COVID-19 exposure: a risk-averse firms' response

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Abstract

Purpose – Without a doubt, COVID-19 is a disruptive event that one may not consider before it becomes a global pandemic. This study aims to examine the firm's risk preference, represented as board characteristics towards COVID-19 exposure in Indonesia.

Design/methodology/approach – This study uses the boardroom's average value of board age and female proportion to represent board characteristics. Fixed-effect regression based on industry (Industry FE) and year (Year FE) analyses 861 firm-year observations of all firms listed on the Indonesian Stock Exchange in 2019–2020.

Findings – The result shows a positive relationship between the female board and COVID-19 exposure disclosure. Meanwhile, the age proportion does not offer a significant result. The additional analysis document that the directors mainly drove the result and were only relevant during 2020. These results are robust due to coarsened exact matching tests and Heckman's two-stage regression. This study enriches COVID-19 literature, especially from a quantitative perspective.

Originality/value – The rise of global crises makes the outputs of this study important for non-financial listed firms in Indonesia.

Keywords CoronaVirus, COVID-19, Voluntary disclosure, Firm risk preference,
Board characteristic, Risk reduction strategy

Paper type Research paper

Introduction

In November 2019, the COVID-19 outbreak began in Wuhan, China, and rapidly escalated into a global pandemic that resulted in health condition issues and a global recession. Among all countries, Indonesia is one of the appropriate settings for a COVID-19 awareness study due to several rationales. Firstly, Indonesia is one of the governments that has scepticism. The COVID-19 seriousness is more or less an example from business

management. This scepticism was reflected by Indonesia's ex-Health Ministry's controversial statement (Ghaliya, 2020), including disrespect towards one of Harvard University's study reports that Southeast Asian countries must already have unreported coronavirus cases in February 2020 [1].

Secondly, there is a significant gap between the first case of COVID-19 in Wuhan and the first case in Indonesia (WHO, 2020). Approximately six months later became a reasonable time frame for Indonesian businesses to be aware of this global risk and integrate it within their annual reports. Finally, Indonesia is known as a patriarchal society where the glass ceiling phenomenon is commonly encountered, and the progress to closing the gap is sluggish (Bintari, 2022; Dwitami, 2021) [2]. Gender inequality is primarily aggravated during COVID-19 as several limitations must be implemented (The Jakarta Post, 2020). If it is not well managed, the diversity becomes inequality that could disrupt performance at any level of organisation (Van Knippenberg *et al.*, 2013).

Based on the above circumstances, this paper wants to examine how businesses' responses to COVID-19 through their reporting and whether the firm risk preference, represented as board characteristics, is associated with the firm's COVID-19 issue reporting style. Specifically, this paper examines the association between board age, female boards and COVID-19 exposure. Age and female boards are two major top board characteristics influencing the strong risk preference (Bamber *et al.*, 2010) on their firms' reporting decisions, including COVID-19 exposure.

Previous literature has been discussing several topics with voluntary disclosure. For instance, Harymawan *et al.* (2022) examined how investment efficiency relates to environmental, social and governance reporting. Cho *et al.* (2020) tested supply chain and voluntary disclosure information externalities. Tsang *et al.* (2019) studied foreign institution ownership with voluntary disclosure worldwide. Bamber *et al.* (2010) tested the association between the style of firms' boards and voluntary financial disclosure. This study is an extension of research on board characteristics and voluntary disclosure. It extends the prior research by examining gender and age diversity with voluntary disclosure of global pandemic COVID-19. Gender and age are selected as the representation of biological traits that are more profound compared to life-experience-based traits in affecting the individual decision-making process. (Dökme *et al.*, 2022; Luo *et al.*, 2022).

Furthermore, biological traits are commonly studied to affect firms reporting styles (Bamber *et al.*, 2010; Huang *et al.*, 2012; Ofori-Sasu *et al.*, 2022; Rambe and Mangara, 2016; Saggar *et al.*, 2021). This study explicitly tests firms' risk preferences reflected in its board's gender and age proportion towards firms' decision to disclose the global risk of COVID-19 and realign their strategies. This study expects both board characteristics to be positively associated with COVID-19 exposure because both reflect conservatism, leading to risk-averse behaviour (Bamber *et al.*, 2010).

In this study, we also examine which boards have the power to shape firms' risk preferences since Indonesia adheres to a two-tier board system. This study uses 861 firm-year observations of all listed firms on the Indonesian Stock Exchange in 2019–2020 as the research sample. This study regresses board characteristics and COVID-19 exposure after controlling for boards' financial background, independent commissioner, the board size, auditor, firm size, performance and leverage. The result shows a positive relationship only between the female board and COVID-19 exposure. This study also conducted endogeneity tests using coarsened exact matching (CEM) regression. Our extended analysis shows that the board of directors (BOD) mainly drove the result and is only relevant in 2020.

This study is structured as follows. The literature review contains several reviews of relevant literature to develop this study's hypotheses. The detailed methods of sample

selection and research design are also used in this study. This study reports the results in analysis/discussion. Subsequently, the conclusion summarises the paper, implications and recommendations for future research.

Literature review

Governance system in Indonesia

In contrast to other countries, Indonesia adheres to a two-tier board system. It mandates every listed firm to have a BOD, which is responsible for daily business operations, and a board of commissioners (BOC), which focuses on supervisory function (IFC, 2018). Thus, it is illegal in Indonesia if a person serves as BOD and BOC simultaneously and firmly. In fact, according to Indonesia's firm governance code, BOC is prohibited from participating in operational decision-making (National Committee on Governance, 2006). Although two board systems seem to provide a different authority for a specific task in business operations, most strategic firms' actions that are planned and implemented by BOD must be reviewed and evaluated by BOC. For instance, firms' work plans, annual budgets, investment plans, risk management processes and annual report content (IFC, 2018).

Furthermore, based on IFC (2018), BOC's activities may go entirely unnoticed when the business environment is friendly, such as a promising economy, share prices are rising, there is no serious negative news impacting firms' image, and many more. However, in times of crisis, including COVID-19, the significance of the BOC becomes clear. This phenomenon arises from the BOC function's nature, which primarily supervises and provides advice to the BOD so that when everything goes as planned, the BOD will act normally. The supervisory function benefits will be minimised.

On the other hand, BOD will not follow standard procedures when the firms are in an emergency state and tend to improvise based on the current conditions. These improvements will be BOC's primary task to ensure these improvements lead to favourable outcomes for firms' shareholders. Nevertheless, BOC and BOD are responsible for maintaining the firms' long-term sustainability (IFC, 2018), especially in times of crisis.

Several prior studies also highlight the importance of BOC. For instance, Fauzi *et al.* (2021) showed that BOC is one of the essential bodies within a firm as they represent shareholders and stakeholders in general and ensure agency issues are minimised. Some studies even mentioned that the presence of supervision mechanisms and quality from BOC effectively enhances firms' disclosure, including voluntary (Cahaya and Yoga, 2020), internal control (Weli *et al.*, 2020) and human rights issues (Cahaya and Hervina, 2019). Based on mentioned arguments, although BOD has a direct intervention function in determining firms' actions based on a firm's risk appetite, this study posits that both BOD and BOC have a substantial impact on determining how a firm's risk preferences are. Therefore, exploring BOD and BOC's characteristics is essential in analysing firms' risk preferences.

Biological traits and risk perception

Based on the upper echelon theory, the board's characteristics will be portrayed in firms' actions (Hambrick and Mason, 1984). Countless studies have been conducted to explore the practice of this theory from several perspectives (Derda, 2017; Hambrick, 2007; Waldman *et al.*, 2004; White and Borgholthaus, 2022). Most upper echelon studies correlate it with the firm's risk preferences. For instance, Agnihotri and Bhattacharya (2021), He *et al.* (2019) and Liu *et al.* (2021) focused on the board's narcissism traits which could lead to several firms' actions that are associated with high risk. Another strand of studies using upper echelon theory focuses on the board's entrepreneurial characteristics (Barrett *et al.*, 2021;

Wang *et al.*, 2021; Zhang *et al.*, 2021a). Although the dependent variable of their studies is varied, all of them are correlated with implementing higher risk strategies compared to firms with less entrepreneurial characteristics. Other studies use the previous life experience as the one shaping board's current risk preference (Hao *et al.*, 2021; Harymawan *et al.*, 2021a, 2021b; Zhang *et al.*, 2021b).

Among all board characteristics that may influence the firms' risk preferences, one that is interesting to keep discussed is the biological traits that lead to different risk preferences. Unlike characteristics that developed during their lifetimes, such as career selection, economic crisis experience and education level and degree selection, biological traits have a more underlying effect on determining individual action.

In addition, prior studies find biological traits are affecting their experience-based characteristics, especially for experiences that they have the right to choose or not. For instance, a woman is commonly less interested in science, technology, engineering and mathematics education and profession (Dökme *et al.*, 2022; Luo *et al.*, 2022), and it can be concluded that individual risk perception is affected by those subjects' experiences' occurrence is merely affected by the individual's gender. Another example is highlighted by Räsänen *et al.* (2012). Both gender and age are powerful determinants for risk perception, and the difference would be more clearly visible during a crisis, such as the COVID-19 pandemic (Lu *et al.*, 2021).

Board gender and COVID-19 disclosure
One of the board's biological traits most researched in the context of their risk preference is gender (Khlif and Achek, 2017). Haynes (2017) showed that during the past 25 years, studies focusing on gender in the working environment and its implication keeps evolving, as female participation in corporations shows positive trends. Nevertheless, from early studies (Baldry, 1987; Johnson and Powell, 1994; Powell and Ansic, 1997) to recent studies (El-Khatib and Joy, 2021; Saggar *et al.*, 2021; Shropshire *et al.*, 2021), most of the documents show that women have more risk-averse traits compared to men. Shropshire *et al.* (2021) argued that the risk-averse of female firm leaders is contextual rather than automatically proven in any context. However, female directors are already perceived as one who tend to prioritise risk minimisation during their decision-making process (Adams *et al.*, 2011; Wood and Eagly, 2009).

This study argues that common stereotypes could induce the risk-averse behaviour of female directors as external factors if it has not been shaped by their psychological or internal factors (Levin *et al.*, 1988). Several studies focusing on developing countries also document similar results where the presence of women on firms' boards can induce risk-averse strategies, including higher cash holding (Musviyanti *et al.*, 2021) and less internal control weakness (Oradi and E-Vahdati, 2021). Despite their lives remaining culturally constrained in developing countries, women's contributions in boardrooms increase from time to time (Shad *et al.*, 2011). Given the underlying nature of women, who tend to be more averse to taking risks than men, the disclosure strategy also changed when they occupied board positions in the firms.

For instance, aside from they tend to avoid potential risk from stakeholders, women appear to have a positive and more empathetic view towards shareholders' expectations and sustainability (Birindelli *et al.*, 2018; Samara *et al.*, 2019), which is translated into higher quality of firms' environmental, social, and governance (ESG) disclosure (Gurol and Lagasio, 2022). In the auditing context, female audit partners also tend to disclose more key audit matters compared to male ones, which confirms that they avoid risks of material misstatements (Abdelfattah *et al.*, 2021). In particular, Seebeck and Vetter (2021) found that

a higher proportion of women in boardrooms leads to higher levels of firms' risk disclosure. These studies confirm that risk-averse behaviours of female boards are represented mainly by providing high-quality firms' disclosure.

Nevertheless, those rationales may only apply under normal circumstances and may differ in times of crisis, such as the COVID-19 pandemic. Although it may be true that women are more vulnerable to crises compared to men (Collins *et al.*, 2021; McLaren *et al.*, 2020), other studies indicate that women's presence in business may be favourable during a crisis or prevent a crisis in future. For instance, Ofori-Sasu *et al.* (2022) found that women's proportion on a bank's board effectively reduces the possibility of a banking crisis. At the same time, it can strengthen the negative relationship between bank disclosure and the banking crisis in Africa. It is believed that several characteristics and skills attributable to female managers, such as attitude to change and ability to promote new initiatives foster organisational resilience in coping COVID-19 crisis (Cosentino and Paoloni, 2021).

Moreover, despite having a severe impact on COVID-19, female entrepreneurship shows promising performance in adapting to business environment changes and tries to avoid the application of risky measures during crises (Popović-Pantić *et al.*, 2020). These actions confirm that risk-averse traits of women in business are consistent and tend to be more profound during crises than in normal circumstances. In times of pandemic, every business experiencing negative impacts has the potential to even bankrupt. However, for firms with risk-averse boards, this risk of loss will be analysed in depth and the results of the analysis will be disclosed to the public through their annual reports:

H1. Female proportion of the board positively correlates with COVID-19 exposure disclosure.

Board age and COVID-19 disclosure
Like females in the boardroom, the proportion of the board's age also shares a similar perception of having risk-averse behaviour. Some recent studies documented that the proportion of aged directors is closely related to low-risk decisions. For instance, McGuinness (2021) found that older board firms possess fewer growth options and raise less capital at initial public offering (IPO) than Chinese firms due to their lack of audacity in taking more risk-taking strategies. Other studies also show older executives invest more in working capital, take longer to convert inventories to cash, pay suppliers sooner (Adhikari *et al.*, 2021) and provide better monitoring functions for chief executive officer (CEO) fraud (Xu *et al.* 2018). Le *et al.* (2020) also stated that older individuals are more conservative than young ones, specifically in business areas. Those activities are a few of many forms of risk-averse behaviour that aged directors may be implemented. Similarly to gender, these traits are believed to enhance firms' disclosure quality.

According to the previous studies, minimal literature examines the relationship between board members' age and firms' voluntary reporting. Said *et al.* (2013) and Sartawi *et al.* (2014) argued and confirmed that older boards have better capability to provide a high level of voluntary disclosure than firms dominated by young boards. Notably, Fernandes *et al.* (2019) found a positive relationship will be sustained continuously for up to 60 years. In addition, similar results were also confirmed in Italian-listed state-owned enterprises disclosing risk information (Allini *et al.*, 2016). It is believed to be a high monitoring function and transparency level for aged directors (Kang *et al.*, 2007).

Another related point of view may arise from CEOs' age studies, as several studies focus only on CEOs' age instead of all board members' age. For instance, early studies argued that adult CEOs are more conservative than young CEOs (Deshpande, 1997; Vroom and Pahl, 1971),

resulting in better financial reports (Huang *et al.*, 2012). These results are also in line with older managers who are better than young ones in organisational communication (Korolyova *et al.*, 2021). Older boards are also one determinant for business, particularly during crises. Felicio *et al.* (2014) pointed out that adult directors perform better in managing banks than young ones as they have accumulated experiences during their lifetime. Although Grove *et al.* (2011) generally agreed with this perspective, they also remind that too-aged directors only bring limitations and result in lower performance during crisis, which is in line with Fernandes *et al.* (2019) findings. Based on these studies, this study posits that the presence of aged board members could induce firms' COVID-19 exposure in annual reports as a good response in preparing and facing turbulent times while providing sufficient information to their stakeholders:

H2. The board's age proportion positively correlates with COVID-19 exposure disclosure.

Methods
Sample selection procedure and data source
This study's sample selection procedure is reported in Table 1 (Panel A). This study obtained the data of COVID-19 exposure from the text mining database: TMAILC, financial accounting data from Osiris database, while executive profile data were gathered from ESGI Intelligence: Dataset [3]. This study selected Indonesian non-financial listed firms from 2019–2020. The final sample consists of 861 firm-year observations, and the detailed sample selection process is provided in Table 1, Panel A.

In addition, this study also provides a sample breakdown based on industry (Panel B). One-fourth of the observations did not disclose any COVID-19 keywords in their annual report. The manufacturing industry has the lowest proportion of firms that did not disclose any COVID-19 keywords. On the other hand, the services industry has the highest

Description	Observations	Firms
Panel A. Sample selection for firm-year observations		
Initial sample	1,414	751
Less: financial industry (Standard Industry Classification 6)	(325)	(170)
Missing data	(228)	(92)
Final sample	861	489

Industry	Zero keywords		At least one keywords		Total
	n	(%)	n	(%)	
Panel B. Sample breakdown based on industry					
Agriculture, forestry and fishing (0)	10	30.30	23	69.70	33
Mining and construction (1)	28	21.71	101	78.29	129
Manufacturing (2)	50	22.42	173	77.58	223
Manufacturing (3)	34	27.42	90	72.58	124
Transportation, communications and utilities (4)	37	23.42	121	76.58	158
Wholesale and retail (5)	22	26.51	61	73.49	83
Services (7)	24	28.24	61	71.76	85
Services (8)	10	38.46	16	61.54	26
Total	215	24.97	646	75.03	861

Table 1.
Sample selection and breakdown

Notes: This table reports sample selection process and sample breakdown by the industry that separated for Panels A and B

proportion. This finding concludes that business operations can quickly adopt remote meetings, such as services, and have less concern for COVID-19 than the manufacturing industry, which mostly relies on the physical presence of their labour.

Independent and dependent variables
The primary explanatory variable is the board characteristics that will affect their risk preference. Previous research mainly used Chief Executive Officer (CEO) or Chief Financial Officer (CFO) characteristics (Abernethy *et al.*, 2019; Benmelech and Frydman, 2015; Francis *et al.*, 2015; Yeoh and Hooy, 2020). Meanwhile, this study focuses on all individuals on the board. The board characteristics used are the total number of female boards divided by the total number of boards (FEMBOARD) (Shin *et al.*, 2020) and the total number of aged boards divided by the total number of boards (AGEBOARD) (Abernethy *et al.*, 2019; Yeoh and Hooy, 2020).

In estimating COVID-19 exposure in the annual report, we develop several keywords following Hassan *et al.* (2020). These keywords are COVID, COVID-19, CoronaVirus, 2019-nCoV and Sars-Cov-2. To measure the COVID-19 exposure, this study uses the natural logarithm of COVID-19 keywords and the value of 0 if the firm does not disclose the COVID-19 keyword. Although it may sound doubtful that such a measurement can represent the firms' risk preferences for the COVID-19 pandemic, several studies have empirically proven the same measurement approach to show how much companies pay attention to specific issues. For instance, Gamerschlag (2013) and Motokawa (2015) used the frequency of keywords related to human capital in annual reports to measure the firms' concern in human capital development and issue. Loughran *et al.* (2009) used several ethics-related keywords in a 10-K report to ensure consistency between ethics-based business operations and reporting.

The approach known as content analysis is commonly used because frequency indicates the subject matter's importance (Abdolmohammadi, 2005; Guthrie *et al.*, 2004; Krippendorff, 2004). Specifically for the crisis, this approach has been validated in recent work by Hassan *et al.* (2019, 2021) to measure a firm's exposure to political risk, Brexit and shocks such as the Fukushima nuclear disaster. Based on these studies, it can be concluded that the frequency of COVID-19-related keywords appropriately reflects how boards perceive COVID-19 risk to their business.

Control variables
Following Bamber *et al.* (2010), Cho *et al.* (2020), Eng and Mak (2003), Tsang *et al.* (2019) and Tuo *et al.* (2020), we include several control variables. Specifically, FINBOARD is calculated as the total number of boards with financial backgrounds divided by the total number of boards. The big4 audit firm audits BIG4. INDCOM is the total number of independent commissioners. BSIZE is captured by the total number of commissioners plus directors. FSIZE is measured as the natural log of total assets. MTB is calculated as market capital divided by total assets minus total liabilities and debts. Then, LEV is measured as total liabilities and debts divided by total assets. In addition, this study also uses the presence of a risk management committee (RMC) to control risk management function within a firm, as their presence is a crucial indicator of how firms respond and manage their risk (Harymawan *et al.*, 2021a, 2021b), including from COVID-19 outbreak.

Research design
To test our hypothesis, this study uses regression analysis with the following regression model:

$$\begin{aligned} \text{COVID}_{i,t} = {} & \beta_0 + \beta_1\text{FEMBOARD}_{i,t} + \beta_2\text{AGEBOARD}_{i,t} + \beta_{3-9}\text{CONTROLS}_{i,t} \\ & + \beta_{10}\text{INDUSTRY}_{i,t} + \beta_{10}\text{YEAR}_{i,t} + \varepsilon \end{aligned} \tag{1}$$

The operational variable is available in Appendix.

Analysis and discussion

Descriptive statistics

The summary of data characteristics is provided in Table 2. From the study's observations, it can be identified that the average women's representation on firms' boards is only 11%. This number lags far behind several other countries that have even mandated a minimum quota on the proportion of women on firm boards, such as Norway, Denmark, Belgium, Finland, France and Iceland (Terjesen *et al.*, 2015). In comparison, Poland is known to have an average proportion of women on firms' boards of 22.9% and is the highest of all countries in 2021 (Deloitte, 2022). In addition, Indonesia has not yet imposed a minimum quota on the proportion of women on the firm's boards, supporting this finding.

Indonesian firms' boards are also dominated by individuals less than 54 years old. Compared to its neighbouring country, Malaysia has an average board age of 56 years (Tahir *et al.*, 2020) and 61 years old based on worldwide data from the BoardEx database from 2004–2019 (Chidambaran *et al.*, 2022), it can be said that Indonesian listed firms' board are younger. Other variables that are interesting to note are MTB and LEV. The maximum value of the two variables is believed to be due to the highly uncertain business climate of the COVID-19 pandemic, especially during the early years of the pandemic.

Univariate analyses

This study provides two independent sample *t*-tests and Pearson correlation, as our univariate analyses are provided in Tables 3 and 4. The sample was divided into two

Variables	Mean	Median	Minimum	Maximum
COVID	3.029	3.497	0.000	7.093
FEMBOARD	10.747	6.250	0.000	75.000
FEMBOD	11.136	0.000	0.000	100.000
FEMBOC	10.080	0.000	0.000	100.000
AGEBOARD	54.313	54.600	21.667	70.875
AGEBOD	51.448	51.667	13.500	73.000
AGEBOC	57.620	58.000	23.333	83.000
FINBOARD	0.585	0.600	0.000	1.000
BIG4	0.296	0.000	0.000	1.000
INDCOM	1.410	1.000	0.000	5.000
BSIZE	8.016	7.000	3.000	24.000
RMC	0.188	0.000	0.000	1.000
FSIZE	24.704	24.197	14.999	33.495
MTB	1.261	0.196	−27.190	56.792
LEV	5.908	0.469	0.001	3,461.978

Table 2.
Descriptive statistics

Notes: This table reports descriptive statistics for this study's observations. It provides mean, median, minimum and maximum values of 861 firm-year observations. This test was done after winsorising the data for 1 and 99%

Variables	Mean value		Coef.	t-value
	2019	2020		
Panel A. Two independent samples t-*test based on year*				
COVID	2.311	3.648	1.336***	10.152
FEMBOARD	7.735	13.171	5.436***	6.194
AGEBOARD	54.517	54.221	−0.296	−0.761
FINBOARD	0.585	0.585	0.000	0.003
BIG4	0.333	0.265	−0.068**	−2.179
INDCOM	1.600	1.236	−0.364***	−6.435
BSIZE	7.980	7.993	0.013	0.062
RMC	0.205	0.174	−0.031	−1.178
FSIZE	28.475	21.443	−7.032***	−56.922
MTB	0.002	2.196	2.193***	12.838
LEV	0.509	0.533	0.023	0.821
Panel B. Two independent samples t-*test based on COVID-19 keyword occurrence*				
	Mean value		Coef.	t-value
	Zero keyword	At least one keyword		
FEMBOARD	9.824	10.919	1.095	1.060
AGEBOARD	52.789	54.881	2.092***	4.720
FINBOARD	0.591	0.583	−0.008	−0.481
BIG4	0.233	0.317	0.085**	2.363
INDCOM	1.316	1.435	0.119*	1.784
BSIZE	7.312	8.212	0.900***	3.619
RMC	0.130	0.207	0.077**	2.515
FSIZE	24.286	24.851	0.565*	1.820
MTB	1.257	1.150	−0.107	−0.500
LEV	0.475	0.537	0.062*	1.898

Notes: This table reports the two independent sample *t*-test analysis results on 861 firm-year observations. Panel A uses year as the treatment variable, while Panel B uses the occurrence of COVID-19 keywords. This test was done after winsorising the data for 1 and 99%. *t*-statistics in in Coef. column *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

sub-samples based on the year. This approach was taken in Indonesia when the first case of COVID-19 was announced on 2 March 2020. Thus, it can be concluded that 2019 was pre-covid and 2020 was current-COVID, although the global spreading of COVID-19 already began at the end of 2019. Based on Table 3, there is a significant increase in the number of COVID-19 keywords mentioned in firms' annual reports between 2019 and 2020 (coef. = 1.336, $t = 10.152$), which agrees with our proposition.

Another interesting finding from this analysis is although numerous facts are told about how COVID-19 affects economics on a worldwide scale and also supported by statistically significant decrease in firm size (coef. = −7.032, $t = −56.922$), but this study's sample shows that there is no significant difference in leverage level (coef. = 0.023, $t = 0.821$). Surprisingly, a statistically significant increase in market-to-book average value (coef. = 2.193, $t = 12.838$). This study posits the increases as an indication that Indonesian listed firms' shareholders in 2020 are optimistic about Indonesia's economic recovery strategy and process (Ministry of Investment, 2020). Compared to 2019, the government has not yet prepared any substantial measures to prevent the negative impact of COVID-19. In addition, this study also successfully documented a significant difference in age proportion in boardrooms between firms that do not disclose any COVID-19 keyword with firms that at least disclose one keyword (coef. = 2.092, $t = 4.720$). Still, this study failed in terms of FEMBOARD. This

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
COVID (1)	1.000										
FEMBOARD (2)	0.107*** (0.002)	1.000									
AGEBOARD (3)	0.160*** (0.000)	−0.159*** (0.000)	1.000								
FINBOARD (4)	−0.023 (0.493)	−0.094*** (0.006)	0.046 (0.176)	1.000							
BIG4 (5)	0.085** (0.012)	0.136*** (0.000)	−0.013 (0.714)	0.011 (0.745)	1.000						
INDCOM (6)	0.029 (0.395)	0.194*** (0.000)	−0.100*** (0.003)	0.058* (0.092)	0.185*** (0.000)	1.000					
BSIZE (7)	0.197*** (0.000)	0.261*** (0.000)	−0.074** (0.031)	−0.029 (0.403)	0.320*** (0.000)	0.542*** (0.000)	1.000				
RMC (8)	0.129*** (0.000)	0.039 (0.254)	−0.011 (0.738)	−0.035 (0.305)	0.163*** (0.000)	0.100*** (0.003)	0.200*** (0.000)	1.000			
FSIZE (9)	−0.184*** (0.000)	0.167*** (0.000)	−0.236*** (0.000)	0.001 (0.972)	0.237*** (0.000)	0.376*** (0.000)	0.295*** (0.000)	0.125*** (0.000)	1.000		
MTB (10)	0.114*** (0.001)	−0.125*** (0.000)	0.123*** (0.000)	0.007 (0.841)	−0.017 (0.619)	−0.077** (0.023)	−0.031 (0.369)	−0.018 (0.604)	−0.388*** (0.000)	1.000	
LEV (11)	0.066* (0.054)	0.095*** (0.005)	−0.101** (0.003)	0.020 (0.550)	−0.050 (0.139)	0.039 (0.248)	−0.010 (0.773)	0.085** (0.013)	−0.037 (0.279)	−0.040 (0.245)	1.000

Notes: This table reports Pearson correlation test on 861 firm-year observations; t-statistics in parentheses *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

Table 4.
Pearson correlations

finding confirms that decision to disclose or not the COVID-19 keywords are closely related to the age board proportion.

This study provides Pearson correlation test results in Table 4. It can be seen that this study found a statistically significant and positive relationship for both FEMBOARD (coef. = 0.107, p = 0.002) and AGEBOARD (coef. = 0.160, p = 0.000) with COVID. This result confirms that the board's biological traits are correlated and can increase the COVID-19 exposure disclosure if no other variables are considered. As for experience-based traits, the FINBOARD, it shows, is not related to COVID, similar to INDCOM. Finally, as this study identified some correlation between interested and control variables, conducted a variance influence factor (VIF) test in every regression model to ensure the result is not experiencing any multicollinearity issue.

Baseline regression
Table 5 presents the regression result of the research model. The result shows both of board characteristics, FEMBOARD (coef. = 0.014, t = 2.84) and AGEBOARD (coef. = 0.041, t = 3.57) have positive relationship with COVID-19 exposure disclosure which is in line with both hypotheses. The result is robust as the test on several models to ensure the consistency of relationship between both board characteristics and COVID-19 exposure disclosure. In addition, this study also found that the explanatory powers in this study's model are increasing once FEMBOARD and AGEBOARD are added to adjusted R^2 by 1.7% and 1.8%, respectively.

This result confirms the proportion of female and aged individuals in boardroom plays a vital role in redirecting on firms' risk preference, particularly in their perception of COVID-19 pandemic and their eagerness to emphasize that information in their annual reports. This finding also confirms that risk-averse characteristic that comes from biological traits is an important factor in disclosing more COVID-19 keywords in firms' annual reports compared to risk-averse characteristic developed through experiences. For instance, this study identifies an insignificant relationship between FINBOARD and COVID (coef. = −0.131, t = −0.43) as a representation of risk-averse characteristics based on experiences.

Robustness tests
Similar to other studies in business and management context, this study cannot be separated from the endogeneity issue (Reeb *et al.*, 2012). Several years ago, the problem that became the primary concern of business and management study was raised because business and management variables were not completely randomly chosen. This study uses CEM regression and Heckman's two-stage regression to minimise this issue within the study result.

Coarsened exact matching regression. One of the endogeneity perspectives is that the observation sample used is not completely apple-to-apple. It may provide bias in the result if the observation does not reflect each other observation's characteristics which are known as a sample selection bias issue. One common approach in business and management studies is the matching method, including CEM regression (Blackwell *et al.*, 2009). This study divides the sample into two groups, the treatment and control group, based on the median value of each interesting variable (FEMBOARD and AGEBOARD). Each observation on these groups will be matched against each other based on all control variables employed on three strata basis. CEM regression result is provided in Table 6 below.

In general, this study found consistent results, both for FEMBOARD and AGEBOARD. In both scenarios median of FEMBOARD and median of AGEBOARD as treatment. This finding confirms that even after only including observations with a high level of similarities, both board characteristics consistently have a positive relationship with COVID-19

Variables	(1) COVID	(2) COVID	(3) COVID	(4) COVID
FEMBOARD		0.013** (2.44)		0.014*** (2.84)
AGEBOARD			0.037*** (3.24)	0.041*** (3.57)
FINBOARD	−0.196 (−0.63)	−0.095 (−0.31)	−0.236 (−0.77)	−0.131 (−0.43)
BIG4	0.070 (0.48)	0.059 (0.40)	0.057 (0.39)	0.043 (0.29)
INDCOM	−0.065 (−0.70)	−0.083 (−0.90)	−0.063 (−0.68)	−0.082 (−0.89)
BSIZE	0.051* (1.77)	0.048* (1.68)	0.050* (1.76)	0.047* (1.66)
RMC	0.457*** (2.81)	0.476*** (2.93)	0.444*** (2.76)	0.463*** (2.88)
FSIZE	0.202*** (4.10)	0.171*** (3.40)	0.215*** (4.41)	0.182*** (3.66)
MTB	−0.003 (−0.12)	0.005 (0.18)	−0.005 (−0.17)	0.004 (0.16)
LEV	0.261 (1.59)	0.204 (1.24)	0.303* (1.83)	0.247 (1.49)
CONS	−4.432*** (−3.22)	−5.538*** (−3.89)	−4.860*** (−3.58)	−6.132*** (−4.37)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
R^2	0.184	0.194	0.191	0.201
Adjusted R^2	0.169	0.177	0.174	0.184
N	861	861	861	861

Table 5.
Main regression
result

Notes: This table reports the result of fixed-effect regression for hypothesis testing of this study on 861 firm-year observations. This test was done after winsorising the data for 1 and 99%. t-statistics in parentheses *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

Variables	Median FEMBOARD as treatment COVID	Median AGEBOARD as treatment COVID
FEMBOARD	0.014*** (2.73)	0.041*** (3.44)
AGEBOARD	0.038*** (3.18)	0.012** (2.07)
CONS	−6.380*** (−4.20)	−6.331*** (−4.38)
Control variables	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
R^2	0.187	0.184
Adjusted R^2	0.167	0.165
N	775	807

Table 6.
Coarsened exact
matching regression

Notes: This table reports the results of the CEM regression test. The first column uses FEMBOARD as a treatment variable, while the second uses AGEBOARD. The CEM test is based on all control variables used in the model and uses three strata. The decreased number of observations is due to several requirements in CEM for observations to be classified as matched by CEM. This test was done after winsorising the data for 1 and 99%. t-statistics in parentheses, *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

exposure disclosure. To conclude, this finding supports that this study's result does not experience endogeneity issues.

Heckman two-stage regression. The second robustness analysis focuses on unobserved variable issues, ensuring that the error term does not correlate with dependent variables. One commonly used approach to address this issue is Heckman's two-stage regression. Following prior studies (Harymawan *et al.*, 2021a, 2021b; Wan *et al.*, 2020), this study uses the average value of an interesting variable in each industry year. One of the considerations of the decision to hire female or aged individuals as firms' board is based on how their firm's

peers board. The imitating strategy of firms is commonly used, even by giant firms such as Mcdonald's, Visa, Walmart and Microsoft (Nani, 2016). In this context, it would be more favourable for firms to imitate other boards' proportions rather than taking risks by trial and error until they find the appropriate proportion of female or older people on the firm's board. Based on this argument, the average value of the board's gender and age are suitable for instrumental variables (AVEFEM and AVEAGE). This study uses a dummy version of FEMBOARD and AGEBOARD as dependent variables in the first-stage regression by providing value 1 if the FEMBOARD and AGEBOARD are above their median value and value 0 if it is stated otherwise.

Our Heckman's two-stage regression result is provided in Table 7. The first-stage regression shows only AVEFEM has statistically significant relationship (coef. = 0.074, t = 2.36) while AVEAGE does not (coef. = 0.115, t = 0.69). On the other side, this study found consistent results on the second-stage regression, both for FEMBOARD (coef. = 0.014, t = 2.73) and AGEBOARD (coef. = 0.040, t = 3.53). In regard to inverse mills ratio (IMR), it shows insignificant results on the FEMBOARD model (coef. = -0.738, t = -0.83) and but has statistically significant results on the AGEBOARD model (coef. = -5.816, t = -3.03). These consistent results confirm that the model is not fully clear from endogeneity issue, particularly unobserved variable issue, as one of the IMR coefficients showing statistically significant results.

Additional analysis
To expand this study's contribution, this study conducts some additional analyses on baseline regression results. The additional analyses include pre- and current-COVID-19, board position and incremental analysis. Each of the additional analyses will be described below:

Pre- and current-COVID-19 analysis
As mentioned in the previous section, Indonesia has a unique setting as the first case of COVID-19 was announced on 2 March 2019, while the global spreading of COVID-19 began at the end of 2019. Based on *de jure*, Indonesia has not experienced any COVID-19 cases in 2019. However, it is debatable when exactly the first case of COVID-19 (Ghaliya, 2020). Relying on a legal announcement from Indonesia's Government, 2019 was the pre-COVID-19 period and 2020 was the current-COVID-19 period. Uniquely, even though there was no legal announcement of COVID-19 cases in 2019, several firms already disclosed several COVID-19 keywords in their annual reports, as presented in Table 8. Some of them disclosed more than 100 COVID-19 keywords in their annual reports.

Based on these findings, this study splits the sample based on its year, and the regression results are presented in Table 9 below. To examine how female and aged board members respond to the potential global pandemic (even if it is not yet reached in Indonesia) is carried out based on a legal government announcement. The 2019 regression results show there are no statistically significant relationships, both for FEMBOARD (coef. = 0.012, t = 1.65) and AGEBOARD (coef. = 0.018, t = 1.26). On the other hand, when the COVID-19 pandemic has spread throughout Indonesia in 2020, it is shown both FEMBOARD (coef. = 0.019, t = 2.86) and AGEBOARD (coef. = 0.066, t = 3.78). This finding confirms that although women and aged boards are known for their risk-averse traits, their presence on firms' boards did not influence firms' COVID-19 exposure disclosure.

One possible explanation for the finding is due to the exaggeration of reacting on the COVID-19 when it does not directly impact firms' operations, even for boards known for their risk-averse traits. Moreover, as the most legitimate information source, the government

Variables	First-stage regression		Second-stage regression	
	DFEMBOARD	DAGEBOARD	COVID	COVID
FEMBOARD			0.014*** (2.73)	0.014*** (2.82)
AGEBOARD			0.041*** (3.58)	0.040*** (3.53)
AVEFEM	0.074** (2.36)			
AVEAGE		0.115 (0.69)		
IMR			−0.738 (−0.83)	−5.816*** (−3.03)
CONS	0.344 (0.35)	−8.985 (−0.98)	−5.910*** (−4.18)	8.799* (1.71)
Control variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R^2	0.065	0.079		
Adjusted R^2			0.184	0.193
N	861	861	861	861

Table 7.
Heckman two-stage regression

Notes: This table reports on Heckman's two-stage regression on 861 firm-year observations. The first two columns focus on the first-stage regression, where it uses the average value of female (AVEFEM) and age (AVEAGE) proportion in each industry year as instrumental variables. On the other hand, the last two columns report the second-stage regression analysis. This test was done after winsorising the data for 1 and 99%. t-statistics in parentheses *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

No. of COVID-19 keywords	No. of firms in 2019
0	103
1–20	114
21–40	102
41–60	49
61–80	17
81–100	12
>100	3

Table 8.
Number of firms disclose COVID-19 keywords

Notes: This table reports the firm's amount based on their COVID-19 keywords amount group in 2019. This analysis uses multiples of 20 keywords COVID-19 as differences between groups in observations

argued that Indonesia was not affected yet by COVID-19, at least until the end of 2019 (Ghaliya, 2020). The additional argument that supports this finding comes from several experts' opinions were stating COVID-19 can be included as a "black swan" phenomenon which cannot be predicted nor prepared before the event happened (Ahmad *et al.*, 2021; Wang and Liu, 2022; Yarovaya *et al.*, 2022). Thus, it's normal for firms to fail to provide an early response.

Board position analysis
As mentioned previously, there are two types of Indonesian firms' board: BOC and BOD. As BOC and BOD have different roles and responsibilities, it is expected to be interesting if this study specifically examines the relationship between female and age proportion with COVID-19 exposure in each board type. To orchestrate this test, this study calculates the female and age proportions for each specific board first. Secondly, this study regresses these

Variables	2019			2020		
	COVID	COVID	COVID	COVID	COVID	COVID
FEMBOARD	0.011 (1.55)		0.012 (1.65)	0.015** (2.21)		0.019*** (2.86)
AGEBOARD		0.016 (1.10)	0.018 (1.26)		0.059*** (3.38)	0.066*** (3.78)
CONS	−1.256 (−0.71)	−1.038 (−0.62)	−1.654 (−0.95)	−6.448*** (−3.70)	−4.999*** (−3.08)	−7.278*** (−4.23)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.047	0.051	0.054	0.177	0.167	0.190
Adjusted R^2	0.007	0.011	0.012	0.147	0.137	0.159
N	400	400	400	461	461	461

Notes: This table reports pre- and current-COVID-19 analysis. The first three columns focus only on 2019, which amounted to 400 firm-year observations, while the last three for 2020 encompassed 461 firm-year observations. This test was done after winsorising the data for 1 and 99%. t-statistics in parentheses *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

proportions for each board type and combines them into one model. The board position analysis result is presented in Table 10.

Based on the finding, only biological traits of BOD have positive relationship with COVID-19 exposure disclosure, both female (coef. = 0.014, t = 3.59) and age proportion (coef. = 0.031, t = 2.85). This result confirms although BOC needs to finalise the content of the annual report drafted by BOD, their biological traits do not correlate with COVID-19 exposure disclosure. One plausible rationale behind this result is based on the fact that every individual, including firms' boards, is exposed to information overload (Jackson and Farzaneh, 2012) and prone to cognitive constraint while making decisions under uncertainty (Lebiere and Anderson, 2011). During the early years of COVID-19, the information quantities are substantially increased and its reliability drops simultaneously. It is believed that BOC's focus is believed to be redirected to priority areas, such as how to keep running the business or maintain the budget to prevent mass layoffs. In other words, BOC only puts a small portion of their focus on firms' annual reports, which their risk-averse trait does not reflect.

Incremental analysis
Despite this, this study successfully confirms that both FEMBOARD and AGEBOARD are able to boost firms' COVID-19 exposure disclosure. This study is interesting to test whether FEMBOARD and AGEBOARD can increase COVID more than their peers or not. To execute this plan, this study constructs a new dependent variable, INCCOV, which is valued by differences between COVID and average COVID for each industry year. Based on Table 11, the findings confirm that both of FEMBOARD (coef. = 0.015, t = 2.86) and AGEBOARD (coef. = 0.039, t = 3.45) are positively related with INCOV. These statistically significant relationships confirm that both FEMBOARD and AGEBOARD are not only able to increase COVID-19 exposure disclosure and the disclosure value is higher compared to its peers in the same industry year at the same time.

Conclusion
This study examines the firms' risk preference towards COVID-19 exposure disclosure, represented by board characteristics. This study uses non-financial listed companies in

Variables	(1) COVID	(2) COVID	(3) COVID
FEMBOC	0.001 (0.25)		0.000 (0.00)
AGEBOC	0.018** (2.02)		0.011 (1.15)
FEMBOD		0.014*** (3.65)	0.014*** (3.59)
AGEBOD		0.035*** (3.38)	0.031*** (2.85)
CONS	−4.839*** (−3.46)	−6.282*** (−4.44)	−6.281*** (−4.38)
Control variables	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
R^2	0.189	0.205	0.207
Adjusted R^2	0.171	0.188	0.187
N	861	861	861

Table 10.
Board position analysis

Notes: This table reports the result of regression between female and aged individuals in each board position with COVID-19 exposure disclosure on 861 firm-year observations. The first column focuses only on the board of commissioners (BOC), while the second only focuses on the board of directors (BOD). The last column combines both BOC and BOD analysis. This test was done after winsorising the data for 1 and 99%. t-statistics in parentheses *p < 0.1, **p < 0.05 and ***p < 0.01

Variables	(2) INCCOV	(3) INCCOV	(4) INCCOV
FEMBOARD	0.013** (2.48)		0.015*** (2.86)
AGEBOARD		0.036*** (3.11)	0.039*** (3.45)
CONS	−7.821*** (−5.58)	−7.191*** (−5.39)	−8.417*** (−6.10)
Control variables	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
R^2	0.082	0.079	0.091
Adjusted R^2	0.064	0.062	0.072
N	861	861	861

Notes: This table reports incremental analysis on 861 firm-year observations. INCOV is generated based on the difference between the observation's COVID value and COVID average value in each industry year. This test was done after winsorising the data for 1 and 99%. t-statistics in parentheses *$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$

Table 11.
Incremental analysis

2019–2020 as the transition year between pre- and during the COVID-19 pandemic. This study's results confirm both female and aged individuals on boards tend to shape the firms' risk preference into risk-averse and disclose COVID-19 exposure. The results are robust as they use endogeneity tests to minimise self-selection bias. Furthermore, this study uses additional analysis tests to enhance the understanding of firm risk preference with the disclosure of COVID-19 exposure.

These findings contribute to literature and practitioners in several ways simultaneously. Firstly, this study provides additional literature on COVID-19 topics, especially in Indonesia, as the amount is still scarce. Current COVID-19 studies are dominated by its impact on several firms' conditions, such as its valuation (Bose *et al.*, 2022; Wang and Liu, 2022), financial performance (Kubiczek and Derej, 2021; Rababah *et al.*, 2020), operational process (Chen *et al.*, 2021; Nikolopoulos *et al.*, 2021) and so on. This study takes a different perspective on how the biological characteristics of firms' boards related to their response facing COVID-19. This study confirms although COVID-19 is a disruptive event, not every firm reacts similarly due to their different board characteristics.

Secondly, it also provides additional literature on management risk preference as prior studies are dominated by the CEO and CFO risk preferences only. This study agrees that CEO and CFO play pivotal roles in firms' decision-making, including annual reports and narratives, as confirmed in other studies (Dabbebi *et al.*, 2022; Li *et al.*, 2022). Nevertheless, during high levels of uncertainty, the normal decision-making process may not run as usual. Therefore, it is believed and confirmed all individual risk preferences in firms' boards are essential in determining firms' reports content, particularly COVID-19 exposure.

Thirdly, this study provides additional consideration for various pivotal economic players in responding to COVID-19 exposure disclosure, as firms' disclosure is one of the powerful instruments that can influence stakeholders' perception (Putra *et al.*, 2020). The firms' disclosed concern on COVID-19 is closely related to firms' board characteristics are crucial. For instance, panic selling from investors could be minimised if they are fully mindful that COVID-19 exposure disclosure is not solely due to the significance of COVID-19 harming firms but also reflective of firms' board characteristics. Another example is that various economic analysts can consider this finding not exaggerating COVID-19 exposure disclosure. Indeed, COVID-19 is a disruptive event, but it cannot wholly omit the boards' characteristics factor as it could provide massive misleading in public opinion.

Similar to other studies, this study also experienced some limitations. Firstly, this study uses an amount of COVID-19-related keywords to measure firms' COVID-19 disclosure levels, which may not entirely reflect firms' concerns about COVID-19. Future studies are suggested to use a more advanced level of content analysis, such as Troszyński and El-Ghamari (2022), Williamson *et al.* (2022) and Wu *et al.* (2022). Another limitation is the sources of COVID-19 disclosure levels are exclusively annual reports. On the other hand, the firms' reports can be disclosed in various channels. For instance, firms' websites, news from the media and so on. This study suggests oncoming studies consider these alternative information channels to provide a more comprehensive analysis of COVID-19 exposure disclosure.

Notes

1. Indonesia's ex-health minister, Dr Terawan Agus Putranto, several times was involved in controversial cases related to the preparation of COVID-19 in early 2020. He communicated to the public that COVID-19 was not a threat and asked the public to only pray without making any preparations. In addition, he also mentioned that the study conducted by Marc Lipsitch, a Professor of Epidemiology from Harvard University, which stated that many cases of COVID-19 were not detected in Indonesia, was a form of insult to Indonesia.

2. Several phenomena in Indonesia clarify the gender issue. For instance, the average salary of female workers is US$190, while men get an average wage of US$245. Currently, global gender gap pay is 16%, while on the other hand, Indonesia has 23%. Moreover, the informal sector and domestic work are dominated with female workers. The Central Statistical Bureau shows only 30% of women held managerial positions in public and private sectors. Recently, a draft law that allows female workers to take six months of maternity leave is causing controversy among business owners. In fact, some of them show reluctance in recruiting female workers if the law is passed and enforced.

3. www.esgi.ai/dataset/

References

Abdelfattah, T., Elmahgoub, M. and Elamer, A.A. (2021), "Female audit partners and extended audit reporting: UK evidence", *Journal of Business Ethics*, Vol. 174 No. 1, pp. 177-197, doi: 10.1007/s10551-020-04607-0.

Abdolmohammadi, M.J. (2005), "Intellectual capital disclosure and market capitalization", *Journal of Intellectual Capital*, Vol. 6 No. 3, pp. 397-416, doi: 10.1108/14691930510611139.

Abernethy, M.A., Jiang, L. and Kuang, Y.F. (2019), "Can organizational identification mitigate the CEO horizon problem?", *Accounting, Organizations and Society*, Vol. 78, doi: 10.1016/j.aos.2019.07.002.

Adams, R.B., Licht, A.N. and Sagiv, L. (2011), "Shareholders and stakeholders: how do directors decide?", *Strategic Management Journal*, Vol. 32 No. 12, pp. 1331-1355, doi: 10.1002/smj.940.

Adhikari, H.P., Krolikowski, M.W., Malm, J. and Sah, N.B. (2021), "Working capital (mis)management – impact of executive age", *Accounting and Finance*, Vol. 61 No. 1, pp. 727-761, doi: 10.1111/acfi.12591.

Agnihotri, A. and Bhattacharya, S. (2021), "CEO narcissism and myopic management", *Industrial Marketing Management*, Vol. 97, pp. 145-158, doi: 10.1016/j.indmarman.2021.07.006.

Ahmad, W., Kutan, A.M. and Gupta, S. (2021), "Black swan events and COVID-19 outbreak: sector level evidence from the US, UK, and European stock markets", *International Review of Economics and Finance*, Vol. 75, pp. 546-557, doi: 10.1016/j.iref.2021.04.007.

Allini, A., Manes Rossi, F. and Hussainey, K. (2016), "The board's role in risk disclosure", *An Exploratory Study of Italian Listed State-Owned Enterprises: Public Money and Management*, Vol. 36 No. 2, pp. 113-120, doi: 10.1080/09540962.2016.1118935.

Baldry, J.C. (1987), "Income tax evasion and the tax schedule: some experimental results", *Public Finance*, Vol. 42 No. 3, pp. 357-383.

Bamber, L.S., Jiang, J. and Wang, I.Y. (2010), "What's my style? The influence of top managers on voluntary corporate financial disclosure", *The Accounting Review*, Vol. 85 No. 4, pp. 1131-1162, doi: 10.2308/accr.2010.85.4.1131.

Barrett, G., Dooley, L. and Bogue, J. (2021), "Open innovation within high-tech SMEs: a study of the entrepreneurial founder's influence on open innovation practices", *Technovation*, Vol. 103, doi: 10.1016/j.technovation.2021.102232.

Benmelech, E. and Frydman, C. (2015), "Military CEOs", *Journal of Financial Economics*, Vol. 117 No. 1, pp. 43-59, doi: 10.1016/j.jfineco.2014.04.009.

Bintari, A. (2022), "Without data Indonesia's gender equality promise falters", *The Jakarta Post*, available at: www.thejakartapost.com/opinion/2022/03/08/without-data-indonesias-gender-equality-promise-falters.html

Birindelli, G., Dell'Atti, S., Iannuzzi, A.P. and Savioli, M. (2018), "Composition and activity of the board of directors: impact on ESG performance in the banking system", *Sustainability*, Vol. 10 No. 12, doi: 10.3390/su10124699.

Blackwell, M., Iacus, S., King, G. and Porro, G. (2009), "Cem: coarsened exact matching in stata", *The Stata Journal: Promoting Communications on Statistics and Stata*, Vol. 9 No. 4, pp. 524-546, doi: 10.1177/1536867X0900900402.

Bose, S., Shams, S., Ali, M.J. and Mihret, D. (2022), "COVID-19 impact, sustainability performance and firm value: international evidence", *Accounting and Finance*, Vol. 62 No. 1, pp. 597-643, doi: 10.1111/acfi.12801.

Cahaya, F.R. and Hervina, R. (2019), "Do human rights issues matter? An empirical analysis of Indonesian companies' reporting", *Social Responsibility Journal*, Vol. 15 No. 2, pp. 226-243, doi: 10.1108/SRJ-10-2016-0171.

Cahaya, F.R. and Yoga, G. (2020), "Corporate governance and voluntary disclosures: a story about corporate transparency from Indonesia", *International Journal of Monetary Economics and Finance*, Vol. 13 No. 3, pp. 269-278, doi: 10.1504/IJMEF.2020.108830.

Chen, S., Su, W., Chen, J. and Li, K.W. (2021), "The effects of COVID-19 on manufacturer operations: evidence from China", *Transformations in Business and Economics*, Vol. 20 No. 2, pp. 41-61, available at: www.scopus.com/inward/record.uri?eid=2-s2.0-85107923256&partnerID=40&md5=cb8467448d6f3620a220438e726760c4

Chidambaran, N.K., Liu, Y. and Prabhala, N. (2022), "Director diversity and inclusion: at the table but in the game?", *Financial Management*, Vol. 51 No. 1, pp. 193-225, doi: 10.1111/fima.12366.

Cho, Y.J., Kim, Y. and Zang, Y. (2020), "Information externalities and voluntary disclosure: evidence from a major customer's earnings announcement", *The Accounting Review*, Vol. 95 No. 6, pp. 73-96, doi: 10.2308/TAR-2017-0129.

Collins, C., Landivar, L.C., Ruppanner, L. and Scarborough, W.J. (2021), "COVID-19 and the gender gap in work hours", *Gender, Work and Organization*, Vol. 28 No. S1, pp. 101-112, doi: 10.1111/gwao.12506.

Cosentino, A. and Paoloni, P. (2021), "Women's skills and aptitudes as drivers of organizational resilience: an italian case study", *Administrative Sciences*, Vol. 11 No. 4, pp. 129-148, doi: 10.3390/admsci11040129.

Dabbebi, A., Lassoued, N. and Khanchel, I. (2022), "Peering through the smokescreen: ESG disclosure and CEO personality", *Managerial and Decision Economics*, doi: 10.1002/mde.3587.

Deloitte (2022), "Progress at a snail's pace: woman in the boardroom: a global perspective", Deloitte. available at: www2.deloitte.com/content/dam/Deloitte/global/Documents/gx-women-in-the-boardroom-seventh-edition.pdf

Derda, D. (2017), "International experience in upper echelon theory: literature review", *Business Systems Research*, Vol. 8 No. 2, pp. 126-142, doi: 10.1515/bsrj-2017-0021.

Deshpande, S.P. (1997), "Managers' perception of proper ethical conduct: the effect of sex, age, and level of education", *Journal of Business Ethics*, Vol. 16 No. 1, pp. 79-85, doi: 10.1023/A:1017917420433.

Dökme, İ., Açıksöz, A. and Koyunlu Ünlü, Z. (2022), "Investigation of STEM fields motivation among female students in science education colleges", *International Journal of STEM Education*, Vol. 9 No. 1, doi: 10.1186/s40594-022-00326-2.

Dwitami, A.P. (2021), "Improving gender equality in Indonesia: the importance of addressing gender norms", *Abdul Latif Jamell Poverty Action Lab*, available at: www.povertyactionlab.org/blog/12-20-21/improving-gender-equality-indonesia-importance-addressing-gender-norms#:~:text=In_Indonesia%2C_women's_roles_are,education%2C_health%2C_and_finance

El-Khatib, R. and Joy, N. (2021), "Do women directors improve firm performance and risk in India?", *The Quarterly Journal of Finance*, Vol. 11 No. 02, doi: 10.1142/S2010139221500063.

Eng, L.L. and Mak, Y.T. (2003), "Corporate governance and voluntary disclosure", *Journal of Accounting and Public Policy*, Vol. 22 No. 4, pp. 325-345, doi: 10.1016/S0278-4254(03)00037-1.

Fauzi, W.,. and Andalusia, Yasniwati. (2021), "Challenges of the board of commissioners in strengthening good corporate governance in state-owned insurance companies in Indonesia", *International Journal of Entrepreneurship*, Vol. 25 No. 6, available at: www.scopus.com/inward/record.uri?eid=2-s2.0-85114688298&partnerID=40&md5=a1c3f473dab69c315ad7d26850f23b08

Felício, J.A., Ivashkovskaya, I., Rodrigues, R. and Stepanova, A. (2014), "Corporate governance and performance in the largest European listed banks during the financial crisis", *Innovar*, Vol. 24 No. 53, pp. 83-98.

Fernandes, S.M., Bornia, A.C. and Nakamura, L.R. (2019), "The influence of boards of directors on environmental disclosure", *Management Decision*, Vol. 57 No. 9, pp. 2358-2382, doi: 10.1108/MD-11-2017-1084.

Francis, B., Hasan, I., Park, J.C. and Wu, Q. (2015), "Gender differences in financial reporting decision making: evidence from accounting conservatism", *Contemporary Accounting Research*, Vol. 32 No. 3, pp. 1285-1318, doi: 10.1111/1911-3846.12098.

Gamerschlag, R. (2013), "Value relevance of human capital information", *Journal of Intellectual Capital*, Vol. 14 No. 2, pp. 325-345, doi: 10.1108/14691931311323913.

Ghaliya, G. (2020), "Health minister Terawan urged to overhaul his communication skills", The Jakarta Post. available at: www.thejakartapost.com/news/2020/09/29/health-minister-terawan-urged-to-overhaul-his-communication-skills.html

Grove, H., Patelli, L., Victoravich, L.M. and Xu, P.T. (2011), "Corporate governance and performance in the wake of the financial crisis: evidence from US commercial banks", *Corporate Governance: An International Review*, Vol. 19 No. 5, pp. 418-436, doi: 10.1111/j.1467-8683.2011.00882.x.

Gurol, B. and Lagasio, V. (2022), "Women board members' impact on ESG disclosure with environment and social dimensions: evidence from the European banking sector", *Social Responsibility Journal*, Vol. 1, doi: 10.1108/SRJ-08-2020-0308.

Guthrie, J., Petty, R., Yongvanich, K. and Ricceri, F. (2004), "Using content analysis as a research method to inquire into intellectual capital reporting", *Journal of Intellectual Capital*, Vol. 5 No. 2, pp. 282-293, doi: 10.1108/14691930410533704.

Hambrick, D.C. (2007), "Upper echelons theory: an update", *Academy of Management Review*, Vol. 32 No. 2, pp. 334-343, doi: 10.5465/AMR.2007.24345254.

Hambrick, D.C. and Mason, P.A. (1984), "Upper echelons: the organization as a reflection of its top managers", *The Academy of Management Review*, Vol. 9 No. 2, pp. 193-206, doi: 10.2307/258434.

Hao, J., Xie, Z. and Sun, K. (2021), "Whose international experience matters more? Decision-makers with international experience in Chinese family firms", *Chinese Management Studies*, Vol. 1, doi: 10.1108/CMS-04-2020-0170.

Harymawan, I., Prabhawa, A.A., Nasih, M. and Putra, F.K.G. (2021a), "Risk management committee, auditor choice and audit fees", *Risks*, Vol. 9 No. 9.

Harymawan, I., Putra, F.K.G., Rizki, A. and Nasih, M. (2021b), "Innovation intensity of military-connected firms", *International Journal of Managerial Finance*, Vol. 1, doi: 10.1108/IJMF-12-2020-0616.

Harymawan, I., Nasih, M., Agustia, D., Putra, F.K.G. and Djajadikerta, H.G. (2022), "Investment efficiency and environmental, social, and governance reporting: perspective from corporate integration management", *Corporate Social Responsibility and Environmental Management*, doi: 10.1002/csr.2263.

Hassan, T.A., Hollander, S., van Lent, L. and Tahoun, A. (2019), "Firm-level political risk: measurement and effects", *The Quarterly Journal of Economics*, Vol. 134 No. 4, pp. 2135-2202, doi: 10.1093/qje/qjz021.

Hassan, T.A., Hollander, S., van Lent, L. and Tahoun, T. (2020), "Firm-level exposure to epidemic diseases: Covid-19, SARS, and H1N1", Institute for New Economic Thinking Working Paper Series, 1–46, doi: 10.36687/inetwp119

Hassan, T.A., Hollander, S., Van Lent, L. and Tahoun, A. (2021), "The global impact of Brexit uncertainty (no. 26609)", available at: www.nber.org/system/files/working_papers/w26609/w26609.pdf

Haynes, K. (2017), "Accounting as gendering and gendered: a review of 25 years of critical accounting research on gender", *Critical Perspectives on Accounting*, Vol. 43, pp. 110-124, doi: 10.1016/j.cpa.2016.06.004.

He, Y., Chen, C. and Hu, Y. (2019), "Managerial overconfidence, internal financing, and investment efficiency: evidence from China", *Research in International Business and Finance*, Vol. 47, pp. 501-510, doi: 10.1016/j.ribaf.2018.09.010.

Huang, H.-W., Rose-Green, E. and Lee, C.-C. (2012), "CEO age and financial reporting quality", *Accounting Horizons*, Vol. 26 No. 4, pp. 725-740, doi: 10.2308/acch-50268.

IFC (2018), *Indonesia Corporate Governance Manual*, Second Ed., International Finance Corporation, doi: 10.1596/30122.

Jackson, T.W. and Farzaneh, P. (2012), "Theory-based model of factors affecting information overload", *International Journal of Information Management*, Vol. 32 No. 6, pp. 523-532, doi: 10.1016/j.ijinfomgt.2012.04.006.

Johnson, J.E.V. and Powell, P.L. (1994), "Decision making, risk and gender: are managers different?", *British Journal of Management*, Vol. 5 No. 2, pp. 123-138, doi: 10.1111/j.1467-8551.1994.tb00073.x.

Kang, H., Cheng, M. and Gray, S.J. (2007), "Corporate governance and board composition: diversity and independence of Australian boards", *Corporate Governance: An International Review*, Vol. 15 No. 2, pp. 194-207, doi: 10.1111/j.1467-8683.2007.00554.x.

Khlif, H. and Achek, I. (2017), "Gender in accounting research: a review", *Managerial Auditing Journal*, Vol. 32 No. 6, pp. 627-655, doi: 10.1108/MAJ-02-2016-1319.

Korolyova, N., Nugmanova, M., Salimzhanova, A. and Lipovka, A. (2021), "Comparative influence of gender, age, industry and management level on communication", *Problems and Perspectives in Management: Problems and Perspectives in Management*, Vol. 19 No. 2, pp. 170-182, doi: 10.21511/ppm.19(2).2021.14.

Krippendorff, K. (2004), *Content Analysis: An Introduction to Its Methodology*, 4th ed., Sage Publications, New York, NY.

Kubiczek, J. and Derej, W. (2021), "Financial performance of businesses in the Covid-19 pandemic conditions – comparative study", *Polish Journal of Management Studies*, Vol. 24 No. 1, pp. 183-201, doi: 10.17512/pjms.2021.24.1.11.

Le, H.T.M., Nguyen, T.T., Pham, V.T. and Vo, T.T. (2020), "The impacts of ceo age and education level on earnings management: evidence from listed Vietnamese real estate firms", *Institutions and*

Economies, Vol. 12 No. 4, pp. 71-91. available at: www.scopus.com/inward/record.uri?eid=2-s2.0-85095717509&partnerID=40&md5=100391cf9224cb075b48434933c0e337

Lebiere, C. and Anderson, J. (2011), "Cognitive constraints on decision making under uncertainty", *In Frontiers in Psychology*, Vol. 2, doi: 10.3389/fpsyg.2011.00305.

Levin, I.P., Snyder, M.A. and Chapman, D.P. (1988), "The interaction of experiential and situational factors and gender in a simulated risky decision-making task", *The Journal of Psychology*, Vol. 122 No. 2, pp. 173-181, doi: 10.1080/00223980.1988.9712703.

Li, P., Song, C., Wang, J.J. and Zheng, H. (2022), "CFOs' audit experience and corporate disclosure quality: evidence from China", *Accounting and Finance*, Vol. 1, doi: 10.1111/acfi.12914.

Liu, D., Zhu, T., Huang, X., Wang, M. and Huang, M. (2021), "Narcissism and entrepreneurship: a systematic review and an agenda for future research", *Frontiers in Psychology*, Vol. 12, doi: 10.3389/fpsyg.2021.657681.

Loughran, T., McDonald, B. and Yun, H. (2009), "A wolf in sheep's clothing: the use of ethics-related terms in 10-K reports", *Journal of Business Ethics*, Vol. 89 No. S1, pp. 39-49, doi: 10.1007/s10551-008-9910-1.

Lu, W., Zhu, N. and Zhang, J. (2021), "The impact of carbon disclosure on financial performance under low carbon constraints", *Energies*, Vol. 14 No. 14, doi: 10.3390/en14144126.

Luo, L., Stoeger, H. and Subotnik, R.F. (2022), "The influences of social agents in completing a STEM degree: an examination of female graduates of selective science high schools", *International Journal of STEM Education*, Vol. 9 No. 1, doi: 10.1186/s40594-021-00324-w.

McGuinness, P.B. (2021), "Board member age, stock seasoning and the evolution of capital structure in Chinese firms", *International Business Review*, Vol. 30 No. 3, doi: 10.1016/j.ibusrev.2020.101769.

McLaren, H.J., Wong, K.R., Nguyen, K.N. and Mahamadachchi, K.N. (2020), "Covid-19 and women's triple burden: Vignettes from Sri Lanka, Malaysia, Vietnam and Australia", *In Social Sciences*, Vol. 9 No. 5, doi: /10.3390/socsci9050087.

Ministry of Investment (2020), "A positive outlook from Indonesia investment realization Q3 2020", Ministry of Investment. available at: www.investindonesia.go.id/en/article-investment/detail/a-positive-outlook-from-indonesia-investment-realization-q3-2020

Motokawa, K. (2015), "Human capital disclosure, accounting numbers, and share price", *Journal of Financial Reporting and Accounting*, Vol. 13 No. 2, pp. 159-178, doi: 10.1108/JFRA-04-2014-0023.

Musviyanti, Ulfah, Y. and Yudaruddin, Y.A. (2021), "Women on board, firm size and cash holding: empirical evidence from the developing country", *Journal of Governance and Regulation*, Vol. 10 No. 3, pp. 177-185, doi: 10.22495/JGRV10I3ART16.

Nani, G.V. (2016), "Pioneer or imitate? An analysis of business imitations", *Problems and Perspectives in Management*, Vol. 1, doi: 10.21511/ppm.14(3-3).2016.12.

National Committee on Governance (2006), "Indonesia's code of good corporate governance", available at: https://ecgi.global/download/file/fid/9661

News Desk (2020), "Covid-19 has deepened Indonesia's gender inequality, says Sri Mulyani", The Jakarta Post. available at: www.thejakartapost.com/news/2020/11/19/covid-19-has-deepened-indonesias-gender-inequality-says-sri-mulyani.html

Nikolopoulos, K., Tsinopoulos, C. and Vasilakis, C. (2021), "Operational research in the time of COVID-19: the 'science for better' or worse in the absence of hard data1", *Journal of the Operational Research Society*, Vol. 1, doi: 10.1080/01605682.2021.1930208.

Ofori-Sasu, D., Sarpong, M.O., Tetteh, V. and Kusi, B.A. (2022), "Banking disclosure and banking crises in Africa: does board gender diversity play a role?", *Humanities and Social Sciences Communications*, Vol. 9 No. 1, doi: 10.1057/s41599-021-01019-x.

Oradi, J. and E-Vahdati, S. (2021), "Female directors on audit committees, the gender of financial experts, and internal control weaknesses: evidence from Iran", *Accounting Forum*, Vol. 45 No. 3, pp. 273-306, doi: 10.1080/01559982.2021.1920127.

Popović-Pantić, S., Semenčenko, D. and Vasilić, N. (2020), "Women entrepreneurship in the time of COVID-19 pandemic: the case of Serbia", *Journal of Women's Entrepreneurship and Education*, Vols. 3/4, pp. 23-40, doi: 10.28934/jwee20.34.pp23-40.

Powell, M. and Ansic, D. (1997), "Gender differences in risk behavior in financial decision-making: an experimental analysis", *Journal of Economic Psychology*, Vol. 18 No. 6, pp. 605-628, doi: 10.1016/S0167-4870(97)00026-3.

Putra, F.K.G., Harymawan, I., Nasih, M. and Agustia, D. (2020), "A quest to minimize the cost of debt by utilizing human resources disclosure", *Polish Journal of Management Studies*, Vol. 21 No. 2, pp. 342-355, doi: 10.17512/pjms.2020.21.2.24.

Rababah, A., Al-Haddad, L., Sial, M.S., Chunmei, Z. and Cherian, J. (2020), "Analyzing the effects of COVID-19 pandemic on the financial performance of Chinese listed companies", *Journal of Public Affairs*, Vol. 20 No. 4, doi: 10.1002/pa.2440.

Rambe, P. and Mangara, T.B. (2016), "Influence of integrated reporting ratings, CEO age, and years of experience on the share price of top 106 JSE listed companies", *Problems and Perspectives in Management*, Vol. 14 No. 3, pp. 216-231, doi: 10.21511/ppm.14(3-1).2016.08.

Räsänen, P., Näsi, M. and Sarpila, O. (2012), "Old and new sources of risk: a study of societal risk perception in Finland", *Journal of Risk Research*, Vol. 15 No. 7, pp. 755-769, doi: 10.1080/13669877.2012.657218.

Reeb, D., Sakakibara, M. and Mahmood, I.P. (2012), "From the editors: endogeneity in international business research", *Journal of International Business Studies*, Vol. 43 No. 3, pp. 211-218, doi: 10.1057/jibs.2011.60.

Saggar, R., Arora, N. and Singh, B. (2021), "Gender diversity in corporate boardrooms and risk disclosure: Indian evidence", *Gender in Management*, Vol. 1, doi: 10.1108/GM-06-2020-0174.

Said, R., Omar, N. and Nailah Abdullah, W. (2013), "Empirical investigations on boards, business characteristics, human capital and environmental reporting", *Social Responsibility Journal*, Vol. 9 No. 4, pp. 534-553, doi: 10.1108/SRJ-02-2012-0019.

Samara, G., Jamali, D. and Lapeira, M. (2019), "Why and how should SHE make her way into the family business boardroom?", *Business Horizons*, Vol. 62 No. 1, pp. 105-115, doi: 10.1016/j.bushor.2018.09.001.

Sartawi, I.I.S.M., Hindawi, R.M., Bsoul, R.M.M. and Ali, A.J. (2014), "Board composition, firm characteristics, and voluntary disclosure: the case of Jordanian firms listed on the Amman stock exchange", *International Business Research*, Vol. 7 No. 6, pp. 67.

Seebeck, A. and Vetter, J. (2021), "Not just a gender numbers game: how board gender diversity affects corporate risk disclosure", *Journal of Business Ethics*, Vol. 1, doi: 10.1007/s10551-020-04690-3.

Shad, A.A., Vaezi, H. and Shad, L.A. (2011), "Entrepreneurship and the role of women in international management: achievements and obstacles", *International Journal of Business and Globalisation*, Vol. 6 No. 2, pp. 169-181, doi: 10.1504/IJBG.2011.038488.

Shin, Y.Z., Chang, J.-Y., Jeon, K. and Kim, H. (2020), "Female directors on the board and investment efficiency: evidence from Korea", *Asian Business and Management*, Vol. 19 No. 4, pp. 438-479, doi: 10.1057/s41291-019-00066-2.

Shropshire, C., Peterson, S., Bartels, A.L., Amanatullah, E.T. and Lee, P.M. (2021), "Are female CEOs really more risk averse? Examining economic downturn and other-orientation", *Journal of Leadership and Organizational Studies*, Vol. 28 No. 2, pp. 185-206, doi: 10.1177/1548051821997404.

Tahir, H., Masri, R. and Rahman, M.M. (2020), "Impact of board attributes on the firm dividend payout policy: evidence from Malaysia", *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 5, pp. 919-937, doi: 10.1108/CG-03-2020-0091.

Terjesen, S., Aguilera, R.V. and Lorenz, R. (2015), "Legislating a woman's seat on the board: Institutional factors driving gender quotas for boards of directors", *Journal of Business Ethics*, Vol. 128 No. 2, pp. 233-251, doi: 10.1007/s10551-014-2083-1.

The Jakarta Post (2020), "Covid-19 has deepened Indonesia's gender inequality, says Sri Mulyani", *The Jakarta Post, Covid-19 has deepened Indonesia's gender*, www.thejakartapost.com/news/2020/11/19/covid-19-has-deepened-indonesias-gender-inequality-says-sri-mulyani.html

Troszyński, M. and El-Ghamari, M. (2022), "A great divide: polish media discourse on migration, 2015–2018", *Humanities and Social Sciences Communications*, Vol. 9 No. 1, doi: 10.1057/s41599-021-01027-x.

Tsang, A., Xie, F. and Xin, X. (2019), "Foreign institutional investors and corporate voluntary disclosure around the world", *The Accounting Review*, Vol. 94 No. 5, pp. 319-348, doi: 10.2308/accr-52353.

Tuo, L., Yu, J. and Zhang, Y. (2020), "How do industry peers influence individual firms' voluntary disclosure strategies?", *Review of Quantitative Finance and Accounting*, Vol. 54 No. 3, doi: 10.1007/s11156-019-00811-w.

Van Knippenberg, D., van Ginkel, W.P. and Homan, A.C. (2013), "Diversity mindsets and the performance of diverse teams", *Organizational Behavior and Human Decision Processes*, Vol. 121 No. 2, pp. 183-193, doi: 10.1016/j.obhdp.2013.03.003.

Vroom, V.H. and Pahl, B. (1971), "Relationship between age and risk taking among managers", *In Journal of Applied Psychology*, Vol. 55 No. 5, pp. 399-405, doi: 10.1037/h0031776.

Waldman, D.A., Javidan, M. and Varella, P. (2004), "Charismatic leadership at the strategic level: a new application of upper echelons theory", *The Leadership Quarterly*, Vol. 15 No. 3, pp. 355-380, doi: 10.1016/j.leaqua.2004.02.013.

Wan, P., Chen, X. and Ke, Y. (2020), "Does corporate integrity culture matter to corporate social responsibility? Evidence from China", *Journal of Cleaner Production*, Vol. 259, doi: 10.1016/j.jclepro.2020.120877.

Wang, Q. and Liu, L. (2022), "Pandemic or panic? A firm-level study on the psychological and industrial impacts of COVID-19 on the Chinese stock market", *Financial Innovation*, Vol. 8 No. 1, doi: 10.1186/s40854-022-00335-8.

Wang, L., Jiang, W. and Ma, X. (2021), "The effect of CEO entrepreneurial orientation on firm strategic change: the moderating roles of managerial discretion", *Journal of Engineering and Technology Management*, Vol. 59, doi: 10.1016/j.jengtecman.2021.101616.

Weli, W., Sjarief, J. and Madyakusumawati, S. (2020), "Supervision mechanism and quality of the internal control system disclosure", *Accounting*, Vol. 6 No. 7, pp. 1419-1428, doi: 10.5267/j.ac.2020.8.007.

White, J.V. and Borgholthaus, C.J. (2022), "Who's in charge here? A bibliometric analysis of upper echelons research", *Journal of Business Research*, Vol. 139, pp. 1012-1025, doi: 10.1016/j.jbusres.2021.10.028.

WHO (2020), "Coronavirus disease 2019 (COVID-19): situation report - 1", available at: www.who.int/docs/default-source/searo/indonesia/covid19/who-indonesia-situation-report-1.pdf?sfvrsn=6be5b359_0

Williamson, A.J., Battisti, M. and Pollack, J.M. (2022), "Capturing passion expressed in text with artificial intelligence (AI): affective passion waned, and identity centrality was sustained in social ventures", *Journal of Business Venturing Insights*, Vol. 17, doi: 10.1016/j.jbvi.2021.e00295.

Wood, W. and Eagly, A.H. (2009), "Gender identity", *The Handbook of Individual Differences in Social Behavior*, The Guilford Press New York, NY pp. 109-125.

Wu, X., Shi, L., Lu, X., Li, X. and Ma, L. (2022), "Government dissemination of epidemic information as a policy instrument during COVID-19 pandemic: evidence from Chinese cities", *Cities*, Vol. 125, doi: 10.1016/j.cities.2022.103658.

Xu, Y., Zhang, L. and Chen, H. (2018), "Board age and corporate financial fraud: an interactionist view", *Long Range Planning*, Vol. 51 No. 6, pp. 815-830, doi: 10.1016/j.lrp.2017.08.001.

Yarovaya, L., Matkovskyy, R. and Jalan, A. (2022), "The COVID-19 black swan crisis: reaction and recovery of various financial markets", *Research in International Business and Finance*, Vol. 59, doi: 10.1016/j.ribaf.2021.101521.

Yeoh, S.-B. and Hooy, C.-W. (2020), "CEO age and risk-taking of family business in Malaysia: the inverse S-curve relationship", *Asia Pacific Journal of Management*, Vol. 1, doi: 10.1007/s10490-020-09725-x.

Zhang, Z., Wang, X. and Jia, M. (2021a), "Echoes of CEO entrepreneurial orientation: how and when CEO entrepreneurial orientation influences dual CSR activities", *Journal of Business Ethics*, Vol. 169 No. 4, pp. 609-629, doi: 10.1007/s10551-020-04553-x.

Zhang, Z., Wang, X. and Jia, M. (2021b), "Poverty as a Double-Edged sword: how CEOs' childhood poverty experience affects firms' risk taking", *British Journal of Management*, Vol. 1, doi: 10.1111/1467-8551.12515.

Further reading

Sakai, M. and Isbah, M.F. (2014), "Limits to religious diversity practice in Indonesia: case studies from religious philanthropic institutions and traditional Islamic schools", *Asian Journal of Social Science*, Vol. 42 No. 6, pp. 722-746. available at: www.jstor.org/stable/43495835

Suherdjoko (2017), "Diversity 'source of power' in Indonesia: Jokowi", *The Jakarta Post*, available at: www.thejakartapost.com/news/2017/01/08/diversity-source-of-power-in-indonesia-jokowi.html

Tarahita, D. and Rakhmat, M.Z. (2018), "Indonesia needs to address persistent gender inequality problem", *The Globe Post*, available at: https://theglobepost.com/2018/06/18/gender-inequality-indonesia-women/

Appendix

Variable	Definition	Source
Dependent variable:		
COVID	Natural logarithm of total number of keywords found in the annual report (COVID, COVID-19, CoronaVirus, 2019-nCoV and Sars-Cov-2)	TMAILC
Independent variables:		
AGEBOARD	Total number of boards age divided by the total number of boards	Annual report
FEMBOARD	Total number of female boards divided by the total number of boards	Annual report
Control variables:		
FINBOARD	Total number of boards with financial background divided by the total number of boards	Annual report
BIG4	Dummy of 1 for the firm's public accountant firm is Deloitte, EY, KPMG, PWC and otherwise 0	Annual report
INDCOM	Total number of independent commissioners	Annual report
BSIZE	Total number of commissioners plus directors	Annual report
FSIZE	Natural logarithm of total assets	Osiris
MTB	Market capital divided by total assets minus total liabilities and debts	Osiris
LEV	Total liabilities and debts divided by total assets	Osiris

Table A1.
Operational variable definition

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