

**Ownership concentration and Covid-19 disclosure: The mediating role of corporate leverage**

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## Abstract

**Purpose:** The paper aims to examine the impact of ownership concentration on Covid-19 disclosure in the narrative sections of corporate annual reports. It also explores the mediating role of corporate leverage on the ownership concentration-Covid-19 disclosure relationship.

**Design/methodology/approach:** This paper uses automated textual analysis to measure Covid-19 disclosure in annual reports. It also applies different regression models to test the research hypotheses and to address the endogeneity problem. It uses univariate and multivariate analyses through correlations and ordinary least squares (OLS).

**Findings:** The analysis shows that ownership concentration has a negative impact on Covid-19 disclosure. It also shows that corporate leverage negatively affects Covid-19 disclosure, and it has a partial mediating effect on the ownership concentration - Covid-19 disclosure relationship.

**Practical implications:** The results offer important practical implications for the government, management, shareholders, and policymakers. For example, corporate managers are encouraged to consider small shareholders' interests and provide a sufficient level of Covid-19 disclosure to avoid violating their rights. Also, the government may consider forming a mechanism for balancing the ownership structure to protect small investors and weaken large shareholders' tunnelling behaviours.

**Originality/value:** This paper offers two important contributions to governance and disclosure literature. First, it provides new empirical evidence on the relationship between ownership concentration and Covid-19 disclosure. Second, it provides new evidence on the mediating role of the leverage ratio on the ownership concentration- Covid-19 disclosure relationship.

**Keywords:** Ownership concentration; Covid-19 disclosure; Corporate leverage; Textual analysis, UK.

## 1. Introduction

Covid-19 pandemic is considered the toughest challenge since the great depression, and it has had substantial economic and financial impacts all over the world (Goodell, 2020; He and Harris 2020; Albitar et al., 2020a; Elmarzouky et al., 2021; Albitar et al., 2021). Under this pandemic, many

initiatives have been seen by the UK governments, professional bodies, and Financial Reporting Council (FRC) to guide firms to deal with the pandemic and report more Covid-19 related information (Albitar et al., 2020a). In March 2020, FRC also issued a specific notice related to the impact of the COVID-19 outbreak on financial reporting and auditing (FRC 2020). However, such practices are not strictly enforced, and there is no mandatory requirement for entities to disclose information on such activities or how they are operating in this volatile environment. This paper is motivated by the FRC framework that identifies high-quality disclosures needed to reflect the impact of Covid-19 on company performance and its future prospects. In this framework, the FRC recommends that companies need to provide sufficient information to explain the impact Covid-19 on their financial performance, financial position, and future prospects (FRC, 2020).

Recent literature has provided theoretical perspectives of Covid-19 on financial markets, banking and insurance entities, and government and public entities. (Goodell, 2020; Donthu and Gustafsson, 2020; He et al., 2020). Another line of research explores the market reaction to the Covid-19 pandemic (Erdem. 2020). There has been limited research on Covid-19 disclosure. For example, Albitar et al. (2021) investigated the determinants of Covid-19 disclosure in CSR reports. We complement Albitar et al. (2021) by exploring the determinants of Covid-19 disclosure in the narrative sections of the annual reports. We focus on ownership concentration and its impact on Covid-19 disclosure.

The last decade has shown a considerable increase in research interest in voluntary narrative disclosure. Voluntary narrative disclosure is essential for communicating firm performance to stakeholders (García-Sánchez and Noguera-Gámez, 2017; Ciftci et al., 2019). Increasing levels of disclosure reduce information asymmetry between insiders (managers) and outsiders (stakeholders) (Khelif et al., 2017; El-Diftar et al., 2017). Previous disclosure literature focused on

different types of disclosure, such as forward-looking disclosure (Wang and Hussainey, 2013); corporate social and environmental responsibility disclosure (Li et al., 2020; Kilincarslan et al., 2020); and risk disclosure (Allini et al., 2016). As a result of the Covid-19 pandemic, Financial Reporting Council (FRC) has issued a framework on Covid-19 reporting to companies. Using this framework, companies could use the narrative sections of annual reports to communicate the impact of Covid-19 pandemic on their financial and non-financial activities and the proposed actions to be taken. This paper is interested in exploring the main drivers of this type of disclosure. We ask: *How does ownership concentration affect Covid-19 disclosure in UK annual report narratives? and whether corporate leverage has a mediating role in the relationship between ownership concentration and Covid-19 disclosure?*

Therefore, the objectives of our paper are three-fold. First, this paper examines the relationship between ownership concentration and Covid-19 disclosure. Second, it examines the relationship between corporate leverage and Covid-19 disclosure. Third, it examines the mediating effect of firm leverage on the relationship between ownership concentration and Covid-19 disclosure.

This paper contributes to the literature in several ways. It provides new evidence on the relationship between ownership concentration and Covid-19 disclosure. The findings suggest that concentrated ownership is negatively associated with the level of Covid-19 disclosure. Furthermore, this paper provides evidence of a negative relationship between corporate leverage and Covid-19 disclosures. It also highlights the role of corporate leverage in mediating the relationship between ownership concentration on Covid-19 disclosure.

The rest of the paper is structured as follows. Section 2 reviews relevant literature and develops research hypotheses. Section 3 discusses the research design; Section 4 discusses the empirical results and robustness check. Section 5 is the conclusion of the paper.

## **2. Relevant Literature and Hypotheses Development**

Recently, ownership structure received increasing attention (Hope, 2013; Torchia and Calabrò, 2016; Jankensgård, 2018; Phiri et al., 2019; Yang and Meyer, 2019; Chen et al., 2021). The largest shareholders can gather insider and private information due to the relatively weak demand for public disclosure compared to firms with widely dispersed ownership (Nekhili et al., 2012). According to the agency theory, an agency conflict exists between different ownership groups and their impact on the demand for more information (Armstrong et al., 2010; Jankensgård et al., 2018). Previous literature suggests that demand for more disclosure varies cross-sectionally with ownership structure, and the relation between the demand for accounting information and ownership structure is primarily driven by economic incentives (Armstrong et al. 2010; Chen et al., 2020; Li et al., 2020). Previous literature has investigated the impact of ownership structure on voluntary disclosure, and the findings are mixed. Some studies find that ownership structure drives firms' voluntary disclosure in general (Abeysekera and Fernando, 2020; Erhemjamts and Huang, 2019), while other studies find that ownership concentration may decrease information asymmetry by disclosing more information (Liu et al., 2019). In comparison, other studies find less voluntary corporate disclosures in concentrated firms than dispersed companies (Nekhili et al., 2012; Jiang et al., 2011; Garcia-Meca et al., 2010). Different categories of ownership concentration could have different preferences and priorities for narrative disclosure (Douma et al., 2006; Gedajlovic et al., 2005; Khlif et al., 2017; Jankensgård, 2018; Phiri et al., 2019). Thus, despite previous literature on the ownership structure and voluntary disclosure, the question remains whether large owners

contribute to increasing or decreasing voluntary disclosure or whether they are ineffective. The empirical evidence is mixed, thus limiting theory development in this field. No previous literature bridged the link between the ownership concentration and the Covid-19 disclosure.

From the stakeholder's perspective, investors and other stakeholders will demand extensive, meaningful information on how firms have been affected by Covid-19 (Broadstock et al., 2021) and on firms proposed actions to be taken. We believe that many factors may affect this disclosure level. One of these is the ownership structure. Based on the prior research, ownership structure affects corporate voluntary disclosure practices (Darnall and Edwards, 2006). The largest shareholders might have incentives to disclose less Covid-19 related information and use their controlling position to get personal benefits and gains at the cost of other minority shareholders' wealth (Dam and Scholtens, 2013; Kao et al., 2018). Chen et al. (2021) discuss the effect of ownership concentration on corporate social responsibility (CSR) engagement and investigate corporate leverage's mediating role. They concluded that the ownership concentration has a significant negative effect on CSR, and corporate leverage plays a mediator role in this relationship. The largest shareholders who have the control power may think that Covid-19 related information is not conducive to corporate development or the sustainability of the business or share price because Covid-19 related information increases firm uncertainty and could reduce firm profitability. The largest shareholders control management disclosure decisions. They may persuade managers to hide Covid-19 related information to maximise personal benefits and not negatively affect investment decisions and share prices. Therefore, a higher concentration of ownership means that the controlling shareholder will have greater power to influence companies' decisions because larger shareholders are willing to take more responsibility for monitoring

managers (Munisi et al., 2014), and this can particularly be related to providing Covid-19 disclosure in the current situation.

Managers of firms with high concentration ownership assume less responsibility for owners resulting in less priority to voluntary disclosure and less engagement in Covid-19 related information. Thus, ownership concentration would affect management decisions related to Covid-19 disclosure. Different ownership structures may link to different disclosure practices. This paper aims to empirically examine the association between ownership concentration and Covid-19 disclosures. Therefore, the first hypothesis is formulated as follows:

H1: *Ceteris paribus*, there is a relationship between ownership concentration and Covid-19 disclosure.

The leverage ratio may influence the relationship between largest ownership and Covid-related information. Higher debt ratios mean higher principal and interest payments, which more easily leads to a debt crisis resulting in earnings fluctuation (Schmid, 2013). This could lead to higher corporate risk (Schmid, 2013); these firms may also face high bankruptcy costs, which may cause financial distress. Therefore, firms with a high leverage ratio might be incentivised to hide Covid-19 related information from the public.

On the other hand, the leverage ratio is an essential indicator in measuring debt-paying ability and economic entities' debt risk. So, more Covid-19 related information might worsen the management's ability to manage and mitigate the risk. Therefore, firms with high leverage might consider lowering the level of Covid-19 related information in order to avoid any earnings fluctuations. Besides, it is beneficial to the largest ownership to reduce firm risk by reducing the debt and liabilities to avoid creditors' checks (Lee and Kuo, 2014). The leverage ratio will decrease with the increase in ownership concentration (Fosu et al., 2016). Thus, the largest ownership

concentration means a low leverage ratio. The leverage ratio is also an essential factor influencing Covid-19 disclosure. Based on the contract theory, firms are accountable not only to shareholders but also to creditors. Firms are inclined to provide more voluntary information – in our case, Covid-19 information - when they have high debt ratios. Meanwhile, stakeholders, including creditors, are increasingly demanding that firms disclose more information about how they have been affected and manage and mitigate the pandemic impact through more Covid-19 related information.

As the literature on Covid-19 disclosure does not exist, to the best of the authors' knowledge, the second and third hypotheses are formulated as follows:

H2: Ceteris paribus, there is a relationship between corporate leverage and Covid-19 disclosure.

H3: Ceteris paribus, corporate leverage mediates the relationship between ownership concentration and Covid-19 disclosure.

### **3. Research design**

#### **Sample and data collection**

This study includes a sample of FTSE All-share non-financial listed firms that have annual reports published in 2020. This study excludes all firms that do not disclose Covid-19 related information. It also excludes firms with missing data. Following Wang and Hussainey (2013), this paper excludes financial firms due to the differences in the disclosure requirements as financial firms follow a different set of regulations. This study uses S&P Capital IQ terminal and Eikon databases to collect data related to firm-specific characteristics, corporate governance, and ownership data.

#### **Research model and variables measurement**

##### **Measuring Covid-19 disclosure**



To measure the level of COVID-19 voluntary disclosure in annual reports, This paper follows previous literature by constructing a bag of words in the domain of narrative disclosure (Abraham and Cox 2007; Linsley and Shrivies 2006; Karim et al., 2021). This study uses the wordlist developed by Elmarzouky et al., 2021, constructed based on the Covid-19 Secure Guidelines published by the UK Government (GOV.UK, 2020). It uses CFIE 2019 for scoring the level of COVID-19 disclosure in annual reports. To ensure the reliability and validity of our disclosure score, a random sample of annual reports were read to manually calculate COVID-19 disclosure scores. The computerised score is found to be highly correlated with the manual disclosure score, which indicates that the disclosure measure is reliable. Appendix 1 shows examples of the original word list used for measuring COVID-19 disclosure.

### **2.2.2 Measuring ownership concentration**

Ownership concentration is usually measured by the largest shareholder ratio or summing the first few large shareholders (first 3 or 5 or 10, etc.). Thus, this paper uses the sum of holdings of the five largest shareholders as a percentage to measure ownership concentration. This study also uses the ten largest shareholders as an alternative measurement for robustness check following prior research (Dam and Scholtens, 2013; Ciftci et al., 2019; Albitar et al., 2020b).

### **2.2.3 Research model**

This paper applies a multivariate regression model to investigate the relationship between ownership concentration and the level of COVID-19 disclosure in annual reports. It controlled for the industry fixed effect by applying an industry classification to create dummies based on the SIC one-digit industry classification. The model is as follows:

**Model (1)** is constructed to investigate the effect of ownership concentration and corporate leverage on COVID-19 disclosure.

$$\text{COV} = \beta_0 + \beta_1 \text{OC1} + \beta_2 \text{LEV} + \beta_3 \text{FS} + \beta_4 \text{LIQ} + \beta_5 \text{ROA} + \beta_6 \text{Gov\_Quality} + \text{Industry Fixed Effects} + \varepsilon \quad (1)$$

**COV: Covid-19 disclosure:** Based on the wordlist developed by Elmarzouky et al., 2020 (see appendix 1).

**Ownership concentration (OC):** Measured by the largest shareholder ratio or summing the first few large shareholders (first 3 or 5 or 10, etc.) (Ciftci et al., 2019; Albitar et al., 2020b; Chen et al., 2021).

**Leverage (LEV):** Measured by the ratio between total debt and total assets (Chen et al., 2010; Fosu et al. 2016; Lozano et al. 2016; Danso et al., 2019).

**Firm size (FS):** Total assets figure is used as a proxy for firm size (Allini et al., 2016; Kao et al., 2018; Ciftci et al., 2019)

**Liquidity (LIQ):** Measured by current assets / current liabilities (Albitar, 2015; Salem et al., 2019).

**Return on Assets (ROA):** Return on assets used as control variables (Allini et al., 2016; Kao et al., 2018; Ciftci et al., 2019).

**Governance quality (Gov\_Quality):** Measured by the governance pillars score from the Eikon database. It reflects the company's capacity through its use of best management practices.

The relationships between ownership concentration, corporate leverage, and Covid-19 disclosure are shown in Figure 1.

[Figure 1 about here]

### 3. Empirical results

#### 3.1 Descriptive statistics

Table 1 shows descriptive statistics for the key variables used in this study. The mean COVID-19 disclosure score is 52.76, with a maximum value of 594 words and a minimum value equal to one

word. Furthermore, the mean value of holdings of the five/ten largest shareholders as a percentage measurement of ownership concentration is 21.57% and 42.4%, respectively.

Insert Table 1 about here

Table 2 shows the correlation matrix. It shows a negative correlation between ownership concentration measured by the holding percentage of the largest 5 shareholders and COVID-19 disclosure. The table also shows the correlations between other control variables: leverage, firm size, return on assets, liquidity and governance quality. The correlation coefficients provided in Table 2 do not demonstrate any multi-collinearity problems (The correlation coefficients of all variables are less than 0.8). In addition, we run the Variance inflation factor (VIF), and the results of VIF range from 2.02 to 2.27 with a mean value of 2.12, suggesting no sign of a multi-collinearity problem.

**[Table 2 about here]**

### **3.2 Multivariate Analysis**

Table 3 shows the regression results by applying the ordinary least squares (OLS) model to explore the effect of ownership concentration on Covid-19 disclosure. As it can be seen from Table 3, the coefficient of the ownership concentration – either when the first 5% or the first 10% ownership are taken into account- are (-0.0407\*\*\* and -0.0263\*\*\*) which suggest that large shareholders are not keen to disclose Covid-19 information, but they are reducing the level of Covid-19 disclosure in the annual report. This suggests that large shareholders may like to maximise their profit and avoid any earning fluctuations caused by providing any sensitive information related to Covid-19.

By doing this, they are ignoring and violating the rights and interests of the small shareholders. This confirms that large shareholders who have the control and power to manage the disclosure strategy are unwilling to provide stakeholders with such information.

The two-stage least squares (2SLS) method is used to mitigate the endogeneity problem. The first-order lagged term for ownership concentration is used as an instrumental variable. As can be seen from Table 3, the results remain consistent, which means that the results are not severely influenced by the possible occurrence of endogeneity problems (Guest, 2019). The coefficient of ownership concentration at the first five/ten shareholders scores is negative and significant at 1% in all models, demonstrating that ownership concentration measured by the holding percentage of the first 5/10 shareholders is significantly decreasing COVID-19 disclosure in annual reports. Also, by looking at the corporate leverage coefficient – either when the first 5% or the first 10% ownership are taken - are (-0.0406\*\*\* and -0.0276\*\*\*) also significantly negatively associated with Covid-19 disclosure. This reflects that corporate leverage restrains and reduces Covid-19 disclosure.

**[Table 3 about here]**

MacKinnon et al. (2012)'s method is followed to examine the mediating role of corporate leverage between ownership concentration and Covid-19 disclosure. A simple mediation model with one independent variable (ownership concentration), one mediator (corporate leverage) and one dependent variable (Covid-19 disclosure) were used to investigate the mediation by estimating three regression equations. In simple words, the first step is to test OC's coefficient in model 1. If the coefficient is significant, the second step is to check the coefficient  $\beta_1$  in model 2 and  $\beta_2$  from model 3, if the coefficients  $\beta_1$  and  $\beta_2$  are significant, the third step checks the coefficient  $\beta_1$  in

model 3. If the coefficient  $\beta_1$  in model 3 is also significant, there is a partial mediating effect.

**Model (2)** is constructed to investigate the influence of ownership concentration on Covid-19 disclosure.

$$\text{COVID} = \beta_0 + \beta_1 \text{OC1} + \beta_2 \text{FS} + \beta_3 \text{LIQ} + \beta_4 \text{ROA} + \text{Gov\_Quality} + \text{Industry Fixed Effects} + \varepsilon$$

(2)

**Model (3)** is constructed to examine the influence of ownership concentration on corporate leverage.

$$\text{LIV} = \beta_0 + \beta_1 \text{OC1} + \beta_2 \text{FS} + \beta_3 \text{LIQ} + \beta_4 \text{ROA} + \text{Gov\_Quality} + \text{Industry Fixed Effects} + \varepsilon$$

(3)

Table 4 shows the regression results for the mediating effect model when using the holding percentage of the first five shareholders as a measurement of ownership concentration (OC1), the coefficient of the ownership concentration (OC1) is (-0.00431\*\*\*), reflecting that the ownership concentration is not conducive to stimulating firms to provide more Covid-19 information. The direct effect of ownership concentration (OC1) on Covid-19 disclosure is (-0.0456\*\*\*) which implies that the mediating effect of leverage ratio is measured as (-0.00431\*\*\*)  $\times$  (-0.193\*\*\*) = 0.00083. The corporate leverage ratio shows a positive mediating effect between ownership concentration and Covid-19 disclosure, which increases the negative effect of ownership concentration on Covid-19 disclosure. This means that the largest shareholders pay attention to corporate financial indicators, including leverage, and shareholders' decisions depend on corporate capital structures. A concentrated ownership structure enhances the tunnelling motivations of large shareholders and their supervision of administrators, which facilitates shareholders to generate

efficient decisions. Large shareholders will be conscious of the high-risk levels as firms are subject to high leverage ratios. To avoid the check of creditors and the decline of credit ratings, firms will avoid disclosing information related to Covid-19. Thus, the leverage ratio increases the negative effect of concentrated ownership structure on Covid-19 disclosure.

**[Table 4 about here]**

### **3.3 Robustness check**

A robustness check is run to confirm the leverage's mediating effect on the relationship between ownership concentration on Covid-19 disclosure by using the holding percentage of the first ten shareholders as a measurement of ownership concentration (OC2). Table 5 shows the regression results for the mediating effect model. As it can be seen, the corporate leverage ratio is still increasing the negative effect of ownership concentration on Covid-19 disclosure, and the results are consistent with the main findings. Thus, the relationship between the largest ownership and providing more Covid-19 information is influenced by corporate leverage. Firms with a high leverage ratio have the same incentive to provide less Covid-19 related information to the public because firms with a high leverage ratio face high bankruptcy costs, which may cause financial distress. Therefore, firms with high leverage are more inclined to lower the level of Covid-19 disclosure in order to avoid any earning fluctuations.

**[Table 5 about here]**

## **4. Conclusion**

This paper examines the effect of ownership concentration on Covid-19 disclosure and explores corporate leverage's mediating effect on this relationship by using automated textual analysis to

measure the Covid-19 disclosure. Based on data from the UK FTSE all-share non-financial firms and by using different regression models (OLS and 2SLS), the results show that the ownership concentration measured by the holding percentage of first 5/10 shareholders has a significant negative effect on Covid-19 disclosure. This can be explained by the absence of mandatory regulations and proper supervision related to Covid-19 reporting. Furthermore, the largest shareholders may apply pressure on the management to reduce the level of Covid-19 disclosure to avoid any possible negative effects on profit fluctuations. The analysis shows that the more ownership concentrated, the lower the Covid-19 disclosure.

Furthermore, the results show that corporate leverage partially mediates the relationship between the ownership concentration and the Covid-19 disclosure. High leverage means high corporate risk; firms will avoid disclosing information related to Covid-19 to avoid the check of creditors and the decline of credit ratings. Thus, the leverage ratio increases the negative effect of concentrated ownership structure on Covid-19 disclosure.

This paper provides several contributions. First, this paper provides unique evidence of the relationship between ownership concentration and Covid-19 disclosure, suggesting that concentrated ownership is negatively associated with the level of Covid-19 related information. Second, to the best of the authors' knowledge, this is the first study to highlight the mediating role of the leverage ratio on the relationship between ownership concentration and Covid-19 disclosure. To date, research exploring this relationship has been non-existent. Third, the paper offers a methodological contribution to measure Covid-19 in the annual reports using automated textual analysis.

This paper's unique findings are extremely relevant to the government, shareholders, decision-makers, suppliers, and creditors. For instance, the management is encouraged to consider small shareholders' interests and provide a sufficient level of Covid-19 disclosure to avoid violating their rights; this will also help creditors and suppliers in making decisions about providing resources to the company. Also, highly leveraged firms are expected to provide more information as this will help in promoting transparency and strengthen creditors' confidence. Whether there are mandatory regulations or not, management should provide an acceptable level of Covid-19 related information and be more transparent on the pandemic's impact on firm performance. By doing so, will reduce the information asymmetry and protect small shareholders. More information assures small and individual shareholders. Moreover, the government should establish an effective mechanism for balancing the ownership structure. This should protect the benefits of small investors and weaken the tunnelling behaviours of large shareholders.

Further research could explore the consequences of Covid-19 disclosure. For example, it would be very interesting to explore the impact of Covid-19 disclosure on share price anticipation of earnings, cost of capital, analysts' earnings forecasts, analysts' following, credit ratings and trade credit. Future research can also consider exploring the relationship between Covid-19 disclosure and earning management or comparing reporting quality before and after Covid-19.

## **References**

- Abeysekera, A. P., and Fernando, C. S., (2020). "Corporate social responsibility versus corporate shareholder responsibility: A family firm perspective". *Journal of Corporate Finance*, 61, 101370.
- Abraham, S., and Cox, P. (2007). "Analysing the determinants of narrative risk information in UK FTSE 100 annual reports". *The British Accounting Review*, 39 (3), 227-248.



- Albitar, K., Al-Shaer, H. and Elmarzouky, M., (2021). “Do assurance and assurance providers enhance Covid-Related related disclosures in CSR reports? An examination in the UK context”. *International Journal of Accounting and Information Management*. 29 (3), 410-428.
- Albitar, K., Gerged, A., M., Kikhia, H., and Hussainey K. (2020a). "Auditing in times of social distancing: The effect of COVID-19 on auditing quality". *International Journal of Accounting and Information Management*. 29 (1), 169-178.
- Albitar, K., Hussainey, K., Kolade, N., Gerged, A. M. (2020b). “ESG disclosure and firm performance before and after IR: The moderating role of governance mechanisms”, *International Journal of Accounting and Information Management*. 28 (3), 429-444.
- Albitar, K. (2015). “Firm characteristics, governance attributes and corporate voluntary disclosure: A study of Jordanian listed companies”. *International Business Research*, 8 (3), 1-10.
- 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*, 36 (2), 113-120.
- Armstrong, CS, Guay, WR, Weber, JP (2010). “The role of information and financial reporting, corporate governance and debt contracting”. *Journal of Accounting and Economics* 50: 179–234.
- Broadstock, D. C., Chan, K., Cheng, L. T. and Wang, X., (2021). “The role of ESG performance during times of financial crisis: Evidence from COVID-19 China”. *Finance Research Letters*, 38, 101716
- Chen, T., Dong, H., Lin, C., (2020). “Institutional shareholders and corporate social responsibility. *Journal of Financial Economics*”. 135, 483–504.
- Chen, A., Chen, L.W. and Kao, L. (2010), “Leverage, liquidity and IPO long-run performance: evidence from Taiwan IPO markets”, *International Journal of Accounting and Information Management*, Vol. 18 No. 1, pp. 31-38.
- Chen, S., Wang, Y., Albitar, K., & Huang, Z. (2021). “Does ownership concentration affect corporate environmental responsibility engagement? The mediating role of corporate leverage”. *Borsa Istanbul Review*. [21, Supplement 1](#), S13-S24
- Ciftci, I., Tatoglu, E., Wood, G., Demirbag, M., and Zaim, S. (2019). “Corporate governance and firm performance in emerging markets: Evidence from Turkey”. *International Business Review*, 28 (1), 90-103.
- Clarkson, P. M., Ponn, J., Richardson, G. D., Ruzcicz, F., Tsang, A., and Wang, J. (2020). “A textual analysis of US corporate social responsibility reports”. *Abacus*, 56 (1), 3-34.
- Danso, A., Lartey, T., Fosu, S., Owusu-Agyei, S. and Uddin, M. (2019), "Leverage and firm investment: the role of information asymmetry and growth", *International Journal of Accounting & Information Management*, Vol. 27 No. 1, pp. 56-73.
- Dam, L., and Scholtens, B. (2013). Ownership concentration and CSR policy of European multinational enterprises. *Journal of Business Ethics*, 118 (1), 117-126.

- Darnall, N., and Edwards Jr, D., (2006). “Predicting the cost of environmental management system adoption: the role of capabilities, resources and ownership structure”. *Strategic management journal*, 27 (4), 301-320.
- Donthu, N., and Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of Business Research*, 117, 284-289
- Douma, S, George, R, Kabir, R (2006). “Foreign and domestic ownership, business groups, and firm performance: Evidence from a large emerging market”. *Strategic Management Journal* 27: 637–657.
- Elmarzouky, M., Albitar, K., Karim, A. E., & Moussa, A. S. (2021). COVID-19 disclosure: a novel measurement and annual report uncertainty. *Journal of Risk and Financial Management*, 14(12), 616.
- Elmarzouky, M., Albitar, K., & Hussainey, K. (2021). Covid-19 and performance disclosure: does governance matter?. *International Journal of Accounting and Information Management*. 29 (5), 776-792.
- El-Diftar, D., Jones, E., Ragheb, M., & Soliman, M. (2017). “Institutional investors and voluntary disclosure and transparency: the case of Egypt”. *Corporate Governance: The International Journal of Business in Society*. 17 (1), 134-151.
- Erdem, O., (2020). “Freedom and stock market performance during Covid-19 outbreak”. *Finance Research Letter*, 36, 101671
- Erhemjamts, O., and Huang, K., (2019). “Institutional ownership horizon, corporate social responsibility and shareholder value”. *Journal of Business Research*, 105, 61-79.
- Ertugrul, M., Lei, J., Qiu, J., andamp; Wan, C. (2017). “Annual Report Readability, Tone Ambiguity, and the Cost of Borrowing”. *Journal of Financial and Quantitative Analysis*, 52 (2), 811-836
- Financial Reporting Council (2020). “Guidance on audit issues arising from the Covid-19 (Coronavirus) pandemic”. Available at [https://www.frc.org.uk/news/march-2020-\(1\)/guidance-on-audit-issues-arising-from-the-COVID-19](https://www.frc.org.uk/news/march-2020-(1)/guidance-on-audit-issues-arising-from-the-COVID-19). (access on 22 August 2020)
- Fosu, S., Danso, A., Ahmad, W., and Coffie, W. (2016). “Information asymmetry, leverage and firm value: Do crisis and growth matter?”. *International Review of Financial Analysis*, 46, 140-150.
- García-Meca, E, Sánchez-Ballesta, JP (2010). “The association of board independence and ownership concentration with voluntary disclosure: A meta-analysis”. *European Accounting Review* 19: 603–627.
- García-Sánchez, I. M., and Noguera-Gámez, L. (2017). “Integrated information and the cost of capital”. *International Business Review*, 26 (5), 959-975.
- Gedajlovic, E, Yoshikawa, T, Hashimoto, M (2005) “Ownership structure, corporate strategy and firm performance in Japanese manufacturing industries”. *Organisation Studies* 31: 271–300.

- Goodell, J. W. (2020). "COVID-19 and finance: Agendas for future research". *Finance Research Letters*, 101512.
- Guest, P. M. (2019). "Does board ethnic diversity impact board monitoring outcomes?". *British Journal of Management*, 30 (1), 53-74
- He, H., and Harris, L. (2020). "The Impact of Covid-19 Pandemic on Corporate Social Responsibility and Marketing Philosophy". *Journal of Business Research*. 116, 176-182.
- Hope, OK (2013). "Large shareholders and accounting research". *China Journal of Accounting Research* 6: 3–20.
- Jankensgård, H. (2018). "Between a rock and a hard place: New evidence on the relationship between ownership and voluntary disclosure". *International Review of Financial Analysis*, 56, 281-291.
- Jiang, H, Habib, A, Hu, B (2011). "Ownership concentration, voluntary disclosures and information asymmetry in New Zealand". *The British Accounting Review* 43: 1–15.
- Karim, A. E., Albitar, K., Elmarzouky, M. (2021). "A novel measure of corporate carbon emission disclosure, the effect of capital expenditures and corporate governance", *Journal of Environmental Management*, 290, 112581.
- Kao, M. F., Hodgkinson, L. and Jaafar, A. (2018), "Ownership structure, board of directors and firm performance: evidence from Taiwan", *Corporate Governance: The International Journal of Business in Society*, 19 (1), 189-216.
- Khlif, H., Ahmed, K., and Souissi, M. (2017). "Ownership structure and voluntary disclosure: A synthesis of empirical studies". *Australian Journal of Management*, 42 (3), 376-403.
- Kilincarslan, E., Elmagrhi, M. H., & Li, Z. (2020). "Impact of governance structures on environmental disclosures in the Middle East and Africa". *Corporate Governance: The International Journal of Business in Society*. 20 (4), 739-763.
- Lee, C., and Kuo, N., (2014). "Effects of ultimate ownership structure and corporate tax on capital structures: Evidence from Taiwan". *International Review of Economics and Finance*, 29, 409-425
- Li, Z., Liao, G., and Albitar, K., (2020). "Does corporate environmental responsibility engagement affect firm value? The mediating role of corporate innovation". *Business Strategy and The Environment*, 29 (3), 1045-1055.
- Linsley, P. M., and Shrives, P. J. (2006). "Risk reporting: A study of risk disclosures in the annual reports of UK companies". *British Accounting Review*, 38 (4), 387-404.
- Liu, T., Zhang, Y., and Liang, D., (2019). "Can ownership structure improve environmental performance in Chinese manufacturing firms?: the moderating effect of financial performance". *Journal of Cleaner Production*, 225 (3), 58-71.
- Loughran, T., and B. McDonald. (2011). "When Is a Liability Not a Liability? Textual Analysis, Dictionaries, and 10-Ks". *Journal of Finance*, 66, 35– 65.

- Lozano, M. Belén, Beatriz Martínez, and Julio Pindado. (2016). “Corporate governance, ownership and firm value: Drivers of ownership as a good corporate governance mechanism.” *International Business Review* 25: 1333–43.
- MacKinnon, D. P., Coxe, S., and Baraldi, A. N. (2012). “Guidelines for the investigation of mediating variables in business research”. *Journal of Business and Psychology*, 27(1), 1-14.
- Munisi, G., Hermes, N., and Randøy, T. (2014). “Corporate boards and ownership structure: Evidence from Sub-Saharan Africa”. *International Business Review*, 23 (4), 785-796.
- Nekhili, M., S. Boubaker, and F. Lakhal. (2012). “Ownership structure, voluntary disclosure and market value of firms: The French case”. *International Journal of Business* 17 (2): 126-140
- Phiri, O., Mantzari, E., and Gleadle, P., (2019). “Stakeholder interactions and corporate social responsibility (CSR) practices Evidence from the Zambian copper mining sector”. *Accounting, Auditing and Accountability Journal*, 32 (1): 26-54.
- Salem, I., Ayadi, S. and Hussainey, K. (2019), "Corporate governance and risk disclosure quality: Tunisian evidence", *Journal of Accounting in Emerging Economies*, 9 ( 4), 567-602.
- Schmid, T. E., (2013). “Control considerations, creditor monitoring, and the capital structure of family firms”. *Journal of Banking and Finance*, 37 (2), 257-272.
- Torchia, M., & Calabrò, A. (2016). “Board of directors and financial transparency and disclosure. Evidence from Italy”. *Corporate Governance: The International Journal of Business in Society*. 16 (3), 593-608.
- Wang, M.; Hussainey, K. (2013). “Voluntary forward-looking statements driven by corporate governance and their value relevance”. *Journal of Accounting and Public Policy*, 32, 26–49.
- Yang, W., and Meyer, K. E. (2019). “How does ownership influence business growth? A competitive dynamics perspective”. *International Business Review*, 28 (5), 101482.

### Appendix 1: Examples of COVID-19 Keywords

|                   |
|-------------------|
| Covid#            |
| Corona#           |
| Pandemic          |
| Lockdown          |
| Epidemic          |
| Social distancing |
| Hand washing      |

Face covering  
Face mask  
Safety measures  
Working from home  
Working online  
Infectious  
Reopen  
Safe returning  
Quarantine

**Source:** Elmarzouky et al. (2021)

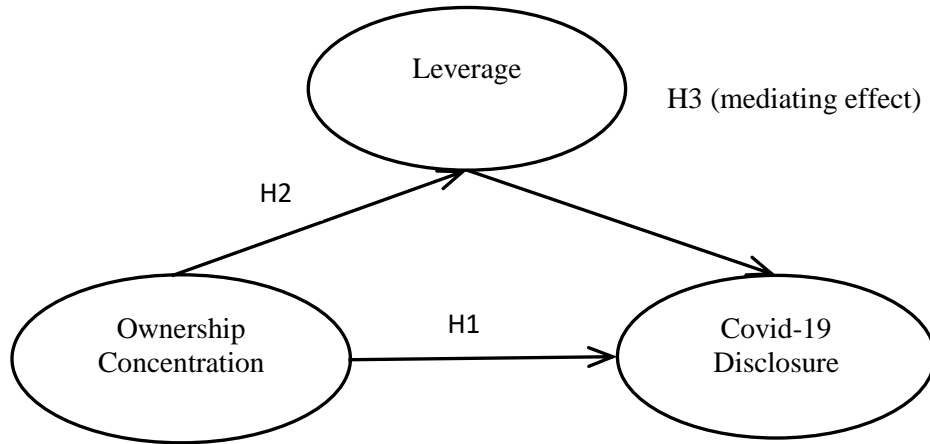


Figure 1: Theoretical framework

**Table 1 Descriptive Statistics**

| Variable    | Mean   | Std. Dev. | Min    | Max     |
|-------------|--------|-----------|--------|---------|
| COV         | 52.761 | 79.754    | 1      | 594     |
| OC1         | 21.579 | 8.621     | 2.735  | 47.294  |
| OC2         | 42.438 | 16.021    | 4.449  | 79.83   |
| LEV         | 18.562 | 32.442    | 0.011  | 137.844 |
| FS          | 21.185 | 1.472     | 17.673 | 26.365  |
| ROA         | .312   | 1.149     | -5     | 10      |
| LIQ         | 3.572  | 28.096    | .032   | 419.82  |
| Gov_Quality | 60.460 | 19.693    | 7.586  | 95.045  |

Where: COV: Covid disclosure; OC1: The first five shareholders percentage, OC2: The first ten shareholders percentage, LEV: corporate leverage, LIQ: firm liquidity, FS: firm size, ROA: return on assets. Gov\_Quality: governance quality.

**Table 2 Matrix of correlations**

| Variables | (1)     | (2)     | (3)   | (4) | (5) | (6) | (7) |
|-----------|---------|---------|-------|-----|-----|-----|-----|
| (1) COV   | 1.000   |         |       |     |     |     |     |
| (2) OC1   | -0.215* | 1.000   |       |     |     |     |     |
| (3) LEV   | -0.154* | -0.065* | 1.000 |     |     |     |     |

|                 |         |         |         |         |         |        |       |
|-----------------|---------|---------|---------|---------|---------|--------|-------|
| (4) FS          | 0.146*  | 0.022   | -0.212* | 1.000   |         |        |       |
| (5) ROA         | -0.088* | 0.050*  | 0.294*  | -0.096* | 1.000   |        |       |
| (6) LQ          | 0.104*  | -0.066* | -0.021  | 0.035   | -0.080* | 1.000  |       |
| (7) Gov_Quality | 0.262*  | 0.163*  | 0.104*  | 0.215*  | 0.132*  | 0.076* | 1.000 |

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\*shows significance at the 0.05 level

**Table 3 Regression results**

|           | (1)        | (2)        | (3)        | (4)        |
|-----------|------------|------------|------------|------------|
|           | OLS        | OLS        | 2SLS       | 2SLS       |
| VARIABLES | COV        | COV        | COV        | COV        |
| OC1       | -0.0407*** |            | -0.0406*** |            |
|           | (0.0168)   |            | (0.0165)   |            |
| OC2       |            | -0.0263*** |            | -0.0276*** |
|           |            | (0.00881)  |            | (0.00892)  |
| LEV       | -0.193***  | -0.183***  | -0.191***  | -0.182***  |
|           | (0.109)    | (0.109)    | (0.110)    | (0.109)    |
| LIQ       | 0.0216**   | 0.0124*    | 0.0167*    | 0.0213**   |
|           | (0.0105)   | (0.0101)   | (0.0104)   | (0.0102)   |
| FS        | 0.201*     | 0.190*     | 0.190*     | 0.201*     |
|           | (0.112)    | (0.110)    | (0.112)    | (0.110)    |
| ROA       | -0.156*    | -0.126     | -0.127     | -0.154*    |

|             |          |          |          |          |
|-------------|----------|----------|----------|----------|
|             | (0.0870) | (0.0851) | (0.0866) | (0.0854) |
| Gov_Quality | 0.144*** | 0.116*** | 0.116*** | 0.116*** |
|             | (0.102)  | (0.0651) | (0.101)  | (0.0654) |
| Constant    | 5.183*** | 5.781*** | 5.621*** | 5.181*** |
|             | (2.481)  | (2.044)  | (2.462)  | (2.313)  |
| R-squared   | 0.117    | 0.112    | 0.116    | 0.112    |

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

Where: OC1: The first five shareholders percentage, OC2: The first ten shareholders percentage, LEV: corporate leverage, LIQ: firm liquidity, FS: firm size, ROA: return on assets. Gov\_Quality: governance quality.

Table 4 Regression results of the mediating effect using OC1

|           | (5)         | (6)         | (7)        | (8)        |
|-----------|-------------|-------------|------------|------------|
|           | OLS         | 2SLS        | OLS        | 2SLS       |
| VARIABLES | LEV         | LEV         | COV        | COV        |
| OC1       | -0.00431*** | -0.00420*** | -0.0456*** | -0.0449*** |
|           | (0.000681)  | (0.000673)  | (0.0151)   | (0.0161)   |
| LIQ       | 0.00461***  | 0.00461***  | 0.0221**   | 0.0221**   |
|           | (0.00431)   | (0.00423)   | (0.0105)   | (0.0103)   |
| FS        | 0.0176***   | 0.0176***   | 0.201**    | 0.201**    |
|           | (0.00448)   | (0.00440)   | (0.106)    | (0.108)    |
| ROA       | -0.00306    | -0.00306    | 0.261**    | 0.261**    |
|           | (0.00477)   | (0.00478)   | (0.111)    | (0.109)    |



|             |                     |                     |                      |                      |
|-------------|---------------------|---------------------|----------------------|----------------------|
| Gov_Quality | 0.00214<br>(0.0058) | 0.00213<br>(0.0057) | 0.101***<br>(0.0811) | 0.103***<br>(0.0754) |
| Constant    | 0.489***<br>(0.163) | 0.489***<br>(0.181) | 7.283***<br>(2.704)  | 7.283***<br>(2.765)  |
| R-squared   | 0.263               | 0.261               | 0.117                | 0.113                |

Standard errors in parentheses

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

**Table 5 Regression results of the mediating effect using OC2**

|           | (9)                       | (10)                      | (11)                    | (12)                    |
|-----------|---------------------------|---------------------------|-------------------------|-------------------------|
|           | OLS                       | 2SLS                      | OLS                     | 2SLS                    |
| VARIABLES | LEV                       | LEV                       | COV                     | COV                     |
| OC2       | -0.00382***<br>(0.000281) | -0.00382***<br>(0.000282) | -0.0261***<br>(0.00906) | -0.0241***<br>(0.00903) |
| LIQ       | 0.0124***<br>(0.00351)    | 0.0124***<br>(0.00351)    | 0.0173*<br>(0.0106)     | 0.0173*<br>(0.0104)     |
| FS        | 0.00614**<br>(0.00293)    | 0.00614**<br>(0.00293)    | 0.191*<br>(0.192)       | 0.191*<br>(0.192)       |
| ROA       | -0.00167<br>(0.00214)     | -0.00167<br>(0.00215)     | 0.106**<br>(0.184)      | 0.106**<br>(0.184)      |

|             |                      |                      |                      |                      |
|-------------|----------------------|----------------------|----------------------|----------------------|
| Gov_Quality | 0.00235<br>(0.0028)  | 0.00235<br>(0.0027)  | 0.101***<br>(0.0711) | 0.103***<br>(0.0710) |
| Constant    | 0.192***<br>(0.0817) | 0.191***<br>(0.0768) | 6.841***<br>(2.532)  | 6.841***<br>(2.451)  |
| R-squared   | 0.262                | 0.262                | 0.121                | 0.121                |

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Standard errors in parentheses

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