# Do Co-opted Boards Affect the Financial Performance of Insurance Firms?

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## Abstract

We examine the performance-effects of Chief Executive Officer (CEO) co-opted boards in United Kingdom (UK) property-casualty insurers. We report that board insiders appointed in the aftermath of CEO succession reduce profitability, but bolster solvency. Enhanced solvency also results when the CEO is a financial expert and when proportionately more inside directors are selected by a CEO who is a financial expert. We further find enhanced profitability-effects for insurance experienced co-opted outside directors, while large investors improve solvency. However, the internal or external origin of the CEO does not affect financial outcomes. We consider that our results could have commercial and/or public policy implications.

**Keywords** Co-opted Boards · Profitability · Solvency · Insurance

**JEL Classification** G22

## 1 Introduction

In this study, we examine empirically the effect of Chief Executive Officer (CEO) co-opted boards (defined as per Coles et al. (2014, p. 1751) as the percentage of inside (executive) and outside (independent non-executive) directors appointed following the arrival in person of a new CEO) on the profitability and solvency of United Kingdom (UK) property-casualty insurers. Examining the financial consequences of boardroom changes (of inside and outside directors) in the aftermath of CEO turnover is an important topic for research as firm performance is affected by the two-way interaction between the CEO and board members (Nguyen et al. 2021). In the UK, as elsewhere (e.g., the United States (US)), CEOs, even in the face of corporate governance guidelines recommending the set-up of

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independent nomination committees, often play major roles (e.g., as a result of their business networks) in configuring the board of directors. In this regard, CEOs can effectively 'capture' the loyalties of appointed board members, unilaterally shape strategies, and in turn, influence firm performance (Cassell et al. 2018). This situation is particularly likely to occur in technically specialist, yet, economically and politically salient insurance firms. For insurers, incoming CEOs are often financial experts with the requisite insurance, and/or related, industry knowledge needed to meet financial targets (Adams and Jiang 2017). Such human capital traits confer on insurance CEOs 'expert' and/or 'prestige' power, which enables them as strategic leaders to have information advantages over other directors. This potential CEO 'power advantage' in insurance firms could increase the likelihood and extent of boardroom co-option of scarce skill-specific directorate talent compared with less stringently regulated and generally non-technically specialist non-financial firms (Fich 2005). Moreover, in the insurance industry, the highly technical (actuarial) and heavily regulated financial nature of risk-trading and risk-bearing means that CEOs are likely to be key decision-makers and usually prominent members of the main (strategic) board (Adams and Jiang 2017). This 'power position' gives the CEOs of insurance firms bargaining influence (discretion) over the selection of new directors. In such circumstances, outside directors on the nomination committees of insurance firms are likely to endorse CEO views on board configurations not only to protect their board positions (fees), but also to ensure future business success, and thereby, increase the market value of their human capital.

Despite these institutional aspects of the insurance industry, prior cross-sectional board co-option-performance research (e.g., see Cassell et al. 2018) focuses mainly on non-financial publicly traded US entities that typically exclude economically and politically important financial firms. To the best of our knowledge, prior research has not examined the performance effects of boardroom reconfigurations initiated by incoming CEOs in the financial services sector even though such changes could be of regulatory as well as economic significance. The results of present insurance industry-board co-option study could therefore be portable to other financial firms, such as banks. Furthermore, in privately-held firms—a form of ownership common in the insurance industry—board-level nomination committees tend not to exist. However, private insurers commonly assign their CEOs considerable discretion to make strategic decisions that enhance their competitive position and traded value (Mayers and Smith 1981). This further gives insurance industry CEOs considerable 'structural' power over the appointment of directors, and so ensure a compliant boardroom. This position challenges the generally held notion in agency theory that board governance mechanisms, such as the appointment of independent outside directors, and externally promulgated corporate governance guidelines (e.g., the Cadbury Report, 1992) are effective in controlling the power of CEOs over board-level decisions. These foregoing aspects of insurance firms therefore serve to make the current insurance industry-specific study different, and potentially interesting, compared with prior cross-sectional co-opted board studies.

Dewing and Russell (2008) report that in the UK, the insurance industry regulator has to vouch boardroom nominations under the Financial Services & Markets Act (FMSA) (2000, Sect. 59(1–7)) before being tabled at the annual general meeting (AGM) for approval by shareholders. However, Dewing and Russell (2008) observe that only broad and minimal threshold conditions on what constitutes a 'fit and proper person' for board-level positions have to be met. These UK requirements are less prescriptive (e.g., in terms of qualifications) than the statutory requirements for director appointments in the US under Sect. 407 of the Sarbanes–Oxley (SOX) Act (2002). Incumbent directors deemed surplus to future requirements can be relatively easily replaced by incoming CEOs—for example, after they

have served out their contractual terms of office (usually three years) or by accepting an attractive severance deal. Being relatively unencumbered by legal restrictions on boardroom appointments makes the UK's property-casualty insurance industry a potentially good domain for conducting empirical tests of the incentives for new CEOs to co-opt the boardroom. Moreover, the increased scope for boardroom co-option by insurance CEOs is potentially a matter of public policy importance given that in the insurance industry, directors have statutory and fiduciary responsibilities to protect stakeholders', including shareholder, policyholder and regulatory interests with regard to maintaining ongoing financial resilience, and ensuring that future claims can be met. Additionally, co-opted boards can instil stability by reducing boardroom turnover, and facilitating long-term financial planning and strategic investment (Coles et al. 2014). These aspects can be particularly beneficial in risk-sensitive insurance firms subject to ongoing regulatory scrutiny of their financial conditions (Borde et al. 1994). Moreover, focusing on the UK insurance industry can be advantageous in that it not only allows us to take advantage of natural within-sector variability, but also avoid inherent biases arising from cross-sector and/or transnational differences in corporate governance, managerial discretion, accounting treatments, tax rules, and so on. Taken together, such considerations underscore the motivation for this study.

Our study extends recent board governance-performance research in the insurance industry (e.g., Adams and Jiang 2016, 2017, 2021) and the financial services sector more generally (e.g., Dupire et al. 2022) by focusing on the effects on profitability and solvency—two key performance indicators closely monitored by investors, policyholders, industry regulators, and other stakeholders (e.g., credit ratings agencies)—arising from boardroom reconfigurations in the wake of new CEO appointments. However, the dynamic performance effects of CEO succession has not been examined previously in prior insurance industry research despite the strategic importance for key stakeholders of new CEO induced changes at the board-level, and the associated reconfiguration of boardroom membership that invariably arises. In the insurance industry, and indeed, the financial services sector generally, matters of the adequacy of corporate governance and financial sustainability have taken on a higher national and international political as well as economic profile in the years following the 2007/8 global financial crisis (Kaserer and Klein 2019).

Prior insurance industry corporate governance studies (e.g. Adams and Jiang 2016) highlight the importance of board independence in monitoring CEO and executive directors' business conduct, and in ensuring sound balance sheet condition and positive financial results. In contrast to the generally positive governance role of board independence, recent cross-sectional studies (e.g., Jiraporn and Lee 2018; Lim et al. 2020; Sandvik 2020) find that a high level of board co-option weakens shareholders' interests—for example, by lowering annual dividend payments, and in highly levered settings, increasing the risk of bankruptcy proceedings as a result of excessive risk-taking and/or the purposeful violation of loan covenants. These studies also note that board co-option also tends to have greater explanatory power than tests using board independence measures. These empirical results thus make the current study on the financial performance consequences of CEO co-option and boardroom reconfiguration potentially illuminating and commercially and policy relevant, particularly given the aforementioned socio-economic and regulatory importance of profitability and solvency maintenance in the insurance industry.

Our research also advances on prior research by separately examining the performance-effects of new CEO initiated changes in the inside and outside directorate. This aspect of our study is novel, and potentially important as the incoming CEOs of insurance firms can value these two types of directors differently depending on the direction and scale of strategic change. For example, newly appointed inside executives could be particularly valued

for their technical (actuarial) expertise and/or strategizing ability, whilst incoming board outsiders could be appreciated for their monitoring effectiveness, commercial acumen, and/ or relevant business networks (Cohen et al. 2012).

In summary, our research finds that CEO initiated changes in the composition of inside (executive) board directors, and when the CEO is a financial expert improve the balance sheet strength of insurance firms. These observations suggest that following CEO co-opted boardroom changes, solvency maintenance becomes a strategic priority for insurance firms. We also observe enhanced profitability-effects for insurance industry experienced outside directors. These findings are prospectively of practical relevance—for example, in terms of assuring stakeholders, including insurance industry regulators, as to the performance-effects of CEO appointments.

The remainder of the paper is structured as follows. In Sect. 2, we outline our theoretical framework and hypotheses, while Sect. 3 of the paper describes our research design, including the description of the data, econometric strategy, and variables used. We then report the empirical results in Sect. 4, while the final section discusses the implications of the research results and concludes the paper.

## 2 Theoretical context & hypotheses development

### 2.1 The CEO-board interface

Agency theory holds that left unrestrained, the CEO and (often beholden) members of the top management team (TMT) will act opportunistically to maximize their private utilities at the expense of shareholders' wealth and the interests of other stakeholders (Fama and Jensen 1983). Therefore, the primary function of board outsiders, as articulated in the agency theory literature, is to reduce agency costs, and improve firm performance by controlling self-interested opportunism by the CEO and TMT. The influence of agency theory on UK corporate governance guidelines (e.g., the Cadbury Report, 1992) has also led to an increased representation of outside directors on UK boards over the last two decades or so. The established agency theory position is that independent outside directors improve the effectiveness of internal monitoring and advice, and therefore, reduce the risk of agency incentive conflicts between CEOs, senior executives, and contracting constituents, such as shareholders and creditors.

Hermalin and Weisbach (1998) view the composition of the corporate board, and the authority that is allocated to it, as the endogenously determined outcome of negotiation between the CEO and directors. This implies that operational activities and financial results are likely to reflect CEO strategic initiatives that are ratified by the board. For insurers, financial outcomes often reflects the level of decision-making discretion (e.g., over the choice of interest rate used for discounting liabilities for solvency purposes) and the amount of persuasive influence (information advantages) that the CEO has over boardroom colleagues (Miller 2011). This can create what Adams and Ferreira (2007) refer to as 'friendly boards', whereby outside directors are passive (information deficient) monitors of CEO decisions. Yet, such a situation might not necessarily be disadvantageous as consensual boards will be less afflicted by the fractional and disruption costs of boardroom disputes, and therefore, characterized by more cost-efficient decision-making (Chemmanur and Fedaseyeu 2018).

## 2.2 CEO succession & board changes

The appointment of a CEO is an organizationally significant event that often signals strategic change, and anticipated improvements in financial performance (Leung et al. 2021); yet, a change of CEO can also bring disruption costs that lower financial outcomes (Conyon and He 2014). CEO turnover can arise from the voluntary departure (e.g., due to retirement) or forced dismissal of the incumbent (e.g., as the result of lacklustre performance (Weisbach 1988).[1] CEO succession can either take the form of an 'anointed handover' to a current executive director or a 'tournament' between inside and outside contestants for the 'top job' (Mobbs and Raheja 2012). Internal successions to the CEO position are likely to arise when boards wish to maintain current strategies (e.g., because they have been financially successful over time). In contrast, outside CEO appointments tend to occur when a new strategic direction and board shake-out is needed (e.g., due to poor financial results) (Weisbach 1988).

Prior cross-sectional research differs in terms of whether or not CEO co-opted boards likely improve financial outcomes for the benefit of shareholders and other key stakeholders (e.g., industry regulators). For example, an incoming CEO could improve financial outcomes by reconstituting board membership with individuals with requisite commercial knowledge and skills-sets that are congruent with a new and more profitable strategic direction (Lant and Milliken 1992). Conversely, an incoming CEO could continue the policies and board team of the previous incumbent—for example, because his/her industry knowledge and business links are limited, and thus, heavily reliant on inputs from the long-serving directors. This 'continuation' strategy may not be conducive to long-term financial success, particularly in dynamic market conditions (Karaevli and Zajac 2013). Given the globally competitive and heavily regulated industrial context within which UK insurers function (Adams et al. 2019), we expect cash flow generation (profitability) and financial resilience (solvency) to be primary strategic goals for insurers. For example, period profitability enables CEOs to invest in positive net present value (NPV) projects as well as realize bonus targets. Solvency, on the other hand, allows insurers to secure economic and societal legitimacy, and maintain transactional relationships with network agents (e.g., brokers). Therefore, to adapt to rapidly changing environmental and organizational circumstances, and maximize financial outcomes, CEOs are expected to attempt to co-opt boards with directors possessing requisite skill-sets and business knowledge/experience as well as individuals possessing a similar strategic outlook (Coles et al. 2014). Such personal qualities at the board-level will enable insurers to effectively utilize directors' knowledge capabilities, coordinate business networks, and achieve financial performance targets.

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[1] Weisbach (1988) notes that on average approximately 65% of CEO resignations in the US corporate sector are due to routine events, such as retirement and personal/age-related reasons (e.g., death or severe illness), with.
few terminations due to non-routine triggers, such as poor performance or malfeasance. Similar observations are mirrored in the present study where approximately 70% of the 178 cases of CEO succession in our panel sample were publicly attributed to voluntary retirement and roughly 25% to career advancement (e.g., transfer to a bigger firm).

## 2.3 Performance-effects of independent outside directors

In agency theory, outside directors are, as noted earlier, primarily responsible for effectively monitoring the decisions of the CEO and TMT, and controlling agency costs for the benefit of shareholders and other contracting constituents. Outside directors can also draw on their past business experiences and technical capabilities to advise the CEO and board insiders on how operations and investment opportunities can best be managed and/or reorganized in order to boost period earnings (Adams and Ferreira 2007). The vigilance of outside directors in reducing agency costs and maximizing the utility of shareholders and other stakeholders (e.g., policyholders) through close monitoring of the CEO and members of the TMT will be influenced by a combination of their personal attributes (e.g., their business acumen) and private incentives (e.g., the protection/promotion of their human capital value) (Khanna et al. 2013). These attributes are likely to over-ride any desire for incoming insurance CEOs to appoint outside directors who do not have the requisite insurance industry experience and technical (e.g., financial) skill-sets necessary to strategically steer the business forwards in an increasingly competitive business environment.[2] Moreover, under UK corporate governance guidelines (e.g., the Cadbury Report, 1992), the maintained assumption is that the more outsiders on the board, the greater the pool of business know-how and technical expertise available to provide not only effective boardroom oversight, but also contribute fresh perspectives to strategic decision-making and improving profitability. Such reasoning therefore suggests that incoming CEOs keen to promote their public profile and human capital value among social and political/regulatory agents are likely to endorse outside directors who can help drive the insurance firm in a new and profitable strategic direction that is commensurate with their corporate vision. Therefore:

> H1a: The greater the fraction of outside directors to board size appointed following CEO succession, the better profitability.

Increasing the pool of outside directors' monitoring capability and wise counsel on the boards of insurance firms can also help improve balance sheet strength and business sustainability going forwards. This can be achieved by encouraging the CEO and the TMT (who might otherwise have equity-based incentive plans) to pursue precautionary business strategies and ensure regulatory and political compliance. These institutional constraints are likely to minimize the risk of co-opted boards engaging in agency incentive conflicts with shareholders and other stakeholders, as has been identified in prior cross-sectional board co-option studies, such as Lim et al. (2020) and Sandvik (2020). Promoting financial resilience will also enable the outside directors of insurance firms to lower the risk of costly regulatory intervention. Consequently:

> H1b: The greater the fraction of outside directors to board size appointed following CEO succession, the better solvency.

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[2] This is particularly the case following the publication of the Penrose Report (2004), which investigated the demise of the UK life insurer, Equitable Life. The Penrose Report (2004) attributed part of the blame for the company's financial troubles to the appointment of inexperienced and technically lacking outside directors, and their inability to effectively monitor and control executive practices and strategic decisions.

## 2.4 Performance-effects of inside directors

Inside directors, such as Chief Financial Officers (CFOs), are likely to have more firm-specific and detailed technical/operational knowledge than outside directors (Masulis and Mobbs 2011). For example, the proprietary knowledge and information network advantages of the TMT can be potentially performance-enhancing for firms, and therefore, valued by incoming CEOs, especially those unfamiliar with the firm and/or its industry. These attributes are likely to be especially apt in financially opaque insurance firms with potentially risky and actuarially complicated liability structures (Han et al. 2018). Increasing the pool of valuable human and social capital of co-opted senior executives is also likely to be proximally apt in facilitating 'shared knowledge platforms' at the board-level, supporting the strategic vision of the new CEO, and therefore, in promoting profitability.[3] Accordingly:

> H2a: The greater the fraction of inside directors to board size appointed following CEO succession, the better profitability.

Agency theory holds that left uncontrolled, CEOs and board insiders may use their talents to engage in rent-seeking behavior that denudes the wealth of shareholders and runs counter to the interests of other contracting constituents (Jiraporn et al. 2012). However, Masulis and Mobbs (2011) argue that rather than being beholden and obsequious to CEOs, ambitious board insiders (typically CFOs) often have self-interested career-path reasons (e.g., a coveted future CEO position) to act with integrity in matters of corporate governance. For this reason, board insiders can have shared reputational enhancement incentives with outside directors to promote effective stewardship and control agency costs associated with aberrant conduct by a dominant CEO. This can result in an optimal balance of power within the firm, which is particularly important in insurance, and other financial firms, that have to maintain statutory minimum levels of solvency. Consequently:

> H2b: The greater the fraction of inside directors to board size appointed following CEO succession, the better solvency.

## 2.5 Moderating-effects of a financially expert CEO

Given the increasingly stringent regulatory and tight competitive contexts within which insurers operate and the technical (e.g., actuarial) nuances pertaining to the business of insurance, we expect a moderating-effect between the financial acumen of the CEO, new board members, and performance outcomes. In fact, prior research (e.g., Adams and Jiang 2017) suggests that financial performance in the insurance industry is positively affected when the CEO is a financial expert (which they define as a professionally qualified accountant, actuary or underwriter). Adams and Jiang (2017) reason that as insurance is a specialist risk-trading business, financial and technical prowess helps CEOs to convince

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[3] Some non-co-opted inside directors could also be supportive of the new CEOs strategic plans. However, co-opted executives are, all else equal, more likely to be supportive of the new CEO's strategic plans—for example, to enhance their public reputations (human capital value) as successful strategic 'change agents'.

financially sophisticated stakeholders (e.g., financial analysts) as to the legitimacy and feasibility of their strategic mission.

Additionally, a CEO's membership of a professional financial body provides surety to contracting constituents that their economic interests (e.g., with regard to corporate solvency) will be served and financial targets realized (e.g., as professional sanctions mitigate the risk of aberrant behaviour by members). CEOs who are members of professional financial bodies are also expected to have more confidence in, and/or more adept at selecting, board members who are similarly qualified and subject to the norms and standards of their relevant professional body. Therefore, all else equal, incoming CEOs with financial expertise are likely to be in a position to better self-assess the technical/financial and business acumen of boardroom candidates, and their ability to contribute positively to financial outcomes. As a result:

> H3a: The greater the fraction of inside and outside directors to board size appointed by a financially expert new CEO, the better profitability.

We further reason that financially expert CEOs selected to lead insurance firms, and who are conditioned by formal professional standards and a desire to protect their public reputations for prudential management, could persuade board members that their priority is to ensure the maintenance of statutory minimum levels of solvency and long-term financial viability (Malkiel 1991). As contractual claimants to future cash flows, policyholders as well as shareholders and other stakeholders (e.g., industry regulators) are particularly sensitive to the future balance sheet strength of insurance firms (Veprauskaite and Adams 2018). This suggests that financially expert CEOs with an insurance, and/or related industry, background are likely to value similarly technically skilled and professionally qualified directors in order to enhance the future financial viability of the firm. In other words, to protect their public reputations for prudent management, inside (executive) and outside (independent non-executive) directors are likely to closely monitor corporate plans to ensure that excessive, and economically and politically costly, risks are not taken by insurance firms. This contrasts with prior cross-sectional research by Sandvik (2020), which finds that board co-option is negatively associated with credit quality in highly levered (high insolvency risk) firms. As a consequence:

> H3b: The greater the fraction of inside and outside directors to board size appointed by a financially expert new CEO, the better solvency.

## 3 Research design

### 3.1 Data

Our data set covers an panel of 91 stock insurance firms (representing 1,054 data points) that wrote property-casualty insurance in the UK over the 15 years, 1999 to 2013. Hand-matched financial and board-level information for each of the 91 insurers in the panel sample relate to the UK statutory reporting insurance entity, and derive from various sources for which complete and reliable firm-level data were available to us at the time the study was carried out.. These data sources include the *Standard & Poor's Synthesys* statutory accounting database, published annual (and audited) reports held at the University of

Nottingham's former Centre for Risk and Insurance Studies (CRIS), industrial databases (e.g., *FAME*), insurance industry directories, and direct company representations.[4] During the period of analysis, there were some minor changes in the composition of the longitudinal data set (e.g., due to market exits). This renders an unbalanced panel—a feature that nonetheless has the intrinsic benefit of reducing survivorship bias.

In addition, all observations in the panel data set on CEOs and board members related to permanent rather than temporary (interim) appointments (typically lasting less than a year). This approach avoids over-stating rates of CEO turnover and changes in board composition. Instances where CEO succession took place part way through a financial year were treated as occurring in that year of account. We also include in our panel sample firm/year cases where the incumbent CEO did not change between 1999 and 2013 so as not to overweight the sample with insurers with recurrent top-level job changes. Outside directors of subsidiaries of foreign conglomerates are independent of the group executive body in line with relevant UK corporate governance guidelines (e.g., Financial Reporting Council, 2012), and therefore, included in the sampling design. Moreover, boardroom appointments following CEO succession include both replacements of existing, and newly created boardroom positions.

Overall, our panel data set constitutes roughly 30% of active UK property-casualty insurers, contributing approximately 75% of mean net (of reinsurance) premiums written over the period of analysis, and includes a mix of insurance firms of varying size, ownership-type, and product-mix. The panel data set excludes insurers for which financial accounting and/or board-level demographic information were incomplete (e.g., due to insurance funds being closed to new business), and cases (e.g., Independent Insurance plc in 2001) that exited the market without a change in CEO. The sampling frame also omits Lloyd's syndicates due to their use until 2005 of a triennial rather than annual accounting cycle. Additionally, data relating to trust funds, protection and indemnity pools, and onshore company ('captive') insurance funds were excluded from our sample selection procedure as such entities do not directly underwrite much, if any, third party property-casualty insurance business.

## 3.2 Board/CEO traits controls

Various board governance factors can affect the financial performance of insurance firms. Therefore, we control for the following five board-level and eight CEO trait variables.

Following previous research (Sandvik 2020; Coles et al. 2014), we control for board independence (*INDEPENDENCE*), the fraction of the board that is composed of independent directors, as a measure for board monitoring effectiveness. Given the necessity for board outsiders to acquire specialist insurance and firm-specific knowledge as well as secure unfettered access to information systems managed by insiders, we predict that 'busy' newly appointed outside directors (*BUSYOUTS*) are likely to be associated with lacklustre financial performance. Consistent with Adams and Jiang (2021), we also predict that outside directors with financial expertise (*FINXOUTS*) add to board effectiveness by lowering the costs of information acquisition and processing, and thereby, enhancing

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[4] *Standard & Poor's Synthesys* insurance companies' data stopped being publicly available in 2016/17, while the CRIS became defunct around the same time. These constraints unfortunately prevent the collection of more recent firm-level data—a limiting feature also noted in other board governance studies (e.g., Nguyen et al. 2021).

financial results. In addition, industry knowledge and experience enables outside direc-
tors to objectively and critically evaluate strategic proposals tabled by the CEO and TMT.
These qualities are likely to be particularly performance-enhancing for board outsiders
(*INSOUTS*) in technically specialist and regulatory complex insurance firms (Adams and
Jiang 2016). Furthermore, we reason that insurers with more board members (*BSIZE*) have
a greater capacity for bringing business knowledge and technical expertise to bear on stra-
tegically risky decisions, which can again improve financial performance.

In accordance with the UK's Cadbury Report (1992) we argue that segregating the CEO
and Chairman positions (*SEP*) reduces agency costs, and so promotes financial perfor-
mance. In addition, it is sensible to assume that the commercial acumen of CEOs increases
with the number of years they have spent in the 'top job'. Therefore, the length of a CEO's
tenure in an insurance firm—that is, the period of time since the CEO has been in the 'top
job' (*CEOTEN*)—is likely to be related to superior financial outcomes. Additionally, CEOs
with well-endowed industry knowledge and financial expertise, plus established business
networks, are predicted to secure competitive advantages over market rivals (e.g., through
innovative and efficient use of financial resources) (Adams and Jiang 2017). Therefore,
we expect CEOs with insurance industry experience (*CEOINS*) to be linked with sound
financial performance. However, the performance-effects of a foreign CEO (*CEOFOR*) is
ambiguous. On the one hand, foreignness could limit the information set (e.g., of local
market conditions) of a CEO, and so have an adverse impact on financial results. On the
other hand, a foreign CEO could increase the social and human capital value of the full
board (e.g., in terms of their overseas business networks and jurisdictional knowledge), and
therefore, improve financial performance (e.g., see Masulis et al. 2012).

Whether or not CEOs hired from inside or outside firms improve performance is a
vexed question. However, given that financial resilience is likely to be of high strategic
and regulatory importance in the insurance industry, we expect that inside appointed CEOs
(*CEOINOUT*) to have less of a 'knowledge handicap' than external appointments, and so
linked to superior financial performance. We also expect that older CEOs (*CEOAGE*) are
more likely to be more risk-averse (solvency-orientated) than their younger and more eager
counterparts (e.g., in order to protect the market value of their accumulated human capi-
tal). Additionally, having an ownership stake in the firm (*CEOOWN*) gives CEOs an incen-
tive to improve financial results and maximize firm value. As noted earlier, we also expect
insurers with financially grounded CEOs at the helm (*CEOFIN*) to be associated with bet-
ter financial performance.

### 3.3 Firm-specific controls

The relation between CEO succession/boardroom change, and financial performance can
also be influenced by the characteristics of firms operating in the insurance industry. There-
fore, we control for, and motivate, five firm-specific variables below.

Firms with dominant (block-holder) shareholders (*CONC*) have the ability to actively
monitor and regularly question the strategic plans and activities of CEOs. Accordingly,
we predict that greater concentrated ownership will be directly related to sound finan-
cial results. Insurers quoted on a major stock exchange (*LIST*), such as the London Stock
Exchange, could also be motivated to perform better than other insurers in order to attract
inflows of global investment. Also, a diversified product-mix (*P-MIX*) can produce econo-
mies of scale and scope for insurers, enabling them to realize input efficiencies in their
management of risk pools and asset portfolios, and so boost financial outcomes. As noted

**Table 1** Variable definitions: Financial variables are measured as annual figures. The moderating variable for CEO financial expertise used in the interaction tests is a dummy variable equal to 1 for a CEO who is a financial expert (professionally qualified accountant, actuary or underwriter), 0 otherwise

| Variables | Definition |
| --- | --- |
| *Dependent variables* | |
| MARGIN | Net profit margin—measured as post-tax earnings to net written premiums |
| SOL | Solvency—measured as 1-surplus (capital + other shareholders' funds)/total assets (lower the ratio, the more solvent an insurer) |
| *Main independent variables* | |
| *BOARD Co-Option* % all directors (to entire board size) appointed following a CEO assuming office | |
| %OUTS > CEO | % outside (independent) directors (to entire board size) appointed following a CEO assuming office |
| %EDS > CEO | % inside (executive) directors (to entire board size) appointed following a CEO assuming office |
| *Boards-level controls* | |
| INDEPENDENCE | % all outside (independent) directors to entire board size |
| BUSYOUTS | % outside directors (to entire board size) appointed since the sitting CEO took office with more than 2 part-time board-level positions |
| FINXOUTS | % outside directors (to entire board size) appointed since the sitting CEO took office who are financial experts (professionally qualified actuaries, accountants or underwriters) |
| INSOUTS | % outside directors (to entire board size) appointed since the sitting CEO took office with insurance industry experience |
| BSIZE | Board size—the total number of board members (including the CEO) |
| SEP | Dummy variable equal to 1 for separate Chairman/CEO, 0 otherwise |
| CEOTEN | Number of years a CEO has been at the head of an insurance firm |
| NEWCEO | Dummy variable equal to 1 for a year in which a new CEO has been appointed, 0 otherwise |
| CEOINS | Dummy variable equal to 1 for CEO who has insurance industry (and related) experience, 0 otherwise |
| CEOFOR | Dummy variable equal to 1 for CEO who is not a UK citizen, 0 otherwise |
| CEOINOUT | Dummy variable equal to 1 if a CEO is an inside appointment, 0 otherwise |
| CEOAGE | The age of a CEO (in years) |
| CEOOWN | Dummy variable equal to 1 if a CEO owns > 3% of shares in issue, 0 otherwise |
| CEOFIN | Dummy variable equal to 1 if a CEO is a financial expert (professionally qualified actuary, accountant or underwriter), 0 otherwise |
| *Firm-specific controls* | |
| CONC | % shares in issue held by the top-3 shareholders |

**Table 1** (continued)

| Variables | Definition |
|---|---|
| LIST | Dummy variable equal to 1 if an insurer is publicly listed on a main stock exchange, 0 otherwise |
| P-Mix | Herfindahl index – closer to 1 the more concentrated the product-mix |
| REINS | Reinsurance ceded divided by gross written premiums |
| lnSIZE | Natural logarithm of total assets |

in Powell and Sommer (2007), loss-contingent capital, reinsurance (*REINS*) improves internal capital allocation and usage, and thus enhances profitability by providing increased underwriting capacity and reduced insolvency risk. Profitability and financial resilience are also likely to improve as firms grow in size (*lnSIZE*) (e.g., as a result of economies of scale and scope). The variables that enter our analysis are defined in Table 1.

### 3.4 Econometric strategy

### 3.4.1 Baseline analysis

Preliminary analysis examines the performance-effects of (overall) board co-option We measure the performance-effects of CEO co-opted boards using two accounting-based measures, namely: the profit margin and solvency ratio.[5] Profit margins signal the CEO's and board's success in generating new and repeat business, and thus the indicator is predominantly relevant to investors and managers. Solvency ratios reflect the CEO and board's ability to maintain balance sheet strength in the face of business uncertainties. Solvency is therefore of key interest to policyholders with contractually fixed cash flow claims on insurance firms, and industry regulators charged with minimizing the economic and political risks associated with financial distress/bankruptcy (Ho et al. 2013). In addition, we examine the moderating effects of CEO financial expertise on board appointments and performance. The baseline model we employ is thus:

$$PERF_{it} = b_0 + b_1 BoardCo-option_{it} + b_2 CEOFININTERACTIONS_{it}$$
$$+ b_3 BCONTROLS_{it} + b_4 FCONTROLS_{it} + \gamma_t \tag{1}$$

In Eq. (1), $PERF_{it}$ is one of our two dependent financial performance variables – profitability (*MARGIN*) and solvency (*SOL*)—for insurer $i$ in year $t$. Overall, board co-option is the main explanatory variables of interest and as in Coles et al. (2014), it reflects the extent to which a board is co-opted. Our board co-option variable is defined as the fraction (percentage) of all directors appointed after a particular CEO assumed office. This measure reflects the leeway that new CEOs have in reconfiguring boards in ways that best suits his/her strategic priorities. The next three covariates represent our interaction terms and

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[5] We use profit margin as our preferred profitability indicator as it measures the ability of co-opted boards to generate aggregate (underwriting and investment) earnings in relation renewed and new premiums generated, thereby, reflecting the effectiveness of boards in generating period returns in relation to turnover. However, to determine whether our results hold, we substitute profit margin for the annual book return on total net assets (ROA)—another common profitability indicator—in further tests (see Sect. 4.4).

control variables (as explained above and defined in Table 1), while $\gamma_t$ denotes an idiosyncratic error term. Equation (1) is estimated with two-way (firm-year) clustered standard errors.[6] The results are presented on Table 4 in Sect. 4.3.

### 3.4.2 GMM-SYS dynamic estimator

The econometric procedure that we next employ is Generalized Method of Moments (GMM) (Arellano and Bond 1991; Blundell and Bond 1998). GMM is a widely applied approach that controls for endogeniety concerns, such as variable simultaney (e.g., the possibility that CEO/board decisions may be influenced by expected financial outcomes) and omitted variable bias (e.g., due to unobservable differences in the strategic preferences of CEOs/board directors). Controlling for endogeneity is particularly pertinent in board governance studies given that board composition is likely to be endogenously determined (Hermalin and Weisbach 1998; Adams et al. 2010).[7] Alternative approaches, such as the use of Two Stage Least Squares (2SLS), are often not possible to effectively employ in board governance research due to the difficulty of identifying valid instrumental variables (IVs) that are theoretically related to board co-option, but not financial outcomes (Wintoki et al. 2012). The GMM model we employ is thus:

$$PERF_{it} = b_0 + b_1 PERF_{it-1} + b_2 \%OUTS > CEO_{it} + b_3 \%EDS > CEO_{it}$$
$$+ b_4 CEOFININTERACTIONS_{it} + b_5 BCONTROLS_{it} + b_6 FCONTROLS_{it} + \varepsilon_{it} \tag{2}$$

In Eq. (2), $PERF_{it}$ is again one of our two dependent financial performance variables – profitability (*MARGIN*) and solvency (*SOL*)—for insurer $i$ in year $t$. We now separate directors based on their outsider/insider status, and include two main explanatory variables, $\%OUTS > CEO_{it}$ and $\%EDS > CEO_{it}$. These variables are defined as the fraction (percentage) of outside and inside directors, respectively, appointed after a particular CEO assumed office to uncover whether the effect on performance differs based on their outsider/insider status.

The next three covariates represent our interaction terms and control variables, while $\varepsilon_{it}$ is an error term that includes, $v_i$, unobserved (latent) fixed-effects (i.e., unobserved firm-specific heterogeneity) that are assumed to vary across insurance firms, yet remain constant over time for each firm, plus a random disturbance term ($u_{i,t}$); that is: $\varepsilon_{it} = v_i + u_{i,t}$. We also include a single year lag of the dependent variable as a regressor in the model to account for temporal persistence in the dependent variables. We also checked how many lags of our financial outcome variables of interest (i.e., profitability and solvency) are needed to ensure dynamic completeness (i.e., serially uncorrelated errors) by estimating two regression models of current financial performance using various period lags of performance, after controlling for other explanatory variables. The results show that a single period lag

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[6] As within-firm (*MARGIN*) and (*SOL*) are fairly static variables across years, there is insufficient variation to justify the use of firm fixed-effects estimation. Also, as many independent variables vary cross-sectionally, but less so over time, fixed-effects estimators may not detect their performance impact (Sandvik 2020). Furthermore, clustering following a two dimensions approach allows for both firm-effects and a time-effect, and so is preferred over firm fixed-effects approach. This is because the latter procedure produces unbiased standard errors only when firm-effects are permanent (Petersen 2009). Since we do not know whether firm-effects are permanent or temporary, we make use of clustering on two dimensions as that approach provides unbiased standard errors regardless of the form of firm-effects (Petersen 2009; Baboukardos 2018).

[7] However, Ngyyen et al. (2021) assume that changes in board configuration made in the wake of CEO turnover are exogenous shocks to board composition.

is sufficient to capture the dynamic nature of the board reconfiguration-performance relation, and account for transitional effects in the co-option of directors, and their impact on performance outcomes. Therefore, Eq. (2) is considered to be well-specified; plus older lags are exogenous with respect to the current residuals, and so can be used as legitimate instruments.

Two additional challenges that we face in the current study are first, the possibility that the co-opted board-performance relation might be influenced by the financial condition of the insurer under the former CEO. Second, there may be complementarities arising from the performance-effects of short-run disruption costs and benefits of policy changes arising after an incoming CEO takes-up post. These econometric problems could produce biased coefficient estimates, and hence, lead to unreliable interpretation of empirical results (Baltagi 2008).

To overcome these potential difficulties, we refine our GMM model, and use the GMM-SYS dynamic estimator of Blundell and Bond (1998) (using *Stata* software release 14), with robust standard errors clustered at the firm-level. GMM-SYS is a two-step estimation procedure that employs both level and difference estimations under the assumption that first-differences of the instrumented (lagged dependent) variables are uncorrelated with unobserved firm-related factors (e.g., variations in the quality of board directors). First-differencing eliminates fixed-effects since by definition it is time invariant, and thus mitigates potential bias that may arise from unobserved firm-specific heterogeneity (Arellano and Bond 1991). We also assume that the correlation between the endogenous variables and fixed-effects is constant over time (Blundell and Bond 1998)—an assumption that enables us to use lagged differences as instruments for the levels equation.

GMM-SYS further controls for simultaneity bias, and the dynamic relation between current values of the regressors and past values of the dependent variables. GMM-SYS also produces robust and consistent estimates when, as is the case here, unbalanced panels of relatively short temporal length are used (Blundell and Bond 1998). Additionally, as two-step estimates of standard errors are prone to downward bias (Blundell and Bond 1998), we implement Windmeijer's (2005) finite sample correction procedure to deal with this possibility.

In relying on past values of performance as internal panel instruments, GMM-SYS is useful when the use of alternative estimators (e.g., two-stage least squares (2SLS) regression) might be inhibited by the limited availability of suitable instruments—a feature that is quite common in practice (Wintoki et al. 2012) Our GMM-SYS model is given in Eq. (3) below:

$$\begin{pmatrix} PERF_{it} \\ \Delta PERF_{it} \end{pmatrix} = a + b_1 \begin{pmatrix} PERF_{it-1} \\ \Delta PERF_{it-1} \end{pmatrix} + b_2 \begin{pmatrix} \%OUTS > CEO_{it} \\ \Delta\%OUTS > CEO_{it} \end{pmatrix}$$
$$+ b_3 \begin{pmatrix} \%EDS > CEO_{it} \\ \Delta\%EDS > CEO_{it} \end{pmatrix} + b_4 \begin{pmatrix} CEOFININTERACTIONS_{it} \\ \Delta CEOFININTERACTIONS_{it} \end{pmatrix} \tag{3}$$
$$+ b_5 \begin{pmatrix} BCONTROLS_{it} \\ \Delta BCONTROLS_{it} \end{pmatrix} + b_6 \begin{pmatrix} FCONTROLS_{it} \\ \Delta FCONTROLS_{it} \end{pmatrix} + \epsilon_{it}$$

To test whether past performance and the explanatory variables of interest are exogenous with respect to current shocks in financial performance, Arellano and Bond (1991) suggest that first-order (AR (1)) and second-order (AR (2)) diagnostics for serial correlation are performed to test whether errors are correlated over time. If the errors are serially correlated, then the GMM estimator will produce inconsistent, and hence, unreliable results. Furthermore, if we include sufficient period lags to control for dynamic-effects, then any historical value of the dependent variable beyond the lags is a potentially valid

instrument as it is exogenous to current shocks in the relevant dependent variable. This means that errors in first-order differences should be correlated, but not in tests of second-order differences (Arellano and Bond 1991).

We also apply Hansen's (1982) *J*-test for over-identifying restrictions, which checks the statistical validity of instruments (i.e., the exclusion criterion that instruments are uncorrelated with the error term). With this test, the null hypothesis of no misspecification is rejected if the computed $\chi^2$ statistic is greater than its tabulated value. In addition, we apply the Difference-in-Hansen test to diagnostically check that fixed-effects in the error term and the endogenous variables are constant over time, thereby supporting our use of lagged differences. The results of our suite of diagnostic tests (reported in the notes to Table 4) suggest no statistical evidence of serial correlation and omitted variable bias (i.e., accepting the null hypothesis in the AR(2) test). These tests also indicate that the instruments are valid in the sense that they are not correlated with the error term in the first-difference analysis (e.g., see Roodman 2009).

# 4 Empirical results

## 4.1 Summary statistics

Table 2 gives the overall statistical values plus the between firm (cross-sectional) and within firm (temporal) values for the variables employed. Reporting the between firm and within firm descriptive statistics enables us to identify and assess major variations in our variables of interest both across insurance firms and over time. The between and within standard deviations for the two dependent variables—profitability (*MARGIN*) and solvency (*SOL*)—are quite large indicating major financial performance changes in the panel both across insurers and over time. This observation hints that over the period of analysis, some insurers are dealing with changes in the commercial environment (e.g., increased competition) better than others. The summary statistics in Table 2 show satisfactory average levels of profitability and solvency over the 15 years of analysis (1999 to 2013). Table 2 also indicates that on average, roughly half of inside and outside directors retained their seats on the board within one or two years after a new CEO assumed office (i.e., 53%/51%, respectively). The fraction of non-co-opted board outsiders was about 49% on average over the analysis period (see note to Table 2). This figure is higher than the comparable 34% average percentage reported in the cross-sectional US study of Coles et al. (2014), suggesting more continuity of board outsiders following CEO succession in technically complex and regulatory high profile insurance firms. However, Table 2 also reveals extremes in board composition, ranging from a complete boardroom overhaul (e.g., in a minority of small niche insurers in generally weak financial condition) to the retention of all incumbent board members (e.g., in larger and more structurally complex insurers). This reflects the greater scale and complexity of larger insurers, and hence, the greater need for these firms to retain board-level expertise.

The CEO tenure (*CEOTEN*) statistics reported in Table 2 (average tenure = about four years) also indicate variations in the terms served by lead executives (std. dev. = 2.62) with the longest tenured CEO at 22 years being the single founder CEO in the panel data set. Again this feature reflects differences in boardroom dynamics amongst our panel sample of insurance firms. Table 2 also shows the mean board size (*BSIZE*) for the panel sample to be about eight members, and that on average roughly two-thirds of CEOs in our panel

**Table 2** Overall between and within panel-level statistics, 1999 to 2013: This table presents the mean, median, standard deviation, values for the full panel sample (1999 to 2013) of our dependent and independent variables. The table also provides the between and within descriptive values to indicate cross-sectional and temporal variations in the panel data set. For the full panel sample, the raw (unlogged) mean value of firm size (total assets) is £706 million. Variable definitions are given in Table 1. The fraction of non-co-opted board outsiders was about 49% on average over the period of analysis

| Variables | | Mean | Median | St. Dev |
|---|---|---|---|---|
| *MARGIN* | overall | 0.08 | 0.08 | 0.06 |
| | between | | | 0.04 |
| | within | | | 0.03 |
| *SOL* | overall | 0.70 | 0.67 | 0.09 |
| | between | | | 0.08 |
| | within | | | 0.04 |
| *BOARD CO-OPTION* | overall | 1.03 | 1.1 | 0.66 |
| | between | | | 0.36 |
| | within | | | 0.60 |
| *%OUTS > CEO* | overall | 0.51 | 0.50 | 0.37 |
| | between | | | 0.19 |
| | within | | | 0.33 |
| *%EDS > CEO* | overall | 0.53 | 0.50 | 0.38 |
| | between | | | 0.22 |
| | within | | | 0.33 |
| *INDEPENDENCE* | overall | 0.61 | 0.63 | 0.10 |
| | between | | | 0.08 |
| | within | | | 0.08 |
| *BUSYOUTS* | overall | 0.36 | 0.34 | 0.28 |
| | between | | | 0.26 |
| | within | | | 0.13 |
| *FINXOUTS* | overall | 0.20 | 0.20 | 0.12 |
| | between | | | 0.10 |
| | within | | | 0.08 |
| *INSOUTS* | overall | 0.50 | 0.50 | 0.29 |
| | between | | | 0.28 |
| | within | | | 0.13 |
| *BSIZE* | overall | 7.95 | 8.00 | 2.35 |
| | between | | | 1.99 |
| | within | | | 1.40 |
| *SEP* | overall | 0.88 | 1.00 | 0.32 |
| | between | | | 0.35 |
| | within | | | 0.07 |
| *CEOTEN* | overall | 4.09 | 4.00 | 2.62 |
| | between | | | 1.80 |
| | within | | | 2.09 |
| *NEWCEO* | overall | 0.15 | 0.00 | 0.35 |
| | between | | | 0.07 |
| | within | | | 0.35 |
| *CEOINS* | overall | 0.66 | 1.00 | 0.48 |
| | between | | | 0.46 |
| | within | | | 0.15 |
| *CEOFOR* | overall | 0.24 | 0.00 | 0.43 |
| | between | | | 0.36 |
| | within | | | 0.25 |

**Table 2** (continued)

| Variables | | Mean | Median | St. Dev |
|---|---|---|---|---|
| *CEOINOUT* | overall | 0.41 | 0.00 | 0.49 |
| | between | | | 0.36 |
| | within | | | 0.37 |
| *CEOAGE* | overall | 54.55 | 55.00 | 4.47 |
| | between | | | 3.32 |
| | within | | | 3.26 |
| *CEOOWN* | overall | 0.36 | 0.00 | 0.48 |
| | between | | | 0.48 |
| | within | | | 0.08 |
| *CEOFIN* | overall | 0.56 | 1.00 | 0.50 |
| | between | | | 0.42 |
| | within | | | 0.28 |
| *CONC* | overall | 0.66 | 0.70 | 0.30 |
| | between | | | 0.29 |
| | within | | | 0.05 |
| *LIST* | overall | 0.06 | 0.00 | 0.24 |
| | between | | | 0.24 |
| | within | | | 0.06 |
| *P-MIX* | overall | 0.57 | 0.58 | 0.22 |
| | between | | | 0.22 |
| | within | | | 0.05 |
| *REINS* | overall | 0.31 | 0.31 | 0.07 |
| | between | | | 0.07 |
| | within | | | 0.02 |
| *lnSIZE* | overall | 4.64 | 3.99 | 1.70 |
| | between | | | 1.75 |
| | within | | | 0.29 |

(*CEOINS*) have an insurance industry background plus 56% are professionally qualified financial experts (*CEOFIN*), with just over 40% of new CEOs on average being internal appointments (*CEOINOUT*). The increased propensity to appoint outsiders to the top-job, as implied by the statistics in Table 2, could reflect the changing nature of the insurance industry as it competes on a global scale, and operates under increasingly challenging legislative and regulatory conditions. In fact, in turbulent times, it is likely that the board nomination committees of UK insurance firms have to search outside of the firm and industry for leadership talent.

## 4.2 Correlation analysis

Table 3 gives the correlation coefficient matrix for the variables used in this study (with significance levels given at $p \leq 0.05$, two-tail or lower). Table 3 indicates that given their greater cash flow generation capabilities, profitable insurers are, as expected, statistically associated with sound solvency (our inverse measure) ($\rho = -0.26$). This indicates that different aspects of financial performance are likely to be correlated with each other,

**Table 3** UK Insurers 1999–2013: Correlation coefficient matrix: This table presents correlation coefficient matrix for the full panel of the 91 UK insurers in our sample ($n$ = 1233 firm/year cases). Definitions of the variables are given in Table 1. We replace *BSIZE*, *CEOTEN*, *CEOAGE* and *REINS* with their Box-Cox transformation equivalents *B(BSIZE)*, *B(CEOTEN)*, *B(CEOAGE)* and *B(REINS)* to address the effects of extreme values. Correlations are computed using the Pearson correlation test or the non-parametric Spearman rank correlation test for dummy variables. The interacting variable *CEOFIN* is correlated with the dependent variables *MARGIN* (0.30) and *SOL* (-0.26) and the independent variables *B(BSIZE)* (0.30) and *lnSIZE* (0.31)

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) MARGIN | 1.00 | | | | | | | | | | | | | | | | | | | |
| (2) SOL | -0.16* | 1.00 | | | | | | | | | | | | | | | | | | |
| (3) BOARD CO-OPTION | -0.10* | -0.07* | 1.00 | | | | | | | | | | | | | | | | | |
| (4) %OUTS>CEO | -0.09* | -0.01 | 0.89* | 1.00 | | | | | | | | | | | | | | | | |
| (5) %EDS>CEO | -0.09* | -0.11* | 0.89* | 0.59* | 1.00 | | | | | | | | | | | | | | | |
| (6) INDEPENDENCE | 0.01 | -0.05 | 0.10* | 0.05 | 0.14* | 1.00 | | | | | | | | | | | | | | |
| (7) FINXOUTS | 0.18* | -0.13* | 0.04 | 0.01 | 0.06 | 0.17* | 1.00 | | | | | | | | | | | | | |
| (8) INSOUTS | 0.38* | -0.25* | -0.04 | 0.01 | -0.09* | 0.13* | 0.04 | 1.00 | | | | | | | | | | | | |
| (9) B(BSIZE) | 0.26* | -0.03 | 0.06* | 0.03 | 0.08* | 0.30* | -0.12* | 0.13* | 1.00 | | | | | | | | | | | |
| (10) SEP | 0.02 | -0.12* | 0.09* | 0.08* | 0.08* | 0.30* | 0.21* | 0.29* | 0.15* | 1.00 | | | | | | | | | | |
| (11) B(CEOTEN) | 0.04 | 0.02 | 0.75* | 0.69* | 0.64* | 0.11* | 0.08* | 0.30* | 0.17* | 0.19* | 1.00 | | | | | | | | | |
| (12) NEWCEO | 0.02 | 0.03 | -0.57* | -0.52* | -0.50* | -0.02 | 0.06* | 0.06* | 0.05 | 0.24* | 0.12* | 1.00 | | | | | | | | |
| (13) CEOINS | 0.22* | -0.08* | 0.09* | 0.07* | 0.10* | 0.13* | -0.02 | -0.04 | 0.00 | -0.09* | -0.03 | -0.49* | 1.00 | | | | | | | |
| (14) CEOFOR | 0.15* | -0.03 | 0.00 | -0.02 | 0.03 | -0.09* | -0.04 | 0.26* | 0.10* | 0.34* | 0.14* | 0.14* | -0.04 | 1.00 | | | | | | |
| (15) CEOINOUT | -0.06 | 0.10* | 0.14* | 0.20* | 0.05 | -0.02 | -0.17* | -0.07* | 0.15* | 0.02 | -0.16* | 0.00 | 0.00 | -0.06* | 1.00 | | | | | |
| (16) B(CEOAGE) | -0.09* | 0.00 | 0.34* | 0.34* | 0.27* | 0.12* | -0.03 | -0.09* | 0.06* | -0.23* | -0.19* | 0.11* | -0.08* | -0.07* | 0.01 | 1.00 | | | | |
| (17) CEOOWN | 0.30* | -0.10* | -0.02 | -0.05 | 0.00 | 0.09* | 0.00 | 0.15* | -0.03 | -0.01 | 0.04 | 0.33* | -0.27* | 0.09* | -0.11* | 0.25* | 1.00 | | | |
| (18) CEOFIN | 0.26* | -0.14* | -0.06 | -0.07* | -0.03 | 0.05 | 0.10* | 0.05 | 0.18* | 0.28* | -0.07* | 0.07* | 0.00 | 0.17* | 0.14* | 0.02 | -0.02 | 1.00 | | |
| (19) CONC | 0.00 | 0.20* | -0.07* | -0.04 | -0.08* | -0.09* | -0.04 | -0.20* | 0.04 | -0.05 | -0.27* | -0.02 | 0.02 | 0.39* | 0.04 | -0.14* | 0.03 | 0.12* | 1.00 | |
| (20) LISTED | 0.16* | 0.15* | -0.02 | -0.07* | 0.03 | 0.12* | 0.01 | 0.08* | 0.07* | 0.21* | -0.03 | 0.00 | 0.00 | 0.19* | 0.12* | -0.03 | 0.12* | 0.34* | 0.18* | 0.14* |

**Table 3** (continued)

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) | (23) | (24) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (21) P-MIX | -0.08* | 0.16* | 0.07* | 0.07* | 0.04 | -0.09* | 0.03 | -0.11* | -0.07* | -0.26* | -0.23* | 0.09* | -0.03 | -0.23* | -0.02 | 0.20* | 0.06* | -0.17* | -0.07* | 0.01 | -0.01 | 1.00 | | |
| (22) B(REINS) | 0.01 | 0.24* | 0.10* | 0.14* | 0.03 | -0.11* | -0.02 | -0.15* | 0.02 | -0.03 | -0.06 | 0.34* | -0.04 | -0.05 | 0.09* | 0.16* | -0.11* | -0.11* | -0.10* | 0.04 | -0.19* | 0.35* | 1.00 | |

$^{***}$ $p < 0.01$, $^{**}$ $p < 0.05$, $^{*}$ $p < 0.1$

$^{*}$, indicates statistical significance at 5% or lower (two-tail)

**Table 4** UK Insurers 1999–2013—regression results: Estimated are with two-way (firm-year) clustered standard errors. Similar results are found when regressions are estimated with firm only clustered standard errors and controlling for year fixed-effects

| Variables | MARGIN | SOL |
|---|---|---|
| Board CO-OPTION | -0.01* | -0.02* |
|  | (0.00) | (0.01) |
| INDEPENDENCE | -0.03 | 0.00 |
|  | (0.03) | (0.03) |
| BUSYOUTS | 0.00 | -0.00 |
|  | (0.00) | (0.00) |
| FINXOUTS | 0.04** | -0.03 |
|  | (0.01) | (0.02) |
| INSOUTS | 0.05** | -0.08** |
|  | (0.01) | (0.01) |
| B(BSIZE) | 0.00* | 0.00* |
|  | (0.00) | (0.00) |
| SEP | -0.01 | 0.00 |
|  | (0.01) | (0.01) |
| B(CEOTEN) | 0.00** | 0.00 |
|  | (0.00) | (0.00) |
| NEWCEO | -0.00 | -0.01 |
|  | (0.00) | (0.01) |
| CEOINS | 0.01* | 0.00 |
|  | (0.00) | (0.01) |
| CEOFOR | 0.01* | -0.01* |
|  | (0.00) | (0.01) |
| CEOINOUT | -0.00 | 0.01 |
|  | (0.00) | (0.01) |
| B(CEOAGE) | -0.00* | 0.00 |
|  | (0.00) | (0.00) |
| CEOOWN | 0.02** | -0.03** |
|  | (0.00) | (0.01) |
| CEOFIN | 0.02** | -0.01 |
|  | (0.00) | (0.01) |
| CONC | -0.01** | 0.06** |
|  | (0.00) | (0.01) |
| LISTED | 0.01 | 0.09** |
|  | (0.00) | (0.01) |
| P-MIX | 0.00 | 0.01 |
|  | (0.01) | (0.01) |
| B(REINS) | 0.00 | 0.32* |
|  | (0.02) | (0.04) |
| lnSIZE | -0.00 | 0.00 |
|  | (0.00) | (0.00) |
| BOARD CO-OPTIONXCEOFIN | -0.01** | -0.01 |
|  | (0.00) | (0.01) |
| CONSTANT | 0.09** | 0.59** |
|  | (0.02) | (0.04) |
| Adj R-sq | 0.30 | 0.25 |
| Observations | 1,162 | 1,162 |

**Table 4** (continued)                    $^{*}$,$^{**}$ indicate statistical significance at the 5%, and 1% levels (two-tail), respectively

and so contribute to firm value. Table 3 also reveals that our main variables of interest—*%OUTS > CEO* and *%EDS > CEO*—are both statistically associated with *MARGIN*, but the latter is not correlated with *SOL*. On the other hand, these two variables are positively and statistically correlated with each other ($\rho = 0.58$), indicating that to realize new strategic plans, an incoming CEO is likely to co-opt both inside and outside directors.[8] Table 3 also shows positive and statistically significant associations between *MARGIN* and financially expert and insurance experienced outside directors ($\rho = 0.18$ and 0.38, respectively); board outsiders with an insurance background (*INSOUTS*) are also associated with sound *SOL* ($\rho = -0.25$).

### 4.3 Multivariate analysis

Table 4 reports the coefficient estimates for our baseline model. As Table 4 shows, there is a negative relation between overall board co-option and a firm's profitability and solvency. Board independence in relation to total board size (*INDEPENDENCE*) seems not be exerting any significant explanatory power on our dependent variables confirming the assertion of Coles et al. (2014) that board co-option is likely to be a more effective monitoring mechanism than board independence.

Table 5 presents the GMM-SYS results for each of our dependent variables—*MARGIN* and *SOL*—beginning with the basic model 1, then adding in a hierarchical manner the explanatory variables and interactions in models 2 and 3, respectively (with levels of statistical significance given at at $p \leq 0.05$, two-tail or lower). Table 5 shows that whilst *%OUTS > CEO* (H1a) is insignificant, *%EDS > CEO* (H2a) is statistically related to poor profitability, but sound financial condition (again given our inverse measure of solvency). In other words, co-opted outside directors could be inhibited from improving financial performance due to intrinsic constraints, such as the inadequate flow to them of performance-relevant financial (actuarial) information (e.g., on reserves and future liabilities). In contrast, new boardroom insiders working alongside an incoming CEO, and having better access to financial performance-related information, tend to prioritize the achievement of solvency over profitability targets so as to avoid the disruptive and reputational costs/risks of increased regulatory scrutiny. Therefore, the highly regulatory context within which insurers operate likely motivates new CEOs to co-opt directors that can maintain, if not improve, balance sheet strength.

The full results (Model 3) given in Table 5 further reveal that, as expected (H1a), board outsiders with relevant industry experience (*INSOUTS*) have a positive and statistically significant effect on *MARGIN* and a affirmative effect on *SOL* (H1b). Also, consistent with expectations (H3b), a financially expert CEO and the presence of dominant investors (*CONC*) promotes insurers' solvency, thereby protecting their long-term investment in the firm against imprudent strategies. However, contrary to H3b, the board co-option effects of a financially expert CEO on profitability are not statistically significant. Table 5 also shows that the co-option of financially qualified outside directors (*FINXOUTS*) does not

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[8] Robustness tests indicated that variance inflation factors were all less than 10, suggesting that multicollinearity is not problematic in the present study (e.g., see Kennedy 2003).

**Table 5** UK Insurers 1999–2013—dynamic panel data results (GMM-SYS): This table reports the results of GMM-SYS regressions with orthogonal deviations. Dep. Var. (t-1) is lagged dependent variables *(MARGIN and SOL)*. We replace *BSIZE, CEOTEN, CEOAGE* and *REINS* with their Box-Cox transformed equivalents *B(BSIZE), B(CEOTEN), BR(CEOAGE)* and *B(REINS)* to address the effects of extreme values. AR(1) and AR(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null of no serial correlation and reports *z*-scores and the p-values. The Hansen (1982) *J*-test of over-identification is conducted under the null hypothesis that all instruments are valid. The values reported for the Hansen test are coefficients estimates and p-values. The Difference-in-Hansen test for exogeneity is also conducted under the null hypothesis that instruments used for the equations in levels are exogenous and reports coefficient estimates and p-values. We assume that firm-specific controls are exogenous variables and all other independent variables are endogenous. Treating all independent variables (apart from firm-specific controls) as predetermined rather than endogenous variables did not qualitatively change the results. The instruments are lagged levels (dated t-2... t-5) in the first-difference equations combined with lagged first-differences (dated t-1) in the level equations. Values in parentheses refer to robust standard errors

| Variables | (MARGIN) | | | (SOL) | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| Dep. Var.(t-1) | 1.11*** | 0.81*** | 0.75*** | 0.87*** | 0.58*** | 0.63*** |
| | (0.23) | (0.10) | (0.08) | (0.26) | (0.14) | (0.11) |
| %OUTS>CEO | 0.01 | -0.01 | 0.00 | 0.01 | 0.03 | 0.06* |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.02) | (0.03) |
| %EDS>CEO | -0.02** | -0.01* | -0.02* | -0.02* | -0.04** | -0.05* |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.02) | (0.03) |
| INDEPENDENCE | | -0.01 | -0.01 | | -0.04 | -0.07 |
| | | (0.02) | (0.02) | | (0.05) | (0.05) |
| BUSYOUTS | | 0.00 | 0.00 | | -0.01 | 0.02 |
| | | (0.01) | (0.01) | | (0.05) | (0.03) |
| FINXOUTS | | 0.01 | 0.00 | | 0.03 | 0.00 |
| | | (0.03) | (0.03) | | (0.04) | (0.04) |
| INSOUTS | | 0.04** | 0.04** | | -0.03 | -0.02 |
| | | (0.02) | (0.02) | | (0.03) | (0.02) |
| B(BSIZE) | | -0.00 | -0.00 | | 0.00 | 0.00 |
| | | (0.00) | (0.00) | | (0.00) | (0.00) |
| SEP | | -0.01 | -0.01 | | -0.00 | 0.01 |
| | | (0.01) | (0.02) | | (0.02) | (0.02) |

**Table 5** (continued)

| Variables | (MARGIN) | | | (SOL) | | |
|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| B(CEOTEN) | | 0.00* | 0.00 | | -0.00 | -0.00 |
| | | (0.00) | (0.00) | | (0.00) | (0.00) |
| NEWCEO | | 0.00 | -0.00 | | 0.00 | 0.01 |
| | | (0.00) | (0.00) | | (0.01) | (0.01) |
| CEOINS | | 0.01 | 0.01 | | 0.03 | 0.01 |
| | | (0.01) | (0.01) | | (0.03) | (0.02) |
| CEOFOR | | 0.00 | 0.00 | | 0.01 | 0.01 |
| | | (0.01) | (0.01) | | (0.01) | (0.01) |
| CEOINOUT | | -0.00 | -0.01 | | 0.00 | 0.00 |
| | | (0.01) | (0.00) | | (0.01) | (0.01) |
| B(CEOAGE) | | -0.00 | -0.00 | | -0.00 | -0.00 |
| | | (0.00) | (0.00) | | (0.00) | (0.00) |
| CEOOWN | | 0.01 | 0.02 | | -0.04 | -0.03 |
| | | (0.02) | (0.02) | | (0.04) | (0.04) |
| CEOFIN | | -0.02 | -0.02 | | -0.05* | -0.02 |
| | | (0.01) | (0.02) | | (0.03) | (0.02) |
| CONC | | -0.01 | -0.01 | | 0.04* | 0.03* |
| | | (0.01) | (0.01) | | (0.02) | (0.02) |
| LISTED | | 0.01 | 0.01 | | 0.04* | 0.03 |
| | | (0.01) | (0.01) | | (0.02) | (0.02) |
| P-MIX | | 0.00 | 0.00 | | 0.03 | 0.02 |
| | | (0.01) | (0.01) | | (0.03) | (0.02) |
| B(REINS) | | -0.03 | -0.02 | | 0.06 | 0.07 |
| | | (0.03) | (0.03) | | (0.07) | (0.06) |

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**Table 5** (continued)

| Variables | (MARGIN) | | | (SOL) | | |
|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| *lnSIZE* | | -0.00 | -0.00 | | 0.01 | 0.00 |
| | | (0.00) | (0.00) | | (0.03) | (0.03) |
| *%OUTS> CEO x CEOFIN* | | | -0.01 | | | -0.04 |
| | | | (0.01) | | | (0.04) |
| *%EDS> CEO x CEOFIN* | | | 0.01 | | | -0.03* |
| | | | (0.02) | | | (0.04) |
| *CONSTANT* | -0.00 | 0.06 | 0.08 | 0.10 | 0.27** | 0.26** |
| | (0.02) | (0.06) | (0.06) | (0.19) | (0.11) | (0.10) |
| Difference-in-Hansen tests of exogeneity | 0.17 (0.92) | 3.33 (0.65) | 3.02 (0.70) | 3.51 (0.17) | 3.14 (0.68) | 16.60 (0.89) |
| Hansen test of over identification | 0.40 (0.94) | 34.45 (0.76) | 14.93 (0.79) | 7.13 (0.42) | 32.37 (0.83) | 38.82 (0.79) |
| AR(1) | -2.37 (0.02) | -2.30 (0.02) | -2.37 (0.02) | -3.54 (0.00) | -4.11 (0.00) | -4.08 (0.00) |
| AR(2) | 1.14 (0.25) | 1.07 (0.28) | 1.13 (0.26) | 0.70 (0.49) | -0.17 (0.86) | -0.79 (0.43) |
| N | 1,054 | 1,054 | 1054 | 1,054 | 1,054 | 1,054 |

*, ** indicate statistical significance at the 5%, and 1% levels (two-tail), respectively

**Table 6** Robustness tests: This table reports GMM-SYS results via three robustness tests. In column 1, the measure of financial performance is ROA. Column 2 presents results after controlling for the global financial crisis while column 3 presents results after removing firm-years in which a new CEO is appointed, one with tenure less than two years as in Sandvik (2020). The same board and firm controls are included in all models (as defined in Table 1)

| Dependent variable | ROA (1) | Margin (2) | SOL | Margin (3) | SOL |
|---|---|---|---|---|---|
| *%OUTS > CEO* | 0.01 | 0.09* | 0.08 | 0.04 | 0.01 |
| | (0.03) | (0.04) | (0.05) | (0.02) | (0.04) |
| *%EDS > CEO* | -0.05* | -0.04 | -0.09* | -0.04* | -0.10** |
| | (0.03) | (0.05) | (0.04) | (0.03) | (0.04) |
| *%OUTS > CEO x CEOFIN* | -0.01 | -0.09* | -0.07 | -0.05 | -0.06 |
| | (0.03) | (0.05) | (0.05) | (0.03) | (0.04) |
| *%EDS > CEO x CEOFIN* | 0.05 | 0.05 | 0.11* | 0.05 | 0.05 |
| | (0.03) | (0.05) | (0.05) | (0.4) | (0.06) |
| Board controls | Yes | Yes | Yes | Yes | Yes |
| Firm controls | Yes | Yes | Yes | Yes | Yes |
| Financial crisis | No | Yes | Yes | No | No |
| CEO turnover event | No | No | No | Yes | Yes |

*, ** indicate statistical significance at the 5%, and 1% levels (two-tail), respectively

have any statistically significant effect on *MARGIN* or *SOL*. This suggests that the industry experience and business networks of co-opted board outsiders are relatively more important than financial qualifications per se to incoming CEOs set on reconfiguring boards. What is more, we do not find that CEOs selected from inside or outside the insurance firm (*CEOINOUT*) significantly influence profitability and solvency. This implies that in the insurance industry, outside as well as inside appointed CEOs are equally mindful of limiting the costs of operational disruption, and potentially adverse public reputational effects of increased regulatory scrutiny.

The results for the interaction terms reported in Table 5 indicate that *MARGIN* is not affected statistically by the conjoint-effect of CEO financial expertise on board outsider appointments *(%OUTS > CEO x CEOFIN)*. However, *SOL* improves if a large percentage of inside directors are selected by a financially qualified incoming CEO *(%EDS > CEO x CEOFIN)*. This observation suggests that newly appointed financially grounded CEOs have shared (e.g., reputation protection) incentives with senior executives, irrespective of their professional background, to adopt precautionary and regulatory compliant strategies that do not weaken balance sheet strength.

## 4.4 Additional tests

Matta and Beamish (2008) note that the decisions of CEOs and boards of directors can be influenced by private career concerns. Senior executives' career goals in turn could be influenced by the state of macroeconomic conditions, with more risk averse policies being adopted in highly uncertain or turbulent economic times compared with more risk-taking strategies in boom or stable periods. We thus control for major macro-economic shocks, such as the 2007/9 global financial crisis, and re estimate Eq. (3) incorporating a dummy

variable to capture the 2007/09 global financial crisis. As Table 6 shows, the general tenor of our findings remain unchanged as regards SOL suggesting persistent financial precaution and prudential risk management following board changes amongst our sample of insurance firms during the period of analysis. However, co-opted outside directors (%OUTS > CEO) seem now to exert an explanatory power on *MARGIN*.

Furthermore, we tested the reliability of our results by removing firm-years in which a new CEO is appointed, one with tenure less than two years as in Sandvik (2020), and re-estimate Eq. (3). In addition, as noted in footnote 5, we tested the reliability of our results using ROA—a profitability indicator often used in insurance industry-based performance studies (e.g., Adams and Jiang 2017). The results of the additional robustness tests are given in Table 6.

## 5 Conclusion

In this study, we draw on the agency theory literature and employ a dynamic panel data design to examine empirically the effect of CEO co-opted boards on the profitability and solvency of UK property-casualty insurers between 1999 and 2013.

We find that contrary to H2a, executive (inside) directors appointed in the wake of a new CEO have a negative impact on profitability, but an improvement effect on balance sheet strength, as predicted by H2b. This suggests that precautionary strategies are pursued by CEOs and the TMT so as to ensure corporate survival, preserve job security, and protect their public reputations for prudential management. Enhanced solvency also occurs when the CEO is a financial expert and when proportionately more inside directors are selected by an incoming CEO who is financially qualified, as predicted by H3b. This observation indicates that newly appointed CEOs, particularly when they have professional finance standards to up-hold, select similarly business qualified outsiders for board positions. This helps CEOs to maintain statutory minimum levels of solvency, and therefore, avoid the disruption and reputational costs/risks of regulatory intervention.

Inconsistent with our baseline hypotheses H1a and H1b, we also note that outside directors hired by non-financial CEOs do not have a significant impact on reported financial outcomes. This finding indicates that many outside directors appointed since the arrival of a new CEO may not have the intrinsic technical and insurance business credentials necessary to enhance corporate performance. In fact, past public inquiries into distressed insurance firms (e.g., the UK's Penrose Report (2004)) have noted that board outsiders, especially those that are not financially qualified, are often ineffectual monitors of the activities of the CEO and TMT.

Another of our key findings is that insurance experienced outside directors improve profitability (e.g., by providing valuable operational and strategic advice). However, outside directors' financial qualifications do not in themselves appear to influence the performance of insurance firms. We also note that large block-holder investors have a beneficial impact on the solvency position of insurance firms. However, we do not observe any significant performance-effects in terms of whether a new CEO is appointed from an internal position or from outside an insurance firm. Additionally, our results do not change after controlling for the turbulent macroeconomic effects of the 2007/9 global financial crisis. Therefore, evidence suggesting that co-opted boards do not significantly adversely affect

the financial survival of UK insurers is of some comfort to industry regulators as well as shareholders and policyholders.

Overall, our results highlight that irrespective of the boardroom changes made by an incoming CEO, it is solvency, and the associated financial expertise and insurance industry knowledge at the board-level, that are the main things that matter strategically for insurance firms. This reflects the agency control and institutional legitimacy functions of industry regulation in ensuring the financial viability of insurers, and indeed, other financial firms, such as banks. In this regard, our results provide some comfort to regulators, policyholders, investors, and other key stakeholders that corporate solvency is unlikely to be compromised by excessive risk-taking following CEO succession.

Finally, we acknowledge that our study has inherent limitations—for example, with regard to the relatively small sample size and restricted time series used ($t = 15$ years). However, our dynamic panel data (GMM-SYS) design accommodates such limitations, and effectively controls for potential endogeneity, thereby, producing robust results. Our dynamic modelling design is also appropriate given that aspects of strategic leadership are intrinsically complex phenomena that manifest themselves in different ways over periods of time. We also recognize that the relatively small magnitude of our derived coefficient estimates and the modest economic impact of new CEO initiated boardroom changes on the financial performance of insurance firms necessitates an element of interpretative caution. Despite this caveat, we nonetheless consider that our results are indicative, and therefore, have commercial and public policy relevance—for example, in guiding regulatory approval decisions under the financial firms' fit and proper' persons regimes.

## Declarations

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