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Elmarzouky, Mahmoud; Albitar, Khaldoon; Hussainey, Khaled

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Covid-19 and performance disclosure: Does governance matter?

Mahmoud Elmarzouky, Khaldoon Albitar & Khaled Hussainey

Abstract

Purpose: This paper investigates whether Covid-19 related information is associated with a higher level of performance disclosure in the annual reports. Furthermore, it examines the moderating effect of corporate governance on the relationship between Covid-19 and the performance disclosure by using three governance mechanisms: board size, board independence, and gender diversity.

Methodology: We use quantitative content analysis. We applied an automated textual analysis technique to measure the level of Covid-19 information and performance disclosure for the UK FTSE all-share non-financial firms.

Findings: We found a significant positive relationship between the Covid-19 disclosure and the firm performance disclosure in the annual reports. We also find that both board independence and gender diversity moderate the relationship between the Covid-19 related information and the level of performance disclosure in the annual reports. We further run a robustness analysis, which confirms our main results.

Originality: We contribute to the literature in a unique and core research area not researched previously. Our paper links the Covid-19 disclosure with the firm performance from the corporate narrative perspective. Our paper underlines governance factors as a moderating role in this relationship by considering three main mechanisms: board size, board independence, and gender diversity.

Practical and social implications: Our finding is beneficial for the regulatory setters to better understand whether firms provide generic or meaningful Covid-19 information linked to the firm's performance. The unique findings of this paper are relevant to regulators, governments, management, shareholders, and academics.

Keywords: Covid-19 disclosure; Performance disclosure; Board size; Board independence; Gender diversity; Textual analysis.

1. Introduction

The UK faces the most challenging economic turbulence since the global financial crisis (GFC) (Goodell, 2020: Albitar et al., 2021a). Covid-19 pandemic is acting as a catalyst for increasing uncertainty about firm performance. While the financial institutions' performance mainly caused the financial crisis, the Covid-19 pandemic is a global natural crisis and has no institution sector to be blamed. The UK GDP growth has declined by 35% in some sectors such as construction, while other industries are not negatively affected. To deliver this message to stakeholders, managers may associate their Covid-19 information with more performance disclosure. Covid-19 is classified as systematic risk, so managers would like to disclose their ability to mitigate this risk. The UK also has imposed various levels of lockdowns, which increase the uncertainty about firm performance. According to the signalling theory (Spencer, 2002; Connelly et al., 2011), business entities may disclose Covid-19 related information associated with performance disclosure to send positive signals to stakeholders and markets regarding handling the current situation and provide more assurance about the firm future performance.

Based on the Trueman theory (Trueman, 1986), we argue that managers will demonstrate their skills and abilities by increasing the level of performance disclosure associated with any communicated Covid-19 information. This is to provide stakeholders with a positive assessment of their management abilities. The performance disclosure will predict any changes caused by the Covid-19 pandemic and, therefore, aid in selecting appropriate mitigation plans. Additionally, performance disclosure indicates a strong position for the firm in the future, which may entail a higher share price being interpreted by the capital markets (Trueman, 1986).

Financial Reporting Council (FRC) has issued a framework on corporate governance and COVID 19 reporting to encourage firms to provide information on how they impacted and reacted to the Covid-19 pandemic. FRC has also issued a framework on corporate governance and reporting to companies. It is believed that the narrative sections of the annual reports could provide an opportunity for companies to communicate the impact of the Covid-19 pandemic on their activities and the proposed actions to be taken. The framework highlights the importance of communicating meaningful information (rather than generaic information) in the narrative sections of the annual reports. We are, herefore, motivated by considering whether companies provide meaningful or generic information related to Covid-19 and how this information is linked to performance-related information.

Recently published research related to Covid-19 were mainly focused on either the future of financial reporting (Hassan et al. 2021) or the theoretical perception of Covid-19 across financial markets, banking and insurance entities, and government and public entities (Nabity-Grover, et al., 2020; Donthu & Gustafsson, 2020) or the finance reaction on the market such as stock return (Broadstock et al., 2020; Erdem, 2020: Wang et al., 2020) or stock volatility (Mazur et al. 2020; Salisu & Vo, 2020). At the same time, other research focused on financial performance pre and post Covid-19 (Khatib et al., 2021) or the ESG disclosure impacts on financial performance during the Covid-19 crisis (Broadstock et al., 2020) or discusses the determiants of Covid-19 in the CSR reports (Albitar et al., 2021b). which raises whether Covid-19 related information associates with a higher level of performance disclosure in the annual reports. We examined how Covid-19 disclosure affects the firm's performance disclosure. Furthermore, we examine the moderating effect of corporate governance in enhancing the relationship between Covid-19 and the performance disclosure by using board size, board independence, and gender diversity.

Furthermore, we run a robustness check using subsample groups of various board size, board independence, and gender diversity to better understand the association between the Covid-19 disclosure and firm performance disclosure. We use the 'performance disclosure index' to capture the performance score in the annual reports (El-Haj et al., 2016). Further, we used our self-developed index to measure Covid-19 disclosure.

We find a significant positive association between the level of Covid-19 disclosure and performance disclosure in annual reports. We also found that board independence and gender diversity play a crucial role in the relationship between Covid-19 disclosure and firm performance disclosure. Unlike the board size, our data could not suggest any moderating effect of the board size in enhancing the relationship between Covid-19 and performance disclosure. Moreover, following the literature, we use a subsample group to understand whether the effect of Covid-19 disclosure on performance varies with changes in board size, board independence, and gender diversity (Ahmed & Courtis, 1999; Chen & Jaggi, 2000; Ntim et al., 2013; Albitar et al., 2020). Interestingly, our results show that the relationship between the Covid-19 disclosure and performance disclosure is positive and significant with increasing board size. Also, both the significant and coefficient levels are higher when board independence and gender diversity percentages are above the mean.

Our study offers several contributions to accounting and governance literature. First, as our theoretical contribution, building on the Trueman theory, we argue that managers demonstrate their abilities by voluntarily communicating more performance disclosure associated with any communicated Covid-19 information. This is to provide investors with a positive assessment of the abilities of the management. Therefore aids in selecting appropriate mitigation plans. We are the first to apply the Trueman theory in the context of Covid-19 and performance disclosures. Second, we also contribute to the literature by investigating the relationship between Covid-19 and performance disclosure. Third, we also contribute by investigating how firm corporate governance mechanisms moderate the association between the level of Covid-19 disclosure and performance information in annual reports.

The rest of the paper is structured as follows. Section 2 reviews the literature and develops the research hypotheses. Section 3 discusses the research method. Section 4 shows the empirical results and robustness check. Section 5 concludes.

2. Literature Review and Hypotheses development

2.1 Covid-19 disclosure and the firm performance disclosure

Trueman theory suggests that investors determine the firm's value through their perception of the management's adaptability to the economic environment within which the firm operates (Trueman, 1986). It also suggests that talent managers wish to demonstrate their skills and/or expertise by making voluntary earnings forecasts. This would be performed as a bid to disclose their ability (Trueman, 1986; Healy & Palepu, 2001; Graham et al., 2005; Yu, 2016). Managers can issue earnings forecasts in advance of actual earnings because of their future perspective on and insider knowledge concerning the firm. These earlier announcements are reducing the information asymmetries between insiders and outsiders. Management forecasts provide investors with an advanced assessment of the managers' plans and projects that can increase firm value (Trueman 1986; Healy & Palepu, 2001; Graham et al., 2005).

By adopting this theory, the idea Trueman proposed was that talent managers wish to demonstrate their prowess by making a voluntary disclosure and thus, we argue that managers will increase the level of performance information associated with any communicated Covid-19 information. The aim of disclosing performance information linked with Covid-19 disclosure would be to provide investors with a positive assessment of the abilities of the management. The performance disclosure mainly predicts changes within the economic turbulence such as the Covid-19 pandemic within which the relevant company operates and would, therefore, aid in selecting appropriate mitigation plans. It may be suggested that performance disclosure may indicate a strong position for the company in the future, which may entail a higher share price being interpreted by the capital markets.

Additionally, from a stakeholder's perspective, investors demand extensive disclosure of Covid-19 related information and how firms have been affected by Covid-19 (Broadstock et al., 2020). Thus, firms in the UK have enough incentive to provide more information regarding how Covid-19 has impacted the performance. Linking Covid-19 disclosure with the performance information could provide stakeholders with a better understanding of the firms' current and future performance by showing how managers handle the crisis and mitigate the risk. When the management communicates Covid-19 related information, these need to be associated with more performance disclosure. This is to avoid any under or over-valuation of the expected performance of the firm. Delivering the right level of performance disclosure with Covid-19 information will mitigate any adverse effect on the stakeholder's perceptions. Whether Covid-19 has a positive or negative effect on the performance, management would like to make sure that stakeholders have the correct information that estimates the impact of Covid-19 on the performance; thus, they will increase the level of performance disclosure. Firm managers tend to provide more information about firm performance as they can use this performance disclosure in signalling their ability in responding to the Covid-19 pandemic. The reporting of performance information associated with Covid-19 by management to investors through annual reports signals their adaptability and details their perceptions and their actions; for example, they alter the consequences of the Covid-19 pandemic. The reporting of such information to investors in annual reports aids in reducing uncertainty in the capital markets and strengthens the firm's share prices (Broadstock et al., 2020; Erdem, 2020). Thus, we hypothesise that:

H1: Ceteris paribus, there is a positive association between the level of Covid-19 disclosure and performance disclosure in annual report narratives.

2.2 The moderating role of corporate governance

In general, strong governance affects management decision-making regarding strategies related to Covid-19 disclosure and performance disclosure (Giannarakis et al., 2014; Husted and Sousa-Filho, 2018; Broadstock et al., 2020). So good corporate governance helps to increase the different opinions and the quality of the discussion related to the disclosure process (Allegrini and Greco, 2011: Elmagrhi et al., 2019). According to the agency theory, better governance will mitigate the agency conflict between the management and the stakeholders (Adams and Ferreira 2009; Allegrini and Greco, 2011). Better corporate governance can plan a crucial role in firms to provide more voluntary disclosure to better inform investors (Yu, 2011; Alshbili et al., 2019: Elamer et al., 2019; Enache and Hussainey 2020; Al-Faryan and Dockery 2020; González et al., 2020). Governance could encourage increasing the level of information communicated with the stakeholders that linked the Covid-19 and, therefore, the firm performance disclosure. Following (Allini et al.,2016: Karim et al.,2021; AlHares et al. 2020), we proxied the governance power using board independence, board size and gender diversity to represent the strength of corporate governance as these are the most popular governance indicators in the disclosure domain. The bigger board will be intended to disclose more information to stakeholders to reduce the information asymmetry (Alnabsha et al., 2019; Al-Faryan and Dockery 2020; Buertey et al. 2020; Elmagrhi et al. 2020). Also, independent directors have no financial benefit from the companies apart from the fixed director salary (Rao et al., 2013; Abrahamson and Park, 1994); therefore, their presence will increase governance power, better-governed companies are more liable (Alshbili et al., 2019), thus increasing voluntary disclosure in general (Allini et al., 2016; Elshandidy et al., 2015; Shan, 2019; Enache and Hussainey 2020), and in particular increasing Covid-19, performance disclosure in the annual reports. Gender diversity also has an impact on firm performance disclosure (Jain and Jamali, 2016). Therefore, more diversified board diversity will likely improve disclosure. Therefore, corporate governance ensures more transparent disclosure (Healy and Palepu, 2001). Good corporate governance could increase the level of Covid-19 related information in the annual report, which will, therefore, enhance and contribute to a higher level of performance disclosure. Thus, we hypothesise that:

H2: Ceteris paribus, Corporate governance mechanisms moderate the association between Covid-19 disclosure and performance disclosure in annual report narratives.

3. Research method

3.1 Sample and data collection

We use the computerised textual analysis to score the Covid-19 disclosure and the performance disclosure in the annual reports. Our paper includes a sample of FTSE All-share non-financial listed firms, and we relied on the annual reports published in 2020. The original number of firms was 603, and after excluding the financial firms and firms with missing data, the final sample is 225 firm observations. We excluded the financial firms due to the differences in the disclosure regulations. We downloaded the annual reports from the firm's websites. We collected other related variables from Bloomberg terminal and Eikon databases.

3.2 Variables Measurement

Covid-19 disclosure

We measured the Covid-19 disclosure using a computerised textual analysis method using a computerised software developed by Lancaster University (CFIE-FRSE) to develop a measurement based on a Covid-19 disclosure bag of words. We use the wordlist developed by Elmarzouky et al. (2020) constructed based on the Covid-19 Secure Guidelines published by the UK Government (GOV.UK, 2020). Appendix 1 shows an example of the original word list used for measuring COVID-19 disclosure. We double-checked the score for a random sample manual to assess the reliability of the measurement; the results remain consistent. We also used Nvivo 12 pro as another validation of the measurement by re-scoring a random sample, and also the results remain consistent.

Performance disclosure in the annual reports

We measured the performance disclosure in the annual report using the computerised textual analysis method using computerised software (CFIE) based on the performance wordlist (El-Haj et al., 2016). See appendix 2 for performance-related keywords.

3.3 Research Model

The paper uses multivariate regression models to investigate the relationship between the Covid-19 disclosure and the performance disclosure in the annual reports. To illuminate the industry effect, we have controlled for the industry fixed effect. We used the industry classification to create the dummies based on the SIC one-digit industry classification. The model is as follow:

$LnPerf = \beta0 + \beta1\ Covid\text{-}19 + \beta2\ BS + \beta3\ IND + \beta4\ GD + \beta5\ TA + \beta6\ CR + \beta7\ ROA + Industry\ Fixed\ Effects + \varepsilon$

Performance (LnPerf): Measured based on the performance wordlist (El-Haj et al., 2016).

Covid-19 disclosure: Measured by the wordlist developed by Elmarzouky et al. (2020). (see appendix 1).

Board Size (BS): The number of directors on the firm's board is used to measure board size (Allegrini and Greco, 2011; Albitar, 2015; Allini et al., 2016; Orazalin, 2019; Gerged et al., 2021).

Independent non-executive directors (IND): The percentage of independent non-executive directors (Albitar, 2015; Allini et al., 2016; Salem et al., 2019; Gerged et al., 2021).

Gender diversity (GD): The percentage of women on the board of directors has been used to measure women on the board (Adams and Ferreira, 2009; Giannarakis et al., 2014; and Husted and Sousa-Filho, 2018).

Total assets (TA): Total assets figure is used to proxy firm size (Allini et al., 2016; Kao et al., 2018).

Return on Assets (ROA): Return on assets used as control variables (Allini et al., 2016; Kao et al., 2018).

Current ratio (CR): measured by current assets / current liabilities (Elshandidy and Neri, 2015; Salem et al., 2019)

4. Findings

4.1 The content analysis of narrative sections of the annual reports

In this section, using the narative sections of the annual reports, we illustrate real examples that link the Covid-19 information with performance-related information. In these examples, we observe the link between the type of COVID-19 related disclosure (generic or meanining information) and the types of information (financial or financial) as well as the status of performance (a significant increase in performance, a slight increase in performance; a decline in performance and a loss status).

COVID-19 and Meaningful performance information

We noted that fims with a significant increase in performance report good news information about their financial performance. For example, the chairmen of AstraZeneca Plc makes a strong statement about the revenue growth in 2020 and both improved profitability and cash generation in their narratives as follows:

> "Despite the significant impact from the COVID-19 pandemic, we delivered double-digit revenue growth in 2020 to leverage improved profitability and cash generation". AstraZeneca Plc - 2020

We also note that when the increase in performance was a slight increase (not significant), managers focus on non-financial performance rather than financial performance. Three examples from 2020 annual reports illurate this point.

"Our operations have high standards for safety, sustainability and efficiency, and sustaining those despite COVID-19's many complications is a fantastic achievement, one that enabled Antofagasta to meet its annual production and cost targets while continuing to improve its safety record and lower its emissions. Antofagasta plc - Annual Report 2020

"Despite the impacts of Covid-19, the planned works for 2020 were delivered safely and on schedule"

"Strong progress continues at Quellaveco, with the project currently tracking against its original schedule, despite the impact of Covid-19-related disruptions, as execution was well ahead of schedule prior to the pandemic, with all applicable milestones achieved". Anglo-American Plc Annual Report 2020

The above three examples for companies that have a slight increase in performance. In their narratives, we observed that all COVID-19 information is linked with non-financial performance indicators such as safety, sustainability, production and efficiency

Our third observation is related the case when companies has a decline in profit. We find that declining profit firms discuss financial and non-financial performance related information in their narratives and linked this information with COVID-19. The examples below illustrate this point.

> "The full year decline in group revenue was mainly seen in the third quarter, driven by the total loss of sales for the period in which Primark's stores were closed. The decline in the full-year adjusted operating profit for the group was a consequence of this. We estimate that Primark lost £2bn of sales and some £650m of profit as a result of COVID-19". Associated British Foods Plc – 2020.

> "Revenues have reduced due to COVID-19 impacts on the civil aerospace sector and we have scaled the business appropriately, working with our key customers. However, we have maintained our capabilities to meet the expected return of long-term demand as business operations normalise". BAE Systems Plc – 2020.

<u>COVID-19 and generic performance information</u>

Our fourth case here is related to a firm that makes losses and disclosure COVID-19 information. We noted that the information provided is too generic and might not add too much value to stakeholders. The example below illustrates this point.

> "Impact of Covid-19. We are closely monitoring the coronavirus situation, are following Government guidelines and sharing these with colleagues. We have robust business continuity procedures in place to cover all aspects of our operations in a scenario such as this which are regularly tested. We are prepared to take action to deal with this situation as it changes. We have considered the potential impact of Covid-19 in our scenario analysis". Costain Group PLC – 2020.

5.

4.2 Descriptive Statistics

Table 1 demonstrates that the mean of performance is 12, the max score of 13, and the min score is 8. The mean of our developed COVID-19 score is 52, with a minimum of 0 and a maximum of 594. Also, the board size mean is 9, with a minimum of 5 members and a maximum of 16 members. Additionally, the board independence mean is 14%, with a minimum of 0% and a maximum of 82%. The women in board percentages range from 0% to 57%, with a mean of 10% women inboard.

Insert Table 1 about here

4.3 Correlation Matrix

Table 2 shows the pairwise correlation between the performance disclosure with the COVID-19, Board size, Board independence, Gender diversity, Total assets, return on assets and Current ratio. Following the descriptive statistics, we found that COVID-19 disclosure has a significant positive correlation with firm performance disclosure. The table suggests that there is no multicollinearity in our proposed model. We investigate the VIF score to check the multicollinearity problem in our model. However, our investigation shows no sign of multicollinearity (Appendix 2).

Insert Table 2 about here

In table 3, we tackled multicollinearity by running the Variance inflation factor (VIF) test. The VIF test check how much variance of an estimated regression coefficient increases if our independent variables are correlated. The results are shown in table (3) confirms that our independent variables are not correlated. From VIF results, the VIF < 10 for all our variables (Daoud, 2017). The results do not appear to be a concern, which was tested separately.

Insert Table 3 about here

4.4 **Multivariate Analysis**

In model 1, we used OLS to investigate the effect of Covid-19 disclosure on performance scores. Table 4 illustrates that there is a significant positive relationship between COVID-19 disclosure and performance disclosure. This means firms are more inclined to communicate their performance with the stakeholders when providing more Covid-19 related information. By providing more Covid-19 information in the annual report, there is a significant uncertainty regards the impact of Covid-19 on the firm performance. Therefore, managers will associate the Covid-19 information with more performance information to clear any information asymmetry. Managers send assurance signals to the market, and the stakeholders regard the performance to increase transparency. In model 2, we used Tobit regression to estimate linear relationships between variables when there is either left- or right-censoring in the dependent variable only, as our dependent variable is disclosure level fallen in the positive side only. We can also see from the results from models 1 and 2; there is a positive relationship between board independence, gender diversity and performance disclosure. The board's independence and women on the board increase the governance power, which contributes to the board's effectiveness and fosters more discussion, which puts pressure on the management to disclose more information for the firm's performance. In contrast, we could not find any relationship between the number of directors on the board and the level of performance disclosure. The results support our argument based on the Trueman theory (Trueman 1986); managers are more willing to provide performance-related information when discussing how they react to the Covid-19 crisis. Management will provide investors with an advanced assessment of the managers' plans and projects and to show their ability during the crisis, which may increase firm value (Siddiqui, 2015; Healy & Palepu, 2001; Graham et al., 2005).

In addition to this, we investigate the moderating effect of each element of corporate governance (board size, board independence and gender diversity) with Covid-19 disclosure on the level of performance disclosure in the annual reports. The results from running model 3 suggest that the board independence moderates the relationship between Covid-19 disclosure and firm performance disclosure. This implies that higher percentages of board independence lead to higher Covid-19 disclosure and more performance information in the annual reports. Also, the results suggest that women on boards enhance board monitoring and bring a diversity of ideas, new perspectives, experience, and business knowledge to the decision-making process in boardrooms, thereby improving the level of Covid-19 disclosure, leading to a higher level of performance disclosure in the annual report. We found no evidence regarding the moderating effect of board size and Covid-19 disclosure on performance disclosure.

Insert Table 4 about here

4.5 Additional Analysis

Additionally, we run a robustness check to investigate whether the governance mechanism matters in the relationship between the Covid-19 disclosure and the firm performance disclosure in the annual reports. Thus, we divide our sample into sub-samples based on the mean of board size, board independence and gender diversity. Our results show that when board size is larger than the mean, Covid-19 disclosure has a higher coefficient with firm performance. The same for the board gender. When the percentage of women is higher than the mean, the coefficient is higher with firm performance. This means firms with stronger governance will tend to provide more performance information associated with Covid-19 disclosure.

Furthermore, no matter the percentages of board independence, there is a positive relationship between Covid-19 disclosure and the level of performance information in the annual reports. Both the significant level and the coefficient are higher for the samples above the mean of board independence. These results came consistent with previous literature (Alshbili et al., 2019). Table 5 presents the regression analysis using different board size, board independence and women on board percentages. In model 4, we use 2sls regression to tackle the endogeneity, and our results remain consistent, which means that our model doesn't suffer endogeneity.

Insert Table 5 about here

5. Conclusion

The recent uncertainty caused by the Covid-19 pandemic increases the stakeholders' demand for more voluntary information. This paper investigates the association between Covid-19 disclosure and the level of performance disclosure in the annual report. We also aim to examine the moderating role of corporate governance in enhancing the relationship between Covid-19 and performance information disclosure. We use automated textual analysis based on a sample of the UK FTSE all-share Non-financial firms to measure Covid-19 and performance disclosure level.

We find a positive relationship between the Covid-19 disclosure and the firm performance disclosure in the annual reports. We also find that both board independence and gender diversity moderate the relationship between the Covid-19 related information and the level of performance disclosure in the annual reports. Firms with more governance power lead to more information disclosed on Covid-19 disclosure; thus, the performance disclosure (Allini et al., 2016). Our results came consistent with the Trueman theory and with our suggested hypotheses. We further run a robustness check to investigate this relationship using a subsample for various board size, board independence and the women on board over and under the mean score. The results suggest the association between the Covid-19 disclosure and performance information is higher when the firm has a bigger board size, a higher percentage of board independence and a higher number of women on board.

Our findings are highly relevant to the regulators, governments, management, shareholders and academics. For instance, the results of this study can formulate regulations for an appropriate corporate governance mechanism, indicating that better governance enhances the disclosure practice during the crisis. Policymakers must be aware of the characteristics of the board of directors that affect Covid-19 and performance disclosure. The government will also benefit as they can provide a detailed guideline for the Covid-19 disclosure practice. Corporate managers need to strengthen their governance mechanisms to enhance Covid-19 and performance disclosure in the annual reports. The shareholders will have a clear idea of how firms are engaged with economic turbulence and providing more Covid-19 and performance disclosure. Our paper provides an excellent research opportunity for the academic to investigate different aspects of Covid-19 and performance disclosure. We consider our study's limitations as future opportunities. Future studies can consider more than one year of data, which was the only available at the time of this research. Future studies could investigate different industries reactions to the pandemic. Also, future studies could look at other sentiment analyses such as disclosure tone. It will also be interesting to investigate the financial performance post Covid-19.

Appendix 1: COVID 19-related keywords

Covid#
Virus
Corona#
Pandemic
Retention
Lockdown
Outbreak
Epidemic
Disaster
Sars-cov-2
Social distancing
Hand washing
Face covering
Face mask
Prevention
Closure
Respiratory
Safety measures
Working from home
Working online
Herd Immunity
Furlough scheme
Redundancy
Infectious
Pneumonia
Reopen
Safe returning
Isolation
Quarantine

Source: Elmarzouky et al. (2020)

Appendix 2: Performance-Related Keywords

choice	fairness
satisfaction	offerings

real	feature
good	special
decisions	appropriate
growth	gain
increasing	incentive
increased	brand
motivation	effect
communications	customer
ratings	effects
responsibility	value
strength	consumer
significantly	use
target	consumers
deals	brands
expected	results
position	positive
stronger	influence
customers'	high
solutions	performance
powerful	power
trust	significant
larger	quality
feelings	impact
person	future
success	potential
positively	experience
loyalty	important
novel	well
useful	key
offering	need
attributes	gift
improve	understanding
enhance	consumption
successful	addition
rank	needs
influences	sustainable
authentic	communication
advantage	result
consumers'	values
offer	effectiveness

Source: El-Haj et al., 2016

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Table 1

Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
LnPerf	11.997	.624	8.278	13.143
COVID-19	51.942	79.295	0	594
BS	8.662	2.109	5	16
IND	58.929	14.101	0	81.818
GD	26.365	10.06	0	57.143
TA	21.185	1.472	17.673	26.365
ROA	.312	1.149	-5	10
CR	1.733	1.618	0.078	13.116

Table 2 presents descriptive statistics. LnPerf: Performance disclosure score, COVID-19: Covid-19 disclosure score, BS: Board size, IND: Board independence, GD: Gender diversity, TA: Total assets, ROA: return on assets, CR: current ratio.

Table 2

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) LnPerf	1.000							
(2) COVID-19	0.250*	1.000						
(3) IND	0.260*	0.048*	1.000					
(4) BS	0.274*	0.234*	0.191*	1.000				
(5) GD	0.096*	0.075	0.193*	0.033	1.000			
(6) TA	0.422*	0.194*	0.198*	0.598*	0.078*	1.000		
(7) ROA	0.040	0.031	0.065*	0.033	0.143*	0.012	1.000	
(8) CR	0.325*	0.152*	0.321*	0.023	0.021	0.120*	0.076*	1.000

Table 2 presents the correlation matrix: LnPerf: Performance disclosure score, COVID-19: Covid-19 disclosure score, BS: Board size, IND: Board independence, GD: Gender diversity, TA: Total assets, ROA: return on assets, CR: current ratio.

*shows significance at the 0.05 level

Table 3

Variance inflation factor

	VIF	1/VIF
COVID-19	1.626	.615
IND	1.581	.633
BS	1.088	.919
GD	1.063	.94
TA	1.048	.954
CR	1.040	.962
ROA	1.076	.929

Table 4

Regression analysis

VARIABLES	Model 1	Model 2	Model 3	Model 4
COVID-19	0.132***	0.132***	0.00147**	0.0021***
	(0.0297)	(0.0291)	(0.000618)	(0.0600)
BS	-0.00466	-0.00466	-0.00833	9.163***
	(0.0177)	(0.0173)	(0.0258)	(2.211)
IND	0.00740***	0.00740***	0.00759**	1.115***
	(0.00217)	(0.00213)	(0.00318)	(0.310)
GD	0.00214**	0.00214**	0.00106**	0.230
	(0.00304)	(0.00298)	(0.00434)	(0.422)
TA	2.769***	2.769***	3.757***	1.0709***
	(0.619)	(0.607)	(0.895)	(1.7210)
CR	3.923	3.231	3.917	2.363
	(2.611)	(2.761)	(2.608)	(3.877)
ROA	3.314**	3.003***	3.320**	-0.138
	(0.0017)	(0.0051)	(0.0017)	(0.209)
c.COVID-19#c.IND			0.0290***	
			(0.0110)	
c. COVID-19 #c.BS			-0.0596	
			(0.0510)	
c. COVID-19 #c.GD			0.0214**	
			(0.0106)	
Constant	2.740	2.740	11.41*	23.62
	(1.800)	(1.763)	(6.549)	(25.50)
R-squared	0.382		0.197	0.495

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4 presents the regression analysis: : LnPref: Performance disclosure score, COVID-19: Covid-19 disclosure score, BS: Board size, IND: Board independence, GD: Gender diversity, TA: Total assets, ROA: return on assets, CR: current ratio, c.COVID-19#c.IND: The interaction of the Covid-19 disclosure and board independence, c.COVID-19#c.BS: The interaction of the Covid-19 disclosure and board size, c. COVID-19 #c.GD: The interaction of the Covid-19 disclosure and gender diversity.

Table 5

Additional analysis results

VARIABLES	BS≤9	BS>9	IND≤57	IND>57	GD≤21	GD>21
COVID-19	0.000446	0.00422***	0.00311*	0.00131**	0.00197	0.00140**
	(0.000574)	(0.00130)	(0.00177)	(0.000697)	(0.00215)	(0.000665)
BS	-0.00926	-0.0663	-0.0165	-0.00239	0.0144	-0.0210
	(0.0434)	(0.0529)	(0.0372)	(0.0394)	(0.0480)	(0.0326)
IND	0.00269	0.0105**	0.00808	0.0153*	0.0103	0.00681*
	(0.00491)	(0.00406)	(0.00733)	(0.00885)	(0.00778)	(0.00360)
GD	0.00649	0.00130	0.00544	-0.00186	0.0166	-0.000845
	(0.00848)	(0.00513)	(0.00867)	(0.00563)	(0.0187)	(0.00715)
TA	2.932**	4.862***	3.627**	3.546***	2.536	4.076***
	(1.179)	(1.251)	(1.785)	(1.128)	(2.134)	(1.033)
CR	2.908	-3.135	0.375	0.228	3.220	-0.690
	(2.131)	(4.821)	(2.089)	(4.726)	(2.089)	(4.726)
ROA	2.114**	3.512***	2.213**	2.432***	2.123	3.1***
	(0.0039)	(0.0051)	(0.0025)	(0.0012)	(0.0042)	(0.0023)
Constant	0	0	0	0	0	0
	(3.462)	(3.682)	(5.252)	(3.240)	(6.220)	(3.049)
R-squared	0.227	0.226	0.162	0.274	0.217	0.243

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1