

12. Top management team meetings and firm performance

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Abstract

Purpose – How do shareholders know if corporate managers are doing their jobs? This paper aims to propose using top management team meetings as a measure of the behavior of company managers. More meetings may indicate effective effort by top management to enhance company performance. Alternatively, more meetings may reflect procrastination and decision paralysis.

Design/methodology/approach – Using top management team meeting data publicly disclosed by Indonesian companies during 2010–2017, this study tests for these hypothesized relationships between top management team meeting frequency and firm performance.

Findings – This study found that top management team meetings are positively related to firm performance, indicating that more meetings do represent more effective effort by top management teams. Further analysis shows that only firms that consistently hold more meetings than their peers perform better, particularly during periods of poor performance.

Originality/value – This study highlights top management team meetings as a valid signal of management effort and suggests there should be louder calls for disclosure of these types of executive performance metrics around the world.

Keywords Meetings, Corporate governance, Firm performance, Top management team

Paper type Research paper

1. Introduction

How do we know if corporate executives are doing their jobs properly and maximizing firm performance? While boards of directors are expected to evaluate the performance of top executives on a regular basis, this information is rarely released to the public. Shareholders and other potential investors, therefore, have little information about the day-to-day activities and performance of top executives. Academic researchers have responded to this lack of information about executive performance by highlighting some clear indicators of shirking behavior. Yermack (2006) indicates that personal use of corporate jets by executives is associated with lower shareholder returns. Biggerstaff *et al.* (2016) show that more golf play by CEOs is associated with lower operating performance. Bertrand and Mullainathan (2003) find that some managers prefer the quiet life, instead of engaging in new investments.

In this study, we propose using the frequency of top management team meetings as a new measure of the behavior of company managers. Prior research on the effectiveness of top management teams has examined input and process factors, such as team composition,



team purpose, team leadership and intra-team behavior (Hambrick and Mason, 1984; Zaccaro *et al.*, 2001; Carpenter *et al.*, 2004; Wageman *et al.*, 2008; Bang and Midelfart, 2017). We progress this literature by using publicly disclosed data on top management team meetings and investigate if top management team meeting frequency can be used as a summary measure of top management team effectiveness.

We consider two competing hypotheses. The *effective effort hypothesis* proposes that more top management team meetings are associated with higher firm performance. We suggest that this will be the case if more meetings reflect more effective effort (e.g. through focused communication, constructive dialog and quality decision-making) by the management team to enhance firm performance. Alternatively, the *decision paralysis hypothesis* proposes that if top management team meetings are conducted with unclear goals, unfocused communication and an abundance of political behavior and relationship conflicts, then more meetings are likely to reflect procrastination and decision paralysis in the top management team and are therefore associated with lower firm performance.

We use top management team meeting data publicly disclosed by Indonesian companies to examine the relationship between top management team meeting frequency and firm performance. There are two benefits to this type of analysis. First, we can potentially highlight a new indicator of management effort in creating value for shareholders. Second, we can examine this relationship across a broad range of listed companies, rather than a specific subset of companies that grant access to their meetings.

Using data from listed Indonesian companies during 2010–2017, we find that top management team meetings are positively related to firm performance, consistent with the effective effort hypothesis and indicating that more meetings do represent more effective effort by top management teams. Further analysis indicates that companies perform better when they hold more meetings than the average company, more meetings than their industry peers and a consistently high number of meetings over time, particularly during periods of poor performance.

This paper has implications for shareholders, practitioners and policymakers regarding effective management practices. We find that more top management meetings are a signal of effective effort by the top management team to enhance company performance. So, this is a metric that shareholders and potential investors can use to monitor managerial effort across companies. The problem is, of course, that the disclosure of information about top management team meeting frequency is unique to Indonesia. Therefore, we call for greater disclosure of this and other measures of top management team performance in other markets around the world.

2. Literature review and hypotheses

2.1 Top management teams

Prior literature on the effectiveness of management teams has focused on areas such as input factors, process factors and task performance (Bang and Midelfart, 2017). Input factors comprise the characteristics of the team and its environment, including team purpose, team tasks and team size and composition. Prior studies document a positive relationship between clearly stated team purposes and goals and team performance (Locke and Latham, 2006, 2013). In addition, Wageman *et al.* (2008) show that effective management teams spend their time on important tasks that are clearly related to the organization's strategy and the purpose of the management team. Furthermore, effective management teams are comprised of the right mix of people (Carpenter *et al.*, 2004; Hambrick and Mason, 1984; Homberg and Bui, 2013; Wageman *et al.*, 2008). Some aspects of team composition that have received particular attention in prior research are the competencies and personalities of team

members and the degree of team diversity or heterogeneity (Bowers *et al.*, 2000; Nielsen, 2010; van Knippenberg and Schippers, 2007; Williams and O'Reilly, 1998).

Process factors refer to what happens within the management team and between its members and include effective team leadership, behavioral integration and the absence of relationship conflict. Zaccaro *et al.* (2001) argue that effective leadership processes represent perhaps the most critical factor in the success of organizational teams and Yukl (2013) states that the leader of the management team plays a particularly significant role in team performance because he or she has more power and influence than other team members.

Behavioral integration refers to the degree to which the group engages in mutual and collective interaction. Hambrick (1994) claims that management teams are often subject to forces that drive the members apart, for example, individual and competing goals and interests and that these forces make it difficult for a team to behave as a collaborative unit. If a management team is to function effectively, it must support forces that drive members together and help them to feel like and operate as an integrated whole. Studies have also shown that teams with members who dare to disagree and have lively discussions about complex issues are more likely to make better decisions, as long as they manage to keep relationship conflicts at a low level (Amason, 1996; Jehn, 1995).

Task performance or the production of results refers to the ability of the management team to make a significant and positive contribution to the success of the organization. Nadler (1998) states that effective management teams have the ability to maintain organizational performance in the face of strategic and environmental challenges, to add value through their quality of decision-making and the ability to implement decisions and outcomes of teamwork in terms of problems solved and work completed.

2.2 Team meetings

The prior literature detailed above shows that studies of top management teams have examined the composition of teams, how these teams spend their time and how team members interact with each other. Studies of top management team meetings have generally involved researchers being physically present at these meetings to directly measure leadership, behavioral integration and other constructs. While we do not have such rich information about the workings of meetings in our analysis, we are able to extend the literature by looking at the frequency of top management team meetings across a broad range of listed companies, rather than a specific subset of companies that grant access to their meetings. Our contribution is to determine if the frequency of top management team meetings can be used as a summary measure of management team effectiveness across a large sample of firms.

Prior studies have conducted similar analysis on boards of directors. These studies propose that a higher number of board and committee meetings requires corporate directors to expend more time and effort in their directorial duties, which should result in an increase in the effectiveness of the monitoring and advising functions of the board and higher firm performance. Consistent with this expectation, Brick and Chidambaran (2010) find that board meetings are positively related to firm performance. Vafeas (1999) find that the performance of a firm improves when there is an increase in the frequency of board meetings. Hoque *et al.* (2013) show that more audit and remuneration committee meetings are linked to higher return on assets. We follow similar logic to these prior studies on board of director and committee meetings to develop two testable hypotheses in this paper.

2.3 Effective effort hypothesis

Our first hypothesis is termed the *effective effort hypothesis*, as more top management team meetings are expected to be positively related to firm performance. This hypothesis

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proposes that more top management team meetings are a signal of more effective effort by top management to share information, enhance team dynamics and improve decision-making. Wageman *et al.* (2008) indicates that effective management meetings provide team members with relevant information and advice and motivate team members to become better at doing their assigned tasks. Also, a management team consists of members who are interdependent in achieving common goals and whose success depends on their ability to cooperate and coordinate their actions. It is, therefore, vital that the team develops into a cohesive group, with a set of norms that stimulate collaboration and effective functioning (Boone and Hendriks, 2009; Carmeli, 2008).

While we cannot specifically measure these attributes, we propose that top management team meetings will be effective and positively related to firm performance when they are organized with clear goals, when communication is focused on meeting goals and when there is constructive dialog leading to quality decision-making. Clear goals ensure that all members know why an issue is being brought up, what the members should focus on and what the team is expected to achieve during discussion of an issue (Bang, *et al.*, 2010). Research shows that clear meeting goals are highly related to meeting effectiveness (Bang *et al.*, 2010; Myrsiades, 2000; Niederman and Volkema, 1999).

Focused communication refers to “the degree to which group members stick to the issue during a management meeting; that is, whether a group refrains from digressions and/or goal-irrelevant behaviors” (Bang *et al.*, 2010, p. 254). When meeting communication is focused, members stay on targeted goals presented for each agenda item and concentrate on essential issues. Long-windedness and digressions are avoided, and discussions are well-summarized and concluded (Bang *et al.*, 2010; Wageman *et al.*, 2008).

Constructive dialog exists when one person’s ideas, information, conclusions, theories and opinions are incompatible with those of another and the two seek to reach an agreement. According to Johnson (2008), constructive communication is characterized by team members expressing their views openly, listening with curiosity to others’ views even if they disagree, trying to see the issue from the opposing perspective, being willing to change one’s mind, disagreeing without implying that the other is incompetent, being able to both bring out differences in positions and integrate various perspectives into one new, creative position. Johnson and Johnson (2007) find strong support for a positive relationship between constructive dialog and the quality of decision-making.

Based on these arguments, we propose that if top management team meetings are associated with clear goals, focused communication and constructive dialog, leading to quality decision-making, then more meetings reflect more effective effort by the management team and will be associated with enhanced firm performance. Our first hypothesis is stated as:

H1. Top management team meetings are positively related to firm performance.

2.4 Decision paralysis hypothesis

Our second hypothesis is termed the *decision paralysis hypothesis*, as more top management team meetings could also be negatively related to firm performance. This hypothesis suggests that more top management team meetings are a signal of procrastination and decision paralysis. Again, while we cannot specifically measure these attributes, we propose that top management team meetings will be ineffective and negatively related to firm performance in situations where there are a lack of clear meeting goals, unfocused communication and abundant political behavior and relationship conflicts.

In a study of more than 1,600 managers and technical professionals, Mosvick and Nelson (1996) indicate that not having any clear goals, purpose or meeting agenda were among the most troublesome problems that the participants encountered in business meetings. This finding is consistent with a study of 80 top-management teams in large Norwegian organizations in the private and public sector, in which unclear meeting goals was one of the most frequently cited sources of productivity loss in management meetings (Bang and Øverland, 2009).

Unfocused communication is also a major source of frustration in meetings. Tobia and Becker (1990) indicate that “nothing can sandbag a meeting faster than a person who chases tangents or refuses to keep quiet.” Bang and Øverland (2009) highlight that digressions are the most common source of productivity loss in top management meetings. Mosvick and Nelson (1996) find that the most frequently mentioned problem among managers and professionals was members getting off topic with rambling, redundant and digressive talk during meetings.

Political behavior in management teams refers to “the observable, but often covert, actions by which executives enhance their power to influence decisions” (Eisenhardt and Bourgeois, 1988). These actions are generally aimed at advancing or protecting the self-interest of individuals or groups and are taken to obtain outcomes not sanctioned by the organization or to obtain sanctioned outcomes through methods that are not sanctioned (Allen *et al.*, 1979; Mayes and Allen, 1977; Tziner *et al.*, 1996). Although political behavior and power struggles exist to some degree in every organization, studies indicate that effective management teams are characterized by low levels of political behavior. Eisenhardt and Bourgeois (1988) find that political behavior in management teams is associated with lower sales volumes, sales growth and return on sales. They attribute these findings to the fact that political game-playing diverts time and attention away from managers’ areas of responsibility, so important information is not presented and discussed during the decision-making process.

Effective management teams discuss complex issues in ways that allow them to capitalize on team members’ different skills, knowledge, interests and personalities, rather than letting these differences become a source of irritation and personal conflict. Relationship conflict refers to interpersonal incompatibilities among group members, which typically includes tension, animosity and annoyance, and is shown to be consistently negatively related to team performance (de Wit *et al.*, 2012; Jehn, 1995).

Based on these arguments, we propose that if top management team meetings are conducted with unclear goals, unfocused communication, and an abundance of political behavior and relationship conflicts, then more meetings are likely to reflect procrastination and decision paralysis in the top management team and are therefore associated with lower firm performance. Our second hypothesis is therefore stated as:

H2. Top management team meetings are negatively related to firm performance.

3. Data and variables

3.1 Sample

The initial sample used in this study consists of all public companies listed on the Indonesian Stock Exchange during 2010–2017. Financial data is obtained from the ORBIS database. Data on board, management and committee meetings and other corporate governance variables are obtained from company annual reports. We exclude companies from the financial, assurance and real estate industry (SIC 6) because of the different nature

of their financial reporting and exclude any observations with missing data. Our final sample includes 1,803 firm-year observations.

Table 1 provides an overview of the sample by industry and year. The sample increases from 155 observations in 2010 to 295 observations in 2017. With respect to industry, the highest number of observations come from construction industries (496), manufacturing (329), mining (276) and transportation, communications and utilities (273). The lowest number of observations are from health, legal and education services (30) and agriculture, forestry and fisheries (80).

3.2 Variable definitions

In Indonesia, the structure of the board and management is different to other markets. Companies in Indonesia have a board of commissioners and a board of directors. The board of commissioners supervises company management and includes independent members, meaning it functions the same as a board of directors in other markets. The board of directors in Indonesian companies is comprised of company executives and is generally referred to as the top management team in other markets. To ensure consistency with prior studies from around the world, we label our meeting variables as board of director meetings, top management team meetings and committee meetings [1]. Top management team meetings (*TMTMEETINGS*) is the number of top management team meetings the company held during the year. Board of director meetings (*BODMEETINGS*) is the number of board of director meetings the company held during the year. Committee meetings (*COMMEETINGS*) is the total number of committee meetings the company held during the year.

We measure firm performance using return on assets and return on equity. Return on assets (ROA) is earnings before interest and taxes divided by total assets. Return on equity (ROE) is net income divided by total equity. Referring to previous research (Bhatt and Bhatt, 2017; Gray and Nowland, 2018; Brick and Chidambaran, 2010), the control variables used in this study control for corporate governance characteristics, firm size, firm leverage and firm growth. They include: the number of directors and managers (*BOARDSIZE*), percentage of independent directors (*INDEPENDENT*), the size of the audit committee (*AUDCOM*), the

Industry	Year							Total	
	2010	2011	2012	2013	2014	2015	2016		2017
(SIC 0) Agriculture, forestry and fisheries	7	9	6	10	10	12	13	13	80
(SIC 1) Mining	22	26	36	38	30	38	42	44	276
(SIC 2) Construction industries	44	47	68	53	56	70	78	80	496
(SIC 3) Manufacturing	34	39	43	40	36	46	48	43	329
(SIC 4) Transportation, communications and utilities	15	19	30	32	41	41	44	51	273
(SIC 5) Wholesale and retail trade	18	9	18	22	19	21	31	31	169
(SIC 7) Service industries	14	13	15	15	20	20	28	25	150
(SIC 8) Health, legal and educational services and consulting	1	1	2	1	3	5	9	8	30
Total	155	163	218	211	215	253	293	295	1,803

Table 1.
Sample distribution
by industry and year

Note: This table shows the sample distribution by industry and year for our sample of 1,803 companies listed on the IDX during 2010–2017

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natural logarithm of total assets (*FIRMSIZE*), total debt divided by total assets (*LEVERAGE*), the market-to-book ratio (*MTB*) and a dummy variable indicating firms that make a loss (*LOSS*). All meeting and financial variables have been winsorized at the 1% and 99% levels.

1 3.3 Methodology

This study uses OLS regression models with robust standard errors and fixed year and industry effects. We relate our two measures of firm performance (ROA and ROE) to the number of top management team meetings and control variables. Based on *H1*, we expect the coefficients on *TMTMEETINGS* to be positive in Models 1 and 2. *H2* predicts the coefficients on *TMTMEETINGS* to be negative.

$$\begin{aligned}
 ROA_{i,t} = & \beta_0 + \beta_1 TMTMEETINGS_{i,t} + \beta_2 BODMEETINGS_{i,t} \\
 & + \beta_3 COMMEETINGS_{i,t} + \beta_4 BOARDSIZE_{i,t} \\
 & + \beta_5 INDEPENDENT_{i,t} + \beta_6 AUDCOM_{i,t} + \beta_7 FIRMSIZE_{i,t} \\
 & + \beta_8 LEVERAGE_{i,t} + \beta_9 MTB_{i,t} + YEAR_t + INDUSTRY_j + \varepsilon_{i,t}
 \end{aligned}
 \tag{1}$$

$$\begin{aligned}
 ROE_{i,t} = & \beta_0 + \beta_1 TMTMEETINGS_{i,t} + \beta_2 BODMEETINGS_{i,t} \\
 & + \beta_3 COMMEETINGS_{i,t} + \beta_4 BOARDSIZE_{i,t} \\
 & + \beta_5 INDEPENDENT_{i,t} + \beta_6 AUDCOM_{i,t} + \beta_7 FIRMSIZE_{i,t} \\
 & + \beta_8 LEVERAGE_{i,t} + \beta_9 MTB_{i,t} + YEAR_t + INDUSTRY_j + \varepsilon_{i,t}
 \end{aligned}
 \tag{2}$$

4. Empirical analysis

4.1 Descriptive statistics

Table 2 provides descriptive statistics of the variables in this study. The mean (median) company has 20.10 (15.00) top management team meetings, 9.86 (8.00) board of director meetings and 8.07 (4.00) committee meetings. Figure 1 provides more detail of the distribution of top management team meetings. There are 407 observations with 1–10 meetings, 840 observations with 11–20 meetings, 212 observations with 21–30 meetings, 115 observations with 31–40 meetings and 229 observations with 41+ meetings.

The average company has board size of 9.16, independence of 36.56%, audit committee size of 2.76, firm size of IDR 3.26tn (natural logarithm = 22.16), leverage of 48%, market-to-book ratio of 1.85, 20% incidence of a loss, return on assets of 6.44% and return on equity of 6.45%.

Table 3 shows the correlations between the variables. Top management team meetings are positively correlated with return on assets and return on equity ($p < 0.01$), providing some initial support for *H1*. The meeting variables are all positively correlated with each other. ROA and return on equity have a correlation of 0.84. However, correlations between the control variables used in our models are generally low and do not raise any multicollinearity concerns.

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	Mean	Median	Min	Max	Stdev
<i>TMTMEETINGS</i>	20.10	15.00	1.00	71.00	15.45
<i>BODMEETINGS</i>	9.86	8.00	1.00	43.00	8.11
<i>COMMEETINGS</i>	8.07	4.00	0.00	81.00	12.28
<i>BOARDSIZE</i>	9.16	8.00	3.00	28.00	3.32
<i>INDEPENDENT</i>	36.56	33.33	0.00	100.00	14.41
<i>AUDCOM</i>	2.76	3.00	0.00	7.00	1.08
<i>FIRMSIZE</i>	22.16	20.10	14.96	31.59	4.78
<i>LEVERAGE</i>	0.48	0.48	0.04	0.93	0.20
<i>MTB</i>	1.85	0.77	0.01	28.01	3.65
<i>LOSS</i>	0.20	0.00	0.00	1.00	0.40
<i>ROA</i>	6.44	5.25	-34.08	52.16	12.14
<i>ROE</i>	6.45	6.27	-73.45	71.60	18.21

Notes: The sample includes 1803 companies listed on the IDX during 2010–2017. *TMTMEETINGS* is the number of top management team meetings the company held during the year. *BODMEETINGS* is the number of board of director meetings the company held during the year. *COMMEETINGS* is the total number of committee meetings the company held during the year. *BOARDSIZE* is the number of directors and top managers. *INDEPENDENT* is the percentage of independent directors. *AUDCOM* is the size of the audit committee. *FIRMSIZE* is the natural logarithm of total assets. *LEVERAGE* is total debt divided by total assets. *MTB* is the market-to-book ratio. *LOSS* is a dummy variable indicating firms that made a loss. *ROA* is earnings before interest and taxes divided by total assets. *ROE* is net income divided by total equity. All financial and meeting variables have been winsorized at the 1% and 99% levels

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Table 2.
 Descriptive statistics

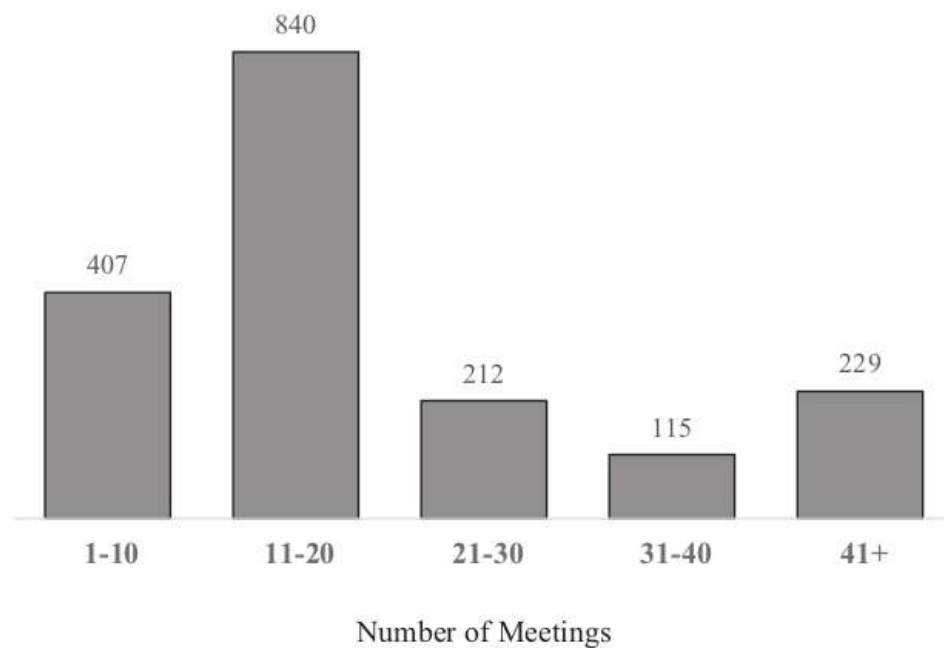


Figure 1.
 Top management
 team meetings

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. <i>TMTMEETINGS</i>	1.00										
2. <i>BODMEETINGS</i>	0.61***	1.00									
3. <i>COMMEETINGS</i>	0.38***	0.39***	1.00								
4. <i>BOARDSIZE</i>	0.12***	0.01	0.24***	1.00							
5. <i>INDEPENDENT</i>	-0.03	-0.04*	-0.01	0.03	1.00						
6. <i>AUDCOM</i>	0.15***	0.15***	0.25***	0.16***	0.13***	1.00					
7. <i>FIRMSIZE</i>	0.10***	0.15***	0.14***	0.19***	0.09***	0.21***	1.00				
8. <i>LEVERAGE</i>	0.12***	0.06***	0.03	0.02	-0.04*	-0.02	0.01	1.00			
9. <i>MTB</i>	-0.02	-0.08***	0.05**	0.10***	-0.09***	-0.05**	-0.32***	0.07***	1.00		
10. <i>LOSS</i>	-0.07***	-0.03	-0.07***	-0.13***	0.06**	-0.01	0.03	0.16***	-0.05**	1.00	
11. <i>ROA</i>	0.06***	0.02	0.14***	0.22***	-0.07**	-0.01	-0.02	-0.24***	0.32***	-0.59***	1.00
12. <i>ROE</i>	0.08***	0.03	0.13***	0.19***	-0.10***	-0.02	-0.06***	-0.18***	0.31***	-0.63***	0.84***

Notes: The sample includes 1803 companies listed on the IDX during 2010–2017. *TMTMEETINGS* is the number of top management team meetings the company held during the year. *BODMEETINGS* is the number of board of director meetings the company held during the year. *COMMEETINGS* is the total number of committee meetings the company held during the year. *BOARDSIZE* is the number of directors and top managers. *INDEPENDENT* is the percentage of independent directors. *AUDCOM* is the size of the audit committee. *FIRMSIZE* is the natural logarithm of total assets. *LEVERAGE* is total debt divided by total assets. *MTB* is the market-to-book ratio. *LOSS* is a dummy variable indicating firms that made a loss. *ROA* is earnings before interest and taxes divided by total assets. *ROE* is net income divided by total equity. All financial and meeting variables have been winsorized at the 1% and 99% levels. Significance indicated at * 10%, ** 5% and *** 1% levels.

Table 3.
Pearson correlations

Team meetings and firm performance

4.2 Top management team meetings and firm performance

Table 4 shows the results of our analysis relating the number of top management team meetings to firm performance. The first three specifications show the results for return on assets, using different levels of control variables. In all three specifications, we find positive coefficients on *TMTMEETINGS*. Specification three shows the results for the full version of Model 1 and the coefficient on *TMTMEETINGS* is 0.034 ($p < 0.05$). Specifications four to six, show the same analysis for return on equity. The results are consistent, with positive coefficients on *TMTMEETINGS* in all specifications. Specification six shows the results for the full version of Model 2 and the coefficient on *TMTMEETINGS* is 0.077 ($p < 0.01$).

These results provide support for *H1* and indicate that firm performance is higher when firms hold more top management team meetings. Thus, our analysis indicates that top management team meetings are a valid signal of management effort to enhance company performance [2]. This finding is also consistent with prior work on board of director meetings and committee meetings (Brick and Chidambaran, 2010; Hoque *et al.*, 2013; Vafeas, 1999). These studies also show that more meetings signal greater activity and are related to higher firm performance.

The results for the control variables indicate that firm performance is also positively related to board size, firm size, market-to-book ratio and the number of committee meetings. This is consistent with prior studies and shows that bigger firms, firms with higher growth opportunities, firms with bigger boards and firms that hold more committee meetings perform better (Bhatt and Bhatt, 2017; Gray and Nowland, 2018; Brick and Chidambaran, 2010). Firm performance is negatively related to the independence of the board and firm leverage. This indicates that higher levels of debt are associated with lower firm performance and that more independent boards are associated with lower firm performance. A possible explanation for this board independence finding is that, in recent years, more independent directors have been appointed to firms with poorer performance.

As endogeneity concerns, such as reverse causality and omitted variable bias, are a major issue in corporate governance studies, we repeat our analysis in three different ways to address endogeneity issues. These results are untabulated but reported in the text below. First, we include the lagged value of the dependent variable as an additional control variable in our analysis. We find consistent results with the coefficients on *TMTMEETINGS* in both models significant at the 5% level. Second, we repeat our analysis using fixed firm effects and find insignificant coefficients on *TMTMEETINGS* in both models. This is likely due to limited time-series variation in the top management team meeting variable.

Third, we use an instrumental variable and a two-stage model. Our instrument is the average number of top management team meetings (excluding the company) in the same industry-year as the company. We believe this is a valid instrument as the number of meetings a company holds is likely to be positively related to the number of meetings held by other companies in the same industry. Also, we do not believe there is a direct link between the number of meetings held by other companies in the same industry and the performance of this company. In the first-stage model, we find a significant positive relationship ($p < 0.05$) between the instrumental variable and the number of top management team meetings. However, in the second-stage models we find insignificant coefficients ($p = 0.11$, $p = 0.22$) on the number of top management team meetings [3]. Therefore, we acknowledge that endogeneity issues weaken our reported results.

4.3 Additional analysis

In this section, we conduct a number of additional tests to explore the relationship between top management team meetings and firm performance in more detail. As there is natural

	ROA			ROE		
	(1)	(2)	(3)	(4)	(5)	(6)
TMTMEETINGS	0.046*** (2.92)	0.055*** (3.77)	0.034** (1.97)	0.114*** (4.94)	0.104*** (4.56)	0.077*** (2.69)
BODMEETINGS			0.022 (0.67)			0.040 (0.69)
COMMEETINGS			0.061** (2.30)			0.064** (2.08)
BOARDSIZE		0.442*** (4.31)	0.443*** (4.34)		0.472*** (3.06)	0.476*** (3.09)
INDEPENDENT		-0.055*** (-2.81)	-0.051*** (-2.70)		-0.107*** (-3.66)	-0.105*** (-3.55)
AUDCOM		0.105 (0.43)	-0.030 (-0.12)		0.217 (0.52)	0.067 (0.16)
FIRMSIZE		0.834*** (3.76)	0.717*** (3.09)		1.180*** (3.29)	1.058*** (2.84)
LEVERAGE		-17.366*** (-11.32)	-17.124*** (-11.07)		-20.638*** (-7.66)	-20.390*** (-7.54)
MTB		1.100*** (7.95)	1.089*** (7.88)		1.513*** (6.60)	1.503*** (6.57)
CONSTANT	5.521*** (2.92)	-14.352** (-2.47)	-10.972* (-1.78)	0.060 (0.04)	-25.477*** (-2.74)	-22.057** (-2.25)
Year Dummies	Included	Included	Included	Included	Included	Included
Industry Dummies	Included	Included	Included	Included	Included	Included
R-squared	0.030	0.262	0.244	0.064	0.225	0.227
N	1803	1803	1803	1803	1803	1803

Notes: The sample includes 1803 companies listed on the IDX during 2010–2017. TMTMEETINGS is the number of top management team meetings the company held during the year. BODMEETINGS is the number of board of director meetings the company held during the year. COMMEETINGS is the total number of committee meetings the company held during the year. BOARDSIZE is the number of directors and top managers. INDEPENDENT is the percentage of independent directors. AUDCOM is the size of the audit committee. FIRMSIZE is the natural logarithm of total assets. LEVERAGE is total debt divided by total assets. MTB is the market-to-book ratio. ROA is earnings before interest and taxes divided by total assets. ROE is net income divided by total equity. All financial and meeting variables have been winsorized at the 1%, and 99% levels. Significance indicated at * 10%, ** 5% and *** 1% levels.

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Table 4. Top management team meetings and firm performance

variation in the number of meetings held across industries, we repeat our analysis using industry-adjusted top management team meetings. This is calculated as the company's top management team meetings divided by the industry-year average number of top management team meetings. Specifications one and two in Table 5 show the results for industry-adjusted top management team meetings. We find significant coefficients on industry-adjusted top management team meetings in both models. This indicates that firm performance is better when top management teams hold more meetings than their industry counterparts.

14 To determine if the relationship between top management team meetings and firm performance is consistent across the range meetings, we conduct spline regressions using the same meeting groupings as shown in Figure 1. In specifications three and four of Table 5, we find that TMTMEETINGS11-20, TMTMEETINGS21-30, TMTMEETINGS31-40 and TMTMEETINGS41+ are positively related to return on assets. Also, TMTMEETINGS31-40 and TMTMEETINGS41+ are positively related to return on equity. Thus, these results indicate that the relationship between top management team meetings and firm performance is most significant above the average number of meetings in our sample.

We also add a squared top management team meeting variable ($TMTMEETINGS^2$) to our two models to determine if the relationship between top management team meetings and firm performance is non-linear. In Table 5, specifications five and six, we find the coefficient on this squared term is significant in the ROA model and insignificant in the ROE model. This result therefore suggests that the marginal effects at higher numbers of meetings are diminishing and there is potential for an optimal number of top management team meetings [4].

In specifications seven and eight in Table 5, we estimate the number of normal and abnormal top management team meetings. Normal meetings are the average number of meetings held by the firm over the sample period (2010–2017). Abnormal meetings are the difference between the actual number of meetings each year and the normal number of meetings. In our sample, the average number of normal and abnormal meetings are 16.59 and 3.51. We find that only the coefficients on the normal number of top management team meetings are significant in both models. This suggests that firm performance is higher when top management teams consistently hold a high number of meetings every year. Short-term fluctuations in the number of meetings are not related to firm performance.

5 Together, the results of these additional tests are supportive of *H1* and a positive relationship between top management team meetings and firm performance. These results also provide us with additional guidance in that companies perform better when they hold more meetings than the average company, more meetings than their industry peers and a consistently high number of meetings over time. We also acknowledge that more meetings may not always be better as there may be an upper limit to the optimal number of meetings.

4.4 Further analysis on loss firms

Our previous analysis has investigated the average relationship between top management team meetings and firm performance across all firms. In this section, we conduct some further analysis in a specific setting. Vafeas (1999) highlights that their results relating board meetings to firm performance are strongest for firms experiencing poor performance. Therefore, we conduct similar analysis by examining the relationship between top management team meetings and firm performance in loss versus profit firms. To do this, we add a loss dummy variable (*LOSS*) and an interaction term ($TMTMEETINGS*LOSS$) to our prior models.

	Adjusted		Spline		Non-linear		Abnormal	
	ROA (1)	ROE (2)	ROA (3)	ROE (4)	ROA (5)	ROE (6)	ROA (7)	ROE (8)
TMTMEETINGS - adjusted	0.376* (1.65)	1.010*** (2.60)						
TMTMEETINGS1-10			0.174 (1.32)	0.120 (0.57)				
TMTMEETINGS11-20			0.152* (1.53)	0.197 (1.51)				
TMTMEETINGS21-30			0.106** (2.06)	0.130 (1.49)				
TMTMEETINGS31-40			0.100** (2.46)	0.119* (1.85)				
TMTMEETINGS41+			0.059** (2.40)	0.102** (2.40)				
TMTMEETINGS					0.139** (2.50)	0.158* (1.86)	0.087*** (3.83)	0.169*** (4.35)
TMTMEETINGS ²					-0.002** (-2.05)	-0.001 (-1.07)	-0.043 (-1.45)	-0.056 (-1.32)
TMTMEETINGS - normal							Included	Included
TMTMEETINGS - abnormal							Included	Included
Other controls	Included	Included	Included	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included	Included	Included	Included	Included
R ²	0.265	0.227	0.266	0.227	0.266	0.227	0.270	0.233
N	1803	1803	1803	1803	1803	1803	1803	1803

Notes: The sample includes 1803 companies listed on the IDX during 2010–2017. TMTMEETINGS is the number of top management team meetings the company held during the year. Adjusted represents industry-adjusted number of meetings. Normal indicates the average number of meetings over the sample period. Abnormal indicates the difference from normal each year. ROA is earnings before interest and taxes divided by total assets. ROE is net income divided by total equity. All financial and meeting variables have been winsorized at the 1%, and 99% levels. Significance indicated at * 10%, ** 5%, and *** 1% levels.

Table 5.
Additional analysis

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We expect the positive relationship between top management team meetings and firm performance to be stronger in firms that are experiencing poor performance. This is because there is enhanced pressure on top management teams to perform their jobs effectively when their companies are incurring a loss. Therefore, we expect a positive coefficient on the interaction term $TMTMEETINGS*LOSS$.

This analysis is displayed in Table 6. In the first two specifications, the coefficients on the interaction terms $TMTMEETINGS*LOSS$ are positive and significant ($p < 0.01$). This indicates that the positive relationship between top management team meetings and firm performance is stronger for firms incurring a loss. In specifications three and four we use the number of normal and abnormal meetings. We find that only the coefficients on the normal number of top management team meetings are significant ($p < 0.05$) in the two models. This indicates that only firms that normally hold a higher number of meetings tend to do better when they incur a loss. There is no effect for firms that temporarily hold more meetings when they incur a loss.

Therefore, these results provide further support for *H1* and indicate that firms that consistently hold a higher number of top management team meetings perform better when they are experiencing poor performance.

5. Conclusions

In this study, we propose using the frequency of top management team meetings as a new measure of the behavior of company managers. We examine two hypotheses. More meetings may indicate effective effort by top management to enhance company performance. Alternatively, more meetings may reflect procrastination and decision paralysis.

Using top management team meeting data publicly disclosed by Indonesian companies during 2010–2017, we find that top management team meetings are positively related to firm performance. This is consistent with a higher number of top management team meetings reflecting effective effort by management to enhance company performance. Further analysis indicates that only firms that consistently hold more meetings than their peers perform better and this result is more pronounced during periods of poor performance.

The results of this paper have a number of implications for academia and practice. First, this paper extends the corporate governance literature on meeting activity. Prior studies have examined the meeting activity of boards of directors and board committees (Vafeas, 1999; Brick and Chidambaran, 2010). We add to this literature by also examining the meeting activity of the top management team. Second, we extend the literature on the activities of the top management team, by examining the frequency of top management team meetings in a large sample of listed companies. Prior studies have been able to conduct a more detailed analysis of executive interactions at meetings, but only on a small sample of firms that have granted access to their top management meetings.

For shareholders and policymakers, this study highlights a new indicator of management effort that can be seen and used by shareholders. Companies are generally reluctant to release any internal information about the performance of their executives, so being able to find a disclosed measure of the activity of the top management team that is positively linked to firm performance is beneficial to shareholders. Then, as we are able to find this measure being disclosed in Indonesia, the question is raised as to why this is not being disclosed in other markets, and why other measures of executive performance cannot also be disclosed?

We encourage future research to conduct additional testing of these relationships in other markets around the world, when large-scale datasets on top management team meetings

	ROA (1)	ROE (2)	ROA (3)	ROE (4)
TMTMEETINGS	-0.009 (-0.58)	0.006 (0.24)		
TMTMEETINGS*LOSS	0.110*** (3.17)	0.180*** (3.06)		
LOSS	-17.545*** (-18.58)	-29.055*** (-16.47)		
TMTMEETINGS - normal			0.008 (0.38)	0.047 (1.55)
TMTMEETINGS - abnormal			-0.033 (-1.17)	-0.052 (-1.42)
TMTMEETINGS - normal*LOSS			0.139*** (3.00)	0.184** (2.30)
TMTMEETINGS - abnormal*LOSS			0.043 (0.61)	0.159 (1.25)
LOSS			-17.618*** (-18.24)	-28.884*** (-15.98)
Other controls	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
R ²	0.500	0.515	0.502	0.516
N	1,803	1,803	1,803	1,803

Note. The sample includes 1,803 companies listed on the IDX during 2010–2017. TMTMEETINGS is the number of top management team meetings the company held during the year. Normal indicates the average number of meetings over the sample period. Abnormal indicates the difference from normal each year. LOSS is a dummy variable indicating firms that made a loss. ROA is earnings before interest and taxes divided by total assets. ROE is net income divided by total equity. All financial and meeting variables have been winsorized at the 1%, and 99% levels. Significance indicated at * 10%, ** 5% and *** 1% levels.

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Table 6. Further analysis on loss firms

and other measures of management activity and performance become available. We would be interested to know if the results of this study using data from Indonesia are generalizable to other markets, where collaborative or group decision-making at the top management level is perhaps not so common.

Notes

1. The Indonesian equivalent is board of commissioner meetings, board of director meetings and committee meetings.
2. We also repeat our analysis using the logarithm of the number of meetings and find even stronger results than those presented. The coefficients on $\log(\text{TMTMEETINGS})$ in Models 1 and 2 are 0.933 ($p < 0.01$) and 1.605 ($p < 0.01$).
3. Hausman tests indicate that OLS is the preferred model for ROA and the IV 2SLS model is preferred for ROE.
4. Based on the results for the non-linear ROA model, the optimal number of meetings is 35. This is the number of meetings at the maximum point.

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