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The Power of Connections: Evidence from Financial Companies

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Abstract

The role of political connections has been highlighted as an important influence on firm behaviour and value. We argue that political connections are just part of a wider pool of connections such as those with regulatory bodies and government officials. Using a quasi-experiment, we provide empirical evidence that broader directors' connections reduce company risk. More specifically, we find a negative and significant relationship between directors with both government and regulatory bodies' connections and company risk. Interestingly, we find that connected female directors are less risk-averse compared with their male counterparts. Our results also reveal that connected directors, though offered generous compensation packages, do not necessarily generate higher stock abnormal performance. Therefore, shareholders of financial companies should consider the trade-off between the incremental costs and benefits of appointing connected directors. The paper provides helpful insights for regulators and wider stakeholder groups.

JEL classification: *P16, G34, D72*

Keywords: Directors' Connections, Risk-Taking, Financial Sector

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1. Introduction

The Global Financial Crisis has resulted in substantial criticism of financial institutions and their regulators particularly in Europe and the United Sates. Financial institutions have been seen to have acted in a short-term and reckless manner while regulators have looked on passively and allowed assets that proved to be worthless, to be created and traded. As the result, many financial institutions were bailed out in the UK and a very substantial Government support, such as the £124bn of loans offered by the UK Government (House of Commons, Treasury Committee, 2008). Studying the broad impact of corporate governance on risk-taking has gained impetus as a consequence of the global financial crisis; (see the recent survey paper by Srivastav and Hagendorff, 2016). Therefore, governance reform agenda post crisis focused mainly on improving financial markets' regulations not only to curb excessive risk-taking but also to understand the underlying factors that led financial institutions to take such excessive risk (IMF, 2014). In this paper, we introduce a new element to understand the interaction between corporate governance and risk-taking, by focussing on the influence of directors' wider connections on risk-taking behaviour in the financial sector in the UK.

Drawing on the Resource Dependence Theory, board of directors enable companies to minimise dependence, or gain resources (Pfeffer, 1972). One of the benefits that directors bring to the board is the preferential access to both resources and channels of information between a company and the contingencies related to the institutional environment in which they operate (Pfeffer and Salancik, 1978). The Resource Dependence Theory broadly explains how companies could mitigate interdependence and uncertainty (Hillman, 2009). For instance, Stearns & Mizruchi (1993) argue that boards with financial institutions representatives influence the company's capital structure.

The Resource Dependence argument can also be extended beyond political connections to a broadly-based connections that could bring benefits to companies and avoid the risks associated with too close relationships with politicians (Hillman, 2005). Goldman et al (2008) argue that political connections in developed countries with a well-functioning legal system may not be able to offer companies substantial preferential treatments or competitive advantages. However, government and regulatory bodies' officials, a critical source with different human and social capital, could enhance companies' opportunities to benefit from or mitigate the impact of rules, regulations and legislation e.g. influence the regulatory requirements in favour their connected boards. (Lester et al., 2008 and Zheng et al, 2015).

Government officials also have the power to influence the economic value of companies by offering preferential treatments e.g. allocation of governments contracts (Goldman et al., 2008). Moreover, government officials could use their connections with foreign countries to open new doors for their connected companies (Goldman et al., 2008) and can use their powers to hinder the ability of foreign firms to enter domestic markets. For instance, legislators could decide on tax incentives to promote a business district or a particular product related to their connected companies. Therefore, companies can achieve superior operating conditions by appointing directors connected to government departments and regulatory bodies (Mahon and Murray, 1981 and Hilman, 2005).

Financial companies are the most affected by external contingencies, uncertainty and government policies and regulations, as they are heavily regulated (Lang and Lockhart, 1990). Hillman (2005) argues that highly regulated industries (e.g. financial institutions) may build external ties (e.g. directors' connections) to mitigate the high level of uncertainty and hence, providing an insurance mechanism against major events which impact on firms'

operations e.g. government financial support (Lang and Lockhart, 1990; Heese et al, 2017 and Correia, 2014). Directors with regulatory connections may also enhance the information flow and reduce monitoring intensity of regulatory bodies (Konishi, and Yasuda, 2004). We argue that as financial companies are heavily regulated, they will be keen to appoint directors with connections to government officials and regulatory bodies to mitigate uncertainty and external environmental contingencies.

The above discussion suggest that different types of connections could have different mitigating effects on external contingencies and uncertainties and that political connections are just part of a wider pool of connections. Therefore, focussing only on political connections may not provide the full picture of the influence of directors' wider networks[2]. Although the existing literature extensively investigate the influence of politically connected directors, we conjecture that government and regulatory bodies' officials could bring to the board different perspectives and resources that could mitigate uncertainties. Moreover, heavily regulated companies e.g. financial companies that operate in highly uncertain environment would benefit from multiple linkages with their external environment e.g. politicians, government and regulatory officials.

In this paper, we investigate the influence of directors' broader connections on company risk for 438 listed financial companies in the UK over the period 1999- 2016. Our approach is more detailed and comprehensive in terms of the definition of directors' connections than most previous work e.g. Goldman et al (2008). We track directors' career path and classify their connections into 3 main categories namely, political, regulatory, and government

[2] We restrict our study to three types of connections namely political, regulatory and governmental. Social networks are beyond the scope of this paper.

departments. Our sample includes 4439 directors of which we identified 914 connected directors compared with 3525 non-connected directors. We design a comprehensive measure of directors' connections namely the connections index which captures a range of directors' connections over their career path. We also split the connections index into 3 sub-indices constructed solely on the basis of political, government and regulatory bodies' connections respectively.

There is a large strand in the literature that investigates the influence of political connections on corporate financial performance and valuations of non-financial companies e.g. Ovtchinnikov and Pantaleoni (2012); Faccio (2006); Goldman et al (2009); Gropper et al (2013); Amore and Bennedsen (2013); Akey (2015) and Do et al (2015 & 2017). Directors' connections may benefit companies in different aspects e.g. accessibility to financial markets and hence softer budget constraints (Claessens et al., 2008 and Faccio et al., 2006), greater lending portfolio of government-owned banks during election years (Dinc, 2005), better opportunities for being bailed out by governments (Faccio et al., 2006. Blau et al, 2013), lower cost of borrowing (Houston et al., 2014), lower cost of equity (Boubakri et al., 2012b), more support provided by government officials and regulatory bodies in terms of tariffs and competition (Goldman et al., 2009 and Boubakri et al (2012b), positive stock abnormal returns following the announcement of appointment of a director connected to the Republican party in the US (Goldman, Rocholl, and So, (2009). Moreover, connected companies may have less pressure from authorities with respect to compliance with environmental regulations (Agrawal and Knoeber, 2001 and Qian et al., 2011), better tax treatment (Faccio, 2010) and misallocation of government credit (Schoenherr, 2018). The impact of connection may not be direct; Faccio and Hsu (2017) find that buyouts by politically connected private

equity firms lead to higher job creation at the establishments operated by their target companies.

On the other hand, the literature documents that the impact of connections is ambiguous; connected companies have less accurate analysts' forecasts (Chaney et al., 2011; Chen et al., 2010 and Houston et al., 2014); poor quality earnings reporting (Guedhami and Pittman, 2006) and lower stock returns (Johnson and Mitton, 2003). More recently, Bertrand et al (2018) find little evidence that political connections improve companies' preferential access to government resources. They also find that political connections may alter the employment strategy to support (regional) politicians in their re-election. Connected directors are not necessarily adding value to their companies when they adopt excessive risk-averse strategies. As a consequence, directors could engage in rent-seeking activities and expropriate companies' resources (Shleifer and Vishny, 1994; Boubakri et al., 2012b and Faccio, 2006). Boubakri et al (2012a) and Faccio (2006) claim that weak governance mechanisms and agency conflicts may motivate politically connected directors to expropriate companies' resources. However, one of the main objectives of the governance reform agenda post-crisis is to curb excessive risk-taking in financial institutions. Therefore, agency conflicts in financial sector have different implications[3] e.g. the conflict between shareholders and bondholders and externalities related to systemic risk and the overall financial stability.

To the best of our knowledge there are no other studies that investigate the broader impact of directors' connections on company risk generally and in particular for financial companies.

[3] Excessive risk-taking behaviour in financial institutions could lead to wealth transfer from bondholders to shareholders. Therefore, shareholders' wealth maximization is not necessarily in the best interest of bondholders.

We provide empirical evidence that broader directors' connections reduce company risk. More specifically, we find a negative and significant relationship between directors' connections and total and idiosyncratic risks and that a 10% increase in directors' connections leads to a reduction in total and idiosyncratic risks of 1.4% and 1.2% respectively. We also find a negative and significant relationship between directors with both government and regulatory bodies' connections and company risk and that a 10% increase in connections to regulatory bodies and government officials lead to a lower total risk by 0.9% and 0.7% respectively. Interestingly, our results suggest that connected female directors are less risk averse compared with their male counterparts. Our results also show that compensation packages for connected directors are, on average, 14% higher compared with non-connected directors.

We carry out rigorous tests to mitigate any endogeneity concerns, using the difference in-differences technique. The results of our quasi-experiment show that the retirement of a connected director results in a higher company risk and the opposite is true that appointing a connected director on a previously non-connected board leads to lower company total risk, idiosyncratic and systematic risks. Our results of the negative market risk assessment of directors' connections are pretty much consistent with the risk reduction strategies adopted by regulated industries. As a result, the rate of return required by the shareholders of connected financial institutions is expected to be lower as shareholders' assessment of risk for connected companies is lower compared with non-connected counterparts and this could have implications for the weighted average cost of capital. Boubakri et al (2012b) find that politically connected companies have lower cost of equity capital compared with non-connected counterparts. Chaney et al (2011) find that politically connected companies are more opaque (e.g. in terms of the quality of earnings) and as a result, they have lower cost of

debt capital compared with similar non-connected counterparts where bondholders value political connections. Shareholders of connected companies seem to consider such connections as an insurance policy against major events e.g. financial distress. Shareholders should also consider the trade-off between the incremental costs and benefits of appointing connected directors.

Our study makes several contributions to the literature. Firstly, our paper is the first to investigate a broader concept of directors' connections and not just political connections. Secondly, our paper is the first to link directors' connections with risk-taking behaviour in the financial sector. Moreover, our paper is the first to investigate this phenomenon in the UK. The paper is structured as follows. Section 2 presents discussion of our dataset and how we have identified the concept of a connected director. Section 3 presents our empirical strategy, results and interpretation while section 4 introduces our identification strategies. Finally, section 5 concludes the study.

2. Dataset and Descriptive Statistics

2.1 Dataset

Data was collected for all listed financial companies in the London Stock Exchange over the period 1999-2016. Governance and directors' characteristics data was collected from BoardEX database. Financial data was collected from Datastream, Thomson One Banker and Bankscope databases. We also used the annual reports, companies' websites in addition to online resources Company Check *https://companycheck.co.uk/* and DueDil *https://www.duedil.com/plans*. There are 715 listed financial companies in LSE of which 491 are incorporated and listed in the UK main and AIM stock exchanges, across the following sectors, banks; insurance and life assurance; investment companies; private equity; real estate

and speciality finance[4]. The financial sector is classified using the (ICB) industry classification benchmark. Data relating to board characteristics, on 520 listed financial UK companies from the above sectors, was provided by BoardEX, of which we exclude 67 companies with data for less than 3 years. In addition, we could not find financial data on another 15 companies. Therefore, our final sample is an unbalanced panel that comprises of 438 financial companies and 4249 company-year observations.

2.1.1 Directors' connections and risk measures

Our definition of directors' connections is in line with Goldman et al (2008) among others. However, our approach is more detailed and comprehensive in terms of the definition of directors' connections than most previous work. We carefully check directors' CVs and track their career path and their senior/leadership positions and classify their connections into 3 main categories namely, political, regulatory, and government departments. Our sample includes 4439 directors of which we identified 914 connected directors compared with 3525 non-connected directors. Appendix 1 illustrates the details of our classifications of directors' connections. We believe that directors' connections extend over their career path and thus a director may have a range of connections from which companies can benefit. We design alternative proxies for directors' connections. We create a connection index in which we assign a dummy variable that takes the value of 1 if a director has a connection in one of the sub-categories of connections (detailed in Appendix 1) and 0 otherwise. The index for each company is constructed as the sum of the dummy variables, measuring the number of connections that the company has through its directors. We also split the connections index

[4] BoardEx database follows the ICB sector classification with the addition of some subsectors (e.g. life assurance & private equity). http://www.ftse.com/products/downloads/ICBStructure-Eng.pdf

into 3 sub-indices constructed solely on the basis of political, government and regulatory bodies' connections respectively.

Measuring the risk of financial companies is different from non-financial companies. Shin and Stulz (2000) and Low (2009) for instance, argue that using the standard deviation of annual cash flows is problematic and that company risk calculation requires data on company's private and public debt which is not publically available (Low, 2009). Therefore, recent studies use equity volatility as a proxy for risk as it reflects the market assessment of the overall impact of directors' risk-taking behaviour (Low, 2009). In this paper, we use stock returns volatility as the main proxy for company risk. We measure company risk following Anderson and Fraser (2000); Pathan (2009); Low (2009); and Sila et al (2016), by constructing three measures namely total risk, idiosyncratic risk and systematic risk. We calculate the annualised variance of daily stock returns as a proxy for total risk (Low, 2009; Pathan 2009 and Sila et al., 2016). Following Low (2009), we calculate the natural logarithm of the annualised variance. Daily stock returns are calculated as the change in the natural logarithm of the closing price over two consecutive trading days adjusted for dividends, stock dividends, and stock splits.

To investigate further the impact of connections on company risk, we split the total risk into idiosyncratic and systematic risks. Idiosyncratic risk is calculated as the natural logarithm of annualised variance of daily abnormal returns generated by the market model and market adjusted model (as a robustness check) using the FTSE All Share index as a benchmark. We also calculate a company's systematic risk as the natural logarithm of the difference in variances between total risk and company idiosyncratic risk[5] following Anderson and Fraser

[5] We also calculate systematic risk as the coefficient on the market portfolio of the market model following Sila et al., (2016) and as the variance of the product of beta*market return following Low, 2009. As a robustness

(2000) and Pathan (2009). Finally, we control for board size and independence, financial performance (ROA), growth opportunities (market to book value ratio) and leverage (debt to total assets). We also collect data on other company-specific characteristics e.g. company size (logarithm of total assets) and company age in addition to industry classifications. Table 1 presents detailed definitions for the variables employed in the empirical analysis.

Insert Table 1 about here

2.2 Descriptive statistics and univariate analysis

Table 2 presents the descriptive statistics for the main variables used in the empirical analysis over the period 1999-2016. In Panel A, we present the descriptive statistics for the main types of connections. Panel A reports that the mean value of directors' connections for the pooled sample is 2.8 connections while the average political, regulatory and government connections are 0.61, 0.52 and 1.69 connections respectively (see our definition of connections in Appendix A).

Insert Table 2 about here

Panel B reports that the average total equity return volatility is 31.4% with a standard deviation of 24.8 %. Panels C and D present the descriptive statistics pre and post matching for the treated and control observations and the univariate analysis to test whether there is a significant difference between connected (treatment) and non-connected (control) companies. The results show that equity volatility for connected companies is significantly lower, at the 1% level, than those of non-connected companies. In Panel D, we also observe that there is no significant differences between connected and non-connected companies with respect to matching variables and this suggests that our matching process improves the comparability between treated and control groups. Figure 1 presents the total equity return volatility for the

tests and following Laeven and Levine (2009) and Pathan (2009), we use Z score and the standard deviation of a three-year rolling window of ROA as alternative proxies for risk-taking.

matched connected and non-connected companies based on size, profitability, industry and year over the period 1999-2016 following Berger et al. (2014).

Insert Figure 1 about here

Table 3 presents the correlation matrix for the variables used in the empirical analysis. It is clear from the table that there are not high and significant correlation coefficients between the independent variables. We do not use multiple versions of the Connection Index in any one regression model. We also calculated the Variance Inflation Factor (VIF) post estimations and find that the VIF is significantly less than 10.

Insert Table 3 about here

3. Empirical Results

3.1 The influence of directors connections on company risk

We start our analysis by investigating the relationship between directors' connections and company risk. We use company fixed effects to control for omitted unobserved time invariant characteristics (e.g. corporate culture and other economic indicators such as market conditions, competition and technology that may drive the results) following Adams and Ferreira, (2009) and Farag and Mallin (2017). In Table 4, we regress total risk measured by logarithm of annualised variance of equity returns on the logarithm of the connection index (see variables definition in Table 1) and other control variables using a matched sample of connected (treated) and non-connected (control) companies. We define treated companies where a director has one of the 3 types of connections over the whole study period. Control companies are those with no connections over the study period. This approach also allows us to identify the impact of connections and to avoid the influence of the change in board structure by a director's appointment or retirement (this will be investigated in our identification strategy). This allows for a cleaner estimation of our baseline model. We match

(using 1:1 and 1:*n* to increase the number of observations) treated with control companies based on size and profitability (within 80% -120% of total assets, and lagged ROA respectively) in addition to industry and year following Berger et al (2014).

Insert Table 4 about here

In Panel A we present the estimation results of the influence of directors connections on total risk, idiosyncratic and systematic risks based on 1:*n* matching procedures as in Models 1, 2 and 3 respectively. The results presented in Models 1 and 2 show that there is a negative and significant relationship at the 5% level between directors' connections and total and idiosyncratic risks. This suggests that a 10% increase in directors' connections lead to lower total and idiosyncratic risks by 1.4% and 1.2% respectively. In Model 3 we find a negative, however, insignificant relationship between directors' connections and systematic risk.

In Panel B, we present the estimation results of regressing total risk on the different types of connections namely political, regulatory and government connections as in Models 4, 5 and 6 respectively using 1:*n* matched sample. We find a negative and significant relationship at the 5% level between directors with both government and regulatory bodies' connections and company risk and that a 10% increase in connections to regulatory bodies and government officials lead to a lower total risk by 0.9% and 0.7% respectively. However in Model 4, we find a negative but insignificant relationship between political connections and total risk. To sum up, the results presented in Table 4 suggest that there is a negative and significant relationship between directors' connections and equity volatility in the financial sector in the UK and that the greater the directors' connections the lower the total and idiosyncratic risks.

3.2 The influence of connections' demographic characteristics on company risk

Table 5 presents the results of the influence of the demographic characteristics of connected directors on companies' risk using the 1:*n* matched samples procedures described above[6]. We control for the interaction terms of whether a connection is a female, foreign national, and young (compared to the median age of the sample) as in Models 1 to 3 respectively. In Model 1 we find a positive and significant relationship at the 10% level between female connections and total risk. Our results show that boards with connected female directors are less risk averse compared to those with connected male counterparts. This result is consistent with the recent literature e.g. Farag and Mallin (2017) who find that female and male executive directors have similar risk taking appetites in European banks. Also, Adams and Funk (2012) find that female directors are not risk-averse and appointing a female director may not lead to more risk-averse decisions.

In Model 2, we find a positive and significant relationship at the 5% level between connected foreign directors and total risk. Foreign directors with different cultural backgrounds may bring to the boardrooms a pool of different skills, perspectives and opinions (Anderson et al., 2011; Nederveen Pieterse et al., 2013; Kandel and Lazear, 1992 ; Nielsen and Huse, 2010 and Frijns et al., 2016). Masulis et al (2012) find that foreign independent directors engage more in cross-border acquisitions. Anderson et al (2011) find that foreign directors may make more innovative and risky decisions in operationally complex industries e.g. the financial sector. In Model 3 we find a negative but insignificant relationship between young connected directors and total risk.

Insert Table 5 about here

[6] We thank our anonymous referees for their suggestion about the impact of demographic characteristics of connected directors.

In Model 4, we investigate the relationship between independent non-executive (INED) connected directors and company risk by controlling for the interaction term of connection index* INED dummy. We find a negative and significant relationship - at the 5% level - with total risk. This result suggests that connected INEDs have lower risk appetite compared with executive directors. Our sample statistics shows that 60.4% and 49.9% of connected directors are NEDs and INEDs respectively.

3.3 The Influence of the Change in Connections on Company Risk

In this section, we extend our analysis and investigate the influence of appointing a connected director on company risk. Specifically, we consider the case where a connected director joins a board of a previously non-connected company[7]. Our event is carefully defined to satisfy two conditions; first, only one connected director joins a board that strictly had no connected directors before the event. Second, we restrict our sample by only choosing companies that do not experience any change in board size due to the event over the study period so that, we mitigate the potential impact of the change in board size on company risk (Berger et al ., 2014). We also examine the case where we relax the assumption of no change in board structure. The set of control companies are those with no connections over the period of study. We identified 23 and 59 events for the first and second analyses (with and without board structure restrictions) respectively and then 1:*n* match treated and control companies based on company size and profitability (within 80% -120% of total assets, and lagged ROA respectively) in addition to industry and year following Berger et al (2014). We only consider non-overlapping events i.e. one event per company and 3-5 years pre and post event to avoid the influence of confounding events on company risk.

[7] Appointment of a new director could be endogenous, however, we present this additional analysis as a robustness test to check the consistency of our results. Section 4 addresses carefully the endegeniety concerns.

Table 6, Panels A and B, present the estimation results of the influence of appointing a connected director, to a previously non-connected board, on total risk for the cases with and without change in boards structure respectively. We find consistent results with those presented in Table 4 as the coefficient on the log Connections Index is negative and significant at the 5% level. The results suggest that a 1% increase in connections lead to a decrease in total risk by 0.36 % and 0.19% as in Panels A and B respectively. We also find a negative relationship between political, government and regulatory connections and company's total risk; however, the coefficient on the regulatory connections is insignificant. The results suggest that a 1% increase in political connections lead to a decrease in total risk by 0.81% and 0.27% as in Panels A and B respectively. Similarly, a 1% increase in government connections lead to a decrease in total risk by 0.44% and 0.29% as in Panels A and B respectively.

Insert Table 6 about here

Table 7 presents the estimation results of the influence of appointing a connected director to a previously non-connected board on both idiosyncratic and systematic risks as reported in Panels A and B respectively. We present the results of the 1:*n* matched samples based on the above event definition and relaxing the assumption of no change in board structure. The results reported in Table 7 are consistent with those presented in Table 4 with respect to the negative relationship between directors' connections and both idiosyncratic and systematic risks and that a 10% increase in connections on the board leads to lower idiosyncratic and systematic risks by 0.8% and 4.4% respectively. We also find that the coefficients on the three different types of connections are negative, although the coefficient on the regulatory connections is insignificant. To summarise, the results reported in Table 7 suggests that the greater the directors' connections the lower the idiosyncratic and systematic risks.

Insert Table 7 about here

In the context of explaining our results, a valid question is whether connected directors improve companies' financial performance. Connected directors can provide useful information and insights to companies' boards that leads to higher profitability and hence stock abnormal performance would be expected by the shareholders of connected companies in return for generous compensation packages. Table 8 presents the estimation results of the influence of appointing a connected director -to a previously non-connected board- on *ROA*, stock abnormal performance measured by Jensen's alpha and total directors' compensations measured by log compensation. We present the estimation results using 1:*n* and 1:1 matched samples as reported in *Panels* A and B respectively based on the event definition and restrictions imposed in Table 6.

Insert Table 8 about here

In Model 1 and 2, we find that the coefficient on the log Connections Index is insignificant in both Panels A (Model 1-2) and B (Model 4-5). This suggests that there is no relationship between directors' connections and financial performance[8] and stock abnormal performance respectively. Our results are consistent with the literature e.g. Faccio (2006); Goldman et al., (2009); Hillman, (2005); Gropper et al., (2013) and Amore and Bennedsen, (2013). On the other hand, the results reported in Models 3 and 6 show that there is a positive and significant relationship between the increase in directors' connections and the volume of compensation packages. This suggests that the greater the directors' connections are, the greater the volume of compensation packages and that connected directors earn, on average, 14% higher compared with non-connected directors. Hwang and Kim (2009) find a similar result. In sum,

[8] We also find similar results when using *Q* ratio as a dependent variable.

although generous compensation packages may mitigate agency conflicts, our results imply that directors' connections do not necessarily lead to a higher stock abnormal performance.

4. Identification Strategy

The estimation of the influence of directors' connections on company risk raises concerns about endogeneity and reverse causality. Our identification strategy addresses these concerns using two alternatives namely the instrumental 2SLS regressions and Difference-in-Differences technique.

4.1 Instrumental 2SLS regressions

We estimate the 2SLS regressions following Masulis et al (2012), Houston et al (2014) and Frijns et al (2016). We use three instruments for directors' connections; firstly, a dummy variable that takes the value of 1 if the company's headquarter is located in the capital city (London, Edinburgh, Cardiff or Belfast) and 0 otherwise. Secondly, we use a dummy variable which takes the value of 1 if the headquarter of a company is located in London and 0 otherwise to capture the City of London effect as an international financial centre. The third instrument is the logarithm of distance between companies' headquarter and a main airport. We expect that companies located in the capital city and those are located nearby main airports might be more visible and are likely to attract connected directors. Therefore, we expect that our instruments are correlated with directors' connections but not with company risk measures[9]. Table 9 presents the estimation results of the instrumental variables regressions using the 2SLS.

[9] The three instruments mainly capture the location of firms' headquarters. As the location of headquarters is a choice, rather than being randomly allocated, the presence of a connected director in a firm may be determined by factors related to the firm's location. Therefore, we re-estimate the 2SLS regression including only firms that consistently have their headquarters in the same location throughout the study period. We obtained the same results as those presented in Table 9.

Insert Table 9 about here

In the first stage in Models 1, 3 and 5 we regress log Connections Index on one of three instrumental variables and other controls and find that, as expected, there is a positive and highly significant relationships at the 1% level between the instruments used in Models 1 and 3 (Capital City and London) and directors' connections respectively. This suggests that directors' connections are greater when a company's headquarter is located in the capital city and in the City of London. Moreover, as expected, we find a negative and highly significant relationship at the 1% level between the instrument used in Model 5 (Log distance) and directors' connections. This suggests that the longer the distance between a main airport and a company's headquarter, the smaller the number of connections.

The results of the second stage presented in Models 2, 4 and 6 show that the fitted values of directors' connections are negative and highly significant at the 1% level. This suggests that our results are consistent with respect to the negative and significant relationship between directors' connections and company risk and that the greater the directors' connections the lower the equity volatility. The results presented also suggest that a 1% increase in directors' connections leads to an average of 1.2% reduction in companies' total risk. The results of Wu-Hausman and Wooldridge tests, reported in Table 9, are highly significant rejecting the null that the log Connections Index variable is exogenous and the OLS estimator is more efficient than the 2SLS estimator in the absence of endogeneity. Moreover, we run the Stock and Yogo (2005) test for weak instruments and the results reject the null hypothesis that our instruments are weak as the test statistics (31.43, 31.55 and 35.01 for the 3 instruments used in Model 1,3 and 5 respectively) exceed the critical value of (18.37) based on 5% relative bias.

In Models 7 and 8, we run the 2SLS regressions using two instruments in the first stage namely the City of London dummy and log distance and find consistent results. Model 8 also passed the test for the overidentifying restrictions as the Sargan test result is insignificant (*p*. value = 0.3503); therefore, we fail to reject the null that our instrumental variables are uncorrelated with the residuals in the second-stage regression.

4.2 Difference -in- Differences

We use the Difference-in-Differences technique following Berger et al (2014) and Low (2009), by designing a quasi-experiment to mitigate the endogeneity concerns in our estimation. We define the event as the one where a connected director retires (completed her/his term) from a previously connected company and replaced with a non-connected director.

The treated companies included in this quasi-experiment are carefully chosen to satisfy two conditions; first, they strictly have only one connected director who *completed* her/his term (retired) and hence those companies become non-connected post a director's retirement. Second, we restrict our sample by only choosing companies that do not experience any change in board size over the study period due to the event so that, we mitigate the potential impact of the change in board structure on company risk (Berger et al, 2014). Control companies are those with connections over the period of study.

We identified 25 events and then 1:*n* match treated (non-connected companies post a connection retirement) with control (connected companies all over the study period) companies based on company size and profitability (within 80% -120% of total assets, and lagged ROA respectively) in addition to industry and year following Berger et al (2014). We also design a second quasi-experiment in which we relax the restriction of the change in

board size imposed in the first quasi-experiment and obtained consistent results. In the two experiments, we only consider non-overlapping events i.e. one event per company and 3-5 years pre and post event to avoid the influence of confounding events on company risk. Finally, we control for company fixed effects as in equation 1.

$$Company\ Risk_{it} = \alpha_0 + \gamma_1 connections_i \times Post_{it} + \gamma_2 x_{it} + \mu_i + \delta_t + \varepsilon_{it} \qquad (1)$$

where the dependent variable is our alternative measures of company risk as defined in Table 1; the interaction term $connections_i \times Post_{it}$ is the variable of main interest; $connections_i$ is a dummy variable that takes the value of 1 if company (i) is included in the treatment group and 0 otherwise; $Post_{it}$ is a dummy variable takes the value of 0 and 1 pre and post treatment period respectively; γ_1 in Equation 1 is the coefficient on the interaction term that quantifies the additional shift in the mean of the treatment group. x_{it} is our vector of control variables; μ_i and δ_t are company and year fixed effects respectively; ε_{it} is the error term. In Equation 1, we did not control for the non-interacted dummy variables ($connections_i\ and\ Post_{it}$) as we use company fixed effects to account for the unobserved cross-sectional heterogeneity across companies.

Table 10 presents the difference-in-differences estimation results of the influence of the change in connections on company's alternative measures of risk using the 1:*n* matched samples. The variable of main interest is DID which is the interaction term of treated companies*Post event. The results show that the coefficients on DID is positive and significant at the 10% level for total risk and at the 5% level for idiosyncratic and systematic risk as reported in Models 1,2 and 3 respectively. The results suggest that a 1% decrease in connection leads to an increase of 8.5%, 4.1% and 2.1% in total risk, idiosyncratic and systematic risks respectively.

Insert Table 10 about here

The results reported in Table 10 suggest that the retirement of a connected director results in higher company risk and the opposite is true that appointing a connected director on a previously non-connected board leads to lower company total risk, idiosyncratic and systematic risks. In sum, the results of the matched sample regressions and the difference –in-differences estimations suggest that there is a negative relationship between directors' connections and company risk. Our results are consistent with the risk reduction strategies adopted by financial companies, in particular post financial crisis. We believe that shareholders of connected companies consider such connections as an insurance policy against major events e.g. financial distress. This could lead to a lower rate of returns required by shareholders (Boubakri et al.,2012b).

On the other hand, our results show that compensation packages offered to connected directors are 14% higher compared with non-connected directors and that directors' connections do not necessarily lead to a higher stock abnormal performance. The risk-aversion hypothesis of Smith and Stulz (1985) states that connected directors may pursue risk-reduction strategies where they have a stake in the company. Moreover, Amihud and Lev (1981) argue that connected directors could pursue less risky strategies to protect their company-specific human capital. In sum, directors' connections have costs and benefits and shareholders should consider the trade-off between the incremental costs and benefits of appointing connected directors.

5. Summary and Conclusion

In this paper, we investigate the influence of broader directors' connections (political, regulatory, government) on risk-taking behaviour in the financial sector over the period 1999-2016. Using a sample of 438 financial companies listed in London Stock exchange, we find

evidence that the market assessment of risk for connected companies is lower compared with non-connected counterparts. We also find a negative and significant relationship between directors with both government and regulatory bodies' connections and company risk. We conclude that shareholders of connected companies consider board connections as an insurance policy against major events that impact negatively on the company. Therefore, a lower required rate of return is expected by the shareholders of connected companies and this has implications for the cost of capital.

On the other hand, we also find that appointing connected directors do not necessarily improve stock abnormal performance despite the generous compensation packages offered to mitigate agency conflicts. In sum, shareholders should consider the trade-off between the incremental costs and benefits of appointing connected directors. Our results also suggest that regulators should pay more attention to the board composition of financial companies with respect to the criteria and guidelines for board appointments. Beyond the insights for regulators, the study provides useful guidelines on board structure for wider stakeholder groups to understand how board composition influences firm behaviour.

Appendix A: Directors Connections Index

Political
British Embassies
Ambassador
Deputy/Lord Mayor
Prime Minister's Policy Unit
UK Northern Ireland Office
UK Official Opposition Shadow Cabinet
Office of the Deputy Prime Minister
UK Cabinet office
UK office of the prime minister
Greater London Authority
Scottish government
UK Northern Ireland local government
Welsh National Assembly
United Nations (UN)
UK Office of the European Parliament
European Union
European Commission
European Parliament
UK House of Commons
MP
UK House of Lords
advisor for (house of common committees/Prime Minister)
Parliamentary Private Secretary
Parliamentary Commissioner
Regulators
UK Debt Management Office
Competition Commission
Pensions regulator
Competition Appeal Tribunal
Audit Commission
Takeover panel (UK)
Better Regulation Commission (task force)
Office for Gas and Electricity Markets
Office of Water Services
Office of fair trade
Office of Communications
London Pensions Fund Authority
Prudential Regulation Authority
European Investment Bank
Bank of England
Financial Services Authority
Financial Conduct Authority
Gov. Departments
UK Judiciary
UK Army
National Housing and Planning Advice Unit
UK Commission for Employment & Skills
Industrial Development Advisory Board
Council for Science and Technology (CST) (UK)
Sustainable Development Commission
UK Police

Land Registry
National enterprise board
Council of Europe
UK Trade & Investment
UK Tax Incentivised Savings Association
UK HM Treasury
UK Foreign and Commonwealth Office
UK Financial Services Trade and Investment Board
UK Environment Agency
UK Department (for Children, Schools and Families, for Civil Service, for education, of Health, of Education and Science, of Employment, of Energy, for Business, Energy and Industrial Strategy, for Trade and Industry, for Environment, Food and Rural Affairs, for Communities and Local Government, of Inland Revenue and for Work and Pensions)
UK Chamber of Shipping
UK Border Agency
UK Atomic Energy Authority
Transport for London
Royal Household
Public Works Loan Board
NHS
National Audit Office (NAO)
Home office
HM Revenue & Customs
HM Inspector of Taxes
Export Credits Guarantee Department
City-town-county council (UK)
Civil Aviation Authority

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Table 1: Variables Description

Variable	Description
T. Risk	Total risk defined as the natural logarithm of annualized variance of daily stock returns for each company year winsoried at the 1% level. Daily stock returns are measured by the first difference in the natural logarithm of the closing price over two consecutive trading days adjusted for dividends, stock dividends, and stock splits. We present Equity Volatility in Table 2 and Figure 1 measured by the annualized standard deviation of daily stock returns for each company year winsoried at the 1% level.
Idio. Risk	Idiosyncratic risk (firm-specific) defined as the natural logarithm of annualized variance of the residuals of market model or market adjusted model for each company year winsoried at the 1% level. We use FTSEAll-shares index as a benchmark.
Sys. Risk	Systematic risk defined as the natural logarithm of the difference in variances between total risk and firm- specific risk winsoried at the 1% level.
Log Con Index	Connection index (Con Index) is constructed as the sum of the dummy variables that take the value of 1 if a director has a connection in one of the sub categories of connections namely political, regulatory, and government offices and 0 otherwise. Log Conn Index is the logarithm of (connection index +1).
Log Pol Con	Political connection index is constructed as the sum of the dummy variables that take the value of 1 if a director has one of the sub categories of political connections as detailed in Appendix 1 and 0 otherwise. Log Pol Con is the logarithm of (political connection index +1).
Log Reg Con	Regulatory connection index is constructed as the sum of the dummy variables that take the value of 1 if a director has one of the sub categories of regulatory connections as detailed in Appendix 1 and 0 otherwise. Log Reg Con is the logarithm of (regulatory connection index +1).
Log Gov Con	Government connection index is constructed as the sum of the dummy variables that take the value of 1 if a director has one of the sub categories of governmental connections as detailed in Appendix 1 and 0 otherwise. Log Gov Con is the logarithm of (government connection index +1).
Connected	A dummy variable takes the value of 1 if a company has political, regulatory or government connections and 0 otherwise.
Female	A dummy variable takes the value of 1 if a director is a female and 0 otherwise.
Foreign	A dummy variable takes the value of 1 if a director is a foreign national and 0 otherwise.
Young	A dummy variable takes the value of 1 if a director is younger than the median age of the sample directors and 0 otherwise.
INED Dummy	A dummy variable takes the value of 1 if a director is an independent non-executive director and 0 otherwise.
Female Connections	A dummy variable takes the value of 1 if a connected director is a female and 0 otherwise.
Foreign Connection	A dummy variable takes the value of 1 if a connected director is a foreign national and 0 otherwise.
Young Connection	A dummy variable takes the value of 1 if a connected director is younger than the median age of the sample directors and 0 otherwise.
INED Connection	A dummy variable takes the value of 1 if a connected director is an independent non-executive director and 0 otherwise.
LogTA	Logarithm of a company's total assets as a proxy for company size.
D/TA	Total debt to total assets ratio as a proxy for leverage.
ROA	Return on assets calculated as (net profits + financial expenses)/average total assets.
MTB	Market-to-book ratio winsoried at the 1% level and calculated as (book value of debt + market value of equity) / book value of assets).
Capital city	Dummy variable takes the value of 1 if a company's headquarter is located in London, Cardiff, Wales or Belfast and 0 otherwise.
London	Dummy variable takes the value of 1 if a company's headquarter is located in London and 0 otherwise.
Log Distance	Logarithm of the distance between a company's headquarter and a main airport.
Log B.size	Logarithm of total number of directors on a board.
INEDs	Proportion of independent non-executive directors.
Coage	Company age in years since its establishment year.

Table 2: Descriptive Statistics

***Panel A*: Connections**									
Pooled Sample			***Pre Matching***			***Post Matching***		
	Mean	**SD**	**Obs**	**Mean**	**SD**	**Obs**	**Mean**	**SD**	**Obs**
Connection Index	2.812	4.348	4249	4.205	4.734	2842	3.293	3.286	1162
Pol Connection	0.611	1.424	4249	0.912	1.661	2842	0.744	1.533	1162
Reg Connection	0.517	1.117	4249	0.773	1.292	2842	0.587	0.938	1162
Gov Connection	1.685	2.559	4249	2.519	2.774	2842	1.962	1.877	1162

Panel B: Pooled Sample				***Panel C: Pre Matching***							***Panel D: Post Matching***						
				Connected			***Non-Connected***				***Connected***			***Non-Connected***			
	Mean	**SD**	**Obs**	**Mean**	**SD**	**Obs**	**Mean**	**SD**	**Obs**	***t-test***	**Mean**	**SD**	**Obs**	**Mean**	**SD**	**Obs**	***t-test***
Equity Volatility	0.314	0.248	4248	0.291	0.211	2841	0.359	0.305	1407	5.591***	0.263	0.188	1162	0.312	0.234	433	4.371***
LogTA	8.281	1.182	4248	8.593	1.148	2841	7.651	0.979	1407	-25.128***	8.074	0.713	1162	7.994	0.800	443	-1.143
ROA	0.006	0.145	4248	0.017	0.132	2841	-0.016	0.167	1407	-6.979***	0.021	0.137	1162	0.019	0.136	443	-1.599
MTB	1.287	1.042	4249	1.332	1.04	2842	1.198	1.038	1407	-1.608*	1.144	0.907	1162	1.097	0.792	443	-1.400
B.Size	6.548	3.013	4249	7.309	3.194	2842	5.011	1.812	1407	-19.866***	5.894	2.122	1162	4.799	1.640	443	-9.803***
INED	0.566	0.331	4249	0.628	0.295	2842	0.441	0.359	1407	-20.516***	0.690	0.310	1162	0.392	0.342	443	-16.692***
D/TA	20.907	24.184	4247	21.719	24.254	2842	19.264	23.967	1407	-1.647*	18.209	18.245	1162	19.113	22.781	441	1.474
Coage	32.856	34.883	4238	33.804	34.851	2831	30.949	34.879	1407	-1.821*	35.139	36.398	1159	35.878	37.759	443	0.359

Table 2 presents the descriptive statistics for the main variables used in the empirical analysis over the period 1999-2016. In Panel A, we present the descriptive statistics for the main types of connections. Panel B present the statistics for the pooled sample while Panels C and D present the descriptive statistics pre and post matching (*1:n*) for the treated and control observations and the univariate analysis to test whether there is a significant difference between connected (treated) and non-connected (control) companies. Connected and Non-Connected companies are those with and without connections during the sample period 1999-2016. ***, **, and * indicates significance at the 1%, and 5% levels respectively Please see variables definition in Table 1.

Figure 1: Equity Risk for Connected and non-Connected Companies

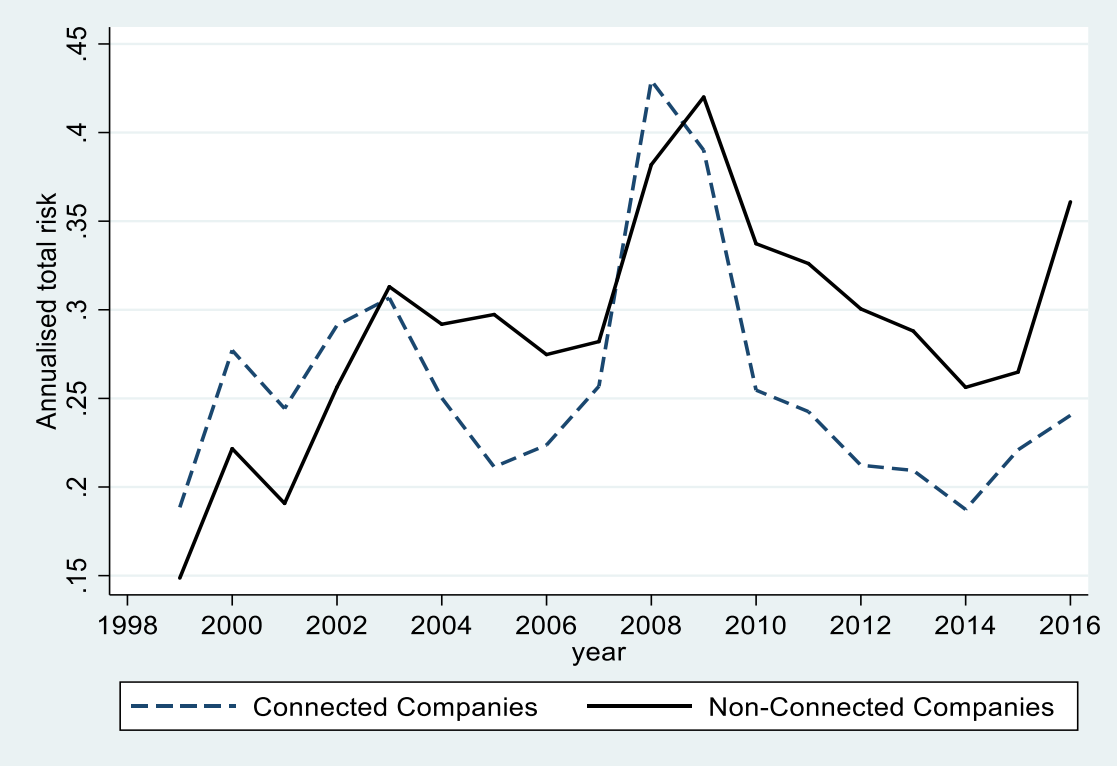

Table 3: Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	T. Risk	1.000													
2	Idio. Risk	**0.978**	1.000												
3	Sys. Risk	**0.111**	-0.027	1.000											
4	Log Con Index	0.011	-0.013	**0.179**	1.000										
5	Log Reg Con	-0.019	**-0.046**	**0.198**	**0.473**	1.000									
6	Log Pol Con	0.037	0.021	**0.133**	**0.825**	**0.155**	1.000								
7	Log Gov Con	-0.001	-0.017	**0.120**	**0.906**	**0.245**	**0.520**	1.000							
8	MTB	**0.182**	**0.191**	-0.026	**0.151**	**0.092**	**0.113**	**0.136**	1.000						
9	D/TA	**0.221**	**0.238**	**-0.045**	0.002	**-0.093**	**0.087**	-0.017	**0.058**	1.000					
10	LogTA	**-0.144**	**-0.244**	**0.523**	**0.272**	**0.250**	**0.176**	**0.226**	-0.015	**0.141**	1.000				
11	INED	**-0.390**	**-0.483**	**0.466**	**0.146**	**0.196**	**0.047**	**0.128**	**-0.248**	**-0.249**	**0.375**	1.000			
12	Log B.Size	**0.114**	**0.093**	**0.194**	**0.352**	**0.219**	**0.243**	**0.330**	**0.329**	**0.150**	**0.423**	**-0.072**	1.000		
13	ROA	**-0.268**	**-0.272**	**0.048**	0.013	**0.050**	-0.013	0.008	**0.120**	**-0.119**	**0.214**	**0.093**	**0.132**	1.000	
14	Coage	**-0.160**	**-0.227**	**0.163**	0.039	**0.073**	**0.055**	-0.006	**-0.164**	**0.052**	**0.263**	**0.150**	-0.028	**0.082**	1.000

Table 3 presents the correlation matrix for the variable used in the empirical analysis. Please see variables definition in Table 1. Bold figures indicate significance at the 5% level or below.

Table 4: The Influence of the Power of Connections on Company Risk

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
		Panel A			*Panel B*	
	T. Risk	*Idio*	*Sys*	*T. Risk*	*T. Risk*	*T. Risk*
Log Con Index	-0.139**	-0.119**	-0.192			
	(0.070)	(0.059)	(0.158)			
Log Pol Con				-0.043		
				(0.079)		
Log Reg Con					-0.088**	
					(0.040)	
Log Gov Con						-0.065**
						(0.031)
ROA	-0.252***	-0.245***	-0.250	-0.255***	-0.339***	-0.251***
	(0.071)	(0.085)	(0.197)	(0.071)	(0.101)	(0.071)
Log B.Size	-0.075	-0.049	0.236	-0.129	0.063	-0.077
	(0.138)	(0.223)	(0.458)	(0.135)	(0.278)	(0.138)
INED	-0.003	0.012	0.001	-0.003	0.197	-0.008
	(0.098)	(0.143)	(0.384)	(0.098)	(0.193)	(0.098)
LogTA	-0.079*	-0.131**	0.184*	-0.083**	-0.089*	-0.081**
	(0.041)	(0.057)	(0.094)	(0.041)	(0.048)	(0.041)
MTB	0.002	-0.005	0.040	0.002	-0.092***	0.002
	(0.016)	(0.020)	(0.052)	(0.016)	(0.028)	(0.016)
D/TA	0.002**	0.002**	0.001	0.002**	0.003	0.002**
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Coage	0.035***	0.033***	0.082***	0.036***	-0.015*	0.034***
	(0.008)	(0.005)	(0.009)	(0.008)	(0.008)	(0.008)
Cons	0.027	0.422	-1.709**	0.011	1.914***	0.047
	(0.414)	(0.455)	(0.783)	(0.415)	(0.490)	(0.414)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Company FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.350	0.337	0.163	0.349	0.075	0.350
F-Stat (*p*.value)	0.000	0.000	0.000	0.000	0.000	0.000
Obs	1,594	1,594	1,586	1,594	1,594	1,594

Table 4-(Panel A, presents the estimation results of the influence of directors' connections on total risk, idiosyncratic and systematic risks using the 1:*n* matched samples. Panel B presents the estimation results of the influence of different types of connections on total risk using the 1:*n* matched samples. Please see variables definition in Table 1. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.

Table 5: The Influence of the Demographic Characteristics of Connected Directors on Company Risk

Dependent Variable: T. Risk	Model 1	Model 2	Model 3	Model 4
Connected	-0.033	-0.087	-0.007	-0.252**
	(0.075)	(0.087)	(0.079)	(0.107)
Female	-0.067			
	(0.060)			
Female Connections	0.120*			
	(0.065)			
Foreign		-0.006		
		(0.079)		
Foreign Connection		0.200**		
		(0.094)		
Young			-0.020	
			(0.050)	
Young Connection			-0.083	
			(0.060)	
INED Dummy				0.037
				(0.105)
INED Connection				-0.326**
				(0.142)
ROA	-0.709***	-0.711***	-0.713***	-0.704***
	(0.100)	(0.078)	(0.078)	(0.077)
Log B.Size	-0.011	-0.036	0.040	0.434***
	(0.196)	(0.157)	(0.157)	(0.136)
LogTA	-0.100*	-0.086*	-0.095**	-0.099***
	(0.052)	(0.047)	(0.047)	(0.034)
MTB	-0.086***	-0.084***	-0.086***	-0.040**
	(0.021)	(0.018)	(0.018)	(0.017)
D/TA	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Coage	0.004	0.004	0.003	-0.001
	(0.005)	(0.003)	(0.003)	(0.001)
Cons	1.443***	1.374***	1.451***	1.237***
	(0.423)	(0.355)	(0.359)	(0.248)
Company FEs	Yes	Yes	Yes	Yes
Adj. R-squared	0.093	0.099	0.097	0.232
F-Stat (*p*.value)	0.000	0.000	0.000	0.000
Obs	1,594	1,594	1,594	1,594

The Table presents the influence of the demographic characteristics of connected directors on company risk using the 1:*n* matched samples. Please see variables definition in Table 1. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.

Table 6: The Influence of Appointing a Connected Director on Total Risk

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
T. Risk		***Panel A***				***Panel B***		
Log Con Index	-0.364**				-0.199**			
	(0.149)				(0.100)			
Log Pol Con		-0.805***				-0.269**		
		(0.170)				(0.135)		
Log Reg Con			-0.208				-0.145	
			(0.244)				(0.144)	
Log Gov Con				-0.438**				-0.292**
				(0.180)				(0.141)
ROA	0.012	-0.016	0.033	0.002	-0.001	-0.001	0.010	-0.004
	(0.119)	(0.120)	(0.121)	(0.130)	(0.073)	(0.078)	(0.073)	(0.074)
Log B.Size	-0.022	-0.025	-0.089	0.016	0.057	0.003	-0.035	0.085
	(0.265)	(0.267)	(0.262)	(0.256)	(0.209)	(0.155)	(0.203)	(0.207)
INEDs	0.001	-0.052	-0.099	0.038	-0.077	-0.097	-0.112	-0.066
	(0.320)	(0.338)	(0.331)	(0.190)	(0.161)	(0.101)	(0.162)	(0.160)
LogTA	-0.346***	-0.368***	-0.361***	-0.333***	-0.229***	-0.234***	-0.235***	-0.226***
	(0.105)	(0.100)	(0.108)	(0.090)	(0.057)	(0.049)	(0.058)	(0.057)
MTB	0.054	0.051	0.053	0.054*	0.027	0.026	0.026	0.028
	(0.034)	(0.033)	(0.034)	(0.028)	(0.023)	(0.017)	(0.022)	(0.022)
D/TA	-0.004**	-0.004**	-0.004**	-0.005**	-0.002**	-0.002**	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Coage	0.033***	0.030***	0.030***	0.029***	0.034***	0.031***	0.033***	0.032***
	(0.008)	(0.008)	(0.009)	(0.011)	(0.006)	(0.009)	(0.007)	(0.007)
Cons	2.007***	2.328***	2.318***	2.034***	1.005**	1.201***	1.178**	1.031**
	(0.767)	(0.733)	(0.785)	(0.723)	(0.463)	(0.463)	(0.474)	(0.470)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Company FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.357	0.365	0.345	0.352	0.325	0.324	0.323	0.326
F-Stat (*p*.value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Obs	541	541	541	541	1,492	1,492	1,492	1,492

Table 6, Panels A and B, present the estimation results of the influence of appointing a connected director on total risk for the 1:*n* matched samples as per the first and second analyses (with and without board structure restrictions) respectively. In panel A, we define the event as where a connected director joins a board of a previously non-connected company and where there is not a change in board size due to the event. Control companies are those with no connected directors over the period of study. In Panel B, we relax the restriction of no change in board structure. Please see variables definition in Table 1. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.

Table 7: The Influence of Appointing a Connected Director on Idiosyncratic and Systematic Risks

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Panel A: Idiosyncratic Risk				*Panel B: Systematic Risk*			
Log Con Index	-0.088**				-0.444**			
	(0.044)				(0.211)			
Log Pol Con		-0.154**				-0.713**		
		(0.075)				(0.332)		
Log Reg Con			-0.056				-0.441	
			(0.065)				(0.390)	
Log Gov Con				-0.122**				-0.594**
				(0.052)				(0.301)
ROA	0.007	-0.065*	0.005	-0.001	0.044	0.040	0.068	0.040
	(0.037)	(0.039)	(0.036)	(0.037)	(0.194)	(0.192)	(0.192)	(0.194)
Log B.Size	-0.023	-0.123	-0.034	0.016	-0.285	-0.399	-0.497	-0.259
	(0.105)	(0.085)	(0.097)	(0.076)	(0.455)	(0.381)	(0.378)	(0.470)
INEDs	0.110	-0.016	-0.016	0.003	0.028	-0.009	-0.050	0.036
	(0.087)	(0.056)	(0.068)	(0.048)	(0.355)	(0.252)	(0.251)	(0.352)
LogTA	-0.111***	-0.108***	-0.116***	-0.112***	0.047	0.036	0.033	0.052
	(0.028)	(0.028)	(0.029)	(0.023)	(0.119)	(0.120)	(0.120)	(0.119)
MTB	0.010	0.019**	0.010	0.011	0.150***	0.149***	0.147***	0.151***
	(0.011)	(0.009)	(0.011)	(0.008)	(0.048)	(0.042)	(0.042)	(0.048)
D/TA	-0.002**	-0.001	-0.002**	-0.001***	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.0001)	(0.002)	(0.002)	(0.002)	(0.002)
Coage	0.015***	0.007*	0.015***	0.015***	0.086***	0.079***	0.084***	0.081***
	(0.003)	(0.004)	(0.003)	(0.004)	(0.025)	(0.021)	(0.022)	(0.025)
Cons	-0.528**	-0.070	-0.383*	-0.448**	-5.523***	-5.081***	-5.177***	-5.391***
	(0.230)	(0.250)	(0.224)	(0.222)	(1.487)	(1.134)	(1.156)	(1.478)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Company FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.336	0.331	0.331	0.334	0.167	0.167	0.164	0.167
F-Stat (*p*.value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Obs	1,492	1,243	1,492	1,492	1,481	1,481	1,481	1,481

Table 7, Panels A and B, present the estimation results of the influence of appointing a connected director on idiosyncratic and systematic risks respectively for the 1:*n* matched samples. We define the event as where a connected director joins a board of a previously non-connected company. In Panels A and B, we relax the assumption of no change in board structure. Control companies are those with no connected directors over the period of study. Please see variables definition in Table 1. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.

Table 8: The Influence of appointing a Connected Director on Financial Performance and Compensation

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
		Panel A			*Panel B*	
Dependent Variable	***ROA***	***Jensen's Alpha***	***Log Compensation***	***ROA***	***Jensen's Alpha***	***Log Compensation***
Log Con Index	-0.036	0.008	0.164***	-0.025	0.047	0.121**
	(0.028)	(0.076)	(0.046)	(0.044)	(0.114)	(0.060)
Log B.size	-0.107*	-0.106	0.130	-0.157	0.015	0.083
	(0.058)	(0.180)	(0.093)	(0.096)	(0.272)	(0.135)
INEDs	-0.121***	-0.122	-0.839***	-0.035	0.023	-0.780***
	(0.043)	(0.140)	(0.071)	(0.075)	(0.325)	(0.110)
T.Risk	0.002	0.196***	0.033*	0.003	0.256***	0.004
	(0.010)	(0.035)	(0.017)	(0.018)	(0.070)	(0.026)
LogTA	0.162***	-0.047	0.198***	0.251***	0.118	0.052
	(0.017)	(0.075)	(0.029)	(0.031)	(0.133)	(0.049)
MTB	-0.001	0.140***	0.042***	0.001	0.144***	0.036**
	(0.006)	(0.024)	(0.010)	(0.010)	(0.045)	(0.015)
D/TA	-0.002***	-0.001	-0.001*	-0.003***	-0.002	-0.001
	(0.0001)	(0.001)	(0.0006)	(0.001)	(0.002)	(0.001)
Coage	-0.005	0.001	0.010*	-0.006	-0.002	0.020**
	(0.003)	(0.006)	(0.006)	(0.004)	(0.008)	(0.008)
Cons	-0.896***	-0.271	0.037	-1.581***	-1.040	0.875*
	(0.173)	(0.532)	(0.297)	(0.260)	(0.903)	(0.447)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Company FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.241	0.388	0.255	0.286	0.408	0.297
F-Stat (*p*.value)	0.000	0.000	0.000	0.000	0.000	0.000
Obs	1,492	1,492	1,348	541	541	492

Table 8 presents the estimation results of the influence of appointing a connected director -to a previously non-connected board- on *ROA* , stock abnormal performance measured by Jensen's alpha and total directors' compensations measured by log compensation. We present the estimation results using 1:*n* and 1:1 matched samples as reported in Panels A and B respectively based on the event definition and restrictions imposed in Table 6. Please see variables definition in Table 1.***, **, and * indicate significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.

Table 9: The Two-Stage-Least Squares Regressions

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
Dependent Variable	**Log Con. Index**	**T. Risk**	**Log Con. Index**	**T. Risk**	**Log Con. Index**	**T. Risk**	**Con. Index**	**T. Risk**
Capital city	0.052***							
	(0.016)							
London			0.052***				0.025	
			(0.015)				(0.016)	
Log Distance					-0.177***		-0.149***	
					(0.037)		(0.040)	
Con Indexhat		-1.038***		-1.079***		-1.410***		-1.271***
		(0.274)		(0.260)		(0.261)		(0.251)
Log B.size	0.828***	0.816***	0.813***	0.851***	0.788***	1.124***	0.791***	1.008***
	(0.064)	(0.266)	(0.063)	(0.256)	(0.063)	(0.252)	(0.063)	(0.245)
INEDs	0.188***		0.192***		0.189***		0.192***	
	(0.035)		(0.035)		(0.034)		(0.034)	
LogTA	0.007	0.024	0.008	0.026	0.005	0.038*	0.005	0.033
	(0.014)	(0.022)	(0.014)	(0.022)	(0.014)	(0.022)	(0.014)	(0.022)
ROA	-0.018	-0.665***	-0.021	-0.666***	-0.024	-0.675***	-0.019	-0.671***
	(0.061)	(0.088)	(0.061)	(0.088)	(0.060)	(0.088)	(0.060)	(0.088)
MTB	0.014	0.075***	0.015	0.075***	0.013	0.080***	0.013	0.078***
	(0.010)	(0.017)	(0.010)	(0.017)	(0.010)	(0.017)	(0.010)	(0.017)
D/TA	0.001	0.003***	0.001	0.003***	0.001	0.003***	0.001	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Coage	0.001	-0.002**	0.001	-0.002**	0.001	-0.002**	0.001	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Cons	-0.320**	0.100	-0.325**	0.080	-0.047	-0.081	-0.095	-0.013
	(0.141)	(0.203)	(0.142)	(0.200)	(0.148)	(0.198)	(0.152)	(0.197)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.263	0.384	0.264	0.385	0.269	0.394	0.270	0.392
F-Stat (*p*.value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wu-Hausman (F-Stat- *p*.value)	0.002		0.001		0.000		0.001	
Wooldridge test (χ^2. *p*.value)	0.003		0.000		0.002		0.000	
Stock & Yogo tests	31.43		31.55		35.01		29.32	
	18.37		18.37		18.37		19.28	
Critical value-5% relative biased								
Obs	1,600	1,594	1,600	1,594	1,600	1,594	1,600	1,594

The Table presents the estimation results of the instrumental variables regressions using the 2SLS. In the first stage in Models 1, 3 and 5 we use Capital City , the City of London and log distance as instrumental variables for directors' connections respectively. Please see variables definition in Table 1.***, **, and * indicate significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.

Table 10: The Influence of the Change in Connections on Company Risk

	Model 1	**Model 2**	**Model 3**
		Quasi- Experiment	
	T.Risk	***Idio***	***Sys***
DID	0.085*	0.041**	0.021**
	(0.051)	(0.021)	(0.010)
Log B.size	-0.144	-0.020	0.021
	(0.172)	(0.084)	(0.034)
INEDs	0.696***	0.333***	0.125***
	(0.207)	(0.101)	(0.041)
LogTA	-0.031	-0.067*	0.052***
	(0.073)	(0.036)	(0.014)
ROA	-0.001	-0.028	0.022*
	(0.063)	(0.031)	(0.013)
MTB	-0.205***	-0.097***	0.006
	(0.023)	(0.011)	(0.005)
D/TA	0.004***	0.003***	0.002**
	(0.001)	(0.001)	(0.001)
Coage	-0.033***	-0.014***	-0.007***
	(0.005)	(0.002)	(0.001)
Cons	2.164***	0.318	-0.146
	(0.570)	(0.278)	(0.113)
Year FEs	Yes	Yes	Yes
Company FEs	Yes	Yes	Yes
Adj. R-squared	0.160	0.166	0.070
F-Stat (*p*.value)	0.000	0.000	0.000
Obs	1,237	1,240	1,240

Table 10 presents the difference –in- differences estimation results of the influence of the change in connections on company's alternative measures of risk using the 1:*n* matched samples. The estimation results of the quasi- natural experiment are reported in Models 1,2 and 3 for the influence on total risk, idiosyncratic and systematic risks respectively. We define the event as where a connected director retires from a previously connected company and replaced with a non-connected director and where there is not a change in board size due to the retirement of a connected director. Control companies are those with connected directors all over the period of study. Please see variables definition in Table 1.***, **, and * indicates significance at the 1%, 5% and 10% levels respectively. Robust standard errors clustered at the company level are reported in the parentheses.