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Overlapping committee membership and cost of equity capital

Md. Borhan Uddin Bhuiyan^a, Muhammad A. Cheema^{b,*}^a School of Accountancy, Massey University, Private Bag 102904, Auckland, New Zealand^b Department of Accountancy and Finance, Otago Business School, University of Otago, Dunedin, New Zealand

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ABSTRACT

This study examines the association between overlapping committee membership and the cost of equity capital among listed companies in Australia. Overlapping committee membership occurs when a director serves on multiple supervisory committees concurrently. To the extent overlapping committee membership reduces information asymmetry, improves financial reporting quality, and consequently reduces the overall risk of the firms, we expect a negative relationship between overlapping membership and the cost of equity capital. Consistent with our argument, we find a positive impact of overlapping committee membership and provide evidence that firms with overlapping committee membership have a lower cost of equity capital. Furthermore, our results indicate that the positive impact of overlapping committee membership on the cost of equity capital is more evident when overlapping committee members are non-busy directors.

1. Introduction

This study investigates the impact of overlapping committee membership on the cost of equity capital (COC) in Australia. Overlapping committee membership occurs when a board member serves on multiple sub-committees simultaneously (Zheng and Cullinan, 2010). The corporate board has diverse functions to oversee and direct firms' activities. The Australian Stock Exchange (ASX) Corporate Governance Council (2007) recommends delegating board functions to various sub-committees to strengthen monitoring and accountability. The audit and remuneration (also known as compensation) committees are among the primary sub-committees, each with unique goals and responsibilities. While the primary responsibility of an audit committee is to oversee the financial reporting process, the remuneration committee regulates the director compensation package aligned with their performance. In Recommendations 4.1 and 8.1, the ASX Corporate Governance Best Practice Code 2019 (pp. 19, 29) emphasises mutual independence of sub-committee members due to inter-relationship sensitivity and recommends that both committees be comprised of a majority of independent directors. However, the shortage of desired independent directors has led to overlapping committee membership (Hoitash and Hoitash, 2009), raising concerns about the policy and debate surrounding good corporate governance practices in firms.

According to corporate governance research, overlapping committee membership can reduce information asymmetry between the audit and management committee, resulting in knowledge spillover. Directors who simultaneously serve on audit and compensation committees can utilise expertise and information from one committee to make decisions in the other (Chandar et al., 2012; Zheng and Cullinan, 2010). According to Chen and Wu (2016), overlapping committee members have greater access to individual knowledge about the firm, resulting in improved committee decision-making. Moreover, audit committee members who concurrently serve on audit and compensation committees better understand management's financial reporting motivations (Liao et al., 2013). According to

* Corresponding author.

E-mail addresses: m.b.u.bhuiyan@massey.ac.nz (Md.B.U. Bhuiyan), muhhammad.cheema@otago.ac.nz (M.A. Cheema).<https://doi.org/10.1016/j.pacfin.2024.102282>

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Kalelkar (2017), understanding top management's reporting motivations might help audit committee members alter their monitoring and improve financial reporting quality. Furthermore, it has been documented in the literature that overlapping committee membership improves audit quality (Habib and Bhuiyan, 2018), lowers auditor fees (Kalelkar, 2017), and facilitates the design of a compensation scheme that reduces managerial incentives for misreporting (Zheng and Cullinan, 2010).

Opponents of overlapping membership assert that overlapping committee membership reduces the efficacy of independent directors as monitors because they become overcommitted while participating on both the audit and remuneration committees (Lau and Lau, 2009). Furthermore, overlapping membership may harm firm performance when directors' and managers' activities are not in the best interests of shareholders (Lau and Lau, 2009). Likewise, overlapping membership may hinder audit committee supervision procedures in monitoring financial reporting (Liao et al., 2013), and it may negatively influence directors' managing capacity (Méndez et al., 2015). As a result, while overlapping committee membership may have certain advantages when making decisions, measuring the possible benefits against the potential costs, if any, is critical.

We investigate the impact of overlapping committee membership on the COC because it is the natural outcome of such participation. According to the corporate governance literature, effective corporate governance not only protects the interests of owners and shareholders but also reduces information asymmetry, ensuring a firm's survival in a competitive economic environment (Chandar et al., 2012; Habib and Bhuiyan, 2016). Furthermore, empirical research has shown that the capital market prices accounting information, with higher-quality disclosure results in a lower COC (Sengupta, 1998; Francis et al., 2004, 2005; Verrecchia, 2001; Lambert et al., 2007; Gao, 2019; Xing and Yan, 2019). Higher information quality also reduces the estimation risk of future returns, which ultimately reduces the COC (Barry and Brown, 1985). Diamond and Verrecchia (1991) further support this notion, indicating that reducing information asymmetry by disclosing public information can lead to a lower COC due to a higher demand for liquid securities among large investors. To the extent that overlapping committee membership improves the financial reporting quality and reduces information asymmetry, as suggested in the literature, we anticipate that overlapping membership reduces the COC.

Using a sample of 3945 firm-year observations of ASX-listed companies, we find a negative association between overlapping committee membership and the COC, indicating that the COC is lower when a board has overlapping committee member(s). Our findings are consistent across all the alternative measures of overlapping committee membership and COC. Furthermore, our results suggest that the positive impact of overlapping committee membership on the COC is more pronounced when these members are non-busy directors. We conduct mediation tests that suggest that this negative association is mediated through two different channels, such as (a) higher financial reporting quality and (b) reduction in information asymmetry. Our findings provide evidence for the beneficial effect of overlapping membership on the COC and contribute to the corporate governance literature on the impact of board composition on the capital market. Our research is timely and has a strong implication for corporate governance regulation because the existing Best Practice Code does not suggest any composition or mix on the board of directors and supervisory committees.

Our study makes distinct contributions to corporate governance research in the area of board composition and independence. Prior research has shown that the quality of both the board and sub-committee can enhance financial reporting quality (Klein, 2002; Abbott et al., 2004; Chandar et al., 2012) and improve responsiveness to risk (MacGregor, 2012), which leads to improved firm performance (Sun and Cahan, 2009). However, past studies have focused on the board's role and sub-committee's characteristics in isolation, and a joint investigation of the structure of multiple committees is absent in prior work. Our research fills this gap by showing that the composition of the sub-committee is relevant to the capital market in the Australian context and that overlapping committee membership can reduce information asymmetry and improve monitoring quality.

Our findings suggest that sub-committees that operate without intra-committee cooperation may undermine the spirit of good governance practices, creating a governance mechanism that lacks coordination and cooperation and enhances conflicts of interest (Hoitash and Hoitash, 2009; Kalelkar, 2017; Lau and Lau, 2009). In contrast, overlapping committee memberships with increased expertise and knowledge spillover can resolve information asymmetry and reduce information risk, improving monitoring quality (Habib and Bhuiyan, 2016). As the COC captures the perception of investors' risk and is a critical aspect of investment decisions, implementing a board structure based on overlapping committee membership can be an effective way to manage information asymmetry and lower the COC.

Existing literature suggests that good corporate governance practices enhance accountability and ensure effective board oversight, resulting in a lower COC. Therefore, our findings also extend the literature on the negative relationship between corporate governance and the COC (e.g. Chen et al., 2009; Zhu, 2014). We suggest that the negative relationship between corporate governance and the COC is enhanced by overlapping membership. Overall, our study highlights the importance of sub-committee composition for effective board oversight and lower COC.

The remainder of the paper is organised as follows. The regulatory environment in Australia, literature review and hypothesis development are provided in Section 2. Section 3 focuses on the research design, data sources, and sample selection. Section 4 documents the results, while Section 5 concludes the paper.

2. Regulatory environment, literature review and hypothesis development

2.1. Corporate governance regulations in Australia

This section discusses Australia's corporate governance environment and compares it with the US. Australia's Corporate Governance Council provides principles and recommendations to improve the governance of listed Australian firms, recognizing its importance in determining the COC (ASX Corporate Governance Council, 2007). One key aspect of the Corporate Governance Council's recommendations is that these are guidelines, not prescriptions. For example, the "comply or explain" approach in Australia

allows businesses flexibility in adopting specific recommendations. However, if the business decides not to follow a specific recommendation, it must provide reasons for non-compliance. In contrast, the US Securities and Exchange Commission (SEC) requires listed firms to comply with corporate governance rules and regulations (Brown Jr, 2007).

The disclosure rules in Australia differ from those in the US. The continuous disclosure Listing Rule 3.1 of the ASX (ASX, 2013) requires immediate disclosure of “price sensitive” information to the ASX. The purpose of this rule is to ensure that all the investors have timely access to any information that can affect the share price. In the US, similar rules exist for the New York Stock Exchange (NYSE) and the National Association of Securities Dealers Automated Quotations (NASDAQ), emphasising prompt disclosure of relevant information to the market (e.g., Brown and Shekhar, 2016). However, unlike Australia, US disclosure rules do not grant private enforcement rights to investors, leading to the absence of explicit regulation of continuous disclosure (e.g., Brown and Shekhar, 2016).

The ownership concentration in Australian-listed firms is much higher than in US-listed firms (e.g., Porta et al., 1998), consequently influencing board composition. Boards with high ownership concentration tend to be mostly comprised of directors representing the owner-managers interests, thus unable to adequately deal with the specific agency conflict or problems relating to minority shareholders’ interests (Lefort and Urzúa, 2008). The ownership concentration is associated with a higher COC (Guedhami and Mishra, 2009).

Overlapping committee memberships tend to be higher in Australia since the Australian corporate boards are relatively smaller than the US corporate boards (Kiel and Nicholson, 2003). Therefore, the differences in corporate governance regulations and disclosure environment, ownership concentration and board size between Australia and the US warrant further research since the inference drawn from the US settings might not be directly applicable in Australia.

2.2. Literature review and hypothesis development

This section reviews the literature on the beneficial and detrimental effects of overlapping committee membership and develops our hypotheses. Section 2.2.1 discusses the literature on the beneficial effect of overlapping committee membership and develops the main hypothesis. Section 2.2.2 reviews the literature on the detrimental effect of overlapping committee membership and develops the alternative hypothesis.

2.2.1. Beneficial effect of overlapping committee membership

Agency theory suggests that conflict of interest may arise between shareholders and managers due to differences in incentives and goals (Jensen and Meckling, 1976). Overlapping membership could be one potential mechanism to mitigate such conflict of interest and goals by increasing monitoring, reducing information asymmetry and ultimately enhancing good governance practices. Overlapping committee membership facilitates sharing knowledge, which is helpful in performing supervisory duties (Méndez et al., 2015), reducing information asymmetry (Ding and Wei, 2023), understanding a firm and its operating environment (Faleye et al., 2011), and improving firm performance (Méndez et al., 2015; Chandar et al., 2012).

Several studies document the effectiveness of overlap memberships in monitoring the management of the firms. For instance, Faleye et al. (2011) document that the monitoring quality of a firm improves when the majority of independent directors concurrently serve on at least two committees. However, the improvement in monitoring quality comes with a cost since the advisory capabilities of these firms suffer. Méndez et al. (2015) also find a beneficial impact of overlap directors on the monitoring capability of the board. Kalelkar (2017) argues that a firm with overlapping committee membership has a lower audit risk than one without; thus, it enhances audit committee monitoring. It is well documented in the literature that the monitoring effectiveness of directors improves the financial reporting quality of a firm (Firoozi, 2019; Krishnan et al., 2011). Furthermore, Chandar et al. (2012) provide evidence that firms with overlapping committees have higher levels of financial reporting quality than the ones without overlapping committees, indicating the monitoring effectiveness of overlapping directors.

In sum, the extant literature suggests that overlapping membership reduces information asymmetry by facilitating knowledge sharing, improving the firms’ monitoring and financial reporting quality, and thus positively impacting their corporate governance. To the extent that overlapping membership reduces information asymmetry, improves the financial reporting quality of the firms, and thus reduces the overall risk, we anticipate that overlapping membership reduces the COC. Therefore, our main hypothesis is:

H₁ : There is a negative relationship between overlapping membership on the audit and compensation committees and the firm’s cost of equity capital.

2.2.2. Detrimental effect of overlapping committee membership

Few empirical studies suggest that overlapping committee membership might weaken corporate governance. For instance, Laux and Laux (2009) indicate a negative effect of overlapping committee membership on firm performance when the director and managers’ actions are not aligned with shareholders’ interests. Consequently, a director might use additional knowledge and information from overlapping committee membership to gain short-term personal benefits, resulting in greater earnings manipulation risk. Karim et al. (2016) find a negative relationship between audit fees and overlapping committee membership, indicating a negative impact of the overlapping committee on corporate governance. Moreover, overlapping memberships may make directors overcommitted, leading to inadequate monitoring (Ferris et al., 2003; Liao et al., 2013) and skipping multiple committees’ meetings (Fich and Shivdasani, 2006). In line with the above discussion, if the overlapping membership weakens corporate governance, increases earnings management, enhances information risk and makes the overlapping directors overcommitted, then we expect that the overlapping

membership is positively associated with the firm's COC. So, our alternative hypothesis is:

H_b : There is a positive relationship between overlapping membership on the audit and compensation committees and the firm's cost of equity capital.

3. Research design

3.1. Sample selection criteria

We construct our sample using the "Securities Industry Research Centre of Asia-Pacific" (SIRCA), DataStream International and Institutional Brokers' Estimate System (I/B/E/S) international databases. SIRCA provides corporate governance data for listed Australian firms; relevant financial data are retrieved from DataStream International; the variables to estimate the implied COC are collected from I/B/E/S International. The corporate governance data coverage in the SIRCA database begins in 2001, setting the start of our sample period from 2001. Our sample end date is 2015, as the corporate governance portal in SIRCA was decommissioned in early 2016, and the last year with accessible corporate governance information is 2015 (Lucas et al., 2021). Our initial sample contains 5127 firm-year observations of nonfinancial firms after matching the data from SIRCA and DataStream International. ASX Corporate Governance Council's (2007) principles and recommendations indicate that the board should establish a separate remuneration committee, including three members and preferably independent directors. Therefore, firms with no remuneration committees are excluded from the sample to capture overlapping committee members' actual effects. Therefore, we exclude the firms with a missing audit or compensation committee from the sample ($n = 405$), resulting in 4722 firm-year observations with audit and compensation (remuneration) committees.

Finally, we match the retained sample ($n = 4722$) with different proxies for the implied COC. To calculate the implied COC, we collect analyst earnings forecasts from I/B/E/S. The calculation requires at least one analyst forecast of one-year-ahead and two-year-ahead earnings per share (EPS) and at least one prediction of the long-term growth rate. One of our implied COC measures (MPEG) requires the two-year-ahead forecasted EPS to be higher than the one-year-ahead predicted EPS, resulting in another 693 missing firm-year observations. Also, we eliminated 84 missing firm-year observations from the sample. Our final sample consists of 3945¹ firm-year observations. All the continuous variables are winsorised at the 1st and 99th percentiles to avoid outliers' unintended influence. Panel A of Table 1 provides a detailed sample selection process, whereas Panel B shows the industry distribution over the sample period. The consumer staple industry has the highest number of sample observations (17.54%), followed by Consumer discretion (16.10%) and Material (15.46%).

3.2. Research model

We develop the following COC regression model controlling for the firm, auditor, and firm-specific characteristics to test our hypothesis:

$$\begin{aligned} \text{COC}_{i,t} = & \partial_0 + \partial_1 \text{OVLAP}(\text{OVLAPDUM}/\text{OVLAPNUM}/\text{OVLAPPER})_{i,t} + \partial_2 \text{OVLAPTEN} + \partial_3 \text{OVLAPEXP} + \partial_4 \text{LNBOD}_{i,t} \\ & + \partial_5 \text{INDPER}_{i,t} + \partial_6 \text{CEODUAL}_{i,t} + \partial_7 \text{BIG4}_{i,t} + \partial_8 \text{GCOPIN}_{i,t} + \partial_9 \text{FIRMSIZE}_{i,t} + \partial_{10} \text{BETA}_{i,t} + \partial_{11} \text{LEV}_{i,t} + \partial_{12} \text{SALEGR}_{i,t} \\ & + \partial_{13} \text{DISTRESS}_{i,t} + \partial_{14} \text{RETSTD}_{i,t} + \text{INDUSTRY EFFECT} + \text{YEAR EFFECT} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

The ASX Corporate Governance Best Practice Code recommends the formation of three key subcommittees within firms: the audit, remuneration, and nomination committees. While the nomination committee primarily focuses on overseeing board composition, nominating directors, succession planning, and assessing board effectiveness, the audit and remuneration committees emerge as the most active monitoring bodies. The audit committee engages in financial reporting oversight, internal control evaluation, external audit oversight, and compliance monitoring, while the remuneration committee oversees executive compensation and monitors performance. Recognizing the substantial role of audit committees in monitoring financial reporting and the growing concerns about the impact of compensation arrangements on earnings management and performance, we construct a measure of overlapping committee membership where a director concurrently serves on audit and compensation committees. This approach aligns with the literature on overlapping committee membership (e.g., Kalelkar, 2017).

Our primary variable of interest is overlapping committee membership (OVLAP), for which we use three different proxies: OVLAPDUM, OVLAPNUM and OVLAPPER. OVLAPDUM is a dummy variable assigned a value of 1 if at least one audit committee member sits on a compensation committee; otherwise, 0. We measure OVLAPNUM as the number of audit committee members who also sit on the compensation committees. Following Chandar et al. (2012) and Méndez et al. (2015), OVLAPPER is measured as the total number of audit committee members who sit on the compensation committee divided by the board size.

Following Easton (2004), we use PEG (price-earnings ratio divided by the short-term earnings growth rate) and MPEG measures of

¹ The cost of equity capital measure is the main factor affecting our sample retention. Several prerequisites must be met for the cost of equity capital metric, including (i) the firm's forecasted earnings per share for at least two years (ii) both EPS_t and EPS_{t-1} should be greater than zero, and EPS_t should be higher than zero. Our sample observations are constrained because of these measurement restrictions. Habib et al. (2021) had 2825 firm-year observations when considering the comparable Australian setting to examine the impact of audit committee ownership on firm cost of equity capital. Overall, our sample distribution accords with the research literature (e.g., Habib et al., 2021).

Table 1
Panel A: Sample selection.*

Details		Observations	Observations
	Beginning sample after matching SIRCA and Datastream companies		5127
Less	No audit or remuneration committee	(405)	
Less:	Missing or zero COC information after matching I/B/E/S data	(693)	
Less:	Missing value of <i>BETA</i>	(84)	
	Total Deduction		(1182)
Total Sample			3945

Panel B: Industry distribution.			
Industry Code	GICS industry sector	Observations	% Observations
10	Energy	232	5.88%
15	Material	610	15.46%
20	Industrials	601	15.23%
25	Consumer discretionary	635	16.10%
30	Consumer staple	692	17.54%
35	Health Care	345	8.75%
45	Information Technology	363	9.20%
50	Telecommunication Service	238	6.03%
55	Utilities	229	5.80%
Total		3945	100.00%

* GICS indicates Global Industry Classification Standard.

the COC.² Also, we use the GM model estimated by the modified [Ohlson and Juettner-Nauroth \(2005\)](#) model (modified by [Gode and Mohanram, 2003](#)) to estimate the COC. Finally, we measure AVG - the average of the previous three models. In sum, we use four different measures of the COC: PEG, MPEG, GM and AVG. Overall, our measures of the COC are consistent with the literature ([Hasan et al., 2015](#); [Habib et al., 2021](#)). A positive association between COC and OVLAP (i.e., OVLAPDUM, OVLAPNUM, OVLAPPER) indicates a detrimental effect between overlapping committee membership and the COC. A negative association between COC and OVLAP suggests a beneficial effect of overlapping committee membership on the COC. Following the literature (e.g., [Dhaliwal et al., 2012](#); [Hail and Leuz, 2006](#)), we use the average of the individual measures of COC to reduce the idiosyncratic measurement error across models since there is no consensus on which model is best to estimate COC ([Botosan and Plumlee, 2005](#); [Easton and Monahan, 2005](#)). Also, we measure the COC using the average of three measures of the implied COC. Appendix A briefly describes these measures.

Empirical research identifies several corporate governance attributes related to the quality of firms' financial information and board structure that reduce moral hazard, adverse selection problems and agency costs, consequently reducing firms' COC ([Ashbaugh et al., 2004](#); [Easley, and O'hara, M., 2004](#); [Lambert et al., 2007](#); [Pham et al., 2012](#); [Tran, 2014](#)). Therefore, we control the impact of corporate governance on COC using corporate governance proxies such as board size (LNBOD), board independence (INDPER), and CEO duality (CEODUAL). We also control the impact of two attributes of overlapping committee members on COC: tenure (OVLAPTEN) and overlapping committee members' experience (OVLAPEXP). Overlapping committee members with higher tenure and expertise are expected to reduce the firm's COC. Following the literature ([Chen et al., 2011](#); [Bryan and Reynolds, 2016](#)), we also control the auditor's quality (BIG4), auditor opinion (GCOPIN), and several other risk factors and firm characteristics that influence the COC. The firm size (FIRMSIZE) reduces the COC since large firms have a lower probability of default ([Berger and Udell, 1995](#)). Systematic risk (BETA) is positively associated with the COC ([Harris and Marston, 1992](#); [Lintner, 1965](#)). Growth opportunity (SALEGR) is characterised by uncertainty and risk; therefore, SALEGR is expected to be positively associated with the COC ([Boone et al., 2008](#); [Khurana and Raman, 2004](#)). Leverage (LEV) is a proxy for the riskiness of the firm. A higher level of leverage indicates a greater perceived risk associated with the firm, consequently increasing the COC ([Fama and French, 1992](#); [Gebhardt et al., 2001](#); [Peterson and Rajan, 1994](#)). We control the effect of distressed firms (DISTRESS) since those firms are likely to experience higher information asymmetry and the COC. Firms with higher stock return volatility (RETSTD) are prone to higher business risk and the COC.

4. Results

4.1. Descriptive statistics

[Table 2](#), Panel A, reports the descriptive statistics of the variables used in our study. The average (median) COC (the average of the three measures of the COC, AVG) over the sample period is 18% (13%) with a standard deviation of 22%. The mean COC is 0.17, 0.19 and 0.19 for PEG, MPEG and GM measures, respectively. Our measures of the COC for PEG and MPEG are consistent with [Habib et al. \(2021\)](#). About 81% (OVLAPDUM) of the sample observations are characterised by overlapping membership, where at least one audit

² MPEG is a modified PEG ratio where expected dividends are included in the estimate of the short-term growth rate.

Table 2

Panel A: Descriptive statistics.

	N	Mean	SD	p25	Median	p75
Dependent Variables						
PEG	3945	0.17	0.23	0.09	0.11	0.17
MPEG	3945	0.19	0.24	0.11	0.14	0.20
GM	3945	0.19	0.21	0.11	0.14	0.19
AVG	3945	0.18	0.22	0.10	0.13	0.19
Independent Variable						
OVLAPDUM	3945	0.81	0.39	1	1	1
OVLAPNUM	3945	2.01	1.43	1	2	3
OVLAPPER	3945	0.30	0.24	0.11	0.27	0.44
Control Variables						
LNBD	3945	1.97	0.32	1.79	1.95	2.20
INDPER	3945	0.74	0.14	0.51	0.78	0.86
CEODUAL	3945	0.05	0.22	0	0	0
BIG4	3945	0.83	0.38	1	1	1
GCOPIN	3945	0.04	0.2	0	0	0
BODSIZE (in actual number)	3945	7.59	2.56	6	7	9
INDDIR (in actual number)	3945	5.64	2.22	4	5	7
FIRMSIZE	3945	13.17	2.01	11.88	12.89	14.35
BETA	3945	1.13	0.82	0.63	0.99	1.50
LEV	3945	0.22	0.59	0.05	0.19	0.31
DISTRESS	3945	0.05	0.22	0	0	0
SALEGR	3945	0.07	0.15	0.02	0.08	0.13
RETSTD	3945	0.12	0.08	0.07	0.1	0.14
OVLAPTEN	3945	6.28	4.8	2.5	6.03	9.26
OVLAPEXP	3945	1.29	0.96	1	1	2
Variables used for Additional Analysis						
DACC	3945	0.01	0.25	-0.02	0	0
DACC	3945	0.10	0.24	0.00	0.02	0.18
BIDASK	3730	0.03	0.05	0.01	0.03	0.09
RESTATE	3945	0.06	0.23	0	0	0
EARVOL	3945	0.06	0.09	0.03	0.11	0.45
CEOTENURE	3945	4.16	3.05	2	3	6
LNCEOOWN	3945	10.37	6.08	8.52	12.82	14.6
LNACMEM	3945	1.28	0.29	1.1	1.1	1.39
LNRCMEM	3945	1.20	0.3	1.1	1.1	1.39
LOSS	3945	0.24	0.43	0	0	0
LNBBUSY	3945	1.23	0.54	0.69	1.1	1.61
RETA_LC	2223	0.07	0.26	0	0	0
ESG	2223	37.05	23.83	0	0	51.09
FEMDIR	2223	0.05	0.1	0	0	0.30
REM	1531	-0.006	0.03	-0.162	0.01	0.202
AMIHUD	1169	0.03	0.13	0.001	0.001	0.10
SCQUAL	3945	0.54	0.49	0	1	1

Note: Appendix – A reports the variable definitions.

committee member is also on the compensation committee. Kalelkar (2017) reports that 71.4% of US firms have audit committee members on the compensation committee. Our sample firms have an average of 2 overlapping directors (OVLAPNUM), and the average percentage of overlapping directors (OVLAPPER) is 30%. The board size (BODSIZE) average (median) is 8 (7) directors, and the mean of board independence (INDDIR) is 6 independent directors over the sample period. About 83% of the firm-year observations are audited by Big 4 audit firms (BIG4). Our sample firms have low leverage (LEV) with a mean of 22% but high growth opportunities (SALEGR) with an average of 7% in sales revenue. Only 4% of the firm-year observations evidence a going concern audit opinion (GCOPIN).

4.2. Mean difference test

Table 2, Panel B, reports the difference between the average firm-year observations of overlapping committee membership (OVLAPDUM = 1) and the ones without (OVLAPDUM = 0). The average COC (all the measures) is lower for firms with overlapping committee membership than their non-overlapping counterparts, consistent with our main hypothesis. Interestingly, the board size of firms with overlapping membership is smaller than those with non-overlapping membership. Also, we find that firms with overlapping membership have lower board independence than firms without overlapping membership. Our reported findings are statistically significant at the 5% level.

Table 2

Panel B: Mean difference test.

Variables	OVLAPDUM = 0 [N = 758]	OVLAPDUM = 1 [N = 3187]	Mean Difference	t-statistics
PEG	0.19	0.16	-0.03	-4.59***
MPEG	0.22	0.18	-0.04	-4.94***
GM	0.21	0.18	-0.03	-4.99***
AVG	0.21	0.17	-0.03	-4.96***
LNBD	1.96	1.99	0.03	1.99**
INDPER	0.73	0.75	0.02	1.87*
CEODUAL	0.06	0.05	-0.01	-0.25
BIG4	0.81	0.83	0.02	1.13
GCOPIN	0.04	0.04	0.00	0.45
LNACMEM	1.22	1.29	0.07	6.09***
LNRCMEM	0.84	1.29	0.45	45.08***
FIRMSIZE	13.21	13.16	-0.05	-0.69
BETA	0.99	1.16	-0.17	5.23***
LEV	0.20	0.23	0.03	0.80
DISTRESS	0.05	0.05	0.00	0.40
SALEGR	0.08	0.07	0.01	-1.89*
DACC	0.09	0.10	0.01	1.25
BIDASK	0.02	0.03	0.01	1.99**
RETSTD	0.11	0.12	0.01	1.87*
EARVOL	0.06	0.05	-0.01	-1.36

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

4.3. Correlation analysis

Table 2, Panel C, presents the correlation analysis. We find a negative correlation between overlapping membership (OVLAPDUM, OVLAPNUM and OVLAPPER) and the COC, indicating that firms with overlapping membership have a lower COC. Board independence (INDDIR) negatively correlates with the COC, indicating that firms with higher independent directors have a lower COC. Firm size (FIRMSIZE) negatively correlates with the COC, indicating that firms with higher visibility can source funds at lower cost. Going concern audit opinion (GCOPIN) shows a positive relationship with the COC, suggesting a lower quality of financial reporting, resulting in a higher COC. The firm's systematic risk (BETA) positively correlates with the COC. None of the correlations among the independent variables exceeds 0.70 (the highest reported correlation is 0.58 between FIRMSIZE and INDDIR), suggesting no multicollinearity concerns.³

4.4. Multivariate regression analysis

Table 3 reports the results of the multivariate regression analysis. To examine the association between overlapping committee membership and the COC, we use four measures of the COC (e.g., PEG, MPEG, GM and AVG) and three measures of overlapping committee membership (OVLAPDUM, OVLAPNUM and OVLAPPER). Columns 1 to 4, 5 to 8 and 9 to 12 report the coefficients of OVLAPDUM, OVLAPNUM and OVLAPPER, respectively. We include one measure of overlapping committee membership at a time in the regression Eq. 1. First, we use OVLAPDUM and find that firms with overlapping committee membership negatively affect all the COC measures, indicating that overlapping committee membership reduces the COC. The coefficients on OVLAPDUM are statistically significant and vary between -0.009 and -0.011 ($p < 0.01$) across all the measures for the COC. For example, the corresponding coefficient of -0.034 using the PEG model in column 1 indicates that a one standard deviation increase in OVLAPDUM results in a decrease of 7.80% in the COC [$(-0.034 \times 0.39) / 0.17$]. Similarly, In column 2, the corresponding coefficient using the MPEG model is -0.038 , which indicates that a one standard deviation increase in OVLAPDUM results in a decrease of 7.80% in the COC [$(-0.038 \times 0.39) / 0.19$]. Column 3 shows that a one standard deviation increase in OVLAPDUM results in a decrease of 7.18% in the COC [$(-0.035 \times 0.39) / 0.19$]. The coefficients of the other two overlapping committee measures (OVLAPNUM and OVLAPPER) remain negative and statistically significant across all the proxies for the COC. Our findings suggest that firms with higher overlapping committee members have lower COC, supporting our main hypothesis. The negative association between the overlapping committee membership and COC indicate that overlapping committee membership facilitates effective information processing and coordination between the audit and compensation committees (Nowak and McCabe, 2003; Hermanson et al., 2012). A stream of research suggests that better-governed firms reduce information asymmetry and enjoy a lower COC (Reverte, 2009; Guedhami and Mishra, 2009; Fu et al., 2012; Bhattacharya et al., 2012). Although incentive-based remuneration may heighten the risk associated with aggressive decision-making, a director holding a position in both audit and remuneration committees can play a crucial role in mitigating information asymmetry risk. This dual committee membership enhances coordination among sub-committees, ultimately reducing

³ We also conducted variance inflation factor (VIF) tests to check for any multicollinearity and find no concern for multicollinearity as none of the VIF exceeds an acceptable limit of 2.00 (Gujarati, 2006; Wooldridge, 2013).

Table 2
Panel C: Correlation analysis.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) PEG	1.00									
(2) MPEG	0.93***	1.00								
(3) GM	0.92***	0.99***	1.00							
(4) AVG	0.96***	0.99***	0.99***	1.00						
(5) OVLAPNUM	-0.06***	-0.07***	-0.07***	-0.07***	1.00					
(6) OVLAPPER	-0.03**	-0.03**	-0.03**	-0.03*	0.88***	1.00				
(7) OVLAPDUM	-0.07***	-0.08***	-0.08***	-0.08***	0.69***	0.62***	1.00			
(8) LNBOD	-0.06***	-0.05***	-0.06***	-0.06***	-0.07***	-0.44***	-0.03**	1.00		
(9) INDPER	0.01	0.01	0.00	0.01	-0.02	-0.03**	-0.01	0.06***	1.00	
(10) CEODUAL	0.00	-0.01	-0.01	-0.01	0.02	0.06***	0.00	-0.11***	-0.13***	1.00
(11) OVLAPTEN	-0.10***	-0.09***	-0.09***	-0.10***	0.41***	0.37***	0.64***	-0.01	-0.02	0.01
(12) OVLAPEXP	-0.06***	-0.05***	-0.06***	-0.06***	0.08***	-0.02	0.03*	0.25***	0.11***	-0.04***
(13) BIG4	-0.02	-0.01	-0.01	-0.01	0.01	-0.07***	0.02	0.23***	0.14***	-0.03**
(14) GCOPIN	0.26***	0.23***	0.24***	0.24***	0.02	0.02	0.01	-0.07***	-0.03*	0.02
(15) FIRMSIZE	-0.17***	-0.14***	-0.15***	-0.15***	-0.05***	-0.24***	-0.01	0.58***	0.21***	-0.10***
(16) BETA	0.15***	0.12***	0.13***	0.13***	0.05***	0.06***	0.08***	-0.05***	-0.02	0.00
(17) LEV	0.00	0.00	0.00	0.00	0.00	-0.01	0.01	0.03**	0.02	-0.01
(18) SALEGR	-0.26***	-0.22***	-0.22***	-0.24***	-0.02	0.01	-0.03*	-0.03**	0.00	0.03*
(19) DISTRESS	0.23***	0.20***	0.22***	0.22***	-0.01	0.00	-0.01	-0.03*	-0.01	0.00
(20) RETSTD	0.35***	0.31***	0.31***	0.33***	0.06***	0.11***	0.03*	-0.16***	-0.07***	0.03*

Pairwise correlations (Cont.)										
Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(11) OVLAPTEN	1.00									
(12) OVLAPEXP	0.02	1.00								
(13) BIG4	0.06***	0.10***	1.00							
(14) GCOPIN	-0.06***	-0.06***	-0.04***	1.00						
(15) FIRMSIZE	0.05***	0.25***	0.26***	-0.17***	1.00					
(16) BETA	-0.03*	-0.10***	-0.05***	0.16***	-0.09***	1.00				
(17) LEV	0.01	-0.02	0.04**	0.10***	0.04**	-0.02	1.00			
(18) SALEGR	0.01	0.08***	0.00	-0.27***	0.09***	-0.17***	-0.08***	1.00		
(19) DISTRESS	-0.06***	-0.05***	-0.01	0.34***	-0.09***	0.09***	0.14***	-0.17***	1.00	
(20) RETSTD	-0.08***	-0.10***	-0.09***	0.29***	-0.32***	0.35***	-0.03*	-0.28***	0.22***	1.00

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

information asymmetry across committees and potentially resulting in a lower COC.

Regarding the control variables, larger firms (FIRMSIZE), firms with higher financial leverage (LEV) and sales growth (SALEGR) have a negative association with the COC. However, the going concern audit opinion (GCOPIN) negatively associates with the COC, indicating a higher COC for these firms. Our findings also show that distressed firms (DISTRESS) and risky/volatile firms (RETSTD) also have a higher COC. All the results in Table 3 are statistically significant, with an adjusted R-squared between 16.7% and 21.5%, which assures us that our dependent variable is a reliable proxy of the ex-ante COC. In sum, the results in Table 3 fully support our main hypothesis.

4.5. Control for self-selection

Our results in Section 4.4 show that the overlapping between the audit and compensation committee membership reduces the COC. However, the analysis may suffer from self-selection bias because one potential reason for overlapping members in audit and remuneration committees is to strengthen corporate governance. Therefore, we use the two-stage procedure to control for potential endogeneity biases (Heckman, 1979), which might be induced by the fact that particular firms and corporate governance characteristics might affect the overlapping membership and the COC.

In the first stage, to identify whether a firm has overlapping audit and compensation committee membership (OVLAPDUM), we estimate the probit regression model on a set of firm-level factors that are likely to determine the overlapping formation choices (Liao et al., 2013; Habib and Bhuiyan, 2018). Following Liao et al. (2013),⁴ we select board-specific attributes as determinants of overlapping committee membership. As subcommittees are formed with board members; therefore, firms with smaller boards (LNBOD) are more likely to have overlapping committee memberships. Furthermore, firms with more independent directors (INDPER) are more likely to have overlapping committee memberships because independent directors are supposed to establish those subcommittees

⁴ Liao and Hsu's model considers 13 determinants for overlapping membership in the US regulatory context. We successfully replicated 11 of these determinants in our model. However, two determinants, namely CEO Stock option and Institutional Ownership, were unavailable and required manual data collection. As an alternative, we incorporated CEO compensation (LNCEOOWN), board size (LNBOD), and firm sales growth (SALEGR) into our model. Moreover, our model is more comprehensive than Habib and Bhuiyan's (2018) model.

Table 3
Baseline analysis – Overlapping committee membership and cost of equity capital.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	PEG	MPEG	GM	AVG	PEG	MPEG	GM	AVG	PEG	MPEG	GM	AVG
Intercept	0.218*** (7.864)	0.22*** (7.402)	0.229*** (8.36)	0.224*** (8.125)	0.22*** (7.894)	0.221*** (7.412)	0.23*** (8.376)	0.225*** (8.143)	0.236*** (8.072)	0.245*** (7.801)	0.252*** (8.704)	0.246*** (8.457)
OVLAPDUM	-0.034*** (-3.967)	-0.038*** (-4.125)	-0.035*** (-4.148)	-0.036*** (-4.179)	-	-	-	-	-	-	-	-
OVLAPNUM	-	-	-	-	-0.009*** (-4.39)	-0.011*** (-4.827)	-0.009*** (-4.767)	-0.009*** (-4.784)	-	-	-	-
OVLAPPER	-	-	-	-	-	-	-	-	-0.054*** (-4.425)	-0.063*** (-4.891)	-0.058*** (-4.85)	-0.058*** (-4.851)
OVLAPTEN	-0.001** (-2.42)	-0.001* (-1.932)	-0.001* (-1.934)	-0.001** (-2.094)	-0.001 (-0.966)	-0.001 (-0.611)	-0.001 (-0.576)	-0.001 (-0.695)	0.01* (1.671)	0.01* (1.713)	0.01* (1.756)	0.01* (1.812)
OVLAPEXP	-0.001 (-0.031)	-0.001 (-0.001)	-0.001 (-0.13)	-0.001 (-0.057)	-0.001 (-0.264)	-0.001 (-0.334)	-0.001 (-0.457)	-0.001 (-0.385)	-0.001 (-0.031)	-0.001 (-0.06)	-0.001 (-0.187)	-0.001 (-0.117)
LNBD	0.014 (1.42)	0.009 (0.874)	0.007 (0.761)	0.01 (0.973)	0.016 (1.619)	0.012 (1.088)	0.01 (0.974)	0.012 (1.187)	-0.001 (-0.036)	-0.008 (-0.723)	-0.009 (-0.814)	-0.007 (-0.61)
INDPER	0.023** (1.98)	0.024* (1.906)	0.02* (1.693)	0.022* (1.857)	0.024** (2.03)	0.025** (1.965)	0.02* (1.75)	0.022* (1.914)	0.024** (2.038)	0.025* (1.945)	0.02* (1.733)	0.022* (1.902)
CEODUAL	-0.003 (-0.272)	-0.012 (-0.94)	-0.011 (-1.00)	-0.009 (-0.821)	-0.004 (-0.341)	-0.013 (-1.01)	-0.012 (-1.071)	-0.01 (-0.892)	-0.003 (-0.295)	-0.012 (-0.957)	-0.012 (-1.016)	-0.01 (-0.839)
BIG4	0.01 (1.393)	0.012* (1.673)	0.012* (1.74)	0.011* (1.67)	0.009 (1.35)	0.012 (1.625)	0.012* (1.693)	0.011 (1.622)	0.009 (1.27)	0.012 (1.582)	0.011* (1.649)	0.011 (1.569)
GCOPIN	0.083*** (5.799)	0.093*** (6.068)	0.084*** (5.939)	0.086*** (6.058)	0.083*** (5.81)	0.093*** (6.077)	0.084*** (5.948)	0.086*** (6.067)	0.083*** (5.799)	0.093*** (6.053)	0.084*** (5.925)	0.086*** (6.046)
FIRMSIZE	-0.008*** (-4.644)	-0.007*** (-3.609)	-0.007*** (-3.856)	-0.007*** (-4.066)	-0.008*** (-4.623)	-0.007*** (-3.573)	-0.007*** (-3.824)	-0.007*** (-4.034)	-0.008*** (-4.596)	-0.007*** (-3.527)	-0.007*** (-3.776)	-0.007*** (-3.991)
BETA	-0.001 (-0.385)	-0.002 (-0.599)	-0.001 (-0.233)	-0.001 (-0.374)	-0.001 (-0.174)	-0.001 (-0.385)	-0.001 (-0.017)	-0.001 (-0.156)	-0.001 (-0.428)	-0.002 (-0.641)	-0.001 (-0.275)	-0.001 (-0.418)
LEV	-0.007* (-1.717)	-0.008* (-1.652)	-0.007* (-1.733)	-0.007* (-1.742)	-0.007* (-1.696)	-0.008 (-1.681)	-0.007* (-1.711)	-0.007* (-1.72)	-0.008* (-1.767)	-0.008* (-1.7)	-0.008* (-1.78)	-0.008* (-1.791)
DISTRESS	0.091*** (7.344)	0.081*** (6.124)	0.085*** (6.916)	0.085*** (6.949)	0.092*** (7.433)	0.082*** (6.216)	0.086*** (7.009)	0.086*** (7.042)	0.092*** (7.428)	0.082*** (6.198)	0.086*** (6.988)	0.086*** (7.025)
SALEGR	-0.18*** (-9.745)	-0.153*** (-7.738)	-0.141*** (-7.74)	-0.154*** (-8.4)	-0.18*** (-9.723)	-0.153*** (-7.709)	-0.141*** (-7.713)	-0.154*** (-8.373)	-0.177*** (-9.574)	-0.15*** (-7.591)	-0.139*** (-7.594)	-0.151*** (-8.244)
RETSTD	0.499*** (12.916)	0.438*** (10.589)	0.406*** (10.626)	0.437*** (11.405)	0.495*** (12.817)	0.433*** (10.469)	0.401*** (10.511)	0.432*** (11.29)	0.506*** (13.098)	0.444*** (10.744)	0.411*** (10.782)	0.443*** (11.57)
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3945	3945	3945	3945	3945	3945	3945	3945	3945	3945	3945	3945
Adj. R-squared	0.215	0.171	0.179	0.191	0.214	0.169	0.178	0.189	0.21	0.167	0.175	0.186

Notes: This table reports the regression results where the cost of equity capital measures are regressed on overlapping committee membership proxies. The *t* statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

according to corporate governance guidelines. Following Liao et al. (2013), we have taken measures to control the impact of two sub-committee constraints: the audit and compensation committees. It is worth noting that the appointment of a director to two committees is contingent upon the constraints of each committee. Therefore, we control the audit committee size (LNACMEM) and compensation committee size (LNRCMEM). We control independent director busyness (LNBUSY) as an independent director with a relatively lower busyness is more likely to serve as a member of multiple committees. We consistently presume that a firm with a dual CEO (CEODUAL) and a CEO with higher tenure (CEOTENURE) will have fewer overlapping committee members. According to Liao

Table 4
2SLS regression.

Variables	(1) OVLAPDUM	(2) PEG	(3) MPEG	(4) GM	(5) AVG
Intercept	-8.073*** (-10.176)	0.223*** (7.731)	0.224*** (7.257)	0.233*** (8.176)	0.227*** (7.961)
OVLAPDUM	-	-0.037*** (-3.323)	-0.041*** (-3.428)	-0.037*** (-3.415)	-0.038*** (-3.463)
LNBOD	2.681*** (9.337)	0.016 (1.627)	0.012 (1.095)	0.01 (0.98)	0.012 (1.194)
INDPER	1.786*** (6.094)	0.024** (2.049)	0.025** (1.983)	0.021* (1.766)	0.023* (1.931)
CEODUAL	-0.161** (-2.516)	-0.004 (-0.34)	-0.013 (-1.01)	-0.012 (-1.07)	-0.01 (-0.891)
DISTRESS	0.021 (0.062)	0.092*** (7.43)	0.082*** (6.213)	0.086*** (7.006)	0.086*** (7.039)
FIRMSIZE	-0.029 (-0.621)	-0.008*** (-4.608)	-0.007*** (-3.56)	-0.007*** (-3.813)	-0.007*** (-4.021)
LEV	0.431 (1.169)	-0.007* (-1.701)	-0.008 (-1.636)	-0.007* (-1.715)	-0.007* (-1.724)
SALEGR	-0.405*** (-2.793)	-0.179*** (-9.705)	-0.152*** (-7.693)	-0.141*** (-7.698)	-0.153*** (-8.356)
OVLAPTEN	-	-0.001 (-0.969)	-0.001 (-0.614)	-0.001 (-0.579)	-0.001 (-0.698)
OVLAPEXP	-	-0.001 (-0.274)	-0.001 (-0.343)	-0.001 (-0.465)	-0.001 (-0.393)
BIG4	-	0.009 (1.348)	0.012 (1.623)	0.012* (1.691)	0.011 (1.62)
GCOPIN	-	0.083*** (5.814)	0.093*** (6.08)	0.084*** (5.951)	0.086*** (6.071)
BETA	-	-0.001 (-0.173)	-0.001 (-0.385)	-0.001 (-0.017)	-0.001 (-0.156)
RETSTD	-	0.495*** (12.82)	0.433*** (10.471)	0.401*** (10.513)	0.433*** (11.292)
LNACMEM	1.597*** (6.107)	-	-	-	-
LNRCMEM	11.613*** (25.907)	-	-	-	-
RESTATE	0.333 (0.691)	-	-	-	-
CEOTENURE	-0.012 (-0.469)	-	-	-	-
LNCEOOWN	0.004 (0.372)	-	-	-	-
LNBUSY	-0.211* (-1.92)	-	-	-	-
LOSS	0.205 (0.996)	-	-	-	-
EARVOL	0.657 (0.779)	-	-	-	-
IMR	-	-0.001 (-0.387)	-0.001 (-0.359)	-0.001 (-0.309)	-0.001 (-0.348)
INDUSTRY	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES
Observations	3945	3945	3945	3945	3945
F-statistics/LR Chi ²	2179.50	0.288	0.216	0.229	0.249
Pseudo R-squared	0.565	-	-	-	-
Adj. R-squared	-	0.214	0.169	0.178	0.189

Notes: This table reports the findings of potential endogeneity of overlapping committee membership choice (OVLAPDUM). Column (1) reports the 1st stage probit regression results. Columns (2) to (5) report the regression results where the cost of equity capital measures are regressed on the fitted value of OVLAPDUM with other control variables, including the inverse Mills ratio (IMR). The $t(z)$ statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

et al. (2013), higher CEO ownership may lead to increased overlapping membership since the CEO has more influence and control over the appointments and committee composition.

We consider the firm financial characteristics, such as size, sales growth, profitability, and leverage. Regarding firm size (FIRM-SIZE), larger firms tend to have more board members, which can lead to a greater potential for committee overlap. However, larger firms may also have more resources to manage committee assignments and, therefore, fewer overlapping members. Sales growth (SALEGR) and profitability (LOSS and DISTRESS) may also impact overlapping committee membership. Higher sales growth and profitability may lead to greater demands on the time and expertise of board members, making it more difficult to avoid overlapping committee membership. On the other hand, strong financial performance may also provide resources for firms to manage committee assignments more effectively and reduce overlap. Leverage (LEV), or the extent to which a firm uses debt financing, may also impact overlapping committee membership. High levels of leverage may increase the demands on the time and attention of board members, making it more challenging to manage committee assignments and avoid overlap. However, firms with high leverage may also have greater resources to manage committee assignments due to the increased financial resources available. Finally, higher earnings volatility (EARVOL) might impose additional demands on board members' time and attention as they attempt to manage the risks associated with such volatility. As they try to balance conflicting demands on their time, board members may find it more difficult to avoid overlapping committee involvement. The first stage probit model is as follows:

$$\begin{aligned} \text{OVLAPDUM}_{i,t} = & \mu_0 + \mu_1 \text{LNBOB}_{i,t} + \mu_2 \text{INDPER}_{i,t} + \mu_3 \text{CEODUAL}_{i,t} + \mu_4 \text{DISTRESS}_{i,t} + \mu_5 \text{FIRMSIZE}_{i,t} + \mu_6 \text{LEV}_{i,t} + \mu_7 \text{SALEGR}_{i,t} \\ & + \mu_8 \text{LNACMEM}_{i,t} + \mu_9 \text{LNRMEM}_{i,t} + \mu_{10} \text{RESTATE}_{i,t} + \mu_{11} \text{CEOTENURE}_{i,t} + \mu_{12} \text{LNCEOOWN}_{i,t} + \mu_{13} \text{LNBUSY}_{i,t} \\ & + \mu_{14} \text{LOSS}_{i,t} + \mu_{15} \text{EARVOL}_{i,t} + \text{INDUSTRY EFFECT} + \text{YEAR EFFECT} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

Eq. (2) computes the inverse Mills ratio (IMR, $\lambda_{i,t}$). In the second stage, we estimate the following ordinary regression model, including the IMR ($\lambda_{i,t}$):

$$\begin{aligned} \text{COC}_{i,t} = & \delta_0 + \delta_1 \text{OVLAP}(\text{OVLAPDUM}/\text{OVLAPNUM}/\text{OVLAPPER}_{i,t}) + \delta_2 \text{LNBOB}_{i,t} + \delta_3 \text{INDPER}_{i,t} + \delta_4 \text{CEODUAL}_{i,t} \\ & + \delta_5 \text{DISTRESS}_{i,t} + \delta_6 \text{FIRMSIZE}_{i,t} + \delta_7 \text{LEV}_{i,t} + \delta_8 \text{SALEGR}_{i,t} + \delta_9 \text{OVLAPTEN} + \delta_{10} \text{OVLAPEXP} + \delta_{11} \text{BIG4}_{i,t} \\ & + \delta_{12} \text{GCOPIN}_{i,t} + \delta_{13} \text{BETA}_{i,t} + \delta_{14} \text{RETSTD}_{i,t} + \delta_{15} \text{IMR}_{i,t} + \text{INDUSTRY EFFECT} + \text{YEAR EFFECT} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

Eq. (3) is analogous to eq. (1), except for the fact that the obtained IMR (i.e., λ) is included in eq. (3).

Table 4 reports the findings of eqs. (2) and (3). Regarding overlapping membership determinants, we find that corporate governance variables are strong predictors of overlapping membership. Firms with large boards and more independent directors are positively associated with overlapping committee membership. Alternatively, overlapping committee membership shows a negative association with CEO duality. We did not find any association between firm size and overlapping committee membership. Our findings are consistent with the existing corporate governance literature (Habib and Bhuiyan, 2018; Liao et al., 2013). As indicated, our second stage analysis includes IMR (i.e., λ) as an additional predictor for the COC. Consistent with our earlier reported results, we find a negative association between overlapping committee membership (OVLAPDUM) and all the COC measures. Our empirical results are almost identical to our findings in Section 4.4.

4.6. Additional tests: Busyness, agency costs, free cash flow and alternative sample

4.6.1. Busy vs. non-busy overlapping committee membership

Méndez et al. (2015) find that overlapping membership is negatively associated with CEO remuneration, audit fees and the probability of receiving a qualified audit opinion, thus indicating that overlapping membership increases the monitoring capability of directors.⁵ However, the improvement in the monitoring capability of directors may be limited to non-busy directors. Ghafran et al. (2022) show that the audit committee members holding more board seats exhibit reduced effectiveness in monitoring managers' inclination to manipulate earnings. However, Sharma et al. (2020) document that investors view the participation of audit committee directors on multiple audit committees positively. This positive perception is contingent upon such service not compromising the directors' ability to fulfil their governance responsibilities adequately. Therefore, we expect the negative relationship between overlapping membership and COC to be more pronounced among the firms with non-busy directors. To test our conjecture, we estimate Eq. 1 to examine the impact of busy and non-busy overlapping directors and report the results in Table 5. We define busy and non-busy overlapping directors based on the median value of overlapping directors with external board membership. Consistent with our expectations, the negative relationship between overlapping committee membership and the COC is stronger for firms with non-busy overlap directors (OVLAPNBUSY). Therefore, our results support the findings of Méndez et al. (2015) that the capability of overlap directors is more pronounced among non-busy directors.

4.6.2. Agency costs

It is well documented in the literature that good corporate governance reduces agency conflicts and consequently lowers the COC

⁵ We thank an anonymous reviewer for suggesting additional tests. For the sake of brevity, starting from this section, we report results based on our main proxy for the overlapping membership, OVLAPDUM. Nonetheless, our findings remain unchanged for the other two proxies of the overlapping membership.

Table 5
Impact of overlapping committee membership busyness on the cost of equity capital.

Variables	(1)	(2)	(3)	(4)
	PEG	MPEG	GM	AVG
Intercept	0.231*** (10.123)	0.225*** (9.557)	0.231*** (9.854)	0.229*** (10.085)
OVLAPNBSY	-0.017*** (-2.985)	-0.018*** (-3.094)	-0.017*** (-2.934)	-0.017*** (-3.067)
OVLAPTEN	-0.001 (-1.239)	-0.001 (-0.84)	-0.001 (-0.721)	-0.001 (-0.902)
OVLAPEXP	-0.002 (-0.839)	-0.001 (-0.354)	-0.001 (-0.465)	-0.001 (-0.543)
LNBD	0.02** (2.53)	0.014* (1.719)	0.013 (1.618)	0.015* (1.918)
INDPER	0.007 (0.746)	0.007 (0.745)	0.004 (0.446)	0.006 (0.611)
CEODUAL	-0.001 (-0.08)	-0.009 (-0.947)	-0.008 (-0.868)	-0.007 (-0.714)
BIG4	0.008 (1.473)	0.009 (1.645)	0.010* (1.716)	0.009* (1.682)
GCOPIN	0.079*** (7.067)	0.088*** (7.653)	0.078*** (6.805)	0.08*** (7.274)
FIRMSIZE	-0.012*** (-8.046)	-0.009*** (-6.319)	-0.009*** (-6.263)	-0.010*** (-6.895)
BETA	0.007** (2.554)	0.006** (2.277)	0.006** (2.316)	0.006** (2.428)
LEV	-0.008** (-2.479)	-0.008** (-2.397)	-0.008** (-2.48)	-0.008** (-2.525)
DISTRESS	0.092*** (9.418)	0.078*** (7.791)	0.082*** (8.26)	0.084*** (8.652)
SALEGR	-0.147*** (-9.922)	-0.115*** (-7.526)	-0.109*** (-7.196)	-0.12*** (-8.161)
RETSTD	0.355*** (11.581)	0.268*** (8.495)	0.263*** (8.376)	0.287*** (9.437)
INDUSTRY	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
Observations	3187	3187	3187	3187
Adj. R-squared	0.306	0.24	0.231	0.26

Notes: This table presents the regression results where COC is regressed on OVLAP proxies with other control variables for firms with busy and non-busy overlapping committee directors using eq. 1. The *t*-statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

(Ashbaugh et al., 2004). High ownership concentration can lead to heightened agency costs, as the controlling shareholder's interest may not align with those of minority shareholders, potentially resulting in self-serving decisions by the dominant owner or management. To the extent overlapping committee membership improves the quality of corporate governance by enhancing coordination, increasing oversight and improving information flow across the sub-committees, we expect that the negative relationship between overlapping committee membership and COC might be stronger among firms with low agency costs since firms with low agency costs and overlapping membership indicate superior corporate governance than the firms with either overlapping membership or low agency costs.

To examine the impact of agency costs on the relationship between overlapping committee membership and the COC, we use ownership concentration as a proxy of agency costs/conflicts and report the results in Table 6. We split the sample into two groups: firms with concentrated ownership and those without. Our findings reveal that the negative relationship between overlapping committee membership and COC is generally persistent in both groups. This implies that ownership concentration does not play a significant role in the relationship between overlapping membership and COC.

4.6.3. High vs. Low Free cash flow

Directors concurrently serving on multiple committees play a critical role in shaping strategic decisions, particularly in the allocation of free cash flow (FCF). FCF is the surplus cash after taking into account operating expenses and capital expenditures; thus, it indicates the financial health of a company. A positive FCF provides avenues for value creation, debt reduction, or strategic investments, whereas a negative or lower FCF indicates financial trouble. The oversight of overlapping committee members is likely to enhance corporate governance quality, ensuring FCF aligns well with the firm's strategic objectives - whether directed towards investments, shareholder returns, or debt reduction and consequently reducing the COC. The sample is divided into low (below sample mean) and high (above sample mean) FCF groups to assess the impact of FCF on the relationship between overlapping committee membership and COC. Table 7 reports the findings. Our findings show a negative relationship between overlapping committee membership and COC across both groups, indicating that the FCF does not play a significant role in the relationship between

Table 6
Impact of ownership concentration on the association between overlapping committee membership and cost of equity capital.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OCON = 0	OCON = 1	OCON = 0	OCON = 1	OCON = 0	OCON = 1	OCON = 0	OCON = 1
	PEG	PEG	MPEG	MPEG	GM	GM	AVG	AVG
Intercept	0.207*** (5.099)	0.275*** (7.405)	0.209*** (4.735)	0.258*** (6.965)	0.227*** (5.659)	0.257*** (6.929)	0.217*** (5.373)	0.261*** (7.142)
OVLAPDUM	-0.042*** (-3.341)	-0.013 (-1.215)	-0.046*** (-3.336)	-0.019* (-1.867)	-0.042*** (-3.33)	-0.021** (-2.035)	-0.043*** (-3.405)	-0.018* (-1.812)
OVLAPTEN	-0.001 (-0.451)	-0.001 (-1.414)	-0.001 (-0.183)	-0.001 (-0.866)	-0.001 (-0.175)	-0.001 (-0.669)	-0.001 (-0.25)	-0.001 (-0.918)
OVLAPEXP	-0.001 (-0.242)	0.001 (0.182)	-0.002 (-0.43)	0.001 (0.415)	-0.002 (-0.573)	0.001 (0.319)	-0.002 (-0.463)	0.001 (0.313)
LNBD	0.011 (0.716)	0.041*** (3.446)	0.002 (0.152)	0.038*** (3.223)	-0.002 (-0.145)	0.038*** (3.253)	0.002 (0.15)	0.039*** (3.34)
INDPER	0.033** (1.968)	0.011 (0.786)	0.032* (1.709)	0.018 (1.204)	0.023 (1.361)	0.019 (1.308)	0.028 (1.638)	0.017 (1.168)
CEODUAL	0.021 (1.009)	-0.017 (-1.495)	0.010 (0.46)	-0.024** (-2.145)	0.010 (0.517)	-0.024** (-2.119)	0.013 (0.636)	-0.022** (-1.997)
BIG4	0.010 (1.03)	0.016* (1.841)	0.012 (1.164)	0.019** (2.173)	0.012 (1.244)	0.018** (1.984)	0.011 (1.195)	0.018** (2.023)
GCOPI	0.087*** (4.488)	0.065*** (3.35)	0.106*** (4.969)	0.057*** (2.958)	0.092*** (4.774)	0.059*** (3.072)	0.094*** (4.858)	0.06*** (3.157)
FIRMSIZE	-0.007*** (-2.866)	-0.015*** (-5.51)	-0.005* (-1.945)	-0.013*** (-4.867)	-0.005** (-2.081)	-0.013*** (-4.771)	-0.006** (-2.285)	-0.013*** (-5.05)
BETA	-0.003 (-0.709)	0.004 (0.833)	-0.002 (-0.411)	0.001 (0.009)	-0.001 (-0.037)	-0.001 (-0.067)	-0.001 (-0.309)	0.001 (0.18)
LEV	-0.008 (-1.538)	0.033* (1.742)	-0.008 (-1.466)	0.034* (1.78)	-0.008 (-1.574)	0.033* (1.711)	-0.008 (-1.569)	0.033* (1.76)
DISTRESS	0.096*** (5.195)	0.091*** (6.239)	0.073*** (3.638)	0.10*** (6.846)	0.078*** (4.253)	0.099*** (6.787)	0.081*** (4.412)	0.097*** (6.757)
SALEGR	-0.195*** (-7.709)	-0.114*** (-4.438)	-0.178*** (-6.467)	-0.069*** (-2.709)	-0.166*** (-6.627)	-0.069*** (-2.69)	-0.176*** (-6.997)	-0.08*** (-3.177)
RETSTD	0.594*** (11.193)	0.30*** (5.854)	0.504*** (8.708)	0.291*** (5.705)	0.452*** (8.619)	0.299*** (5.869)	0.501*** (9.473)	0.297*** (5.904)
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
Observations	2429	1516	2429	1516	2429	1516	2429	1516
R-squared	0.222	0.247	0.173	0.22	0.18	0.218	0.194	0.229

Notes: This table presents the regression results where COC is regressed on OVLAP proxies with other control variables for firms with ownership concentration and the ones without using eq. 1. The *t*-statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

overlapping committee membership and COC.

4.6.4. Alternative Sample of 2004–2015

The inaugural corporate governance best practice code in Australia - the Corporate Governance Principles and Recommendations was introduced by the ASX Corporate Governance Council in March 2003. These principles and recommendations have undergone subsequent revisions to align with the dynamic landscape of corporate governance standards. The latest edition of these guidelines was released in 2019. To comprehensively assess the impact of the corporate governance best practices code, our analysis spans from 2004 to 2015 and reports the results in Table 8. The results in Table 8 demonstrate that overlapping committee membership reduced the COC, which is consistent with our primary findings in section 4.4 and the main hypothesis.

4.7. Mediation test results

In the earlier sections, we find a statistically significant negative association between overlapping committee membership and the COC, suggesting that a firm with overlapping committee membership has a lower COC. This section identifies and tests possible channel(s) linking the association between overlapping committee membership and the COC.

Our main hypothesis is that overlapping committee membership is negatively associated with the COC. Since overlapping committee membership reduces information asymmetry between the supervisory sub-committees and stakeholders, it improves financial reporting quality and, thus, reduces the COC. Extant research documents mixed evidence on the relationship between overlapping committee membership and financial reporting quality. Liao et al. (2013) evidence that earnings quality is low among firms with overlapping committee membership. In contrast, Kalelkar (2017) finds that overlapping committee membership reduces discretionary accruals, i.e., improves financial reporting quality. Several studies on capital markets evidence that higher-quality reporting is negatively associated with implied COC estimation (Botosan, 1997; Botosan and Plumlee, 2002; Hail, 2002). Hribar and Jenkins

Table 7

Impact of free cash flow on the association between overlapping committee membership and cost of equity capital.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FCF = 0	FCF = 1	FCF = 0	FCF = 1	FCF = 0	FCF = 1	FCF = 0	FCF = 1
	PEG	PEG	MPEG	MPEG	GM	GM	AVG	AVG
Intercept	0.206*** (4.091)	0.145*** (5.108)	0.201*** (3.67)	0.179*** (6.418)	0.214*** (4.277)	0.188*** (6.78)	0.208*** (4.142)	0.174*** (6.354)
OVLAPDUM	-0.040* (-1.727)	-0.027** (-2.36)	-0.059** (-2.335)	-0.032*** (-2.855)	-0.051** (-2.211)	-0.032*** (-2.867)	-0.05** (-2.169)	-0.031*** (-2.783)
OVLAPTEN	-0.003*** (-2.822)	-0.001 (-1.152)	-0.003** (-2.44)	-0.001 (-0.864)	-0.002** (-2.445)	-0.001 (-0.873)	-0.003*** (-2.588)	-0.001 (-0.958)
OVLAPEXP	-0.002 (-0.411)	0.001 (0.059)	-0.004 (-0.826)	0.002 (1.056)	-0.005 (-0.983)	0.002 (1.015)	-0.004 (-0.817)	0.002 (0.795)
LNBD	-0.001 (-0.054)	-0.001 (-0.068)	-0.010 (-0.491)	-0.004 (-0.375)	-0.010 (-0.574)	-0.004 (-0.389)	-0.008 (-0.432)	-0.003 (-0.309)
INDPER	0.040* (1.95)	-0.001 (0.013)	0.052** (2.353)	-0.012 (-1.168)	0.044** (2.187)	-0.012 (-1.177)	0.045** (2.217)	-0.009 (-0.887)
CEODUAL	-0.006 (-0.268)	-0.007 (-0.779)	-0.020 (-0.869)	-0.012 (-1.25)	-0.018 (-0.876)	-0.012 (-1.276)	-0.015 (-0.739)	-0.011 (-1.163)
BIG4	0.015 (1.261)	0.001 (0.222)	0.022* (1.685)	-0.001 (-0.016)	0.022* (1.817)	-0.001 (-0.022)	0.020* (1.678)	0.001 (0.043)
GCOPIN	0.067*** (3.499)	0.102*** (3.89)	0.078*** (3.718)	0.122*** (4.768)	0.069*** (3.589)	0.123*** (4.843)	0.071*** (3.675)	0.118*** (4.662)
FIRMSIZE	-0.006* (-1.833)	-0.001 (-0.734)	-0.003 (-0.969)	-0.002 (-1.17)	-0.004 (-1.157)	-0.002 (-1.253)	-0.004 (-1.299)	-0.002 (-1.12)
BETA	-0.004 (-0.695)	-0.001 (-0.073)	-0.003 (-0.534)	-0.004 (-1.115)	-0.001 (-0.254)	-0.003 (-1.053)	-0.002 (-0.446)	-0.003 (-0.833)
LEV	-0.008 (-1.469)	-0.012 (-0.907)	-0.008 (-1.355)	-0.010 (-0.826)	-0.008 (-1.452)	-0.010 (-0.805)	-0.008 (-1.46)	-0.010 (-0.851)
DISTRESS	0.096*** (5.541)	0.07*** (4.116)	0.084*** (4.44)	0.074*** (4.433)	0.088*** (5.116)	0.074*** (4.437)	0.089*** (5.143)	0.073*** (4.43)
SALEGR	-0.296*** (-7.339)	0.040* (1.661)	-0.271*** (-6.192)	0.033 (1.384)	-0.254*** (-6.356)	0.031 (1.325)	-0.269*** (-6.687)	0.034 (1.45)
RETSTD	0.498*** (8.725)	0.446*** (10.013)	0.427*** (6.873)	0.431*** (9.869)	0.382*** (6.752)	0.435*** (10.063)	0.422*** (7.417)	0.437*** (10.175)
INSUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
Observations	2078	1867	2078	1867	2078	1867	2078	1867
Adj. R-squared	0.214	0.184	0.168	0.192	0.177	0.194	0.188	0.195

Notes: This table presents the regression results where COC is regressed on OVLAP proxies with other control variables for firms with high free cash flow and low free cash flow firms using eq. 1. The t -statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

(2004) find that the COC of a firm increases following the year of a financial restatement, i.e., in the presence of poor financial reporting quality. Ashbaugh-Skaife et al. (2009) show that a firm with internal control weakness suffers an increase in the COC. In contrast, Ogneva et al. (2007) do not find any association between internal control weakness and the COC. Therefore, we suggest financial reporting quality as a potential channel linking the association between overlapping committee membership and the COC.

The association between overlapping committee membership and the COC could also stem from the information asymmetry channel. Conventional wisdom suggests that strong corporate governance reduces information asymmetry and agency conflict. Hermalin and Weisbach (2012) posit that a principal desire for strong corporate governance is to provide higher-quality disclosure. Diamond and Verrecchia (1991) assert that a higher disclosure reduces information asymmetry and lowers the COC, as greater transparency enhances stock market liquidity and attracts large investors. Moreover, firms that disclose higher quality information are likely to attract more analyst following due to the lower information processing costs, leading to increased liquidity of stocks (Healy et al., 1999). Therefore, disclosure can reassure investors, resulting in benefits such as a reduced COC (Botosan, 1997). Due to representing multiple sub-committees by a single individual, an overlapping committee member generally has more access to the individual information about the firm's issues, enabling better decision-making ability at the committee and board level (Chen and Wu, 2016). Therefore, we suggest information asymmetry as an alternative potential channel linking the association between overlapping committee membership and the COC.

Following Baron and Kenny (1986), we establish the mediation effect using four steps. First, independent variables in our study (i.e., overlapping committee membership, OVLAPDUM) correlate with the dependent variable (i.e., COC; Eq. 4 A; α_1), confirming the possibility of a mediation effect. Second, the independent variable, overlapping committee membership (i.e., OVLAPDUM), should be associated with the mediator (i.e., M; Eq. 4B; β_1). Third, the mediator (i.e., M) has a significant effect on the dependent variable (i.e., COC; Eq. 4C; γ_2). Fourth, the significant relationship between OVLAPDUM and COC (Eq. 4 A) becomes insignificant after controlling M (full mediation, γ_1 becomes insignificant), or the significance level reduces after controlling M (partial mediation, γ_1 reduces). The following equations are developed to conduct the mediation test:

Table 8
Regression analysis for 2004–2015 sample period.

Variable	(1)	(2)	(3)	(4)
	PEG	MPEG	GM	AVG
Intercept	0.217*** (8.191)	0.208*** (7.517)	0.211*** (8.12)	0.211*** (8.17)
OVLAPDUM	–	–	–	–
OVLAPTEN	–0.001* (–1.903)	–0.001 (–1.267)	–0.001 (–1.277)	–0.001 (–1.468)
OVLAPEXP	0.001 (0.136)	0.001 (0.021)	0.001 (–0.15)	0.001 (–0.035)
LNBD	0.007 (0.74)	0.003 (0.305)	0.001 (0.14)	0.003 (0.342)
INDPER	0.003 (0.247)	0.005 (0.356)	0.001 (0.074)	0.002 (0.196)
CEODUAL	0.006 (0.566)	0.001 (–0.020)	0.001 (0.002)	0.002 (0.14)
BIG4	0.003 (0.431)	0.007 (1.042)	0.007 (1.121)	0.006 (0.953)
GCOPIN	0.068*** (4.879)	0.077*** (5.253)	0.069*** (5.012)	0.071*** (5.175)
FIRMSIZE	–0.006*** (–3.667)	–0.005*** (–2.74)	–0.005*** (–2.947)	–0.005*** (–3.153)
BETA	–0.002 (–0.476)	0.001 (0.184)	0.002 (0.539)	0.001 (0.198)
LEV	–0.006 (–1.552)	–0.006 (–1.568)	–0.007* (–1.702)	–0.006* (–1.673)
DISTRESS	0.083*** (6.609)	0.069*** (5.296)	0.076*** (6.212)	0.076*** (6.233)
SALEGR	–0.164*** (–9.103)	–0.14*** (–7.467)	–0.129*** (–7.313)	–0.141*** (–8.005)
RETSTD	0.585*** (15.567)	0.508*** (12.922)	0.464*** (12.565)	0.505*** (13.759)
INDUSTRY	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
Observations	3305	3305	3305	3305
Adj. R-squared	0.243	0.197	0.20	0.217

Notes: This table presents the regression results where COC is regressed on OVLAP proxies with other control variables for firms using a sample from 2004 to 2015. The *t*-statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

$$COC_{i,t} = \alpha_0 + \alpha_1 OVLAPDUM_{i,t} + \text{Control variables} + FE + \varepsilon_{i,t} \quad (4A)$$

$$M_{i,t} = \beta_0 + \beta_1 OVLAPDUM_{i,t} + \text{Control variables} + FE + \varepsilon_{i,t} \quad (4B)$$

$$COC_{i,t} = \gamma_0 + \gamma_1 OVLAPDUM_{i,t} + \gamma_2 M_{i,t} + \text{Control variables} + FE + \varepsilon_{i,t} \quad (4C)$$

Consistent with the abovementioned arguments, we suggest two different channels |DACC| and BIDASK, which can potentially mediate the association between overlapping committee membership and the COC. Following Kothari et al. (2005), our first mediator (i.e., M) is absolute discretionary accruals (|DACC|)- a proxy of financial reporting quality. Following Stoll (1989), our second mediator (i.e., M) is BIDASK - a proxy of information asymmetry. The total effect of OVLAPDUM on COC (i.e., α_1 from Eq. 4A) can be decomposed into direct and indirect effects (i.e., through the mediator). The direct effect is γ_1 from eq. (4C), whereas the indirect effect is $\beta_1 * \gamma_2$ for a proposed mediator. The core of the mediation effect is testing the null hypothesis that $H_0 : \beta_1 * \gamma_2 = 0$. We first use the OLS regression using |DACC| as a mediator to perform the causal step regression following Baron and Kenny (1986) for the above estimation.

We report the direct and indirect effects of overlapping committee membership on the COC for the pooled sample in Table 9. For mediating channel |DACC|, Column (1) to (4) shows negative and significant coefficients on OVLAPDUM when we run the regressions without mediators (i.e., |DACC|; Eq. 4A), confirming the possibility that there is a mediation effect. Consistent with Kalelkar (2017), we find a negative and statistically significant association between OVLAPDUM and |DACC| in Column (5) (coefficient of -0.026 , $p < 0.05$), indicating that firms with overlapping committee membership have lower discretionary accruals (Eq. 4B). The results shown in Columns (7), (9), (11), and (13) suggest a mediation effect between OVLAPDUM and COC through |DACC| (Eq. 4C).

Consistent with Chen and Wu (2016), we find a negative and statistically significant association between OVLAPDUM and BIDASK in Column (6) (coefficient of -0.007 , $p < 0.05$), indicating that firms with overlapping committee membership have lower information asymmetry (Eq. 4B). The results shown in Columns (8), (10), (12), and (14) suggest a mediation effect between OVLAPDUM and COC through BIDASK (Eq. 4C). Overall, the mediation test results indicate that the relationship between the overlapping committee membership and the COC is mediated by both channels: (a) financial reporting quality (|DACC|) and (b) information asymmetry

Table 9
Regression results for mediation tests.

	(1) PEG	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Variables		MPEG	GM	AVG	DACC	BIDASK	PEG	PEG	MPEG	MPEG	GM	GM	AVG	AVG
<i>Intercept</i>	0.22*** (7.894)	0.221*** (7.412)	0.23*** (8.376)	0.225*** (8.143)	0.167*** (4.149)	0.093*** (10.311)	0.213*** (7.663)	0.197*** (6.755)	0.217*** (7.27)	0.191*** (6.229)	0.226*** (8.215)	0.201*** (7.17)	0.22*** (7.966)	0.197*** (6.911)
<i>OVLAPDUM</i>	-0.034*** (-3.967)	-0.038*** (-4.125)	-0.035*** (-4.148)	-0.036*** (-4.179)	-0.026** (-2.083)	-0.007** (-2.55)	-0.033*** (-3.857)	-0.029*** (-3.328)	-0.037*** (-4.059)	-0.031*** (-3.308)	-0.035*** (-3.319)	-0.028*** (-3.319)	-0.035*** (-4.097)	-0.029*** (-3.374)
DACC	-	-	-	-	-	-	0.037*** (3.384)	-	0.023* (1.944)	-	0.024** (2.22)	-	0.027** (2.483)	-
<i>BIDASK</i>	-	-	-	-	-	-	-	0.284*** (5.449)	-	0.302*** (5.504)	-	0.31*** (6.174)	-	0.302*** (5.912)
<i>OVLAPTEN</i>	-0.001 (-0.966)	-0.001 (-0.611)	-0.001 (-0.576)	-0.001 (-0.695)	0.001 (0.777)	0.001 (0.624)	-0.001 (-1.009)	-0.001 (-1.293)	-0.001 (-0.635)	-0.001 (-0.973)	-0.001 (-0.604)	-0.001 (-0.923)	-0.001 (-0.726)	-0.001 (-1.046)
<i>OVLAPEXP</i>	-0.001 (-0.264)	-0.001 (-0.334)	-0.001 (-0.457)	-0.001 (-0.385)	0.002 (0.396)	0.001 (0.974)	-0.001 (-0.286)	-0.001 (-0.218)	-0.001 (-0.347)	-0.001 (-0.126)	-0.001 (-0.472)	-0.001 (-0.127)	-0.001 (-0.401)	-0.001 (-0.152)
<i>LNBD</i>	0.016 (1.619)	0.012 (1.088)	0.01 (0.974)	0.012 (1.187)	-0.007 (-0.516)	0.001 (0.154)	0.016* (1.649)	0.026** (2.548)	0.012 (1.104)	0.02* (1.881)	0.01 (0.993)	0.018* (1.794)	0.012 (1.209)	0.021** (2.04)
<i>INDPER</i>	0.024** (2.03)	0.025** (1.965)	0.02* (1.75)	0.022* (1.914)	-0.033* (-1.937)	-0.003 (-0.726)	0.025** (2.136)	0.027** (2.225)	0.026** (2.025)	0.024* (1.896)	0.021* (1.819)	0.019 (1.638)	0.023** (1.991)	0.022* (1.885)
<i>CEODUAL</i>	-0.004 (-0.341)	-0.013 (-1.01)	-0.012 (-1.071)	-0.01 (-0.892)	0.016 (0.941)	0.004 (0.95)	-0.005 (-0.392)	-0.01 (-0.813)	-0.013 (-1.04)	-0.02 (-1.596)	-0.013 (-1.104)	-0.02* (-1.748)	-0.011 (-0.93)	-0.017 (-1.497)
<i>BIG4</i>	0.009 (1.35)	0.012 (1.625)	0.012* (1.693)	0.011 (1.622)	-0.012 (-1.233)	-0.004 (-1.63)	0.01 (1.419)	0.012* (1.344)	0.01 (1.664)	0.012* (1.463)	0.01 (1.737)	0.012* (1.354)	0.011* (1.672)	0.01 (1.403)
<i>GCOPIN</i>	0.083*** (5.81)	0.093*** (6.077)	0.084*** (5.948)	0.086*** (6.067)	-0.026 (-1.267)	0.043*** (9.109)	0.084*** (5.885)	0.061*** (4.001)	0.094*** (6.117)	0.071*** (4.405)	0.085*** (5.995)	0.066*** (4.498)	0.087*** (6.12)	0.066*** (4.421)
<i>FIRMSIZE</i>	-0.008*** (-4.623)	-0.007*** (-3.573)	-0.007*** (-3.824)	-0.007*** (-4.034)	-0.011*** (-4.306)	-0.005*** (-8.874)	-0.008*** (-4.385)	-0.008*** (-4.332)	-0.007*** (-3.432)	-0.007*** (-3.202)	-0.006*** (-3.665)	-0.006*** (-3.477)	-0.007*** (-3.857)	-0.007*** (-3.679)
<i>BETA</i>	-0.001 (-0.174)	-0.001 (-0.385)	-0.001 (-0.017)	-0.001 (-0.156)	0.011** (2.362)	-0.001 (-1.288)	-0.001 (-0.302)	-0.004 (-1.26)	-0.002 (-0.459)	-0.005 (-1.283)	-0.001 (-0.101)	-0.003 (-0.801)	-0.001 (-0.25)	-0.004 (-1.061)
<i>LEV</i>	-0.007* (-1.696)	-0.008 (-1.631)	-0.007* (-1.711)	-0.007* (-1.72)	-0.002 (-0.391)	0.007 (1.451)	-0.007* (-1.677)	0.001 (0.045)	-0.008 (-1.619)	0.007 (0.404)	-0.007* (-1.698)	0.015 (0.972)	-0.007* (-1.706)	0.009 (0.598)
<i>DISTRESS</i>	0.092*** (7.433)	0.082*** (6.216)	0.086*** (7.009)	0.086*** (7.042)	-0.004 (-0.226)	0.003 (0.736)	0.092*** (7.455)	0.085*** (6.477)	0.083*** (6.225)	0.075*** (5.455)	0.086*** (7.02)	0.076*** (6.014)	0.087*** (7.056)	0.078*** (6.082)
<i>SALEGR</i>	-0.18*** (-9.723)	-0.153*** (-7.709)	-0.141*** (-7.713)	-0.154*** (-8.373)	0.04 (1.501)	-0.035*** (-5.704)	-0.181*** (-9.815)	-0.171*** (-8.84)	-0.154*** (-7.756)	-0.132*** (-6.488)	-0.142*** (-7.768)	-0.118*** (-6.338)	-0.155*** (-8.436)	-0.135*** (-7.123)
<i>RETSTD</i>	0.495*** (12.817)	0.433*** (10.469)	0.401*** (10.511)	0.432*** (11.29)	0.071 (1.274)	0.025** (1.987)	0.492*** (12.763)	0.431*** (13.591)	0.431*** (10.431)	0.48*** (11.252)	0.399*** (10.469)	0.438*** (11.237)	0.431*** (11.245)	0.477*** (12.029)
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3945	3945	3945	3945	3945	3730	3945	3730	3945	3730	3945	3730	3945	3730
Adj. R-squared	0.214	0.169	0.178	0.189	0.098	0.149	0.216	0.221	0.170	0.174	0.179	0.185	0.191	0.195
Direct Effect							0.032***	0.031***	0.035***	0.033***	0.034***	0.030***	0.034***	0.031***
Indirect Effect							0.0001*	0.002**	0.0001*	0.002**	0.0001*	0.003**	0.0001*	0.002**
Total Effect							0.033***	0.033***	0.036***	0.035***	0.035***	0.033***	0.035***	0.033***
Indirect/Total							0.003	0.061	0.003	0.057	0.003	0.091	0.003	0.061
Indirect/Direct							0.003	0.065	0.003	0.061	0.003	0.100	0.003	0.065
Total/Direct							1.031	1.065	1.029	1.061	1.029	1.100	1.029	1.065

Notes: This table reports the regression results of mediation tests (mediation effects). Dependent variables are the proxies for COC; Independent variables are the proxies for OVLAP; Mediators are |DACC| and BIDASK. Columns (1) to (4) report the effect of the independent variable on the dependent variable without a mediator. Columns (5) and (6) report the effect of independent variables on mediators (|DACC| and BIDASK). Columns (7) to (14) report the results of the mediation test using both the mediators |DACC| and BIDASK. The *t* statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

(BIDASK).

We employ some additional proxies for both financial reporting quality and information asymmetry to enhance the robustness of our mediation tests.⁶ Financial reporting quality is assessed through signed discretionary accruals and real earnings management (REM), whereas Amihud liquidity is used as an additional measure for information asymmetry. The results are reported in Table 10. Although our findings remain qualitatively consistent, we observe weaker mediation effects when utilizing REM as a measure. Empirical research suggests that financial reporting quality is a multidimensional concept, encompassing discretionary accruals, real earnings management, reclassification of financial statement items, financial restatements, and, at an extreme end, financial fraud.

4.8. Quality of sub-committees and cost of equity capital

The ASX Corporate Governance Council recommends delegating board functions to various sub-committees (i.e., audit, remuneration and nomination) to strengthen monitoring and accountability. Also, extant corporate governance research suggests that firms with higher corporate governance quality have a lower COC. Hence, a compelling argument posits that the higher quality of sub-committees might overshadow the perceived negative association between overlapping committee membership and the COC. This negative association between overlapping committee membership and the COC could be attributed to enhanced corporate governance resulting from the superior quality of sub-committees rather than overlapping committee membership. To examine this assertion, we measure the quality of board subcommittees. We gauge the quality of sub-committees from the Corporate Governance Report prepared by Horwath (2002). According to this framework, a firm achieves the highest rank - 5-star when it exhibits unequivocal independence across all key areas, e.g., the board of directors, audit, remuneration, and nomination committees. In our measure of subcommittee quality (SCQUAL), we assign a value of 1 to firms that adhere to established corporate governance guidelines by appointing independent directors and committee members; otherwise, 0.

Table 11 reports the findings. Although the coefficient on SCQUAL is negative, suggesting a reduction in the firm's COC in the presence of a quality sub-committee, not all the coefficients across different measures of COC are significant. Conversely, the coefficients on the OVLAPDUM demonstrate both negativity and statistical significance at the 5% level, signifying that the influence of overlapping committee membership remains prominent even in the presence of a superior-quality sub-committee. These findings are not surprising as extant corporate governance literature suggests that 'one size fits all' types of corporate governance guidelines may not benefit the firms. Also, while having all three higher quality sub-committees is recommended, not all firms achieve the beneficial effects of subcommittees. Our descriptive statistics (untabulated) suggest that only 61% of the firm-year observations hold an operational nomination committee, indicating a higher deviation from corporate governance guidelines.

4.9. Other omitted variables for the cost of equity capital determinants

In the previous sections, we presented evidence that overlapping committee membership reduces COC. However, numerous other corporate governance attributes have also been documented to affect a firm's COC, including board independence (Huang et al., 2021), auditor-specific attributes (Habib et al., 2019), specialisation, female director representation (Sarang et al., 2022), CSR compliance (Dhaliwal et al., 2012), corporate disclosure level (Botosan, 1997; Dhaliwal et al., 2012), and firm life cycle (Hasan et al., 2015). Therefore, we include several control variables based on academic research to ensure a rigorous analysis. Nevertheless, no consensus exists on the optimal regression model for determining COC. This lack of consensus raises concerns about potential misspecification and omitted variable biases. We introduce three additional proxies in our regression model to address these concerns: female director representation, ESG compliance, and firm life cycle. We measure female director representation (FEMDIR) as the total number of female directors divided by the board size. The ESG compliance score, ranging from 0 to 100, is obtained from Thomson Reuters Eikon, with a score of 100 representing the highest level of ESG compliance. Finally, we calculate the firm life cycle as retained earnings divided by total assets, following DeAngelo et al. (2006). To ensure the validity and reliability of our findings, we conduct a subsample test due to the missing observations.

Table 12 reports the findings incorporating FEMDIR, ESG and RETA_LC in the eq. (1). The coefficients for OVLAPDUM range from -0.046 to -0.050 and are statistically significant at the 1% level. These results indicate that overlapping committee membership exhibits a negative association across all the measures of COC, even after controlling for the presence of female directors, ESG compliance, and firm life cycle stage.

4.10. Does the effect of overlapping committee membership on the cost of equity capital have value relevance?

In the earlier sections, we show that firms with overlapping membership have a lower COC. Now, we turn our attention to a crucial question: how does this reduction in the COC, driven by overlapping committee membership affect the overall value of the firms? Extant corporate governance research evidence that firms with stronger governance practices often enjoy greater access to capital and avail favourable market reputation (Claessens and Yurtoglu, 2013). We argue that overlapping committee membership improves financial reporting quality and reduces information asymmetry; thus, it provides a more comprehensive and effective governance framework that fosters investor confidence, resulting in a lower COC. Therefore, good governance as demonstrated by overlapping

⁶ We thank an anonymous reviewer for suggesting these alternative proxies.

Table 10

Regression results for mediation tests (DACC, AMIHU and REM).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	AMIHU	DACC	REM	PEG	MPEG	GM	AVG	PEG	MPEG	GM	AVG	PEG	MPEG	GM	AVG
<i>Intercept</i>	0.184 (0.461)	0.046 (1.042)	-0.157 (-0.743)	0.105** (2.286)	0.148*** (3.107)	0.176*** (3.982)	0.151*** (3.402)	0.026 (0.201)	-0.012 (-0.096)	0.037 (0.337)	0.021 (0.183)	0.219*** (7.881)	0.221*** (7.421)	0.231*** (8.389)	0.225*** (8.148)
OVLAPDUM	-0.164** (-2.267)	-0.0518** (-2.308)	-0.050* (-1.791)	-0.051*** (-3.445)	-0.042*** (-2.736)	-0.040*** (-2.812)	-0.043*** (-3.031)	-0.038 (-0.985)	-0.029 (-0.754)	-0.019 (-0.562)	-0.026 (-0.738)	-0.034*** (-3.951)	-0.038*** (-4.137)	-0.035*** (-4.165)	-0.036*** (-4.187)
AMIHU	-	-	-	0.006*** (2.780)	0.004** (2.648)	0.006*** (2.765)	0.003** (2.626)	-	-	-	-	-	-	-	-
REM	-	-	-	-	-	-	-	0.021 (0.781)	0.012 (0.44)	0.019 (0.837)	0.018 (0.725)	-	-	-	-
DACC	-	-	-	-	-	-	-	-	-	-	-	0.007* (1.692)	0.007* (1.661)	0.009* (1.858)	0.004* (1.929)
OVLAPTEN	-0.023** (-2.217)	0.001 (0.163)	0.001 (0.821)	0.001 (-0.193)	0.001 (-0.228)	0.001 (-0.137)	0.001 (-0.18)	-0.001 (-0.227)	0.001 (-0.068)	0.001 (-0.171)	0.001 (-0.161)	-0.001 (-0.968)	0.001 (-0.609)	0.001 (-0.574)	0.001 (-0.694)
OVLAPEXP	0.115*** (3.06)	0.004 (0.818)	0.001 (0.043)	0.003 (0.739)	0.003 (0.738)	0.003 (0.735)	0.003 (0.756)	0.007 (0.594)	0.003 (0.282)	0.002 (0.184)	0.003 (0.325)	-0.001 (-0.273)	-0.001 (-0.326)	-0.001 (-0.446)	-0.001 (-0.379)
LNBD	0.004 (0.027)	-0.042*** (-2.649)	0.158** (2.258)	0.054*** (3.065)	0.043** (2.34)	0.028* (1.665)	0.038** (2.255)	0.098** (2.28)	0.082* (1.964)	0.063* (1.73)	0.076** (1.967)	0.016* (1.647)	0.011 (1.059)	0.009 (0.937)	0.012 (1.168)
INDPER	0.17 (0.915)	-0.021 (-1.127)	-0.049 (-0.593)	0.033 (1.531)	0.019 (0.837)	0.006 (0.283)	0.016 (0.763)	0.065 (1.282)	0.057 (1.159)	0.042 (0.973)	0.052 (1.121)	0.024** (2.042)	0.025* (1.953)	0.02* (1.735)	0.022* (1.905)
CEODUAL	0.17 (1.011)	0.006 (0.305)	0.243*** (3.115)	0.009 (0.476)	0.007 (0.33)	0.003 (0.146)	0.005 (0.285)	-0.045 (-0.935)	-0.038 (-0.808)	-0.027 (-0.673)	-0.034 (-0.79)	-0.004 (-0.344)	-0.013 (-1.007)	-0.012 (-1.066)	-0.01 (-0.89)
BIG4	0.105 (1.034)	-0.009 (-0.828)	-0.063 (-1.265)	0.005 (0.389)	0.006 (0.533)	0.005 (0.482)	0.005 (0.485)	0.049 (1.605)	0.054* (1.822)	0.039 (1.531)	0.045* (1.649)	0.009 (1.359)	0.012 (1.616)	0.011* (1.681)	0.011 (1.616)
GCOPIN	0.279 (1.438)	-0.074*** (-3.257)	0.091 (0.945)	0.056** (2.511)	0.043* (1.85)	0.046** (2.136)	0.048** (2.214)	0.098* (1.678)	0.069 (1.212)	0.087* (1.754)	0.085 (1.61)	0.084*** (5.838)	0.093*** (6.034)	0.084*** (5.895)	0.086*** (6.036)
FIRMSIZE	-0.017 (-0.621)	0.008*** (2.89)	0.001 (-0.039)	-0.01*** (-3.188)	-0.009*** (-2.747)	-0.008*** (-2.828)	-0.009*** (-2.976)	-0.005 (-0.682)	-0.002 (-0.231)	-0.002 (-0.341)	-0.003 (-0.41)	-0.008*** (-4.649)	-0.007*** (-3.539)	-0.007*** (-3.781)	-0.007*** (-4.01)
BETA	0.032 (0.523)	0.006 (1.065)	-0.022 (-0.861)	-0.016** (-2.24)	-0.005 (-0.744)	0.001 (0.011)	-0.005 (-0.776)	-0.033** (-2.124)	-0.046*** (-3.043)	-0.038*** (-2.869)	-0.039*** (-2.747)	-0.001 (-0.186)	-0.001 (-0.374)	0.001 (-0.002)	0.001 (-0.149)
LEV	0.676*** (2.941)	0.003 (0.492)	0.124 (1.38)	0.109*** (4.108)	0.126*** (4.576)	0.14*** (5.514)	0.129*** (5.046)	-0.002 (-0.036)	-0.002 (-0.039)	0.015 (0.318)	0.006 (0.128)	-0.007* (-1.701)	-0.008 (-1.626)	-0.007* (-1.704)	-0.007* (-1.716)
DISTRESS	-0.317 (-1.52)	-0.035* (-1.763)	0.001 (0.008)	0.026 (1.094)	0.046* (1.852)	0.057** (2.472)	0.047** (2.015)	-0.039 (-0.661)	-0.054 (-0.946)	-0.044 (-0.879)	-0.045 (-0.848)	0.092*** (7.449)	0.082*** (6.195)	0.085*** (6.982)	0.086*** (7.026)
SALEGR	-0.363 (-1.294)	-0.182*** (-6.246)	0.165 (1.315)	-0.187*** (-5.79)	-0.195*** (-5.813)	-0.163*** (-5.263)	-0.177*** (-5.69)	-0.193** (-2.515)	-0.158** (-2.115)	-0.115* (-1.769)	-0.146** (-2.091)	-0.178*** (-9.606)	-0.154*** (-7.735)	-0.142*** (-7.76)	-0.154*** (-8.373)
RETSTD	0.257 (0.496)	-0.104* (-1.703)	0.143 (0.55)	1.049*** (17.62)	0.866*** (14.006)	0.752*** (13.139)	0.855*** (14.889)	1.414*** (8.885)	1.555*** (10.032)	1.278*** (9.469)	1.381*** (9.582)	0.496*** (12.831)	0.432*** (10.446)	0.40*** (10.483)	0.432*** (11.273)
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1169	3945	1531	1169	1169	1169	1169	1531	1531	1531	1531	3945	3945	3945	3945
Adj. R-squared	0.052	0.071	0.132	0.398	0.332	0.329	0.358	0.277	0.289	0.273	0.282	0.214	0.17	0.178	0.189
Direct Effect				0.050***	0.041***	0.039***	0.042***	0.038	0.029	0.019	0.026	0.033***	0.037***	0.034***	0.035***
Indirect Effect				0.0001*	0.0001*	0.0001*	0.0001*	0.000	0.000	0.000	0.000	0.0001*	0.0001*	0.0001*	0.0001*
Total Effect				0.051***	0.042***	0.040***	0.043***	0.038	0.029	0.019	0.026	0.033***	0.038***	0.035***	0.036***
Indirect/Total				0.002	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.003	0.003	0.003	0.003
Indirect/Direct				0.002	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.003	0.002	0.003	0.003
Total/Direct				1.020	1.024	1.026	1.024	1.000	1.000	1.000	1.000	1.013	1.027	1.029	1.029

Notes: This table reports the regression results of mediation tests (mediation effects) using alternative proxies of DACC, AMIHU and REM as a measure of robustness check for Table 9. The *t* statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

Table 11
Impact of subcommittee quality.

Variables	(1)	(2)	(3)	(4)
	PEG	MPEG	GM	AVG
Intercept	0.201*** (6.712)	0.203*** (6.335)	0.214*** (7.239)	0.207*** (6.989)
SCQUAL	-0.010* (-1.749)	-0.009 (-1.553)	-0.009 (-1.534)	-0.009 (-1.624)
OVLAPDUM	-0.03*** (-3.423)	-0.034*** (-3.624)	-0.032*** (-3.651)	-0.032*** (-3.66)
OVLAPTEN	-0.001 (-1.089)	-0.001 (-0.721)	-0.001 (-0.685)	-0.001 (-0.81)
OVLAPEXP	-0.001 (-0.254)	-0.001 (-0.325)	-0.001 (-0.448)	-0.001 (-0.375)
LNBD	0.018* (1.79)	0.013 (1.241)	0.011 (1.126)	0.013 (1.348)
INDPER	0.025** (2.119)	0.026** (2.044)	0.021* (1.829)	0.023** (1.997)
CEODUAL	-0.004 (-0.355)	-0.013 (-1.023)	-0.012 (-1.083)	-0.010 (-0.905)
BIG4	0.01 (1.51)	0.013* (1.765)	0.013* (1.83)	0.012* (1.768)
GCOPIN	0.083*** (5.792)	0.093*** (6.061)	0.084*** (5.933)	0.086*** (6.051)
FIRMSIZE	-0.008*** (-4.347)	-0.006*** (-3.333)	-0.006*** (-3.584)	-0.007*** (-3.781)
BETA	-0.001 (-0.204)	-0.001 (-0.412)	0.001 (-0.043)	-0.001 (-0.184)
LEV	-0.007* (-1.716)	-0.008* (-1.649)	-0.007* (-1.728)	-0.007* (-1.738)
DISTRESS	0.092*** (7.408)	0.082*** (6.193)	0.085*** (6.986)	0.086*** (7.018)
SALEGR	-0.181*** (-9.79)	-0.154*** (-7.768)	-0.142*** (-7.771)	-0.155*** (-8.435)
RETSTD	0.494*** (12.794)	0.432*** (10.447)	0.40*** (10.489)	0.432*** (11.267)
INDUSTRY	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
Observations	3945	3945	3945	3945
Adj. R-squared	0.215	0.17	0.178	0.19

Notes: This table presents the regression results where COC is regressed on OVLAP proxies with other control variables to examine the effect of the quality of sub-committees. The *t*-statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

committee structure, positively impacts the firm's financial dynamics, resulting in improved firm value.

$$\begin{aligned}
 \text{TOBINSQ}_{i,t+1} = & \lambda_0 + \lambda_1 \text{OVLAP}(\text{OVLAPDUM}/\text{OVLAPNUM}/\text{OVLAPPER})_{i,t} + \lambda_2 \text{COC}_{i,t} + \lambda_3 \text{COC} * \text{OVLAP}_{i,t} + \lambda_4 \text{OVLAPTEN} \\
 & + \lambda_5 \text{OVLAPEXP} + \lambda_6 \text{LNBD}_{i,t} + \lambda_7 \text{INDPER}_{i,t} + \lambda_8 \text{CEODUAL}_{i,t} + \lambda_9 \text{BIG4}_{i,t} + \lambda_{10} \text{GCOPIN}_{i,t} + \lambda_{11} \text{FIRMSIZE}_{i,t} \\
 & + \lambda_{12} \text{BETA}_{i,t} + \lambda_{13} \text{LEV}_{i,t} + \lambda_{14} \text{SALEGR}_{i,t} + \lambda_{15} \text{DISTRESS}_{i,t} + \lambda_{16} \text{RETSTD}_{i,t} + \text{INDUSTRY EFFECT} \\
 & + \text{YEAR EFFECT} + \varepsilon_{i,t}
 \end{aligned} \quad (5)$$

We reperform the eq. (5) and report the findings in Table 13. Our primary variable of interest is $\lambda_3 \text{COC} * \text{OVLAP}_{i,t}$. A positive (negative) association indicates overlapping committee membership mitigates (exacerbates) the negative (positive) impact of the COC on firm value, suggesting a potential moderating effect of overlapping committee structures in enhancing (reducing) firm value. Our dependent variable is $\text{TOBINSQ}_{(t+1)}$. Column 1 shows a significant negative association (coefficient -0.515 , *t*-statistics -1.911) between COC and firm value ($\text{TOBINSQ}_{(t+1)}$), indicating an increase in firm value as the COC decreases. Moreover, the interaction term ($\text{PEG} * \text{OVLAPDUM}$) demonstrates a positive association (coefficient 0.98 ; *t*-statistics 1.652) with firm value, which is statistically significant at the 10% level. This implies that overlapping committee membership moderates the negative impact of the COC on firm value. Our findings remain consistent across the alternative measures of COC.

5. Conclusions

This study examines the impact of overlapping committee membership on the cost of capital (COC). One of the key attributes of good corporate governance is forming a board that is equally capable of advisory service and ensures vigilant monitoring. Accordingly, the Australian Corporate Governance Best Practice Code recommends that ASX-listed firms establish audit and remuneration committees to discharge the board's responsibilities successfully. However, recent corporate governance regulations and research studies have raised concerns about the impact of overlapping committee membership on corporate governance.

Table 12

Impact of omitted variables concerns on the association of overlapping committee membership and cost of equity capital.

Variables	(1) PEG	(2) MPEG	(3) GM	(4) AVG
Intercept	0.099** (2.111)	0.109** (2.111)	0.135*** (2.861)	0.119** (2.522)
OVLAPDUM	-0.046*** (-3.686)	-0.05*** (-3.67)	-0.047*** (-3.754)	-0.047*** (-3.798)
FEMDIR	-0.056* (-1.882)	-0.031* (-1.847)	-0.016 (-0.31)	-0.031 (-0.568)
ESG	-0.013 (-0.482)	-0.021 (-0.715)	-0.018 (-0.67)	-0.017 (-0.651)
RETA_LC	-0.021 (-1.439)	-0.013* (-1.788)	-0.014* (-1.932)	-0.016 (-1.039)
OVLAPTEN	-0.002** (-2.355)	-0.002** (-2.105)	-0.002** (-2.085)	-0.002** (-2.204)
OVLAPEXP	0.002 (0.528)	0.001 (0.258)	0.001 (0.337)	0.001 (0.37)
LNBD	0.043*** (3.011)	0.038** (2.384)	0.03** (2.098)	0.035** (2.45)
INDPER	0.037** (2.277)	0.036** (1.97)	0.028* (1.679)	0.032* (1.945)
CEODUAL	-0.009 (-0.573)	-0.011 (-0.598)	-0.01 (-0.629)	-0.01 (-0.62)
BIG4	0.015 (1.554)	0.02* (1.787)	0.017* (1.726)	0.017* (1.739)
GCOPIN	0.048** (2.288)	0.052** (2.211)	0.055** (2.565)	0.052** (2.456)
FIRMSIZE	-0.006** (-1.989)	-0.005 (-1.546)	-0.005* (-1.799)	-0.005* (-1.817)
BETA	-0.007 (-1.321)	-0.01* (-1.759)	-0.007 (-1.32)	-0.007 (-1.47)
LEV	0.02 (1.063)	0.024 (1.151)	0.034* (1.831)	0.028 (1.495)
DISTRESS	0.071*** (3.651)	0.07*** (3.266)	0.076*** (3.894)	0.073*** (3.748)
SALEGR	-0.139*** (-5.234)	-0.142*** (-4.833)	-0.125*** (-4.651)	-0.133*** (-4.95)
RETSTD	0.419*** (14.366)	0.329*** (11.533)	0.357*** (11.413)	0.415*** (12.432)
INDUSTRY	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
Observations	2223	2223	2223	2223
Adj. R-squared	0.239	0.186	0.194	0.208

Notes: This table presents the regression results where COC is regressed on OVLAP proxies, including potential omitted variables (FEMDIR, ESG and RETA_LC). The *t* statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

Using a sample of ASX-listed companies, we find that overlapping membership reduces the COC. Our findings indicate the beneficial effect of overlapping committee membership, which means that overlapping committee membership facilitates information sharing between audit and remuneration committees, enabling firms to evaluate the broader aspect of business risk, resulting in reduced COC. The positive impact of overlapping committee membership on the COC is more evident when overlapping committee members are non-busy directors. Further, we find evidence that the association between overlapping committee membership and the COC mediates through two different channels: higher financial reporting quality and lower information asymmetry. Our findings are consistent with the contemporary research, which indicates that overlapping committee membership improves financial reporting quality (Chandar et al., 2012; Habib and Bhuiyan, 2016), reduces information asymmetry (Ding and Wei, 2023), and improves firm performance (Méndez et al., 2015; Chandar et al., 2012).

However, we suggest caution in generalizing our findings to other markets and financial industries since our sample is restricted to nonfinancial Australian firms. Financial firms have different regulations and disclosure compliance sets than nonfinancial firms, and other countries might have corporate governance practices that differ from those in Australia. Future research should examine the impact of overlapping committee memberships on private companies because the corporate governance regulations and capital structure may differ for private firms. Therefore, such private firms might experience financial constraints in raising the required capital for growth and expansion. Further, our definition of overlapping might not capture all the factors influencing the COC. To reflect the current corporate governance guidelines, an environmental or sustainability committee should be part of the firm's sub-committee. Therefore, future research can employ a modified definition of overlapping committee membership incorporating environmental or sustainability committees to address this limitation.

Our study provides two important practical implications for investors and firms. First, our findings suggest that investors and fund

Table 13
Impact of overlapping committee membership and cost of equity capital on firm value.

Variables	(1)	(2)	(3)	(4)
	TOBINSQ _(t+1)	TOBINSQ _(t+1)	TOBINSQ _(t+1)	TOBINSQ _(t+1)
Intercept	3.643*** (3.533)	3.618*** (3.507)	3.563*** (3.451)	3.601*** (3.49)
PEG	-0.515* (-1.911)	-	-	-
OVLAPDUM	0.264 (1.244)	0.213 (0.977)	0.173 (0.777)	0.205 (0.935)
PEG*OVLAPDUM	0.98* (1.652)	-	-	-
MPEG	-	-0.477* (-1.784)	-	-
MPEG*OVLAPDUM	-	1.175** (2.011)	-	-
GM	-	-	-0.757* (-1.834)	-
GM*OVLAPDUM	-	-	1.357** (2.169)	-
AVG	-	-	-	-0.610* (-1.822)
AVG*OVLAPDUM	-	-	-	1.234** (2.007)
OVLAPTEN	-0.022 (-1.443)	-0.022 (-1.445)	-0.022 (-1.438)	-0.022 (-1.443)
OVLAPEXP	-0.074 (-1.327)	-0.072 (-1.306)	-0.073 (-1.319)	-0.073 (-1.317)
LNBD	0.37* (1.647)	0.387* (1.722)	0.387* (1.724)	0.383* (1.708)
INDPER	-0.716*** (-2.646)	-0.712*** (-2.633)	-0.715*** (-2.645)	-0.714*** (-2.642)
CEODUAL	-0.158 (-0.623)	-0.162 (-0.64)	-0.16 (-0.633)	-0.160 (-0.633)
BIG4	0.093 (0.624)	0.094 (0.631)	0.094 (0.632)	0.094 (0.633)
GCOFIN	0.151 (0.521)	0.157 (0.526)	0.136 (0.456)	0.146 (0.489)
FIRMSIZE	-0.197*** (-5.048)	-0.201*** (-5.141)	-0.200*** (-5.136)	-0.201*** (-5.121)
BETA	-0.184** (-2.078)	-0.181** (-2.042)	-0.179** (-2.025)	-0.181** (-2.043)
LEV	-1.128*** (-3.459)	-1.114*** (-3.415)	-1.113*** (-3.411)	-1.116*** (-3.422)
DISTRESS	0.001 (0.592)	0.034 (0.105)	0.016 (0.049)	0.018 (0.057)
SALEGR	2.336*** (5.719)	2.322*** (5.724)	2.348*** (5.791)	2.334*** (5.744)
RETSTD	-0.747 (-0.758)	-0.661 (-0.676)	-0.73 (-0.744)	-0.697 (-0.709)
INDUSTRY	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
Observations	2168	2168	2168	2168
Adj. R-squared	0.171	0.172	0.173	0.172

Notes: This table presents the regression results where TOBINSQ_(t+1) is regressed on COC and OVLAP proxies to examine the value relevance of overlapping committee membership. The *t* statistics are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Appendix A reports the variable definitions.

managers should consider the role of overlapping committee membership while making investment decisions. Second, our results suggest that firms should encourage directors to serve on both the audit and remuneration committees since it might increase the effectiveness of board monitoring and, consequently, reduce the COC.

CRedit authorship contribution statement

Md. Borhan Uddin Bhuiyan: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Muhammad A. Cheema:** Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing.

Declaration of competing interest

None.

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Appendix A. Variable definitions

Variables	Definitions
Dependent variables	
PEG	PEG is the implied cost of equity, estimated by the PEG model of Easton (2004) as follows: $PEG = \sqrt{(eps_2 - eps_1)/P_0} \dots \dots \dots (6)$ where P_0 = the price per share at the current date; eps_1 = the expected accounting earnings at the next period-ahead of the current date; eps_2 = the expected accounting earnings at two-periods-ahead of the current date.
MPEG	MPEG is the implied cost of equity, estimated by the MPEG model of Easton (2004) as follows: $MPEG = \sqrt{(eps_2 + MPEG^*dps_1 - eps_1)/P_0} \dots \dots \dots (7)$ where dps_1 = the expected dividend per share at the next period-ahead of the current date. The other variables are defined above. Implied cost of equity, estimated by the modified Ohlson and Juettner-Nauroth (2005) model (modified by Gode and Mohanram, 2003).
GM	Cost of equity capital is estimated as the average of the above three models.
AVG	
Independent variables	
OVLAPDUM	An indicator variable is coded as 1 if at least one audit committee member is on the compensation committee (and vice-versa) and 0 otherwise.
OVLAPNUM	Actual number of audit committee members who sit on the compensation committee.
OVLAPPER	Total audit committee members who sit on the compensation committee divided by the size of the board.
Control variables and variables relating to additional analysis	
FIRMSIZE	Natural log of the market value of equity.
BETA	A measure of systematic risk, extracted from DataStream. DataStream uses a 5-year period and regresses the share price against the respective DataStream total market index using log changes of the closing price on the first day of each month.
LEV	Firm leverage is calculated as short-term debt plus long-term debt divided by total assets.
DISTRESS	Distress risk is measured as a dummy variable coded 1 if the firm reported both negative earnings and negative working capital during the year, and 0 otherwise.
BIG4	A dummy variable coded 1 if a Big4 audit firm audits a firm, and 0 otherwise.
GCOPIN	Going concern audit opinion, an indicator variable coded 1 if the firm received a going concern audit opinion, and 0 otherwise.
BODSIZE	Total number of board size.
INDDIR	Total number of independent directors in the board.
LNBD	Natural logarithm of total number of board members.
INDPER	The total number of independent directors on the board divided by the total board size.
CEODUAL	A dummy variable coded 1 if the CEO is also the chairman of the board and zero otherwise.
SALEGR	Sales growth, measured by the changes in sales between year t to year $t-1$
RETSTD	The standard deviation of firm-specific monthly returns over the fiscal year period
LOSS	a dummy variable of value 1 is assigned if the firm reports a negative earning, 0 otherwise
LNACMEM	Natural logarithm of the audit committee size
LNRCMEM	Natural logarithm of the compensation committee size
OVLAPEXP	Total number of overlapping committee members who have financial expertise.
OVLAPTEN	Average tenure of overlapping directors is measured by the total tenure of overlapping directors divided by the total number of overlapping directors.
EARVOL	Standard deviation of earnings after tax to total assets is computed over years $t-3$ to $t-1$.
RESTATE	A dummy variable equals to 1 if the firm engaged in financial restatement in the current financial year, 0 otherwise.
LNBBUSY	Natural logarithm of the sum of independent director external board membership numbers
RETA_LC	A dummy variable equals to 1 if the ratio of retained earnings (loss) to total assets is >1 , 0 otherwise.
CEOTENURE	Total tenure of the CEO in years
LNCEOOWN	Natural logarithm of the total compensation of the CEO excluding bonus options.
ESG	ESG score measures firms exposure to environmental, social and governance compliance. The score range between 0 and 100, where 100 indicates highest compliance.
FEMALE	Ratio of the total number of female directors divided by the total board size.
Mediating and variables relating to additional analysis	

(continued on next page)

(continued)

Variables	Definitions
DACC	DACC is the signed value of discretionary accruals. DACC is the absolute value of discretionary accruals. Discretionary accruals are calculated using the Modified Jones model controlling for firm performance (Dechow et al., 1995; Kothari et al., 2005). We estimate the following equation for all firms in the same industry with at least eight observations for an industry in a particular year: $\frac{ACC_{i,t}}{TA_{i,t-1}} = \gamma_0 \left(\frac{1}{TA_{i,t-1}} \right) + \gamma_1 \left[\frac{\Delta SALES_{i,t} - \Delta RECEIV_{i,t}}{TA_{i,t-1}} \right] + \gamma_2 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \gamma_3 (ROA_{i,t-1}) + \varepsilon_{i,t} \dots \dots (8)$ where ACC is total accruals calculated as earnings before extraordinary items and discontinued operations minus operating cash flows; TA is total assets in year t-1; ΔSALES is change in sales from year t-1 to year t; ΔRECEIV is change in accounts receivable from year t-1 to year t; PPE is gross property plant & equipment; ROA is the return on assets measured as earnings before extraordinary items and discontinued operations for the preceding year divided by total assets for the same year. The coefficient estimates from eq. (7) are used to estimate the non-discretionary component of total accruals (NDAC) for our sample firms. The discretionary accruals are then the residuals from eq. (4), i.e. DAC = ACC-NDAC.
OCON	A dummy variable equals to 1 if a total of 50% shares held by the top twenty shareholders, 0 otherwise.
OVLPBUSY	A dummy variable takes on the value of 1 if any of the committee members with overlapping roles is a busy director holding more than two external directorships and 0 otherwise.
FCF	A dummy variable equal to 1 if the firm free cash flow is higher than mean value, 0 otherwise. Free cash flow is measure as the difference between earnings before depreciation and amortization less the change of working capital.
SCQUAL	A dummy variable equals 1 when both the board of directors and committees (audit, remuneration, and nomination) have a majority of independent directors; otherwise, it is set to 0.
AMIHU	Illiquidity Index following Amihud (2002)
TOBINSQ	TobinsQ measures as the ratio of firm current market value scaled by the book value of firm.
REM	Real earnings management calculated following Roychowdhury (2006). We consider three real activities manipulations for real earnings management: $\frac{OCF_{i,t}}{A_{i,t-1}} = \beta_{1,t} \frac{1}{A_{i,t-1}} + \beta_{2,t} \frac{SALE_{i,t}}{A_{i,t-1}} + \beta_{3,t} \frac{\Delta SALE_{i,t}}{A_{i,t-1}} + \mu_{i,t} \dots \dots (9) \quad (2)$ $\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_{1,t} \frac{1}{A_{i,t-1}} + \beta_{2,t} \frac{SALE_{i,t}}{A_{i,t-1}} + \beta_{3,t} \frac{\Delta SALE_{i,t}}{A_{i,t-1}} + \beta_{4,t} \frac{\Delta SALE_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \dots (10)$ $\frac{DISEXP_{i,t}}{A_{i,t-1}} = \beta_{1,t} \frac{1}{A_{i,t-1}} + \beta_{2,t} \frac{SALE_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \dots \dots (11)$ where OCF is operating cash flow, PROD is product costs, DISEXP is discretionary expenses, SALE is net sales, and A stands for the value of total assets. Similarly, the regression residuals (that is, $\mu_{i,t}$) from those equations represent abnormal levels of operating cash flow, production costs, and discretionary expenses, respectively.
BIDASK	Bid-ask spread (percentage) is the difference between the highest trader stock price and the lowest selling price of trader stock measured as: [(AskPrice – BidPrice)]/[(AskPrice + BidPrice)/2]

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