	Industry Multiple-listing status

3. RESEARCH METHODOLOGY

In this chapter the disclosure measurement is developed and described. It is also explained how the sampling frame was developed, a sample drawn and the data gathered. Finally, the rationale behind the exclusion of outliers is explained here.

This paper endeavours to explain which determinants influence corporations in their decision to disclose information to the public relating to their risk management and internal control. This information cannot be measured directly (Cooke and Wallace 1989 cited Hossain et al. 1995). In 1999, the Institute of Chartered Accountants in England and Wales (ICAEW) published a survey (ICAEW, 1999) into the disclosure of risk related information. They used the disclosures made in the prospectuses of companies before the initial public offering of shares at the LSE as a benchmark to measure information content of annual reports published by the respective company at a later date. More often researchers adopted a different approach to overcome the same problem. They developed indices as a common measure of information content. The two main advantages over the methodology adopted by the ICAEW is that information content can be measured independently of the maturity of the company and against a common benchmark. Information content in previous studies measured either quality or quantity or a mixture of both.

The single most important motivation for adopting an index-based approach in this paper is that it allows quantitative, correlational research (Kumar 1999); a research at one extreme of the continuum between the quantitative and qualitative paradigm. Cresswell (1994 cited Collis and Hussey 2003) argued that, according to the axiological assumptions, quantitative research leads to accurate and reliable results through validity and reliability rather than through verification as in a qualitative research. It was therefore possible for the single researcher of this paper to base the deductive process of drawing conclusions on accurate and reliable findings.

3.1 Index development

Scholars in the field have used various forms of indices. Two basic variations are used. self-constructed and standardised index models from bodies like the Financial Analysis Federation, used for instance by Lang and Lundholm (1993), Standard & Poor's Transparency and Disclosure Index, used for instance by Khanna et al (2003) and the Association for Investment Management and Research[5], used for instance by Welker (1995). The main advantage of these standardised indices is that they lead to comparably easy to repeat results.

This study focuses on information disclosed in form of narrative risk disclosures it is in this respect different to most other previous studies. Previous studies defined disclosure broadly in order to capture data as completely as possible. All information; financial, non-financial, pictorial, performance, quantitative and qualitative, etc. was captured. Even though the study is restricted to narrative statements the data encountered is still very rich. Almost any narrative statement contained in an annual report could be read in the context of risk management. It would be nearly impossible to gather all this rich data, to structure, compile and compare it. The index for this study is to narrow the information and make it comparable. The majority of researchers used their own self-constructed index. Usually the aim is to gain content validity but comparability, becomes difficult. Wallace (1988) tried to standardise the indices used in previous studies, so that the outcome can be compared and in this way better understood.

In order to maximise statistical power, this study concentrates on a narrow segment of the market, on a narrower form of disclosure and on information available at present. Comparability with other studies is not a prime objective.

[5] Which is part of the Financial Analysis Federation

Patton and Zelenka (1997) suggested four possible approaches to develop a theoretical concept:

(a) Have a normative decision model against which disclosures should be benchmarked for their usefulness
(b) Use the evaluation of of annual reports by knowledgeable analysts to assess quality of disclosures
(c) Assessing market reaction to extent of disclosures
(d) Extent of compliance with a set of legal or GAAP requirements

This paper uses the Turnbull Guidance and the Financial Reporting Standards (FRS) 13 (Kirk 2004) as a basis for the index; following the fourth suggestion by Patton and Zelenka (1997).

Following the approach of Solomon et al. (2000), this study uses the Turnbull Guidance, which is solely concerned with risk management and internal control, and the relevant Financial Reporting Standard. FRS 13 makes a narrative statement relating to risks from derivatives and policies adopted to manage these risks mandatory. This effectively removes the decision as to which information should or could be understood in connection with risk management, and hence secures content validity as explained by Muijs (2004).

In contrast to many previous studies, such as Meek et al. (1995), Cooke, (1989b) and Raffounrier (1995), no differentiation has been made between mandatory and voluntary disclosure. Leuz and Verrecchia (2000) suggest that the increasing level of mandatory disclosures result in inconclusive empirical results. It is possible to receive data that mirror the extent of disclosures more accurately by disregarding the distinction between mandatory and voluntary disclosures. Also, the inclusion does not distort the results in this study. Companies which did not comply with mandatory disclosure requirements received, ceteris paribus, a lower index score mirroring the lower level of information available from the sampled units. If all companies complied, the effect from inclusion would be neutral. Considering the above described de facto self-regulation the determinants for mandatory disclosures may not be dissimilar from voluntary disclosures. Comparability could, however, suffer from the inclusion. This is an

opportune trade-off since this study is, with its narrow sampling population and self-constructed index, limited by design, and comparability is not desired.

3.2 Index Description

Earlier researchers used weighted indices. However, Lang and Lundholm (1993) proposed that the weights are usually based on analysts' ratings and are therefore biased. Later literature, such as Patton and Zelenka (1997), used indices with unweighted items. This approach assumes that all disclosures are equally important. Cooke (1989b) argued that unweighted indices are the appropriate research instrument when disclosures to all users of annual reports are studied. Different users might add different importance to different items. Neither the Turnbull Guidance nor FRS 13 attaches different priorities to any of their provisions. Other researchers saw less importance in the question whether or not to weigh an index in their studies. They did not expect different outcomes regardless whether weighted or unweighted indices are used. Robbins and Austin (1986), Chow and Wong-Boren (1987) and Grey et al. (1995) suggested that no matter whether a weighted or unweighted index is chosen, the ranking of companies based on scores remains the same. Ferguson et al (2002) supported this argument with their conclusion that unweighted indices give almost the same results as weighted indices.

Some of the provisions of the Turnbull Guidance only apply to organisations with an internal audit function, some other provisions are applicable to companies without internal audit. The index is constructed in such a way that irrespective of the presence or absence of an internal audit function the same maximum of 71 items could be awarded. Botosan (1997, p.333) noted that there is a possibility that larger and more complex organisations have more opportunity to disclose information, simply because of their higher complexity. This was carefully considered when the index was constructed. For example, 'Disclosed' was recorded for items that applied to larger or more complex organisations, such as the application of internal control systems to all joint-ventures and associates, when either such statement was made or a statement was made that no such joint-ventures exist. See Table 6 in Appendix A Item 64 and 66 to 68.

The provisions of the Turnbull Guidance and FRS 13 were distilled into 71 items that could be disclosed relating to the separate parts of the respective articles. See Table 6 in Appendix A for a complete list of items. The items were not weighted and data gathered dichotomously.

3.3 Data Collecting Process

Secondary data from annual reports was collected. Since information is rich, language can be used differently and sometimes allows different ways of interpretation. This study interpreted information narrowly. 'Disclosed' was only recorded when the item was explicitly mentioned in the annual report. The method of scoring was a dichotomous procedure. A sampling unit was awarded 1 for an item disclosed and 0 for not disclosed. The score was then divided by 71, the maximum possible items that could be disclosed by any one unit. The majority of studies followed this procedure; Cerf (1961), Singvhi and Desai (1971), and Gray et al. (1995) to name but a few.

3.4 Sample Population

The Combined Code applies to all companies in the UK. The code should provide guidance to companies but is not obligatory. Sec. 17.19(a) and 23.46 of the LSE's listing rules and Section 7 of the Financial Services and Markets Act 2000 make it compulsory for all companies in the UK to comply with the Combined Code. However, only listed companies are obliged to publish their annual reports. Therefore, the population was narrowed to listed UK companies. This should provide a higher degree of certainty that the data gathered was easily and readily available. 1,486 companies fulfilled above criteria in August 2004 (LSE 2004). The number of sample units required to construct a meaningful sample would have exceeded the limits of this study. Especially considering, that Stanga (1976) argued in favour of a correlation between industrial sector and disclosure. Furthermore, it would be difficult to measure disclosure coherently for highly regulated sectors, e.g. banks, insurances, etc, and unregulated businesses simultaneously. Buzby (1075) and Firth (1979) explicitly excluded these sectors from their research.

Companies listed under the business support and services sector were chosen as the sampling population. Unlike other sectors, by definition business support and services include companies as diverse as architectural and design services, health and safety equipment suppliers, office stationary, or tool hire. The diverse business activities and backgrounds of companies in this sector should partly setoff effects as found by Stanga (1976) and others. Although, findings will not be representative of other companies outside the sample population, they should be less affected by unique business activity relating determinants. By choosing business support and services sector the statistical power was enhanced and industry effects minimized. 71 companies were listed under this sector (LSE, 2004).

3.5 Annual Reports

The data was to be lifted from the latest available annual reports. Many previous studies concentrated on annual reports, mainly because annual reports represent the most coherent in-depth information regularly published by companies, and contain mandatory as well as voluntary information.

3.6 Sample size

Because the backgrounds of the sampling units were diverse, it was decided to select a relatively large sampling size. 50 sampling units were to be selected, representing an initial probability of 70.43%. The sample was drawn following Johnson and Bhattacharyya's (2001) suggestions of simple random sampling with no replacement. Kalton (1983) argued that this technique could be flawed by technicalities of the draw. This effect was offset by the initial high probability of being drawn (the probability dropped in the process to 4.76% for the last draw). Table 7 in Appendix C provides a list of the selected sample in the order of the draw.

Of the 50 selected companies two companies' annual reports did not contain all required data. Danka Business was allowed by the LSE to report pursuant to foreign

reporting regulation. Subsequently, the Turnbull Guidance and FRS 13 were not followed and the information required was not available. The other Company included in the sample with insufficient information was Office2Office. The latest available annual report was for the accounting year 2003, preceding their first year of being listed at the stock exchange. The company did not have to comply with the listing rules for the reported year. Further calculations were based on a sample size of 48 sample units[6].

3.7 Outliers

One sample unit may influence the outcome of an analysis more significantly than others, especially in smaller samples. Scholars are divided about how these outliers should be treated.

Norusis (2004) argued, that the outliers should not be eliminated from samples, as they represent a valid member of a sample population. Hinton et al(2004), Collis and Hussey (2003) and others argued that outliers, in fact, should be eliminated if they improve the statistical models and the conclusion drawn from them. Eliminating outliers is clearly a decision that should not be taken lightly. Both arguments have to be weighted up. In this study it must be considered that eliminations from the sample reduces an already small sample size.

A preliminary regression was calculated to carry out a series of tests suggested by Norusis (2004). These tests showed two outliers that excessively influenced the outcome of the regression. See Graphs 1 and 2 in Appendix C for Cook's Distance shown in a scatter plot and standardised residual values of outliers. Compared to the other sample units, Infast Group is a small business. It does, however, by far exceed the predicted index value. The sample unit reports that, during the accounting period, they suffered losses through a management error. This might have influenced their disclosure behaviour significantly. The other extreme is Corporate Services Group. They underwent a debt-equity swap and a major restructuring during the reporting period. This included extraordinary meetings with shareholders as well as lenders and certainly

[6] Two units were removed from the sample later: Please see below.

required a considerable amount of communication. This might have lessened the need to disclose information in the annual report. This is interesting if understood in the context of above outlined O'Donovan's (2002) argument. Perhaps his argument can be extended to disclosure more generally.

After weighing up the arguments, both companies were eliminated from the sample. The sample size was reduced to 46.

3.8 Parameter Assumption of Linear Multiple Regression

Norusis (2004) explained that in order to test hypotheses about a population using multiple models four assumptions must be met by a random sample: (1) the observations are independent, (2) the relationship between the dependent and the predictor variable is linear, (3) for each value of the independent variables, there must be a normal distribution of values of the dependent variable (homoscedasticity), and (4) the distributions have the same variance.

Hinton et al. (2004), Norusis (2004), Johnson and Bhattacharyya (2001) amongst others suggest strongly using non-parametric tests instead if the assumptions are violated. The sample data was examined in a series of tests as suggested by Norusis (2004). None of the assumptions above posed a serious problem to the validity of the results. Collinearity is discussed in Chapter 4. Conclusions, Summary and Further Research.

Following most former studies the method of the least squares as explained by Johnson and Bhattacharyya (2001) was followed for the regression. The regression itself was calculated in SPSS using the method ENTER; forcing all predictor variables to enter the calculations simultaneously.

3.9 Short summary of Variables

Table 2 shows a short summary of all variables and how they were calculated. Literature suggests using as few predictor variables as possible. Excessive use of predictors improves mathematical results but make it more difficult to infer useful conclusions from it. Table 2 also shows the variable category for each variable. Norusis (2004) said that the multiple regression models cope with different variable types. Although he recommends using continuous variables, it is possible to use lower grades of variables such as ordinal or even categorical variables.

3.10 Summary of Methodology

A positivistic approach was adopted for this research. It enabled the single researcher to arrive at accurate and reliable findings. As validity and reliability are paramount in this endeavour, a disclosure index was developed based on the Turnbull Guidance and FRS 13 ensuring content validity. The index was constructed in a simplistic manner with a narrow interpretation of the narrative statements in annual reports in order to strive for reliability. Secondary data was collected from annual reports because of the availability and reliability. A theoretical framework was developed as basis for both the predictor variables and conclusions drawn from the linear regression models.

Table 2 Variables and definitions

Variable	Definition
Index (Dependent)	Number of disclosures per sample unit divided by 71, the maximum possible disclosures. Ordinal variable but treated as continuous (Field, 2000).
Audit committee size (Predictor)	The number of members in the audit committee of the sample unit. Audit Committee = Audit committee size in absolute numbers. Ordinal variable.
Average subst shareh (Predictor)	Ratio of total percentage of equity capital held by substantial shareholders, i.e. holding is min. 3% of equity capital, divided by their number. Continuous variable.
Capital Employed (Predictor)	Ratio calculated form the published balance sheet of the sample unit in pursuant to ACCA standard. Capital employed = Total assets minus current liabilities Continuous variable.
Freefloat (Predictor)	The percentage of equity capital held by shareholders other than substantial shareholders. Continuous variable.
Gearing (Predictor)	Ratio calculated form the published balance sheet of the sample unit pursuant to ACCA standard. Gearing = creditors over one year / (shareholder funds + creditors over one year) Continuous variable
iNed-Ratio (Predictor)	Ratio of Independent Non-Executive Directors to total number of members of the audit committee. Continuous variable.
Internal Audit (Predictor)	Presence or absence of an internal audit function in a sample unit. Categorical (dichotomous) variable.
NED-Ratio (Predictor)	Ratio of Non-Executive Director to number of members of the board. Continuous variable.
ROCE (Predictor)	Ratio calculated form the published balance sheet of the sample unit pursuant to ACCA standard. Continuous variable.
Turnover (Predictor)	Turnover as disclosed in the balance sheet of the sample unit. Continuous variable.

4. CONCLUSIONS, SUMMARY AND FURTHER RESEARCH

The forth chapter contains the findings of the study and their analyses. The middle section provides a summary of this paper, its limitations, and suggestions for further research.

As this paper endeavours to explain the determinants of disclosures concerning risk management and internal control, it is important to avoid partial correlations between the predictors. Although Gujarati (1988) suggests that correlations should not be regarded harmful unless they exceed 0.8 or 0.9, any significant multicollinearity would pose the problem of determining which of the correlating predictors is the important one. Since it is expected that the two size predictors, turnover and capital employed, are expected to correlate strongly, two regression models were calculated with one size predictor each. Model 1 includes capital employed, Model 2 includes Turnover as proxy for size.

4.1 Descriptive Statistic

From the descriptive statistic in Table 3 it can be seen that the standard deviations do not indicate a large spread in most of the variables. The exceptions are the two size variables Turnover and Capital Employed. The high standard deviation in the size predictors negatively affect accuracy of the regression models. Table 3 indicates that, on average, the companies in the sample disclosed 0.34 of all possible disclosures with a variance from 0.15 for the lowest and 0.54 the highest score. In the absence of comparison, it is impossible to evaluate this finding. The fact that most companies disclose summarized information or conclusions rather then the underlying raw information or even quantitative risk measurements (Solomon et al. 2000) is further diffusing the meaning of this statistic. Summarized information may have not lead to a 'disclosed' score of an index item.

It is equally notable, that approximately 61% of equity capital, on average, was held by atomistic shareholders, whereas substantial shareholders held approximately 8% of equity capital on average. Substantial shareholders in the sample generally represented large minority shareholders, who are of course able to exercise controlling power, depending on the composition of the remaining shareholders.

Table 3 Descriptive statistics

		Mean	Std. Deviation	N
Model 1	Index	0.3353	0.0995	46
	Audit Committee size	3.2609	0.9294	46
	Average subst shareh	0.0767	0.0422	46
	Capital Employed	142,743.6087	300,342.2992	46
	Freefloat	0.6096	0.2062	46
	Gearing	0.3578	0.2846	46
	iNED-Ratio	0.9203	0.1739	46
	Internal Audit	0.6304	0.4880	46
	NED-ratio	0.5336	0.1372	46
	ROCE	0.0426	0.2395	46
Model 2	Index	0.3353	0.0995	46
	Audit Committee size	3.2609	0.9294	46
	Average subst shareh	0.0767	0.0422	46
	Freefloat	0.6096	0.2062	46
	Gearing	0.3578	0.2846	46
	iNED-Ratio	0.9203	0.1739	46
	Internal Audit	0.6304	0.4880	46
	NED-ratio	0.5336	0.1372	46
	ROCE	0.0426	0.2395	46
	Turnover	123,684.6739	223,588.3099	46

4.2 Model analysis – Model 1

The Pearson correlation coefficient, or as it is sometimes referred to, the Pearson's product moment correlation R is a measure of change of one variable when another variable changes its value. It represents the absolute value of multiple correlation coefficient. The value R=0.6696 (Table 4 Panel A) for Model 1, using capital employed as size predictor, indicates a strong positive relationship between the dependent variable and the predictors.

Table 4 Model summary

Panel A

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	0.6696	0.4483	0.3104	0.0826	3.25092	0.005467

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.0560	0.1069		-0.5236	0.6038
	Audit Committee size	-0.0022	0.0177	-0.0208	-0.1258	0.9006
	Average subst shareh	0.8948	0.3905	0.3800	2.2914	0.0279
	Capital Employed	0.0000	0.0000	0.3174	2.5030	0.0170
	Freefloat	0.1202	0.0845	0.2491	1.4221	0.1636
	Gearing	0.0369	0.0493	0.1057	0.7490	0.4587
	iNED-Ratio	0.1351	0.0736	0.2362	1.8359	0.0746
	Internal Audit	0.0543	0.0298	0.2662	1.8224	0.0767
	NED-ratio	0.1320	0.1127	0.1821	1.1711	0.2493
	ROCE	-0.0143	0.0529	-0.0344	-0.2703	0.7885

Panel B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
2	0.6659	0.4434	0.3042	0.0830	3.18598	0.006212

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-0.0620	0.1072		-0.5777	0.5671
	Audit Committee size	-0.0055	0.0178	-0.0510	-0.3059	0.7615
	Average subst shareh	0.7967	0.3956	0.3384	2.0140	0.0515
	Turnover	0.0000	0.0000	0.3101	2.4262	0.0204
	Freefloat	0.1262	0.0846	0.2617	1.4915	0.1445
	Gearing	0.0432	0.0495	0.1236	0.8733	0.3883
	iNED-Ratio	0.1387	0.0738	0.2424	1.8796	0.0683
	Internal Audit	0.0536	0.0299	0.2629	1.7921	0.0815
	NED-ratio	0.1566	0.1142	0.2161	1.3716	0.1787
	ROCE	-0.0132	0.0531	-0.0318	-0.2486	0.8051

However, there are differences between predicted values for index and observed values. R Square gives the proportion of variance that can be explained by a model. R Square=0.4483 in Model 1 (Table 4 Panel A) means that 44.8% of changes in the dependent variable can be explained by changes in the predictor variables. The adjusted value of Model 1 adjR Square=0.3104 gives an estimation of how well the model would

fit another set of data from the same population. In other words, it is estimated that if other sample units were drawn, the same model would explain 31% of the variance of the dependent variable. This is because the intercept and the slope are based on the data set of this study and therefore fit that data set somewhat better than it would another sample. Norusis (2004) suggests that this adjusted value should be considered for models with many predictors. The adjusted R Square Value is significantly lower than R Square. This could be an effect caused by the relatively high number of predictors. A fact that will be explored in more detail below. The Standard Error of the Estimate is an estimation of the variability of the multiple regression measured in standard deviations. The value 0.0826 indicates a small spread of variability.

4.3 Model Analysis – Model 2

Model 2, using turnover as size measure, delivered equally respectable results, although fairing a little behind Model 1. Table 4 Panel B shows R=0.6659 indicating a similarly strong positive correlation between dependent and predictor variables. The R Square value in Table 4 Panel B is R Square=0.4434 and again only very slightly below Model 1. The adjusted R Square Value of adjR Square=0.3042 is 0.0062 lower than Model 2. Standard Error of the Estimate is very similar to Model 1.

It is impossible to infer any useful conclusions from the small differences in both models. What does become clear, is that the impact of using the two different size predictors does not lead to substantially different results and subsequently different conclusions.

4.4 Analysis of Variance (ANOVA)

The Analysis of Variance (ANOVA) tests the significance of the regression models. Significance testing has evolved from the question whether the observations were made by chance. Significance has a different meaning in statistics than in daily life (Mujis, 2004). Significance in statistics is a measure of the probability of not finding an effect in

the population when there is one in the sample. Table 4 Panel A shows the Significance as p=0.005 in Model 1 and p=0.006 in Table 4 Panel B for Model 2. That means that there is less than 1% probability in both models that the correlation effects on which this regression model is based are not present in the population.

Mujis (2004), as well as Hinton at al. (2004) along with many others suggest that commonly a 5% or lower significance level is recognised as threshold to accept significance. Setting a higher level increases the probability that the observed effect in the sample is not present in the sample population. This could lead to a Type I error. That is, rejecting the null hypothesis when in fact there is no effect in the population. Setting a lower threshold increases the risk that the null hypothesis is not rejected when, in fact, there is an effect in the sample population; a Type II error. A significance of 0.5 % and 1% as in this study would provide a firm basis to reject the null hypothesis and accept the research hypotheses.

Significance testing is not without criticism. In studies like this, with a small sample, the difference between, for instance, p=.049 and p=.051 with a threshold set at p=.05 can be one value in a data set. Muijs (2004) put forward the argument that relationships with a correlation coefficient of 0 very rarely occur. Some correlation, according to his argument, is found most of the times. He describes this as the universal crud factor. Bearing this in mind, the significance factor in this study should be interpreted with caution. This will become apparent in the later discussion below.

Although the sample is small, the number of predictors is high and consequently the possibility to find correlations as well. These correlations vary in strength and might even vary in direction. Since ANOVA is calculated with nine predictor variables in this study, it loses some of its validity. Muijs (2004) and Norusis (2004) suggested using confidence intervals instead. Confidence intervals give a lower and upper limit, between which a value can vary, since the value of the population is not known. The spread of the interval then depends on the required confidence level. The higher the confidence value between the lower and the upper limit, the wider the spread need to be. The other important measure to supplement significance is effect size. Effect size looks at the impact of a statistic. The question asked by this line of thought is whether the described

effect is large enough to pursue it further or draw useful conclusions from it. Effect size indices can be compared with results of other studies. The effect size is measured in the F-Test and can be seen in Table 4 Panel A as F=3.251, and in Panel B as 3.186 for Model 1 and Model 2 respectively. Muijs (2004) suggests classifying both values as a modestly strong effect size. R Square value, effect size and significance suggest that there is sufficient evidence to reject the null hypothesis. This will be looked at later when the data is analysed in more depth.

4.5 T-Test

Table 4 Panel A and B contain information about the strength (the slope) and direction of correlation between individual predictors and the index. For a change of one unit in the dependent variable, the predictor variable changes its value by the figure given under B, provided that all other predictor values remain constant. Beta also provides information about the slope. But the information is standardized. Under Beta the figures show the change in the dependent variable's value for a change of one standard deviation in the respective predictor variable, provided that all other predictor variables are held constant. The values become comparable. Since all predictors influence the outcome in various strength it would be wrong to draw conclusions as to the correlation of the predictor and the index in isolation.

The T-Test is calculated as the slope B divided by the standard error. The steeper the slope and the smaller the standard error, the higher the value of t. In this paper the value of t is used to measure the contribution of the variable to the regression model. Field (2000) suggested using Beta, since the values provide information about the strength and direction of correlation between predictor and outcome at the same time. Whatever is used, the result remains the same.

4.6 Analysis: Capital Employed

Capital employed is a significant predictor in Model 1. Table 4 Panel A shows this predictor with t=2.50 as the highest contributor to the outcome. Significance is p=0.017. The Pearson Correlation (partial correlation) in Table 8 of Appendix D between capital employed and index is positively and moderately strong, indicating that the quantity of relevant disclosure increases with this size proxy measurement. The finding is of statistical significance and can therefore be extrapolated to the entire sample population. Companies with larger capital employed listed under the business support and services sector of the LSE disclose more narrative risk-relating information than companies with smaller capital employed.

The Finding size as the most influential predictor is consistent with previous research and not surprising. Size plays an important part in the context of all theories discussed in this paper and is discussed in detail above.

4.7 Analysis: Turnover

Turnover is the size predictor of Model 2. Table 4 Panel B shows t=2.462, again the most important predictor in the model. Significance is p=0.0204. Although lower than the size significance in Model 1, still well below 0.05. Above finding applies analogously. Companies listed under the business support and services sector with higher turnover disclose more information in narrative, risk management-relating information than companies with lower turnover, i.e. smaller companies.

4.8 Analysis: Average substantial shareholding

Average substantial shareholding was used in the context of agency theory, the Shleifer and Vishny (1986) research, and as proximity variable for Ho and Wong's (2001) concept of influential personalities. The predictor provided the second highest contribution in both models. Table 4 Panel A shows t=2.2914 and Panel B t=2.014. Significance in Model 1 is p=0.0279, well below the 0.05 threshold. In Model 2

significance is p=0.0515, just above the 0.05 level. This finding emphasises the problem with significance testing as discussed above.

The correlation in the regression is positive. That means that higher average substantial shareholdings correlate with higher index values. Correlation, however, must not be equalled with causality (Graham 2003).

The positive correlation is not intuitive. When a relatively small number of people hold a relatively large part of equity capital one could assume that they have other means of receiving information from the company than the annual report. It could be hypothesised that a few relatively powerful shareholders exercise stricter control than many shareholders with diffused power. This stricter control could lead to more information being disclosed to the more powerful shareholders. The company could then, for legal reasons as well as economic reasons, consequently choose to remove information asymmetry amongst their shareholders as well as between shareholders and the market. Information asymmetry, as argued above, can have negative effects on the cost of capital.

The observed positive correlation add to the debate around institutional shareholder activism. The model in this study disregards institutional shareholdings completely. The model indicates that more information is available from companies with more concentrated shareholderings. Institutional investors, too, may be able to gain increased information about compliance to the Turnbull Guidance and FRS 13 from companies by exercising the power derived from proxy voting rights.

4.9 Analysis: Freefloat

In fact, there is an indication found for institutional shareholder activism. Annual reports do not usually report the percentage of voting rights controlled by institutional shareholders. It is likely that there is a strong positive correlation between freefloat and voting rights controlled by institutional shareholders. The predictor variable freefloat is

positively correlated to the outcome, but the finding is statistically insignificant. There is a 16% probability that correlation is not found in the sample population (Table 4 Panel A) in Model 1, and a 14% probability in Model 2 (Table 4 Panel B). Although extrapolation to the population may not be prudent, it indicates that some relation between atomistic shareholders and outcome exists, at least in the sample. It is interesting to note that the partial correlation between freefloat and index (Table 8 in Appendix D) is neutral. Again, this finding cannot be extrapolated to the entire sample population, but it raises questions as to how institutional investors influence disclosure behaviour.

The Institutional Shareholder's Committee (ISC) issued a Statement of Principles concerning the Responsibilities of Institutional Shareholders and Agents (ISC 2002) in which they manifest their approach to institutional shareholder activism. In a conversation with Liz Murrall (personal communication, September 7 2004), Senior Advisor Corporate Governance, of the Investment Management Association (IMA), she emphasised the proactive approach their members took. In her survey of IMA members (Murrall 2003), 32 out of 33 respondents, representing 54% of the members' funds under management, exercise all voting rights as a matter of policy; one only did if it felt it was necessary. All actively engaged with investee companies. Although this is not scientific research, it does indicate that fund managers do translate documents, such as the ISC's Statement of Principles (ISC 2002) and, of course, the Combined Code into policies. The Hampel Report (Hampel 1998) recognised that institutional investors in the UK do have a role to play in controlling management. The Combined Code in its current version does have provisions for institutional shareholders. Section 2 of the Combined Code encourages institutional shareholders to engage with the investee company, evaluate governance disclosures and exercise their voting rights.

The argument is not entirely consistent. Institutional shareholding does not automatically increase with free float. The ownership predictors also play a role in information asymmetry and capital cost theory, the company could be tempted to increase disclosure to avert adverse selection especially when their shareholders invest over the short-term rather than having a long-term interest.

4.10 Analysis: iNed-Ratio and Internal Audit

Both models show two other predictors predominantly chosen because of agency theory as influential to the outcome; although not significant. The ratio of independent non-executive directors on the audit committee and Internal Audit. Both could be seen as the principals extended means to exercise control.

This finding is rather interesting. The new Combined Code incorporated the Higgs Report which introduced the concept of independence of non-executive directors. There is no research on the impact of this new concept of independence on disclosures to date. Ho and Wong (2001) came closest when they studied the impact of independent directors, amongst other variables, on disclosures in Hong Kong.

The finding in this study would indicate that the size of the audit committee is, in fact, less important than its make up. This could be an indication that the Higgs Report rightly recognised that independence of non-executive directors as important. Similarly, there is no empirical research on the effect of internal audits on disclosure. There is some research into the impact of audit on disclosure. Researchers such as Inchausti (1993) or Raffournier (1995) found correlations between audit companies and disclosure. Size of the audit firm was sometimes found as a relevant, significant predictor. This relation was found mostly by using a dichotomous predictor variable as to whether or not companies were audited by the leading auditors.

The obvious explanation is that audit firms do in some way influence what the company discloses in the annual report. Although it is likely to be outside the mandate of the audit firm, some degree of influence might be exercised in what the company discloses in respect of their risk control mechanisms. There is no direct explanation for this effect, nonetheless, it was proven to exist in several studies. It was sometimes argued that more disclosure and the use of a globally reputable auditor indicates that the

company builds on signalling theory and signals superior conduct to the market (Inchausti 1997, p.55) or to the audit company itself.

Internal audit is different in this respect. The signal of having an internal audit function is very likely not as strong as the use of a globally leading auditor and there is little sense in signalling to internal audit via the annual report. There are no provisions in the Turnbull Guidance or indeed in the Combined Code that define the functions and responsibilities of internal audit. There are no legal requirements for any business to have such function. It is left to the companies themselves to decide whether or not they wish to have an internal audit function and what their mandate is. The influence on what is or is not disclosed in the annual report is by no means obvious. Internal audits do not necessarily participate in the production of the annual report. Companies can choose whether their internal audit function is a welcome contribution in this process.

When a company does maintain an internal audit function it seems likely that they have more highly developed and structured control systems and, more importantly, provide more reports about it. However, there is a considerable degree of uncertainty in this hypothesis as there is no scientific research verifying this argument.

Another possible explanation would be, for instance, that bigger companies have internal audits and the results are caused by collinearity or coincidence. More in-depth research would be needed.

4.11 Analysis: ROCE

Profitability (ROCE) has little influence on outcome and is not significant (s. Table 4 Panel A and B) in both models. Other studies have found that profitability positively relates to disclosure and significantly contributed to their models. Signalling theory was used as an explanation for this effect.

It was found that this does not hold true for information relating to risk controlling systems in both models. The correlation here is weakly negative. Which would mean that information decreases slightly as profitability increases. This discrepancy from earlier research could be interesting. Smith (1996) found that institutional shareholder activism increases when the company stock performance is low. It could be that companies respond to reduced information demand from their shareholders when they consider performance to be good. The survey of Solomon et al. (2000) found that institutional investors are not interested in actively involving themselves in the decision making process of the investee company. Also, they found that their attitude is more focused on not being *caught out by unusual company performance which in turn would adversely affect portfolio performance*. Murrall (personal communication, September 7, 2004) described a more proactive approach, but this is more anecdotal than scientific. This would support the argument that institutional investors might lessen their control activities when the company performs well.

Aerni (1999) argued that profit is usually earned for accepting risk. Following this argument shareholders would have more reason to demand information about risk control systems for more profitable companies than for less profitable companies. This effect is, of course, partly setoff by the theory around cost of capital. Less profitable companies might choose to disclose more information to lower their cost of capital. An outcome caused by breakdown of internal risk management could be more severe for less profitable companies, since they might be less able to compensate with other profits for this loss. The downside risks might increase for less profitable companies. But nonetheless, finding that the outcome is almost unaffected by profitability in both models is inconsistent with some previous studies and potentially very interesting.

4.12 Analysis: Gearing

The importance of gearing varies in previous studies. This study found gearing weakly correlated to the outcome in both models (Table 4 Panel A and B). The contribution to the models was moderate and not significant.

The risks resulting from higher gearing are mainly financial in nature. Generally this is the ability to pay interest which is usually dependent on interest levels rather than financial success and cash in-flows. So, irrespective of the financial position, interest would have to be paid. The other risk is the dependence on the continued willingness of the lender to provide finance. The latter is very likely to depend largely on the perceived ability and willingness to pay interest and repay capital at maturity. Financial risk can be best assessed by analysis of numerical information contained in balance sheet, profit and loss account and cash-flow statement (Sengupta 1998). Therefore, gearing should not directly increase the need for more narrative disclosure. However, as discussed above, there is a transfer of wealth from shareholders to stakeholders, which could potentially raise the need for more disclosure. So, if lenders have no need for additional risk disclosures, i.e. information that is not already disclosed because of other demands the correlation coefficient remains close to zero as found in this study.

4.13 Summary

This study tries to establish the determinants of narrative disclosure concerning risk management and internal control. An Index was created based on the Turnbull Guidance and FRS 13. A sample of 46 UK companies listed on the LSE in the business support and services sector was selected. The predictor variables were chosen based on empirical research into voluntary disclosure behaviour.

The literature report section of this study established the possibility for companies to tailor their corporate governance systems to their needs. Turnbull Guidance in particular does not contain very specific provisions concerning disclosures. This is exacerbated by the virtues of self-regulation, the comply or explain approach and not lenient regulation, it was also established that it is largely left to the company to decide which information about risk management systems and procedures are disclosed.

Two regression models were calculated with nine predictor variables each. The size predictor variable was capital employed in Model 1 and turnover in Model 2. All other predictor variables were identical. Regression Model 1 was able to explain 44.8% of variance in the dependent variable by variance in the predictor variables. Model 2

explained 44.3%. This, as such, could mean that there are other determinants of disclosures which are not included into this model. Interesting to note in this context may be the two outliers excluded from the sample. In both cases something occurred during the reporting period that might have influenced disclosures. A failing of management in one case and major finance restructuring in the other. It is, of course, not proven that these facts influenced disclosure, but nevertheless it does give an indication that there can well be determinants not included into the model that have significant influence on disclosure behaviour. Especially in the fluid world of legitimacy theory, where determinants and their importance can vary over time.

Both models showed a moderate but significant effect. The effect size of the Model 1 is $F=3.250$ with a significance of $p=0.005$.The effect size of Model 2 is $F=3.186$ with a significance of $p=0.006$. Since F is greater than 1 in both models, at least one of the predictor variables in each model must have a regression coefficient which is not nil and the statistical significance is at 0.01 level. Therefore, the results from the model can be extrapolated to the entire sample population.

The paper confirmed that narrative statements from companies in the business support and services sector concerning risk management are similarly affected by size than voluntary disclosure in general. Size and narrative disclosure quantity are positively related in the business support and services sector. Almost all relevant theories attach importance to company size. Political cost and legitimacy theory may be very important as larger companies are more exposed to the media and more people are affected by their activities.

The second significant predictor variable was average substantial shareholding. Some previous empirical research showed a relationship between ownership and disclosure behaviour. Average substantial shareholding was also an important predictor in both models but only in Model 1 below the significance level of 0.05. In Model 2 the significance was $p=0.0515$ just above the threshold. Interestingly, Table 8 in Appendix D shows other significant partial correlations between predictors chosen mainly because of agency theory and Index. However, only the proxy-predictor for large minority shareholders was significant in the regression models. It could be argued that

institutional investors, controlling a large majority of equity capital in free float, have less influence on disclosure than concentrated shareholders. However, this paper can only provide an impetus for more research into the important discussion about shareholder activism. The neutral partial correlation found in the sample is not significant and can therefore be not expanded to the entire sample population, which would not be representative of the British economy anyway. Nonetheless, the predictor freefloat was found not significant whereas freefloat was significant.

The following Table 5 shows the conclusions concerning research hypotheses based on the Pearson correlation model (Table 8 in Appendix D).

Table 5 – Research Hypotheses

Hypothesis	**Accepted / Rejected**	**Correlation coefficient**	**Significance**
H1: Capital Employed is positively related to risk disclosure	Accepted	+0.356	0.008
H2: Turnover is positively related to risk disclosure	Accepted	+0.356	0.008
H3: Gearing is positively related to risk disclosure	Accepted	+0.346	0.009
H4: NED-ratio is positively related to risk disclosure	Rejected	+0,197	Insignificant
H5: Audit Committee size is positively related to risk disclosure	Rejected	+0.177	Insignificant
H6: iNED-ratio is positively related to risk disclosure	Accepted	+0.316	0.016
H7: Average Substantial Shareholding is positively related to risk disclosure	Accepted	+0.267	0.036
H8: Freefloat is positively related to risk disclosure	Rejected	0.027	Insignificant
H9: Internal Audit is positively related to risk disclosure	Accepted	0.301	0.021
H10: ROCE is positively related to risk disclosure	Rejected	-0.106	Insignificant

4.14 Limitations

Johnson and Bhattacharyya (2001) argue that devising a model, fitting the model by estimating the least squares, and testing hypothesis is only *half the story*. The sample data should be examined to test how well they comply with the parametric assumptions of linear multiple regression and this T-Test. Norusis Norusis (2004), Hinton et al. (2004) and others suggest examining residuals.

The first assumption of independence of observations should not pose a problem in this model. Research designs where the data from the same sample units is collected repeatedly are more likely to suffer from observations that are not independent. As independence of data is given by design in this study, tests were omitted.

Norusis (2004) devised a sequence of tests that can be performed to establish linearity of the relation between each predictor and dependent variable; assumption two. Also, normal distribution and consistent spread (variance) for each value of predictor variable; assumptions three and four, are suggested by him. There is some debate about the degree of violation of the assumptions necessary to adversely affect the outcome (Hinton et al. 2004). In this paper it is believed that the assumptions of linear regression and T-tests were not sufficiently violated to corrupt the outcome and hence the conclusions drawn from it.

Since the scoring was undertaking by one tester, reliability is an inherent problem. Literature suggests several ways to increase reliability. Collis and Hussey (2003), for example, suggest a test re-test method, where the same survey is repeated and outcomes compared. This survey was conducted by only one assessor and a relatively small sample size. It is likely that the assessor would have remembered the score of the initial test and consequently corrupted the results of the re-test. Salkind (2004) suggests various internal consistency reliability models. Cronbach's Alpha or Kuder-Richardson 20 and 21 are

named. Cronbach's Alpha, for example, is based on the logic that a sample unit with an overall high score should score higher on each individual item and vice versa. The solution of Cronbach was to find correlation between each individual item with the overall score. The Index used in this survey, however, is based on categorical data, i.e. disclosed or not disclosed. Within the limits of this study a more practical way of enhancing reliability was chosen. Adopting a narrow interpretation of information and the simplistic construction of the index should avoid subjective information valuation and provide a higher degree of reliability. However, an element of subjectivity may not have been eliminated.

Disclosures measured by the index are not to be taken as manifestations of underlying quality of risk management. Indeed, the index did not measure quality or importance of the narrative statements but simply quantity. It is equally important to note, that there might be information contained in narrative statements of annual reports that were considered to not explicitly relate to an item of the index, but still may have strong relevance to risk management. This effect may be exacerbated by the narrow interpretation of narrative statements adopted when scoring was undertaken.

4.15 Further Research

The conclusions drawn in this paper are valid for the business support and services sector. Although this sector contains companies with diverse background and business activity, it does not represent British businesses as a whole. This paper could provide an impetus for more empirical research into the extent and determinants of risk-relating disclosures on a larger scale. Research capturing a more complete picture of risk-relating reporting activity in Britain would be very useful.

This study found that size is an important determinant of disclosure. It confirms that the reason for risk-relating narrative disclosure in this respect is not different from voluntary disclosures in general. The study, however, also proves that ownership structure, i.e. control mechanisms, have an impact on relevant disclosure. A phenomenological research, such as a case study, could explore in detail the underlying

influences of risk disclosure. Such qualitative study could give valuable additional information to help the interpretation of the observed correlations and more importantly the results of the regression models.

In this study it was particularly difficult to evaluate the extent of information provided due to the absence of comparisons. Research should be undertaken into the extent of risk-related reporting in Britain as a whole. A comparison could be made with the information required by readers of annual reports; following considerations by Solomon et al. (2000).

The findings could be of great importance to many practitioners in the field. The insights of scientific research would be of special interest to policy makers. In July 2004, a group was set up by the FRC to look at the Turnbull Guidance and update it if necessary. One focus of this review process will be to address the disclosure provisions. Attention to this was drawn by the Sarbanes-Oxley Act (USA, 2002), which contains provisions for compulsory risk-relating reporting in great detail, including specific risks. The approach in the UK has been distinctly different in allowing companies more space for their own judgement. The decision of how to proceed in the future is of great importance to businesses in the UK. It also sets the tone of future regulation. To base such important decisions on scientific research rather than political process could hold distinct advantages.

The importance of the of scientific knowledge about extent, quality and fit of risk-relating disclosures to policy makers seems intuitive. But also knowledge about the determinants can be very useful to policymakers. Questions as to whether regulation should incorporate special provisions for small companies, or companies with concentrated ownership, large minority shareholders or without defined internal audit could be answered.

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APPENDIX A

Table 6 – Disclosure quantity index

Item	Mandatory /Voluntary	Turnbull Section	Required statement narrative	Frequency
1	M	5a)	How the code was applied	42
2	M	5b)	Whether or not complied with throughout the reporting period	44
3	V	16)	The board of directors are responsible for internal control	45
4	V	16)	Seek regular assurance to satisfy itself that systems are functioning	17
5	V	17)	Definition of what constitutes sound internal control	12
6	V	17)	Nature and extent of risk	5
7	V	17)	Extent and Categories of acceptable risks	3
8	V	17)	Likelihood of such risk	6
9	V	17)	The ability to reduce impact	6
10	V	17)	Cost/benefit of controlling risk	4
11	V	18)	Management should identify risk	29
12	V	18)	Management should evaluate risk	25
13	V	18)	Management has the knowledge and skill to operate the risk management system (RMS)	8
14	V	18)	Management has the required information to operate the RMS	14
15	V	18)	Management has the authority to operate the RMS	22
16	V	19)	Employees play their part in the RMS	9
17	V	20)	Internal control system encompasses policies, processes, tasks and behaviours	10
18	V	21)	Internal control system (ICS) reflects control environment	40
19	V	21)	ICS encompasses control activities	15
20	V	21)	ICS encompasses Info and communication processes	27
21	V	21)	ICS encompasses monitoring processes	24
22	V	22)	ICS is embedded in organisation	11
23	V	22)	ICS enables to respond quickly	4
24	V	22)	ICS allows possibility to report immediately to appropriate levels about weaknesses or failures	8
25	V	23)	Acknowledgement that ICS cannot eliminate fraud, poor judgement, human error, management overriding controls, and occurrences of unforeseeable circumstances	3

Item	Mandatory / Voluntary	Turnbull Section	Required statement narrative	Frequency
26	V	24)	Acknowledgement that ICS cannot provide protection with certainty against a company failing to meet its objectives or all material errors losses, fraud or breaches of laws or regulations	6
27	V	25)	Board forms its own opinion	10
28	V	25)	Management is accountable to the board for monitoring and provides assurance that it has done so	17
29	V	27)	Management regularly receives and reviews reports on ICS	23
30	V	27)	Board undertakes annual assessment before public disclosure	15
31	V	28)	Board should not review all risks but include all types of controls; incl. such of operational nature	23
32	V	28)	Board should not review all risks but include all types of controls; incl. such of compliance nature	19
33	V	28)	Board should not review all risks but include all types of controls; incl. such of internal financial nature	2
34	V	29)	Board defines processes how to review effectiveness	9
35	V	29)	This definition encompasses scope and frequency of reports received during the year and process of the annual assessment	3
36	V	29)	The Board's statement on ICS in annual report is supported by sound, appropriately documented reports	2
37	V	30)	Reports from management to board are a balanced assessment of all significant risks	4
38	V	30)	Reports from management to board are a balanced assessment of effectiveness of ICS in managing those risks	5
39	V	30)	Reports form management to board discuss any significant control failing or weakness	2
40	V	30)	Control failings or weaknesses contained in reports from management to board discuss impact that they had or could have had	1
41	V	30)	Discuss actions taken to rectify control failings or weakness contained in reports from management to board	4
42	V	31)	Board reviews during the year significant risks, identification and evaluation processes	24
43	V	31)	Board assess during the year the effectiveness of ICS with emphasis on failings and weaknesses	7
44	V	31)	Board reviews during the year whether rectification of failings or weaknesses was taken promptly	3
45	V	31)	Board considers during the year whether more monitoring is required	1

Item	Mandatory /Voluntary	Turnbull Section	Required statement narrative	Frequency
46	V	32)	Board assesses, for the purpose of making its public statement on ICS, all reports reviewed during the year and any additional information	6
47	V	33)	The board's annual assessment included any changes since last year	6
48	V	33)	The board's annual assessment included scope and quality of monitoring	4
49	V	33)	The board's annual assessment included the extent of reports received from management	2
50	V	33)	The board's annual assessment included the frequency of reports received from management	0
51	V	33)	The board's annual assessment included significant failings and/or weakness their impact and management	1
52	V	33)	The board's annual assessment included the effectiveness of the company's public reporting processes.	1
53	V	34)	The board reviewed how failings or weaknesses arose and re-assessed the effectiveness of management's ongoing processes for designing, operating and monitoring ICS	1
54	M	35)	D.2 [now C.2] was applied	24
55	M	35)	There is an ongoing process for identifying, evaluating and managing significant risks	38
56	M	35)	This process has been in place over the year and up to the date of approval of the annual report	29
57	M	35)	This process is regularly reviewed by the board and accords with the Turnbull Guidance	32
58	M	37)	Board is responsible for ICS and its reviews	41
59	M	37)	ICS is designed to manage and not to eliminate	31
60	M	37)	ICS provides reasonable not absolute assurance against material misstatement or loss	42
61	M	38)	Summary of the process to review effectiveness of ICS by the board	33
62	M	38)	The board's process to deal with material internal control aspects of significant problems disclosed in annual report [point was awarded whether or not a problem was reported; as long as the process was described]	8
63	M	41)	Material joint ventures and associates which have not been dealt with as part of the group and the Turnbull Guidance have not been applied are disclosed [point awarded if disclosed that Turnbull Guidance was applied to all material joint ventures and associates]	7

Item	Mandatory /Voluntary	Turnbull Section	Required statement narrative	Frequency
64	V	42)	The need for internal audit is reviewed from time to time [point awarded if no internal audit function is maintained, no review has taken place and this is disclosed – s. Sec. 47; this ensures that the overall max. points available are the same whether or not the unit has an internal audit]	14
65	V	43)	Board is able to obtain objective assurances and advise on ICS	15
66	V	44)	Management needs to employ other methods of monitoring with sufficient objective assurance if internal audit function is absent. [Point is available to units with internal audit if stated that they considered additional methods of assurance]	2
67	V	45)	Trends are considered for the need of internal audit function or provision of adequate resources [Point is available to units without internal audit if stated that trends were considered for their alternative methods of assurance]	2
68	V	46)	Board reviews annually scope of work of internal audit and its authority. [Point is available to units without internal audit if they reviewed the scope of their alternative methods of assurance]	7
Item	Mandatory /Voluntary	FRS	Required statement narrative	Frequency
69	M	FRS13	Explanation of the role that financial instruments play in risk profile	45
70	M	FRS13	Explanation of the board's approach to managing each of these risks	46
71	M	FRS13	Description of objective, policy and strategy for holding/issuing financial instruments	45

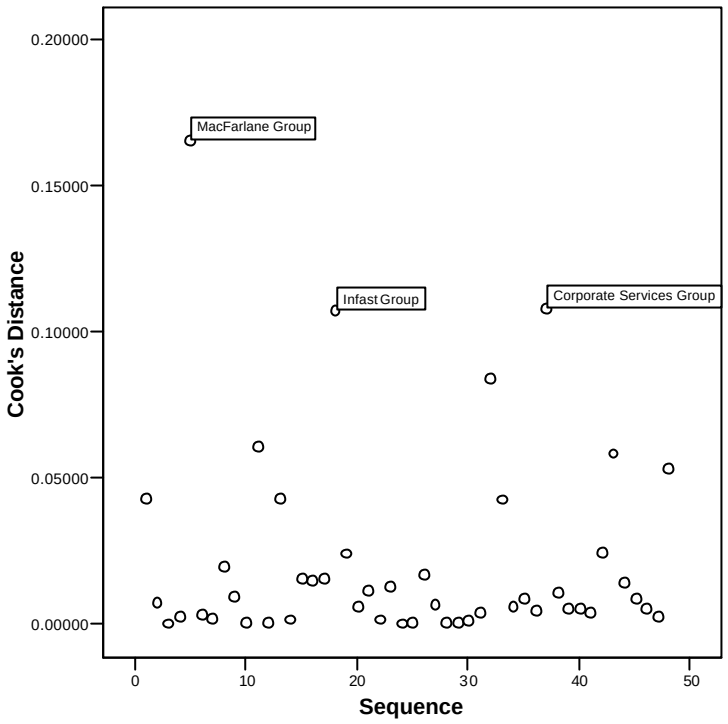
APPENDIX B

Table 7 – List of selected sample units in order of the draw

Draw No.	Sample Unit	Draw No.	Sample Unit
1	Mice Group	37	ACAL
2	Office2Office [later eliminated]	38	Danka Business Systems [later eliminated]
3	Latchways	39	Premier Farnell
4	Homeserve	40	4Imprint Group
5	Ricardo	41	Infast Group [later eliminated]
6	Macfarlane Group	42	Mitie Group
7	Johnson Service Group	43	Mouchel Parkman
8	Lavendon Group	44	Toad Group
9	Teesland	45	PHS Group
10	Serco Group	46	Ashtead Group
11	Aukett Group	47	Speedy Hire
12	Hays	48	Bunzl
13	RAC	49	White Young Green
14	Babcock International Group	50	Trifast
15	Universal Salvage		
16	Brammer		
17	Tribal Group		
18	Rentokil Initial		
19	Hyder Consulting		
20	AEA Technology		
21	Corporate Services Group [later eliminated]		
22	Waterman Group		
23	De La Rue		
24	VP		
25	Interserve		
26	API Group		
27	Intertek Group		
28	Watermark Group		
29	Diploma		
30	WSP Group		
31	Rexam		
32	Regus Group		
33	Laing (John)		
34	Brandon Hire		
35	Menzies (John)		
36	Robotic Technology Systems		

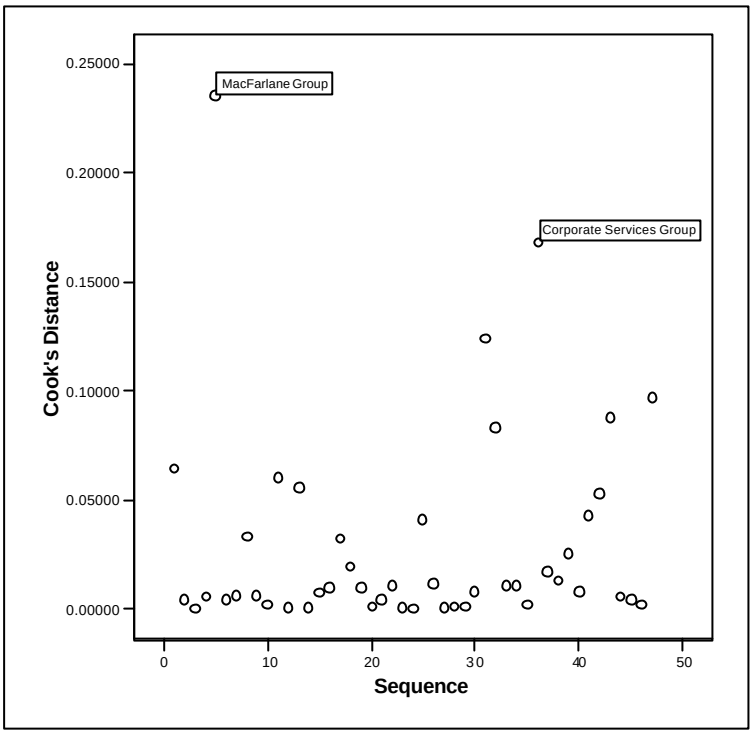
APPENDIX C

Graph 1 – Cook's Distance Model 1



Cook's Distance measures the change in all of the regression coefficients when a case is eliminated from the analysis (Norusis 2004, p. 559). Graph 1 shows that the elimination of MacFarlane Group would change all of the coefficients most. However, Infast Group has a standardised residual of 3.426 in Model 1, and 3.348 in Model 2. Combined with the relatively high impact on the other coefficients it was decided to eliminate the unit from the sample. After elimination another regression was calculated and analysed for outliers. Graph 2 shows again MacFarlane Group as the unit that would change all other coefficients most if eliminated from the calculation. Corporate Services Group shows as the second highest Cook's Distance value. Corporate Services Group, however, has a standardized residual value of –2.253 in Model 1 and –2.418 and was therefore eliminated.

Graph 2 – Cook's Distance Model 1



APPENDIX D

Table 8 – Pearson Correlation

Model			Index	Audit Committee size	Average subst shareh	Capital Employed	Freefloat	Gearing	iNED-Ratio	Internal Audit	NED-ratio	ROCE
1	Pearson Correlation	Index	1.000									
		Audit Committee size	0.177	1.000								
		Average subst shareh	0.267	-0.110	1.000							
		Capital Employed	0.356	-0.008	-0.056	1.000						
		Freefloat	0.027	0.257	-0.630	0.145	1.000					
		Gearing	0.346	0.098	0.187	0.059	-0.002	1.000				
		iNED-Ratio	0.316	-0.006	0.064	0.128	-0.039	0.126	1.000			
		Internal Audit	0.301	0.315	0.038	-0.008	0.020	0.360	-0.071	1.000		
		NED-ratio	0.197	0.480	0.064	-0.058	-0.110	0.122	0.166	-0.009	1.000	
		ROCE	-0.106	0.051	-0.077	-0.001	-0.022	-0.165	0.005	-0.134	0.091	1.000
	Sig. (1-tailed)	Index	.									
		Audit Committee size	0.119	.								
		Average subst shareh	0.036	0.234	.							
		Capital Employed	0.008	0.478	0.356	.						
		Freefloat	0.429	0.042	0.000	0.168	.					
		Gearing	0.009	0.259	0.107	0.349	0.495	.				
		iNED-Ratio	0.016	0.484	0.336	0.199	0.398	0.202	.			
		Internal Audit	0.021	0.016	0.400	0.478	0.446	0.007	0.319	.		
		NED-ratio	0.094	0.000	0.336	0.351	0.234	0.209	0.136	0.477	.	
		ROCE	0.242	0.367	0.306	0.498	0.442	0.137	0.487	0.187	0.274	.
2	Pearson Correlation	Index	1.000									
		Audit Committee size	0.177	1.000								
		Average subst shareh	0.267	-0.110	1.000							
		Freefloat	0.027	0.257	-0.630	1.000						
		Gearing	0.346	0.098	0.187	-0.002	1.000					
		iNED-Ratio	0.316	-0.006	0.064	-0.039	0.126	1.000				
		Internal Audit	0.301	0.315	0.038	0.020	0.360	-0.071	1.000			
		NED-ratio	0.197	0.480	0.064	-0.110	0.122	0.166	-0.009	1.000		
		ROCE	-0.106	0.051	-0.077	-0.022	-0.165	0.005	-0.134	0.091	1.000	
		Turnover	0.356	0.008	0.074	0.062	0.026	0.094	0.020	-0.120	-0.015	1.000
	Sig. (1-tailed)	Index	.									
		Audit Committee size	0.119	.								
		Average subst shareh	0.036	0.234	.							
		Freefloat	0.429	0.042	0.000	.						
		Gearing	0.009	0.259	0.107	0.495	.					
		iNED-Ratio	0.016	0.484	0.336	0.398	0.202	.				
		Internal Audit	0.021	0.016	0.400	0.446	0.007	0.319	.			
		NED-ratio	0.094	0.000	0.336	0.234	0.209	0.136	0.477	.		
		ROCE	0.242	0.367	0.306	0.442	0.137	0.487	0.187	0.274	.	
		Turnover	0.008	0.478	0.313	0.342	0.432	0.267	0.449	0.213	0.460	.