Busy Boards, Corporate Liquidity and Financial Risk: Evidence from UK Panel Data

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December, 2012

Abstract

This study examines a relationship between corporate financial risk and board "busyness". We offer new insights by evaluating two conflicting views on the quality of service that busy directors provide to corporate boards and their impact on board effectiveness. One view claims that directors who serve on multiple boards improve board decision making ability as they have better experience and business connections (*reputational effect*).The opposite view is that directors with multiple seats are "too busy to mind the business", which creates serious agency problems (*busyness effect*). By analysing a large sample of UK listed companies over the 1997 to 2009 period, we document evidence supporting a non-linear relationship between our proxy for board busyness and certain aspects of financial risk. In line with the *reputational effect*, we find that companies with board members that hold seats in other companies maintain a higher level of cash, net cash and financial slack. This effect is present, however, only at low levels of board busyness. In line with the *busyness effect*, our findings suggest that as board busyness increase further to a certain threshold, it negatively affects cash holdings, net cash and financial slack, implying a higher level of financial risk.

JEL Classification: G3, G32

EFM Classification: 110, 150

Keywords: Corporate Governance, Board Effectiveness, Busy Directors, Corporate Liquidity, Financial Risk

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This study examines a relationship between corporate financial risk and board "busyness". We offer new insights by evaluating two conflicting views on the quality of service that busy directors provide to corporate boards and their impact on board effectiveness. One view claims that directors who serve on multiple boards improve board decision making ability as they have better experience and business connections (*reputational effect*).The opposite view is that directors with multiple seats are "too busy to mind the business", which creates serious agency problems (*busyness effect*). By analysing a large sample of UK listed companies over the 1997 to 2009 period, we document evidence supporting a non-linear relationship between our proxy for board busyness and certain aspects of financial risk. In line with the *reputational effect*, we find that companies with board members that hold seats in other companies maintain a higher level of cash, net cash and financial slack. This effect is present, however, only at low levels of board busyness. In line with the *busyness effect*, our findings suggest that as board busyness increase further to a certain threshold, it negatively affects cash holdings, net cash and financial slack, implying a higher level of financial risk.

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1. Introduction

A large body of literature focuses on the role of boards of directors in corporate governance (see Adams, Hermalin and Weisbach, 2010, Hermalin and Weisbach, 2003 for comprehensive reviews of the literature). Recent theoretical and empirical research highlights the importance of busy directors for board process. Mace (1986), Rosenstein and Wyatt (1994), Loderer and Peyer (2002) among others show that busy directors are especially valuable in enhancing a board advisory and monitoring functions, Harris and Shimizu (2004) found that such directors are important source of knowledge and can, in particular, enhance acquisition performance. Field, Lowry and Mkrtchyan (2011) show that directors with multiple board seats (due to their experience and contacts) are excellent advisors and sought after by IPO firms. Haunschild and Beckman (1998) posit that positive effect of having busy directors on a company board can be extended from a single company to an entire corporate system due to the innovation dissemination throughout a corporate network.

Some scholars, however, are more sceptical on the view that busy directors serve shareholders' interests and add value to the firm. Core, Holthausen, and Larcker (1999), and Shivdasani and Yermack (1999) suggest that directors can become overcommitted when serving on multiple boards, rendering them unable to provide meaningful managerial monitoring. Fich and Shivdasani (2006), Jiraporn, Davidson, DaDalt, and Ning (2008) show that boards with busy directors are associated with lax corporate governance. Jiraporn, Kim, Davidson, and Singh (2006) connect busy boards to weaker performance and lower firm value. Despite a growing body of empirical evidence on the roles of busy directors, the link between board busyness and financial risk is largely unexplored.

In this study, we hypothesize that board of directors plays an important role for securing corporate liquidity and explore whether multiple directorships held by board members affect corporate liquidity and, as a result, financial risk. We argue that directors' busyness has an impact on board ability to maintain an adequate level of liquidity, bearing in mind that one of the important board decisions it to designate the range of cash reserves under the management's control. Non-operational cash holding is a hedging mechanism against "future cash flow shocks in bad times" (Lins et al. (2010), p.160) and acts as a general

corporate insurance policy[1]. Companies with well managed cash reserves will have higher value (Opler et al. (1999), Mikkelson and Partch (2003)) and lower cash flow volatility (Froot et al. (1994), Lins et al. (2010)) implying that these companies can be considered as less risky. However, in the presence of the agency conflict and absence of the external market disciple or/and an adequate monitoring from corporate board, there is a risk of improper fund allocation by managers resulting in company's value destruction (Jensen and Meckling (1976), Stulz (1990), Tufano (1998), Harford, Mansi, and Maxwell (2008)). An effective board can be instrumental in resolving agency conflict and restraining misuse of cash by careful monitoring of its accumulation and application. It (effective board) can safeguard larger cash reserves to permit prompt investments when required, minimizing underinvestment and missed investment opportunities (Myers and Majluf (1984), Stulz (1990)). An effective board implies that directors will be good monitors and will dedicate an adequate time to their duties. However, if directors serve on several boards, their monitoring ability might decline due to the inability to spend sufficient time on their duties. We refer to directors holding three or more seats in public companies (including home company) *as busy directors*[2].

Busy directors may significantly affect corporate financial risk for the following reasons. First, Means (1939), Pfeffer and Salancik (1978), Zahra and Pearce (1989) recognise a resource dependence role directors with multiple directorships play when they use their reputation and external contracts for the advantage of the firm they serve. Directors with good reputation may secure the competitive advantage for the company in access to required funds. Second, labour market will create strong incentives for directors to perform better within their "home" company, and as a result, to be good-minded risk managers[3]. Third, executive directors with outside directorships, due to their experience and knowledge, will represent replacement for the current CEO and, consequently, increase CEO performance incentives, resulting in careful risk handling[4]. Fourth, these directors are less dependent on their "home" CEO for career progression and, hence, can enhance board effectiveness by

[1] Lins et al. (2010) found that companies hold excess cash "as a buffer against future cash flow shortfalls"; this is a general reason, which ranked as a very important by CFOs and "does not refer to any particular outcome stemming from future cash flows that might worry a firm" (p.166).
[2] See Ferris, Jagannathan and Pritchard (2003) and Fich and Shivdasani (2006).
[3]Fama and Jensen (1983), Fich (2005), and Masulis and Mobbs (2011) argue that director will perform better due to the labour market incentives; however, since risk management represents an important task in overall directors' duties, better performance implies more careful risk consideration.
[4]Fich (2005), and Masulis and Mobbs (2011) advise that CEOs tend to perform better due to the internal competition; hence, CEOs will become better risk managers.

providing information required for the implementation of sound practices towards minimisation of financial risk acceleration[5].

However, holding of multiple directorships might negatively affect monitoring and advisory capacity of the board for the following reasons. First, Shivdasani and Yermack (1999) and Core et al. (1999) suggest that directors with multiple seats cater to CEOs and multiple appointments correlate with excess CEO compensation implying that such directors serve an inadequate check on management. Second, busy directors reveal higher propensity to be absent from board meetings neglecting their duties by not taking part in the strategic decisions-making process (Jiraporn, Davidson, DaDalt and Ning (2008)). Third, Beasly (1996) provides evidence that number of board seats held by supervisory directors exhibits positive correlation with accounting fraud, and points to the lack of attention from these directors. Fourth, busy directors take care of their own reputation and depart from underperforming company suggesting that presence of overstretched directors may be endogenous to firm performance (Maloney, (1999), Fich and Shivdasani (2006)).

We attempt to provide insights into how multiple directorships impact corporate financial risk by examining the relation between different financial risk proxies and board busyness. We use cash, net cash and financial slack to proxy for risk,[6] and measure board busyness as a proportion of directors with three or more directorships on the board. In our tests, we control for the important corporate governance characteristics (independence, board size, board tenure, proportion of "imported" CEOs, directors' age, and gender diversity) and for various firm parameters (size, performance, dividends paid, and profitability). We use a large sample of 1275 companies listed on the London Stock Exchange over the period 1997 - 2009. Our empirical methodology includes the estimation of panel data by using a pooled OLS model, a fixed effects model with robust standard errors, a fixed effects model with robust standard errors clustered by industry affiliation and a Fama-MacBeth model. Throughout our analysis, we find consistent support for the proposition that relationship between busy boards and firm risk is non-linear. Companies with board members that hold seats on other companies' boards, maintain a high level of cash, net cash, and financial slack, in line with *reputational effect*. However, when board busyness reaches a certain threshold, a

[5] Fich (2005), and Masulis and Mobbs (2011) stress that directors with outside directorships will be inclined to provide information of good quality to the board regardless CEO's will; therefore, board will be better informed and will be able adequately assess risks and advise on risk management strategies.

[6] See Florackis, McNalty and Ormond (2013). Also Opler et al. (1999), Lins, Servaes and Tufano (2010) found cash held by companies to be an important hedging instrument against "future bad cash flow outcomes"(Lins, Servaes and Tufano (2010) p.166).

further increase in board busyness has a negative effect on cash, net cash and slack, implying a higher level of financial risk.

Our findings contribute to the literature in four key ways. First, this study supplements existing research by expanding the understanding of relationship between firms' financial risk and board busyness. Second, while many scholars explore the role of busy directors and their contribution to the different aspects of business, we are unaware of any published research that investigates these issues using the UK-based sample. The UK is a particularly attractive setting to study the link between board busyness and certain aspects of financial risk. The recent financial crisis unsheathed shortcomings in the approach to the corporate risk management which is now addressed by the UK Corporate Governance Code 2010, pinning boards' responsibilities in relation to firms' risk oversight. Third, previous research almost exclusively focuses on impact of busy boards on firm performance and reputation. More recently, however, studies have examined the impact of busy directors on bank risk (Cooper and Uzun (2012)). We add to this body of literature by showing that multiple directorships affect company's financial risk in a complex non-linear manner considering a large sample of non-financial firms. Finally, it has direct implication for the public debate on limitation of the number of directorships held by executives. While the National Association of Corporate Directors (1996) put forward a threshold of three directorships, and the Council of Institutional Investors (2003) argues that directors with full-time jobs should not seat on more than two other boards in order to serve effectively, we argue that board effectiveness also depends on board busyness, i.e. on the proportion of the busy directors on the company board. By investigating board effectiveness and emphasising the importance of its risk management capacity, we analyse the impact busy boards have on the companies' financial risk and conclude that such boards affect one of the main directors' responsibilities introduced by the UK Corporate Governance Code 2010, its risk management ability, in a complex manner.

The reminder of the paper is organised as follow. In Section 2 we review the related literature on boards and certain aspects of corporate financial risk and develop our hypotheses. Section 3 contains the sample description and summary statistics. Section 4 provides the results on the relationship between busy boards and certain aspects of the corporate financial risk, and Section 5 summarises our findings.

2. Literature Review and Hypothesis Development

Busy Boards: Benefits

We consider two alternative objective perspectives used by firms when they elect busy directors to the board. The first, referred to as the *reputational effect* (Jiraporn, Singh and Lee (2009)), and originates from the resource dependence theory literature. It reflects the conventional view found in empirical corporate finance research that busy directors are preferred due to their exceptional advisory and monitoring ability, useful network and business contacts. External labour market acknowledges directors' superior managerial skills and talent, and number of external directorships serves as a proxy for director's reputation (Fama and Jensen (1983), Shivdasani (1993), Brown and Maloney (1999), Masulis and Mobbs (2011)). Multiple directorships are beneficial because they help executives to develop an expertise, learn about different management styles and strategies (Bacon and Brown, 1974; Both and Deli, 1996), and build-up a professional network. Directors with multiple board seats may use their external contacts for reputational purposes (Pfeffer and Salancik (1978)), to open new markets (Means, 1939), and secure a competitive advantage in accessing funds (Zahra and Pearce, 1989).

Additionally, Fama (1980) and Fama and Jensen (1983) consider the *reputational effect* as an important incentive for directors themselves, and Ferris, Jagannathan, and Pritchard (2003) argue that number of directorships positively correlates with firm performance. These findings reinforced in the recent study by Masulis and Mobbs (2011), which relates the presence of directors with outside directorships to superior board decision making and better company performance. Masulis and Mobbs (2011) contend that inside directors with multiple directorships serve a special role on their boards and put forward three reasons to support this argument. First, busy directors possess the experience and knowledge to become realistic candidates for replacing current CEO and consequently, enhance CEO's performance incentives. Second, additional directorships broaden executive's career opportunities and lessen dependence on "home" CEO for progression; consequently, it becomes easier to express challenging views opposite to those of CEO's in the boardroom. Third, labour market motivates directors to perform better within "home" company, as poor performance ceases access to additional directorships, career and reputational benefits. Busy directors are assets for the board because they are the sources of important knowledge. By using experience from other companies, they can recognise problems faster, minimise preparation time, and enhance performance in important corporate decisions, such as acquisitions (see also Harris and Shimizu, 2004). A recent research by Field et al. (2011) provides evidence that reputable

directors are preferred by newly public firms, which do not have market navigating experience, and rely heavily on expertise and contacts of busy directors. In addition to be beneficial to a single company, busy directors positively influence the entire corporate system by disseminating innovation through a corporate network (Haunschild and Beckman, 1998).

Cook and Wang (2011) argue that multiple directorships signal an exceptional ability of the director. The authors investigate trading performance of the directors with multiple directorships and find that these directors significantly outperform their counterparts with a single directorship. Cook and Wang (2011) examine whether this superior performance depends on the informativeness (by participating on the multiple boards, directors become better informed allowing them to use the obtained information and make better trading decisions) or the personal ability of the directors, and find strong arguments in favour of the personal ability. To verify these arguments, Cook and Wang (2011) investigate whether multiple directors continue to outperform their counterparts after they switch from multiple to single directorship, and find that these directors continue to perform better even after their status has changed. These findings support the signalling effect of multiple directorships, one of the important factors to be considered when firms evaluate potential directors. Based on the existing theoretical insight and empirical findings, we hypothesize that busy directors are cautious about their reputation and do not jeopardise company's liquidity by taking excessive financial risk (*reputational effect*). Hence, companies with busy boards are expected to have better financial liquidity and face lower corporate financial risk. Furthermore, by increasing the number of busy directors at the board level, firms minimise further their financial risk (magnifying the *reputational effect*). This leads us to the following hypothesis

> *Hypothesis 1 (Reputational Hypothesis): busy board will improve corporate liquidity and reduce corporate financial risk.*

Busy Boards: Disadvantages

The second view of the role of busy directors comes from the agency theory literature, which assumes that directors who overstretch themselves and accept additional seats due to the extra available personal perquisites, tend to spend less time on each individual board, compromise their responsibilities and neglect their duties (Ferris et al., 2003)[7]. Studies such

[7] See also Gilson (1990), Lipton and Lorsch (1992), National Association of Corporate Directors (NACD) (1996), Beasly (1996), Cotter, Shivdasani and Zenner (1997), Core, Holthausen and Larcker (1999), Brown and Maloney (1999), Shivdasni and Yermack (1999), Miwa and Ramseyer (2000), Bohren and Strom (2001), Ferris,

as Core, Holthausen and Larcker (1999), Shivdasani and Yermack (1999), Fich and Shivdasani (2006) criticise firms for appointing directors who hold multiple directorships and argue that such directors can become overcommitted and are unable effectively monitor management in many companies. Fich and Shivdasani (2006) uncover the inverse relationship between the company's performance and board's busyness, i.e. firms with busy boards demonstrate weaker operating profitability than firms with less busy boards. Fich and Shivdasani (2006) posit that increasing number of busy directors leads to board destruction and subsequent decline in monitoring intensity and determine that outside-dominated boards (boards with a high proportion of outside or supervisory directors) are effective only if directors on these boards are not busy. They also stress on the fact that company's share price drops when executive directors overstretch themselves by accepting additional board seats, and find that CEOs are unlikely to be removed for the below-average performance when boards are dominated by busy directors, even if a majority of directors on the board are independent. Shivdasani and Yermack (1999) argue that busy directors can cater for CEOs and allow them to increase agency costs due to the lax monitoring, which, in turn, results in subsequent poor performance and value destruction. They state that busy directors most likely to be chosen if CEO is involved in the selection process. Core et al. (1999) contend that busy directors set high compensation for CEOs, which results in a poor firms' performance. Perry and Peyer (2005) and Ferris, Jagannathan, and Pritchard (2003) find that directors view additional directorships as a good chance to improve their incomes before retirement. They are not usually penalised for the service of poor quality, and are not fired due to the close proximity to the retirement. Beasly (1996) uncover a positive relationship between an accounting fraud and a number of directorships held by outside directors. Firms with busy boards are, on average, more diversified and suffer a deep diversification discount (Jiraporn et al. (2008)). Jiraporn's et al. (2009) findings demonstrate that busy directors serve on fewer board committees with lack of committee work involvement causing decline in firm value. The recent research by Cooper and Uzun (2012) provides consistent evidence showing the positive relation between busy directors and bank risk. Additionally, Christy, Matolcsy, Wright, and Wyatt (2009) find a negative relationship between the market risk of equity and multiple directorships held by independent board members. Fich and Shivdasani (2006)

Jagannathan and Pritchard (2003), Fich and Shivdasani (2006), Cooper and Uzun (2012) who challenge the wisdom of holding too many directorships by examining busy boards' effectiveness.

provide evidence that announcements about departure of busy director[8] are welcomed by investors with high cumulative abnormal returns around the announcement day. This particular evidence points to the negative relationship between the presence of busy directors and a firm value.

In the recent research, Kaczmarek et al. (2012) adopted a notion of faultlines[9] from the social identity theory to their analyses of the board effectiveness. Task-related faultlines such as functional background, education and tenure can impair directors' motivation and ability to fulfil their duties (Hillman et al. 2008) resulting in lower board effectiveness, which in turn, affects firm performance (Huse, 2005, 2007). Group faultlines deteriorate a board performance due to the conflict between different teams leading to low group cohesion. Kaczmarek et al. (2012) argue that a concept of faultlines opens new interesting perspectives in understanding interaction dynamics between board members and how this dynamics affects various board functions and, consequently firm performance. Kaczmarek et al. (2012) find that faultlines deteriorate board performance, with the deterioration effect being magnified in the presence of busy boards. Directors on busy boards will have less time to spend on the important board's issues, and will pay less attention to these issues increasing "*salience of divisions based on task-related attributes... Such a course of events is therefore additionally detrimental for the cohesiveness and communication of the board as a whole*" (Kaczmarek et al., 2012: 341). A further justification of the ineffectiveness of busy boards comes from directors themselves. Directors do not welcome multiple appointments, and believe that by being involved in too many boards, they do not have sufficient time to spend on their professional duties, and, as a result, quality of offered advice and monitoring suffers (Lipton and Lorsch, 1992; Korn/Ferry International, 1998). Based on the above arguments and following studies of the effect of busy boards on company risk (Christy, Matolcsy, Wright, and Wyatt (2009), Cooper and Uzun (2012)), we argue that extremely busy boards have negative effect on corporate liquidity and certain aspects of financial risk because monitoring and advisory ability of busy boards declines. This leads us to the following hypothesis:

[8] Resignation of Elaine L. Chao who served as an outside director on boards of six companies due to the appointment to the cabinet of the President-elect George W. Bush is used as an example in this study.

[9] "Group faultlines are defined as hypothetical dividing lines that split a group into relatively homogeneous sub-groups based on group members' alignment along their multiple attribute (Bezrukova, Zanutto, & Thatcher, 2009; Lau & Murnighan, 1998, 2005) and are most likely to emerge when group diversity is moderate (Earley &Mosakokowski, 2000; Lau & Murninghan, 1998; Webber & Donahue, 2001)", Kaczmarek et al. (2012:338).

Hypothesis 2 (Busyness Hypothesis): extremely busy board negatively affects corporate liquidity and corporate financial risk.

Considering the *reputational effect* and *busyness effect*, we argue that the link between board busyness and a certain aspects of corporate financial risk may not be fully captured by the simple linear relation. We argue that companies with directors that hold multiple board seats are less exposed to the corporate financial risk. This will be the case, however, only at low level of board busyness. As board busyness increases to a certain threshold, it negatively affects corporate liquidity implying a higher level of corporate financial risk. This leads us to the following hypothesis:

Hypothesis 3: There is a non-linear U-shaped relationship between board busyness and corporate financial risk.

3. Sample Selection and Data Description

Sample selection

We use a large sample of companies listed on the London Stock Exchange. We collect firms' financial and market information from Thomson Reuters Datastream, and directors' information from *BoardEx* database. The sample period is from 1997 to 2009 and includes all firms whose information is available from these two databases. We obtain firm financial data for 3,501 firms each year or 45,513 firm-years over the course of our 13-year sample. We collect the following Datastream items at the end of each year: earnings before interest and taxes (EBIT), earnings before interests, taxes, depreciation and amortisation (EBITDA), cash, cash and marketable securities, accounts receivable, accounts payables, inventories, cash dividends paid (total), dividends provided/paid-common, preferred dividend requirement, differed taxes, total assets, market value, and value of common shareholders equity. *BoardEx* database provides information, such as director's name, age, gender, role title and role description, indication of whether he/she is an executive or supervisory director, and number of other directorships held. From this database we obtain information on 98,315 director-year observations for approximately 1,500 firms, or 12,432 firm-years, over our 13-year sample. We merge Thomson Reuters Datastream and *BoardEx* data using company's ISIN as unique

identifier. We manually collected missing ISINs for some companies on *BoardEx*[10]. Then we exclude financial firms (Datastream ICBIC code 8000), which are highly regulated, bearing in mind that regulation can affect firm governance, performance, and risk. We end up with an unbalanced panel of 1275 firms and 8946 firm-year observations over the 1997 to 2009 period.

Three measures of financial risk are used to test whether there is an impact of board busyness on financial risk. These are cash, net cash, and financial slack, all normalised by book value of total assets. In particular, cash is the value of cash and short-term investments; net cash is a difference between value of cash and short-term investments and total company's debt, and financial slack measure is based on traditional credit line arrangements that enable firms to establish operating loans up to fifty per cent of inventories and seventy per cent of good accounts receivable (Cleary (1999)). We follow Ferris, Jagannathan and Pritchard (2003) in our definition of busy boards, and consider a director busy if he/she seats on three or more listed companies' boards. We control for other influences on firm performance and, consequently risk, found to be important in previous studies (Jiraporn et al. (2009) and Masulis and Mobbs (2011) among others), and include firm size, dividend, profitability, and Tobin's Q in our analysis. We also collect information about the governance structure of the firm, such as proportion of supervisory directors on the board, board duality or whether CEO and Chairman is the same person, board size, board tenure, proportion of "imported" CEOs, gender diversity, and directors' age to use as control variables in our study. We adopt all variable definitions from the existing corporate finance literature and provide them in the Appendix 1, Table 1A.

Data description and summary statistics

Summary statistics are reported in Table 1. We separate data into variables describing the certain aspects of corporate financial risk (Panel A), director characteristics and board structure (Panel B), and firm characteristics (Panel C). The directorships per director range from 1 to a maximum of 6.33, with the average of 1.87. This implies that on average, directors on our sample company boards tend to have directorship responsibilities at 1.87 firms. The mean (median) percent of directors holding three or more directorships out of the total number of directors per board is approximately 21.73 percent (18.18 percent) and ranges from zero to a maximum of 100 percent. The average number of directors on the board is

[10] ISINs were collected from Datastream, using company name as identifier in this case. All other relevant company information (market, stock exchange, delisting date, etc.) was taken into account and considered with high level of discretion in order to assign correct ISIN.

7.90, with a minimum of 4 and maximum of 16 in our sample. The average board tenure is 5.47 years in the sample, with maximum of 17 years and minimum tenure of 0.3 years. On average, 58.17 percent of the board is made up of supervisory directors. Boards in our sample have on average 4 percent of "imported" CEOs with some companies employing about 67 percent of "imported" CEOs, and others have none of them at all. There are on average, 6 percent female directors on the boards in our sample, and this number varies from 0 to a maximum of 60 percent. Average director's age is 54.23 years old, whereas minimum age is 34 years and maximum is 69.80 years old. There are 13.22 percent of companies in our sample with CEO and Chairmen positions being held by one person.

Firm size is, on average, 12.52, which is about €273,758.10 million in total assets. The company performance measure, profitability, is 0.09 on average, which implies that EBITDA represents 9 percent of the value of total assets; average company in our sample pays dividends, which represent 2.1 percent of the value of total assets, and has average Tobin's Q equals to 2.15. Cash and short-term investments in average firm represent 17.37 percent of total assets, with some firms holding in cash equivalent of 100 percent of company value, and some with no cash at all. Net cash represents the difference between cash and short-term investments and value of total company's debt and it is negative 0.88 percent of total assets in an average firm. Financial slack is 24 percent of total firm assets.

Table 1 about here

Univariate analysis

Table 2 presents univariate comparison of key descriptive variables by financial risk (cash/net cash/slack) quartiles. We are interested in whether the characteristics of companies and companies' boards which hold high cash balances/ net cash/slack, i.e. companies in the fourth quartile, differ from those with low cash balances/net cash/financial slack, i.e. companies in the first quartile. We test the hypothesis that the fourth-quartile firms differ significantly from the first quartile firms using a *t*-test.

Panels A, B, and C in Table 2 report results of key corporate governance and firm variables by *Cash* (Panel A), *Net Cash* (Panel B), and *Slack* (Panel C) quartiles. Firms with less cash/net cash/financial slack, i.e. in the first quartile, differ significantly from the firms with the most cash/net cash/ financial slack, i.e., in the fourth quartile. As expected, the firms with the most cash (net cash/slack) are smaller than the ones with the least cash (net cash/slack). Firm size decreases gradually from first to fourth quartile of *net cash* in Panel B.

However, the univariate relation between financial risk and firm size is not monotonic in Panels A and C. Firms in the second quartile are larger that firms in the first quartile, whereas firms in the third quartile are smaller than those in the first and second quartiles, with firms in the fourth quartile representing the smallest companies in the sample. The firm size declines gradually from the first to the fourth quartile when we use *Slack* as the financial risk proxy. Firms in the first quartile of *Cash* pay more dividends than the firms in the fourth quartile. However, the univariate relation between cash and dividends is not monotonic. Firms in the first three quartiles of cash holdings pay similar dividends, but firms in the fourth quartile pay dividends, which are substantially smaller. Firms pay approximately same dividends in all the quartiles of *Net Cash* and *Slack*. The *Tobin's Q* increase monotonically with financial risk but only in Panel A. It declines in second quartile of Panels B and C, and then increase gradually. Companies in the fourth quartiles of *Cash, Net Cash* and *Slack* have significantly lower profitability than companies in the first quartile.

The *Board Business* declines monotonically from the first quartile to the fourth quartile of *Net Cash/Slack.* The firms with the most *Net Cash/Slack* have the least busy boards. However, firms with the most *Cash* have boards that are only marginally busier than firms with the least cash in Panel A, as predicted by reputational theory and agency theory. Firms in the second quartile of *Cash* have the busiest boards, with busyness declining in the third quartile of cash. *Board size* changes in line with the company size from first to fourth quartiles of cash holdings, and is not monotonic. Companies in the first quartile of *Cash, Net Cash* and *Slack* have boards that are substantially larger than the boards of companies in the fourth quartile. *Board tenure* declines monotonically from the first to fourth quartile of cash holdings in Panel A, and is not monotonic in Panels B and C. *Proportion of supervisory directors* on the board increases monotonically, which is consistent with the view that board independence (the higher proportion of supervisory directors on the board) could lower the agency costs, but it is a case only in Panel A. Panels B and C show mixed results with the *Board tenure* declining in Panel B, and remaining nearly the same in Panel C. Proportion of "imported" CEOs increases gradually from the first to the fourth quartile in Panel A, suggesting that more experience directors at the board level are able to reduce agency costs associated with the high level of cash holdings. This proportion remains the same through the four quartiles in the Panels B and C. The difference in director's age between the firms in the first and fourth quartiles is marginal but statistically significant at 10% level in Panel A, at 5% level in Panel B, and insignificant in Panel C.

Table 2 about here

4. Methodology and Results

In this section we examine whether company risk is affected by the busyness of its board. We utilise three measures of risk, namely *Cash, Net Cash, and Financial Slack*[11]. *Board Busyness* is measured as the proportion of directors with three or more directorships on the company board. We include several control variables follow Fich and Shivdasani (2006), Bohren and Strom (2010), Masulis and Mobbs (2011) and Cooper and Uzun (2012). Thus, we include *Proportion of SD*, which is a proportion of supervisory directors on a firm board. Boards with higher proportion of supervisory directors are better monitors; consequently, they might inventively observe accumulation and utilisation of vital cash recourses. We include natural logarithm of board size (*Ln [Board Size]*) to control for board size. Using resource dependence theory, it would be anticipated that larger boards will have more valuable connections and larger pool of expertise (Levrau, 2004). However, academics provide controversial evidences on the relation between board size and company performance, with some documenting positive (Pearce and Zahra (1992), Dalton et al. (1998), Jackling and Johl (2009)) while others reporting negative association (Yermack (1996), Van den Berghe and Levrau (2004)). We also include variable indicating whether the CEO and Chairman is the same person (*Duality*), which is often used in the corporate governance literature. Masulis and Mobbs (2011) suggest that *Board Tenure* negatively impacts on firm performance and we consider this variable in our study. We also consider *Imported CEO* variable in line with Bohren and Strom (2010) in the analysis. *Director's Age* is included as it might approximate the experience as well as useful networks director can bring to the company (Ferris et al. (2003)). Older directors might be better monitors but directors near retirement age are inclined to accept additional directorships at the expense of monitoring quality. Board diversity *(Gender)* measures a proportion of female directors on the board and is included in our study. The Higgs Report (2003), commissioned by the British Department of Trade and Industry, suggests that demographic diversity increases board effectiveness and recommends that more women should be included on boards. The UK Corporate Governance Code (2010) advises that "the search for board candidates should be conducted, and appointments made, on merit, against objective criteria and with due regard for the benefits of diversity on the board, including gender" (Principle B.2). Carter, Simkins, and Simpson

[11] We use annually industry-adjusted risk measures in our analysis (we compute each industry's mean per year and subtract it from the firm-level variable).

(2003) suggest that diversity at the board room increase independence and diverse board can be better monitors.

We also include natural logarithm of total assets (*Ln[Total Assets]*) to control for firm size. Thus, Lins et al. (2010) argue that smaller firms due to the larger transactions' costs, higher level of information asymmetry, and poorer access to capital markets, might require higher level of cash. We include *Dividend Payout* and two measures of profitability, *Tobin's Q* and a ratio of EBITDA to total assets *(Profitability),* to control for the difference in management quality across firms, since high volatility in profitability may potentially signal poor management skills and competence (Faccio et al. (2011)). We include industry dummy variables using the FTAG3 industry code. The inclusion of these dummy variables is appropriate given the inherent variability in the financial risk attributes across different industries.

Methodology

We use three different estimation models in our analysis: pooled OLS, fixed effects, and Fama-MacBeth model. Pooled OLS model is the most restrictive one as it does not allow for the individual heterogeneity with coefficients being constant for all individuals in all time periods. The pooled OLS model (Model 1) can be written in the following form:

$$\begin{aligned} Financial\ Risk_{it} = {} & \beta_0 + \beta_1 BoardBusyness_{it} + \beta_2 BoardBusyness^2{}_{it} + \beta_3 Proportion\ \ of\ SD_{it} \\ & + \beta_4 BoardSize_{it} + \beta_5 Board\ Tenure_{it} + \beta_6 Director\ Age_{it} + \beta_7 Gender_{it} \\ & + \beta_8 Imported\ CEO_{it} + \beta_9 Duality_{it} + \beta_{10} Company\ Size_{it} \\ & + \beta_{11} Tobin'sQ_{it} + \beta_{12} Profitability_{it} + \beta_{13} Dividend_{it} \\ & + \sum_{j=2}^{13} \beta_j YearDummy_t + \sum_{k=2}^{15} \beta_k Industry\ Dummy_i + \varepsilon_{it} \end{aligned} \quad (1)$$

In case, if individual heterogeneity is time invariant, a potential solution is a fixed effects or "within" estimation, where the individual effects are considered as unknown coefficients and are jointly estimated with independent variables' coefficients[12]. A *within*

[12] Another possible method to use is a random effects model. The important difference between these two approaches (fixed effects vs. random effects) is that in the fixed effects models, the unobserved heterogeneity is treated as individual intercept parameter, which will be "eliminated" from the model during the estimation and so any endogeneity (correlation between explanatory variables and unobserved heterogeneity) will be dealt with. Whereas, using random effects approach, allows us to treat unobserved heterogeneity as composite error term and hence, the assumption of independence between independent variables and individual effects is crucial for the random effects estimators to be consistent. Considering that unobserved effects such as managerial ability, corporate culture, and CEO's style could affect the board busyness, the random effects model's assumption of independence between individual heterogeneity and explanatory variables, could be too strong in our case.

estimator technique, which is based on a deviation from the companies' mean transformation (firm's mean for the sample interval is subtracted from each observation) estimates all coefficients without estimating individual effects (Model 2). Since we are interested only in slope coefficients, this transformation is a very convenient one.

$$\widetilde{Financial\ Risk}_{it} = \beta_0 + \beta_1 \widetilde{Board\ Busyness}_{it} + \beta_2 \widetilde{Board\ Busyness^2}_{it} + \beta_3 \widetilde{Proportion\ os\ SD}_{it} + + \beta_4 \widetilde{Board\ Size}_{it} + \beta_5 \widetilde{Board\ Tenure}_{it} + \beta_6 \widetilde{Dir\ Age}_{it} + \beta_7 \widetilde{Gender}_{it} + \beta_8 \widetilde{Imported\ CEO}_{it} + \beta_9 \widetilde{Duality}_{it} + \beta_{10} \widetilde{Company\ Size}_{it} + \beta_{11} \widetilde{Tobin's Q}_{it} + \beta_{12} \widetilde{Profitability}_{it} + \beta_{13} \widetilde{Dividend}_{it} + \sum_{j=2}^{13} \beta_j YearDummy_t + \varepsilon_{it} \quad (\mathbf{2})$$

Where the "~" (tilde) notation is used to define demeaned variables. And
Financial Risk $_{it}$ is one of our financial risk proxies, i.e. *Cash/Net Cash/Slack*
All other variable definitions are in Appendix 1, Table 1A.

An important issue when dealing with the panel data sets is the estimation of robust standard errors. Considering the two-dimensional nature of the panel data set, the residuals of the model could correlate in a complex manner, i.e. there is possibility that residuals for a given firm are correlated across years (time-series dependence), across firms (cross-sectional dependence), or across years and firms simultaneously. Ignoring correlation between residuals in the estimation process, results in bias and inconsistent conclusion. For example, if standard errors of the estimated coefficients are downward biased, the standard errors will be low, and statistical significance of the results may be overestimated (Petersen, 2009; Oikonomou, Brooks and Pavelin, 2012). To account for this, we perform pooled OLS and fixed effects models with robust standard errors and robust standard errors clustered by industry.

We also use Fama-MacBeth (1973) model that estimates cross-sectional regression each year and gives the average of time-series of coefficients from annual cross-sectional regressions. This method eliminates the problem of serial correlation in the residuals of a time-series cross-sectional regression.

Moreover, estimating Model (2) using random effects and performing a Hausman tests produces results that are strongly support the use of fixed effects estimation. Results of the Hausman test are not reported but are available from the author upon request.

Results

The results shown in Tables 3, 4, and 5 are consistent with our expectations. The standard errors from the pooled OLS model are the lowest ones, as expected, since pooled OLS estimates are upward biased. Fama-MacBeth estimated parameters are mixed and most of the results are similar to the results from the pooled OLS models. Fixed effects models are less biased than the alternative models used for the analyses, resulting in more accurate coefficient estimates.

We start a discussion of results by examining the relationship between firms' cash holdings, one of our risk proxies, and board busyness. We use four models for our analysis, Model 1 is the pooled OLS model with robust standard errors, Model 2 is the fixed effects model with robust standard errors, Model 3 is the fixed effects model with robust standard errors clustered by industry, Model 4 is the Fama-MacBeth model. We find that the coefficients of the linear term of board busyness are positive and equal to 0.09, 0.10, 0.10, and 0.13 in the Models 1, 2, 3, and 4 respectively and are significant at 1% level in the Models 1, 2, and 4, and at 5% level in the Model 3. These results are consistent with the claim that board busyness improves cash holdings, supporting the *reputation hypothesis*. However, the coefficients of quadratic terms of board busyness equal to -0.16, -0.15, -0.15, and -0.19 in the Models 1, 2, 3, and 4 respectively and are significantly negative at 1% level in all models, suggesting that while initially busy boards are related to the higher cash holdings and lower level of risk, after a certain threshold is reached, board busyness results in the lower cash holdings and, consequently elevates company riskiness. To determine this threshold value, we differentiate our equation with respect to the board busyness and set the first derivative equals to zero.[13] The result yields proportion of the busy directors on the board at 0.28, 0.33, 0.33, and 0.34 as turnaround points from the Models 1, 2, 3, and 4 respectively. Hence, the companies with busy boards are likely to have higher cash holdings until the proportion of busy directors on the firm board reaches twenty-eight (thirty-three or thirty-four) percent. Then, increase in the board busyness associates with decrease in cash holdings. This evidence supports the reputation and *busyness hypothesis*. The *reputation hypothesis* supported as far as proportion of busy directors on the board does not exceed twenty-eight (thirty-three or thirty-four) percent. Beyond that, the *busyness hypothesis* comes into effect. In terms of economic significance, a one standard deviation change in board

[13] We follow Jiraporn et al. (2009) for the estimation of the threshold level. The differentiation w.r.t. the Board Busyness results in the following first derivative: $\beta_1 + 2 * \beta_2 Board\ Busyness$. Setting this derivative equal to zero, we can compute the threshold level for the Board Busyness.

busyness results in 0.10, 0.11, 0.11, and 0.14 standard deviations change in the cash holdings, based on the coefficients from the Models 1, 2, 3, and 4[14].

Now we turn to the relationship between firms' net cash (the difference between cash holding and total company debt), one of our risk proxies, and board busyness. The results are reported in Table 5. We find that the coefficients of the linear term of board busyness are positive and equal to 0.084, 0.136, 0.136, and 0.175 in Models 1, 2, 3, and 4 respectively and are significant at 1% level. These results are consistent with the claim that board busyness improves net cash level, supporting the *reputation hypothesis*. However, the coefficients of the quadratic terms of board busyness equal to -0.165, -0.232, -0.232, and -0.272 in the Models 1, 2, 3, and 4 respectively and are significantly negative at 1% level. These results are similar to the results from the previous section, and suggest that initially net cash increases with board busyness, but after a threshold is reached, further increase in board busyness results in the lower net cash level, and, consequently elevates company riskiness. To determine this threshold value, we proceed with the differentiation in the same way as in the previous section, and find that the turnaround value of the proportion of busy directors on the board is not very different from our results from cash holding equation and equals to 0.25, 0.29, 0.29, and 0.32 from the Models 1, 2, 3, and 4 respectively. Hence, the companies with busy boards are likely to increase their level of net cash until the proportion of busy directors on the firm board reaches twenty-five (twenty-nine or thirty-two) percent. Further increase in board busyness associates with decline in the net cash level. This evidence, once again, supports the *reputation* and *busyness hypothesis*. The *reputation hypothesis* supported as far as proportion of busy directors on the board does not exceed twenty-five (twenty-nine or thirty-two) percent. Beyond that, the *busyness hypothesis* comes into effect. In terms of economic significance, a one standard deviation change in board busyness results in 0.06, 0.10, 0.10, and 0.12 standard deviations change in net cash level, based on the coefficients from the Models 1, 2, 3, and 4 respectively.

Now we discuss the relationship between firm financial slack, our third financial risk proxy, and board busyness. The results from the pooled OLS model with robust standard errors (Model 1), fixed effects model with robust standard errors (Model 2), fixed effects model with robust standard errors clustered by the industry (Model 3), and Fama-MacBeth model (Model 4) are reported in Table 6. We find that the coefficients of the linear term of board busyness are positive and equal to 0.060, 0.092, 0.092, and 0.138 in the Models 1, 2, 3,

[14] We calculate the change in standard deviation of cash holdings in the following way: (regression coefficient for the Board Busyness variable x standard deviation of Board Busyness)/standard deviation of the cash holdings.

and 4 respectively. Coefficients are statistically significant at 1% level in the Models 2, and 4, at 5% level in the Model 1, and at 10% level in the Model 3. However, the coefficients of quadratic term of board busyness equal to -0.121, -0.131, -0.131, and -0.176 and are significantly negative at 1% level (in all the regressions). These results are similar to the results from the previous two sections, and suggest that while initially busy boards are related to the better financial slack and lower level of risk, after a threshold is reached, busy directors result in the lower level of financial slack and, consequently elevates company riskiness. To determine this threshold value, we proceed with the differentiation in the same way as in the previous sections, and find that the turnaround proportions of the busy directors on the board are slightly different than our previous findings and equal to 0.25, 0.35, 0.35, and 0.39 from the Models 1, 2, 3, and 4 respectively. Hence, the companies with busy boards are likely to have higher level of financial slack until the proportions of busy directors on the firm board reaches twenty-five (thirty-five or thirty-nine) percent. Then, further increase in board busyness will be associated with the decline in the financial slack level. This evidence, once again, supports the reputation and *busyness hypothesis*. The *reputation hypothesis* supported as far as proportion of busy directors on the board does not exceed twenty-five (thirty-five or thirty-nine) percent. Beyond that, the *busyness hypothesis* comes into effect. In terms of economic significance, a one standard deviation change in board busyness results in 0.06, 0.10, 0.10, and 0.17 standard deviations change in financial slack level, based on the coefficients from the Models 1, 2, 3, and 4 respectively.

Examining control variables in the regressions, we find some interesting results. With respect to the board composition, our measure of board independence, the *Proportion of supervisory directors* on the company board, has positive coefficients, supporting the view that higher level of board independence is beneficial to the company. All coefficients are positive in Models 1, 2, 3, and 4 only when we use *Net Cash* as dependent variable. Models with *Cash* and *Slack* as dependent variables provide mixed results, with some positive and some negative coefficients. However, this variable is statistically significant at 1% only in Models 1 and 4, except the *Net Cash* regressions, where it is statistically significant at 5% level in Model 4. The coefficient of *Board Size*, measured as a natural logarithm of the total number of directors on the company board, has an intuitive negative coefficient in *Cash* and *Net Cash* Models 2, 3, and 4, and in Models 2 and 3 only when we use *Slack* as the dependent variable. Negative coefficients support the view that bigger boards affect company risk in the adverse way. These coefficients are statistically significant at 1%, 5% and 10% levels except only for Fama-MacBeth models. All *Board tenure* coefficients are negative in all models, but

statistically significant only in Models 1, 2, and 3, indicating that companies with longer tenured boards will hold less *Cash*, *Net Cash*, and have lower *Financial Slack*. We find a positive relationship between the CEO - Chairman *Duality* and the value of *Cash*, *Net Cash* and *Slack*. However, *Duality* coefficients are statistically significant only in Models 1 and 4. CEO-Chairman duality results in the higher level of power concentration in the hands of one person, who can influence a board of directors. The reason for the positive relation between duality and cash, net cash and slack could be explained by the fact that duality will result in better director's knowledge and expertise, and might affect director's level of risk aversion. Hence, more powerful directors will safeguard more cash to protect the company and themselves from the future possible financial inconveniences. Imported CEOs might have good connections in addition to the expertise they can bring to the company. Our results show a positive relation between proportion of imported CEOs and firms' cash, net cash and slack. Imported CEOs will secure higher cash balances to safeguard future profitable investments and protect their own reputational capital. Director's age, a proxy for director's experience and reputation is positive in all models, but it is not statistically significant in *Cash* Model 4, *Net Cash* Models 2, 3, and 4, and Slack Models 3 and 4. The board diversity measure, a proportion of female directors on the board, exhibits positive coefficients, and statistically significant in *Cash* Model 4, all *Net Cash* models, which suggest that the presence of female directors is more likely to improve firms' cash holdings, and net cash level.

With respect to firm characteristics, firm *Size* (measured as natural logarithm of total assets) is negatively related to the cash holdings, net cash level, and the financial slack with all coefficients being statistically significant at 1% level. The larger firms face higher risk. Perhaps, larger firms face significant financial commitments, and it is more difficult for them to accumulate cash, and keep a high level of net cash and financial slack. There seems to be a positive relation between a measure of performance, *Tobin's Q*, and financial risk. *Tobin's Q* coefficients are statistically significant in all models. Consequently, companies with higher profitability will be able to accumulate more significant cash reserves, better manage their debt, and generate healthier financial slack. *Profitability* (measured as EBITDA/Total Assets) coefficients are mixed with Model 2 and 3 exhibiting positive and Models 1 and 4 exhibiting negative relationship and are statistically significant at 1% level. The negative relation can be explained by the necessity to invest more heavily in order to generate higher *Profitability*. Consequently, companies with high *Profitability* will not be able to accumulate high cash and net cash balances, and keep high level of financial slack. These results complement results from the univariate analysis in Table 2, which provide a strong indication to the negative

relation between *Profitability* and *Cash, Net Cash* and *Slack* with statistically significant difference in the *Profitability* associated with first (firms with least *Cash/Net Cash/Slack*) and fourth (firms with most *Cash/Net Cash/Slack*) quartiles of our risk proxies. Thus, in the first quartiles of *Cash, Net Cash* and *Slack, Profitability* is always higher than in the fourth quartile. The relation between *Dividends* and our risk proxies is positive and statistically significant in all models except for Model 1 (Cash regressions), and Model 4 (Net Cash regression).

Tables 4, 5, 6 about here

5. Conclusions

We investigate the relationship between board busyness and financial risk and aim to shed some additional light on the topics of board effectiveness and risk. In this study we offer new insights by evaluating two conflicting views on the role of busy directors in corporate boards' effectiveness by analysing a large sample of UK-listed companies over the period 1997 – 2009. One view claims that busy directors are good stewards and valuable assets for the companies due to their expertise, reputation and business contacts, who improve board decision making ability (*reputational effect*). The opposite view suggests that busy directors are "too busy to mind the business", and create a serious agency problem (*busyness effect*).

Our analysis reveals that the level of directors' busyness affects certain aspects of corporate financial risk in a complex non-linear manner. Specifically, it is non-linear inverted U-shaped, implying that, while initially with increasing board busyness the likelihood of risk ascending declines, beyond a certain point this likelihood increases with increasing number of busy directors on the board. Hence, companies with busy boards are likely to be less risky and have higher levels of *cash, net cash* and *financial slack,* until the proportion of busy directors on the firm board reaches a threshold level. Then, with a further increase in board busyness beyond the threshold level cash, net cash and financial slack, decrease implying higher level of risk. This evidence supports both the reputation and *busyness hypothesis*.

Motivated by the UK Corporate Governance Code (2010), we find the link between board busyness and corporate financial risk. We add to the literature that considers boards as important contributors to the health and competitiveness of the firm (McNulty et al. (2013), Zhang (2010)). There is also a direct implication for the public debate on limitation of the number of directorships held by executives from our findings. While the National Association of Corporate Directors (1996) put forward a threshold of three directorships and

the Council of Institutional Investors (2003) argues that directors with full-time jobs should not participate in more than two other boards in order to guarantee and adequate service, we argue that board effectiveness depends also on its overall level of busyness, i.e. on the proportion of the busy directors at the board level.

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Appendix 1

Table A1. Variable Definitions

Below, the data variables refer to the corresponding corporate governance variable identifiers in the BoardEx annual database and to the corresponding risk and firm characteristics variables identifiers in the Tomson Reuters Datastream database.

Variable	Definition
Corporate governance	
Board busyness	The proportion of directors with three or more directorships on company board.
Supervisory directors	The proportion of supervisory directors on the board. Total number of supervisory directors divided by the total number of all directors on the board.
Board size	Total number of all directors on the board
Board tenure	The average number of years directors have served on the board
Duality	Indicator variable: equals one if CEO and Chairman is the same person
Imported CEO	The proportion of CEOs (present or retrospective) from other quoted companies on the board. Total number of imported CEOs divided by the total number of all directors on the board
Director's age	The average age of directors on the company board. The sum of all ages divided by the number of directors on the board.
Gender	The proportion of female directors on the board. Number of female directors divided by the total number of all directors.
Risk proxies	
Cash	Cash and short-term investments/ book value of total assets: *WC02001*/ *WC02999*
Net cash	(Cash and short-term investments – total debt)/book value of total assets: (*WC02001– WC03255*)/ *WC02999*
Slack	(Cash and marketable securities +0.7accounts receivable + 0.5inventories – accounts payable)/ book value of total assets: (*WC02001*+0.7**WC02051* + 0.5* *WC02101 – WC03040*)/ *WC02999*
Firm characteristics	
Size	Natural logarithm of book value of total assets: Ln (*WC02999)*
Profitability	EBITDA/ book value of total assets : *WC18198*/ *WC02999*
Tobin's Q	(Book value of assets – book value of common equity – balance sheet differed taxes + market value of equity)/book value of total assets: (*WC02999– WC03501 – WC03263 + MV*)/ *WC02999*
Dividend	(Dividends provided/paid-common + Preferred dividend requirement)/ book value of total assets: (*WC 18192+ WC 01701)*/ *WC02999*

Table A2. Calculation of Board Busyness variables

This is an example calculation for our measures of director busyness using BoardEx database data for the SAFEWAY PLC (ISIN GB0000492412) for the year 1997. Total number of directorships counts the number of directorships (total number of current quoted boards including the "home" company) held by all directors serving on the board. Directorships per director are estimated as the total number of directorships held by the directors of the board divided by board size. The proportion of busy directors (Board Busyness) is the number of directors holding three or more board seats divided by board size.

Director	**Total Directorships**
Colin Deverell Smith	1
David Gordon Webster	3
Gordon Wotherspoon	1
Patricia (Pat) Anne O'Driscoll	1
Robert George Charters	1
Simon Timothy Laffin	1
Sir Alistair Grant	4
Doctor Neville Clifford Bain	4
Julia Ann Burdus	4
Michael John Allen	2
Total Directorships	22
Directorships per Director	22/10 = 2.2
Proportion with three or more directorships	4/10 = 0.4 (40%)

Table 1
Summary Statistics

This table presents summary statistics for the sample of 9,553 firm-year observations for years from 1997 to 2009, excluding financial firms. Variable definitions are in the Appendix 1. Variables Size, Board Size, Board Tenure, Director's Age, Dividend, Profitability, and Tobin's Q are winsorised at 1% and 99%.

	Mean	Minimum	Maximum	Observations
Panel A: Risk Characteristics				
Cash	0.17	0.00	1.00	8945
Net Cash	-0.01	-0.97	1.00	8920
Slack	0.24	-0.70	1.00	8751
Panel B: Director/board characteristics				
Directorships per director	1.87	1	6.33	8946
Board busyness	0.22	0.00	1.00	8946
Proportion of supervisory directors	0.58	0.00	1.00	8946
Board size	7.86	4.00	16.00	8946
Board tenure	5.47	0.30	16.69	8790
Director's age	54.23	34.00	71.09	8938
Imported CEO	0.04	0.00	0.67	8946
Gender	0.06	0.00	0.60	8943
Panel C: Firm characteristics				
Size	12.51	7.00	19.43	8911
Profitability	0.09	-0.99	1.00	8753
Tobin's Q	2.15	0.04	24.95	8753
Dividend	0.02	0.00	0.81	8806

Table 2
Firm characteristics by cash/net cash

This table presents univariate comparison of means and medians of measures of corporate governance and firm characteristics of 8946 firm years from the 1997-2009 sample of UK-based publicly traded firms, excluding financial firms. The director and board data comes from the *BoardEx* database, firm data is from Tomson Reuters Datastream. Busy boards are the boards where the percentage of directors with three or more directorships is greater than or equal to the sample median. Other variables definitions are in the Appendix 1. The table displays the means and medians (in parentheses) of various director, board, and firm characteristics for first, second, third, and fourth quartiles of cash (Panel A), net cash (Panel B), and slack (Panel C). The *t*-statistics is for a difference of means test from the first to the forth quartile of cash/net cash/slack. Each quartile contains approximately 2230 firm years.

Panel A: Cash Quartiles						**Panel B: Net Cash Quartiles**				
	First quartile	**Second quartile**	**Third quartile**	**Fourth quartile**	***t*-stat (*p*-val)**	**First quartile**	**Second quartile**	**Third quartile**	**Fourth quartile**	***t*-stat (*p*-val)**
Risk characteristics										
Cash/Net Cash range	0.00 to 0.04	0.04 to 0.10	0.10 to 0.24	0.24 to 1.00		-0.97to -0.22	-0.22 to -0.06	-0.06to 0.16	0.16 to 1.00	
Cash/Net Cash	0.018	0.069	0.158	0.450	111.32	-0.30	-0.13	0.03	0.36	150.75
	(0.018)	(0.067)	(0.152)	(0.394)	(0.000)	(-0.30)	(-0.16)	(0.01)	(0.34)	(0.000)
Director/board characteristics										
Board busyness	0.21	0.23	0.21	0.22	2.03	0.24	0.23	0.21	0.19	-7.24
	(0.17)	(0.2)	(0.18)	(0.20)	(0.042)	(0.23)	(0.2)	(0.17)	(0.17)	(0.000)
Proportion of supervisory directors	0.55	0.58	0.59	0.60	9.49	0.60	0.59	0.57	0.56	-2.88
	(0.55)	(0.57)	(0.57)	(0.60)	(0.000)	(0.60)	(0.58)	(0.57)	(0.57)	(0.004)
Board size	7.53	7.86	7.46	6.92	-8.75	8.29	8.45	7.76	6.98	-20.62
	(7.00)	(8.00)	(7.00)	(7.00)	(0.000)	(8.00)	(8.00)	(7.00)	(7.00)	(0.000)
Board tenure	5.94	5.46	5.36	5.12	-7.85	5.53	5.63	5.60	5.13	-6.35
	(5.30)	(4.88)	(4.84)	(4.44)	(0.000)	(4.96)	(5.03)	(5.00)	(4.39)	(0.000)
Director's age	54.18	54.62	54.18	54.94	-1.69	54.47	54.66	54.25	54.57	-7.25
	(54.34)	(54.77)	(54.25)	(54.00)	(0.091)	(54.64)	(54.88)	(54.33)	(53.67)	(0.000)
Imported CEO	0.03	0.04	0.05	0.05	7.51	0.04	0.04	0.04	0.04	0.92
	(0.00)	(0.00)	(0.00)	(0.00)	(0.000)	(0.00)	(0.00)	(0.00)	(0.00)	(0.355)
Gender	0.056	0.061	0.060	0.061	2.13	0.06	0.06	0.06	0.06	-0.53
	(0.00)	(0.00)	(0.00)	(0.00)	(0.033)	(0.00)	(0.00)	(0.00)	(0.00)	(0.595)
Firm characteristics										
Size	12.72	13.10	12.55	11.69	-14.12	13.17	13.14	12.42	11.37	-30.48
	(12.34)	(12.95)	(12.12)	(11.11)	(0.000)	(13.01)	(12.88)	(12.03)	(10.97)	(0.000)
Profitability	0.11	0.11	0.10	0.03	-13.01	0.10	0.10	0.10	0.05	-12.48
	(0.12)	(0.12)	(0.12)	(0.08)	(0.000)	(0.11)	(0.12)	(0.12)	(0.11)	(0.000)
Tobin's Q	1.55	1.66	2.13	3.28	23.40	1.82	1.69	1.98	3.04	23.36
	(1.23)	(1.38)	(1.63)	(2.33)	(0.000)	(1.42)	(1.36)	(1.48)	(2.11)	(0.000)
Dividend	0.021	0.023	0.023	0.015	-5.83	0.02	0.02	0.02	0.02	-4.74
	(0.017)	(0.019)	(0.014)	(0.00)	(0.000)	(0.014)	(0.017)	(0.016)	(0.00)	(0.000)

Table 2 (Continued)
Firm characteristics by slack quartiles

This table presents univariate comparison of means and medians of measures of corporate governance and firm characteristics of 8946 firm years from the 1997-2009 sample of UK-based publicly traded firms, excluding financial firms. The director and board data comes from the *BoardEx* database, firm data is from Tomson Reuters Datastream. Busy boards are the boards where the percentage of directors with three or more directorships is greater than or equal to the sample median. Other variables definitions are in the Appendix 1. The table displays the means and medians (in parentheses) of various director, board, and firm characteristics for first, second, third, and fourth quartiles of cash (Panel A), net cash (Panel B), and slack (Panel C). The *t*-statistics is for a difference of means test from the first to the forth quartile of cash/net cash/slack. Each quartile contains approximately 2230 firm years.

Panel C: Slack Quartiles

	First quartile	**Second quartile**	**Third quartile**	**Fourth quartile**	***t*-statistic (*p*-value)**
Risk characteristics					
Slack range	-0.70 to 0.09	0.09 to 0.20	0.20 to 0.34	0.34 to 1.00	
Slack	0.08 (0.08)	0.14 (0.14)	0.24 (0.23)	0.50 (0.43)	136.56 (0.000)
Director/board characteristics					
Board busyness	0.23 (0.20)	0.23 (0.2)	0.21 (0.18)	0.19 (0.17)	-3.99 (0.000)
Proportion of supervisory directors	0.58 (0.57)	0.59 (0.57)	0.58 (0.57)	0.58 (0.57)	1.78 (0.075)
Board size	7.95 (7.00)	8.32 (8.00)	8.05 (8.00)	7.24 (7.00)	-10.39 (0.000)
Board tenure	5.38 (4.86)	5.77 (5.13)	5.54 (4.99)	5.27 (4.56)	-2.00 (0.046)
Director's age	54.26 (54.36)	54.55 (54.63)	54.29 (54.50)	53.85 (54.00)	-2.42 (0.02)
Imported CEO	0.04 (0.00)	0.04 (0.00)	0.04 (0.00)	0.04 (0.00)	4.03 (0.000)
Gender	0.062 (0.00)	0.059 (0.00)	0.059 (0.00)	0.060 (0.00)	-2.21 (0.027)
Firm characteristics					
Size	12.81 (12.37)	13.01 (12.71)	12.72 (12.48)	11.66 (11.30)	-19.07 (0.000)
Profitability	0.08 (0.11)	0.10 (0.12)	0.11 (0.12)	0.06 (0.12)	-7.12 (0.000)
Tobin's Q	1.79 (1.41)	1.75 (1.35)	2.01 (1.51)	2.97 (2.03)	21.04 (0.000)
Dividend	0.02 (0.01)	0.02 (0.02)	0.02 (0.024)	0.02 (0.00)	0.85 (0.395)

Table 3
Determinants of Corporate Financial Risk (*Cash*)

This table reports results from an analysis of financial risk proxied by cash holdings in our sample of firms from 1996 to 2009. We use cash holdings, as a risk proxy (dependent variables). Model 1 is a pooled OLS model with year and industry dummy and robust standard errors. Model 2 is a fixed effects model with year dummy and robust standard errors. Model 3 is a fixed effects model with year dummy and robust standard errors clustered by industry (we use FTAG3 index for the industry affiliation). Model 4 is Fama-MacBeth model. All variable definitions are in Appendix 1. Standard errors are in parentheses beneath each coefficient estimate. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	Pooled OLS Model 1	**FE robust Model 2**	**FE robust clust Model 3**	**Fama-MacBeth Model 4**
Board busyness	0.087***	0.101***	0.102**	0.127***
	(0.024)	(0.030)	(0.044)	(0.034)
Board busyness^2	-0.156***	-0.152***	-0.152***	-0.192***
	(0.035)	(0.045)	(0.045)	(0.028)
Proportion of supervisory directors	0.122***	-0.005	-0.005	0.066***
	(0.014)	(0.023)	(0.027)	(0.016)
Board size	0.015*	-0.029***	-0.029***	-0.008
	(0.008)	(0.114)	(0.011)	(0.013)
Board tenure	-0.002***	-0.002***	-0.002*	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Duality	0.029***	0.002	0.002	0.018***
	(0.006)	(0.009)	(0.005)	(0.003)
Director's age	0.002***	0.001**	0.001*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Imported CEO	0.116***	0.024	0.024	0.079***
	(0.021)	(0.028)	(0.012)	(0.023)
Gender	0.023	0.025	0.025	0.034**
	(0.020)	(0.020)	(0.019)	(0.016)
Size	-0.019***	-0.035***	-0.035***	-0.012***
	(0.001)	(0.006)	(0.007)	(0.003)
Profitability	-0.158***	0.064***	0.0642***	-0.157***
	(0.017)	(0.018)	(0.012)	(0.003)
Tobin's Q	0.023***	0.003*	0.003***	0.023***
	(0.002)	(0.002)	(0.001)	(0.003)
Dividend	0.116	0.161***	0.161***	0.138**
	(0.085)	(0.056)	(0.035)	(0.0634)
Constant	0.036	0.436***	0.436***	0.021
	(0.031)	(0.076)	(0.089)	(0.042)
Year dummy	Yes	Yes	Yes	No
Industry dummy	Yes	No	No	No
R^2	0.17	0.04	0.04	0.17
Number of observations	8296	8296	8296	8296

Table 4
Determinants of Corporate Financial Risk (*Net Cash*)

This table reports results from an analysis of financial risk proxied by net cash (the difference between firm's cash holdings and firm's total debt) in our sample of firms from 1996 to 2009. We use *Net Cash*, as a risk proxy (dependent variables). Model 1 is a pooled OLS model with year and industry dummy and robust standard errors. Model 2 is a fixed effects model with year dummy and robust standard errors. Model 3 is a fixed effects model with year dummy and robust standard errors clustered by industry (we use FTAG3 index for the industry affiliation). Model 4 is Fama-MacBeth model. All variable definitions are in Appendix 1. Standard errors are in parenthesises beneath each coefficient estimate. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	Pooled OLS Model 1	**FE robust Model 2**	**FE robust clust Model 3**	**Fama-MacBeth Model 4**
Board busyness	0.0847***	0.136***	0.136***	0.175***
	(0.036)	(0.045)	(0.055)	(0.065)
Board busyness^2	-0.165***	-0.232***	-0.232***	-0.2722***
	(0.050)	(0.072)	(0.080)	(0.0723)
Proportion of supervisory directors	0.106***	0.027	0.027	0.0517*
	(0.021)	(0.033)	(0.029)	(0.0277)
Board size	0.027**	-0.046***	-0.046***	-0.0070
	(0.012)	(0.017)	(0.019)	(0.0214)
Board tenure	-0.002**	-0.003***	-0.003*	-0.0001
	(0.001)	(0.001)	(0.002)	(0.0009)
Duality	0.046***	0.017	0.017	0.0401***
	(0.009)	(0.014)	(0.013)	(0.0092)
Director's age	0.002**	0.001	0.001	0.0016
	(0.001)	(0.001)	(0.001)	(0.0012)
Imported CEO	0.192***	-0.017	-0.017	0.0645
	(0.034)	(0.052)	(0.041)	(0.0549)
Gender	0.081***	0.055*	0.055*	0.1543***
	(0.031)	(0.030)	(0.029)	(0.0424)
Size	-0.043***	-0.055***	-0.055***	-0.0361***
	(0.002)	(0.009)	(0.007)	(0.0020)
Profitability	-0.146***	0.172***	0.172***	-0.1000***
	(0.024)	(0.026)	(0.029)	(0.0241)
Tobin's Q	0.028***	0.003***	0.003**	0.0228***
	(0.002)	(0.002)	(0.001)	(0.0052)
Dividend	0.461***	0.273***	0.273***	0.2942
	(0.110)	(0.101)	(0.098)	(0.2014)
Constant	0.322***	0.757***	0.757***	0.2835***
	(0.049)	(0.116)	(0.083)	(0.0711)
Year dummy	Yes	Yes	Yes	No
Industry dummy	Yes	No	No	No
R^2	0.18	0.09	0.09	0.17
Number of observations	8290	8290	8290	8290

Table 5
Determinants of Corporate Financial Risk (*Slack*)

This table reports results from an analysis of financial risk proxied by financial slack in our sample of firms from 1996 to 2009. We use *Slack*, as a risk proxy (dependent variables). Model 1 is a pooled OLS model with year and industry dummy and robust standard errors. Model 2 is a fixed effects model with year dummy and robust standard errors. Model 3 is a fixed effects model with year dummy and robust standard errors clustered by industry (we use FTAG3 index for the industry affiliation). Model 4 is Fama-MacBeth model. All variable definitions are in Appendix 1. Standard errors are in parenthesises beneath each coefficient estimate. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	Pooled OLS Model 1	**FE robust Model 2**	**FE robust clust Model 3**	**Fama-MacBeth Model 4**
Board busyness	0.0599**	0.0923***	0.0923*	0.1375***
	(0.0263)	(0.0313)	(0.0491)	(0.0515)
Board busyness^2	-0.1206***	-0.1307***	-0.1307***	-0.1760***
	(0.0364)	(0.0460)	(0.0550)	(0.0372)
Proportion of supervisory directors	0.1129***	0.0077	-0.0077	0.0623***
	(0.0148)	(0.0240)	(0.0305)	(0.0144)
Board size	0.0398***	-0.0193*	-0.0193*	0.0131
	(0.0082)	(0.0117)	(0.0101)	(0.0142)
Board tenure	-0.0008	-0.0022***	-0.0022***	-0.0007
	(0.0006)	(0.0006)	(0.0008)	(0.0006)
Duality	0.0165***	0.0017	0.0017	0.0118***
	(0.0059)	(0.0090)	(0.0047)	(0.0044)
Director's age	0.0013***	0.0009*	0.0009	0.0011
	(0.0005)	(0.0005)	(0.0006)	(0.0007)
Imported CEO	0.1152***	0.0323	0.0323*	0.0753***
	(0.0222)	(0.0284)	(0.0195)	(0.0248)
Gender	0.0181	0.0206	0.0206	0.0311
	(0.0218)	(0.0212)	(0.0228)	(0.0222)
Size	-0.0250***	-0.0396***	-0.0396***	-0.0183***
	(0.015)	(0.0058)	(0.0107)	(0.0030)
Profitability	-0.0783***	0.0981***	0.0981***	-0.0725***
	(0.0174)	(0.0188)	(0.0149)	(0.0138)
Tobin's Q	0.0208***	0.0030*	0.0030***	0.0210***
	(0.0018)	(0.0017)	(0.0010)	(0.0029)
Dividend	0.3802***	0.1924***	0.1924***	0.4042***
	(0.0836)	(0.0660)	(0.0405)	(0.0596)
Constant	0.0721**	0.4707***	0.4707***	0.0432
	(0.0350)	(0.0754)	(0.1145)	(0.0328)
Year Dummy	Yes	Yes	Yes	No
Industry Dummy	Yes	No	No	No
R^2	0.14	0.06	0.05	0.16
Number of observations	8151	8151	8151	8151