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HOW COVID-19 AFFECTED CORPORATE DIVIDEND DECISIONS: NOVEL EVIDENCE FROM EMERGING COUNTRIES

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Abstract

The study aims to investigate the corporate dividend policy decisions in emerging countries during the COVID-19 pandemic. Our sample consists of 5,869 publicly listed firms from 29 emerging countries to explicate the observed trends in dividend policy during the pandemic. Logistic regressions are used to investigate the main factors that drive the propensity to change dividend payouts. Our analysis reveals that most firms opted to either increase or decrease their dividends, with a minority proportion deciding to maintain dividends. Notably, our findings demonstrate that firm profitability is the main driver of all types of dividend changes, except when firms opt to maintain or decrease dividends. Moreover, we find that when firms reduce dividends by over 70%, profitability emerges as a crucial determinant, thus bolstering the signaling hypothesis. The results are robust to sample size sensitivity and different levels of dividend changes. The findings of the study might have practical implications for corporate managers and policymakers in designing dividend decisions and policies under uncertain conditions. This research underscores the impact of the COVID-19 pandemic on corporate dividend policy in emerging countries and emphasizes the need to consider the level of dividend changes in exploring the dividend puzzle.

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Introduction

COVID-19 has been one of the most challenging uncertainties for corporations in recent years. It was first detected in December 2019, and its effects became more concrete by February 2020. The World Health Organization (WHO) officially declared it a pandemic in March 2020. To cope with this pandemic, governments announced several actions to prevent the virus's spread, including partial or complete lockdowns, which led to significant effects on economies and corporations. This resulted in declines in economic growth worldwide by 4.2%, in the US by 3.4%, in Europe by 7.5%, in the G-20 by 3.8%, and in India by 9.9%. Yilmazkuday (2020) reports the negative impact of COVID -19 on the global economy, while Mazur et al. (2021), Tripathi and Pandey (2021), and Baker et al. (2020) demonstrate a robust increase in equity market volatility in the US.

The uncertainty caused by COVID-19 has affected various industries and regions in disparate ways. Pan (2021) has reported a significant drop in manufacturing PMI since 2011, with the effect being more pronounced in developed rather than developing markets. However, the MSCI emerging markets index has underperformed the MSCI world index during the pandemic (Pan, 2021). This effect has extended to internal and external capital chains, prompting firms to review their financial policies (Jiang et al., 2021). During 2020, leverage decreased significantly in the US (Haque & Varghese, 2021). Firms with high leverage experience a high level of risk (Huang & Ye, 2021). The flow of credit to industrial sectors remained robust (Deghi et al., 2021), and stock markets have reacted negatively to the pandemic (Harjoto et al., 2021; Prabheesh et al., 2020).

Wigglesworth et al. (2020) reported a reduction in firms' dividends globally during the pandemic. The emerging empirical research on the impact of COVID-19 on corporate dividend policy has focused on developed countries (e.g. Ali, 2022; Ntantamis & Zhou, 2022). However, few studies have explored its effects on emerging countries and have used a single-country setting, such as Ali et al. (2022) in Pakistan, and Tinungki et al. (2022) in Indonesia. Scholars have demonstrated salient differences between developed and developing countries regarding corporate governance mechanisms, legal protection, voting rights, ownership structure, and the role of institutional shareholders (Glen et al., 1995; Mitton, 2004; Adjaoud & Ben-Amar, 2010). These issues are not independent of how corporate dividend policy is determined and deserve further investigation. For instance, Aivazian et al. (2003) have demonstrated that the sensitivity of dividend policy determinants differs in emerging compared to developed markets.

The agency theory of dividends, proposed by Jensen (1986), contends that firms with excess cash can resolve the principal-agent problem by maintaining or increasing dividends. In contrast, the signaling theory of dividends, advanced by Bhattacharya (1979), asserts that changing dividends can convey valuable information about a firm's prospects. In this context, our objective is to investigate the corporate dividend policies during the COVID-19 pandemic, utilizing a substantial sample from emerging countries. Our study seeks to provide new insights into the effect of the pandemic on corporate dividend policies in emerging countries, where empirical research in this domain is relatively limited. To the best of our knowledge, our study is the first of its kind to explore the impact of the pandemic on corporate dividend policy across 29 emerging countries.

The present study represents a significant contribution to the literature on corporate dividend policy. Specifically, it is the first study to investigate the impact of unexpected exogenous shocks, such as the COVID-19 pandemic, on dividend policy using a large sample from emerging countries. The empirical findings of our study demonstrate that the majority of firms in these countries either increase or cut dividends during the pandemic. Additionally, the number of firms that maintain dividends is lower than those that omit dividends, which underscores the impact of the pandemic on firms' dividend stability in these countries.

Our study also sheds light on the importance of considering the levels of dividend changes to explain the variation in dividend policy across firms and countries. The results reveal that at a higher level of dividend reduction (> 75%), there is a significant negative growth in the profitability of firms that decrease dividends compared to those that maintain dividends. Furthermore, at a higher level of dividend increases and decreases (> 75%), profitability and asset turnover are the primary drivers of corporate dividend decisions. However, the decision to increase or maintain a dividend is primarily attributed to the profitability and size of a firm. Therefore, splitting dividend changes into levels may provide further insights into the mixed evidence on corporate dividend policy.

Lastly, our study highlights the variation in dividend policy between developing (Ali, 2022) and developed countries, which merits further consideration. These findings have significant implications for policymakers, investors, and other stakeholders, particularly regarding the impact of unexpected exogenous shocks on dividend policy in developing economies. Overall, our study makes a valuable contribution to the literature on corporate finance and dividend policy, and its findings have important implications for future research in this area.

This paper is structured as follows: Section 2 provides a review of the relevant literature, while Section 3 describes the data and methodology used in our analysis. In Section 4, we present our empirical results, and Section 5 reports on the robustness checks we conducted. Finally, Section 6 concludes the paper.

Literature review

Dividend policy is one of the financial policy challenges faced by corporations. Some studies have focused on the question of whether dividend policy affects firm value, while others have focused on the determinants of dividend policy. In their seminal work, Miller and Modigliani (1961) argue that in a perfect market, corporate dividend policy is irrelevant and does not have any impact on corporate value. However, in the real world with market imperfections such as taxes, transaction costs, asymmetric information, and principal-agent conflict, dividend policy has been shown to affect shareholders' value.

The existing literature documented that there are significant differences in dividend policies and decisions of the firms in emerging countries and developed countries, particularly the firms in emerging countries follow less stable dividend policies and the most important determinant of the dividend decision is the current year earnings, also the firms in emerging countries are subject to higher financial constraints (Adaoglu, 2000; Aivazian et al., 2003; Glen & Singh, 2004). Jabbouri (2016) investigated the determinants of dividend policy in MENA region countries and reported that firm size, profitability, and liquidity have a positive effect on dividend payments while firm growth and leverage have a negative effect. The responses of the firms in their dividend policies during economic slumps are also different in emerging and developed countries. The firms in developed countries tend to reduce dividends in such periods while the counterparts in emerging countries tend to increase the payout to pacify the investors (Chemmanur & Tian, 2014; Jabbouri, 2016).

Agency and signaling theories have been widely used in the literature to justify the relevance of corporate dividend policy. Agency theory explains dividend decisions in principal-agent problems (Jensen, 1986). In this context, firms should continue to pay or increase dividends to prevent self-interested managers from investing excess cash in negative NPV projects or obtaining private benefits. The signaling theory argues that dividend changes convey signals about firms' prospects, suggesting a positive link between dividends and earnings (Bhattacharya, 1979).

Several empirical studies have examined corporate dividend policy during the financial crisis of 2007-2009 and provided empirical evidence of the adverse impact of this crisis on dividend policy (e.g. Hauser, 2013; Floyd et al., 2015). For instance, Hoberg and Prabhala (2009) detect a lower propensity of firms to pay dividends after the financial crisis, and Hauser (2013) finds consistent results with this conjecture. Bistrova et al. (2013) show that there was a reduction in the payout policy during the financial crisis in European firms. COVID-19 has been a similar turmoil period for corporations, and they have encountered financial policy challenges, including dividend decisions (Cejnek et al., 2021; Ali, 2022; Eugster et al., 2022; Ntantamis & Zhou, 2022).

Ali (2022) investigates the impact of COVID-19 on dividend policy in G-12 countries and finds that while the majority of firms maintain or increase dividends, there is a significant increase in the number of firms that decrease or omit dividends compared to the pre-COVID-19 period. Her findings reveal that firms' profitability plays a crucial role in determining the decision to change dividends. Using US data, Krieger et al. (2021) study the impact of COVID-19 on the payout policy of US firms, reporting that the proportion of dividend cuts or omissions during 2020 was three to five times higher than in the periods 2015-2019.

Ntantamis and Zhou (2022) examine the effect of COVID-19 on the payout policies of firms in G-7 countries, considering dividends and share repurchases. They find that more companies decreased their payout after the pandemic started and point out that the scale of adjustments varies across countries. They also find that cash holdings helped mitigate the negative effects of the pandemic, with the effect being more significant in North America and Japan compared to Europe.

In developing countries, Tinungki et al. (2022) examine the impact of COVID-19 on dividend policy in Indonesia and find that the pandemic does not have a significant effect on firms' dividend policy. However, Ali et al. (2022) demonstrate that the majority of listed firms in Pakistan omit dividends during the pandemic, while firms that decide to maintain dividends account for less than 6% of the sample. They further show that firms that increase (decrease) dividends experience a positive (negative) profitability compared with firms that decrease (maintain) dividends. However, they find no robust evidence on other dividend change groups.

Data and methodology

The sample

The study's sample comprises listed firms from 29 countries that were obtained from Refinitiv Eikon during the 2015-2020 period. We follow the recent studies that examine the impact of COVID-19 on dividends and choose the period 2015-2020 (e.g. Krieger et al., 2020; Ali, 2022). The initial sample consisted of

14,208 firms, from which 738 financial and real estate firms were removed. We excluded firms that never paid dividends or engaged in share repurchases in 2020 (N = 6,738) from the sample. Additionally, we removed firms that chose to omit dividends in 2019 or initiate dividends only in 2020, following Ali's (2022). We retained only firms with complete accounting data and restricted the sample to investable firms by excluding those with total assets and total equity of less than 0.5 and 0.25 million, respectively. To counter the influence of potential outliers, we implemented a winsorization procedure on all non-dummy variables, limiting extreme values to the 1st and 99th percentiles. This technique effectively mitigates the impact of any errant observations, thereby promoting a more robust and reliable dataset for subsequent analyses. As a result, our final sample comprised 5,869 firms from 29 countries. We utilized the Industry Classification Benchmark (ICB) to categorize firms into nine distinct groups, as reported in Table 1.[3]

Table 1: Sample Details

Panel A: Sample distribution per country							
Country	**Freq.**	**Percent**	**Cum.**	**Country**	**Freq.**	**Percent**	**Cum.**
Argentina	22.0	0.4	0.4	Morocco	22.0	0.4	80.7
Bahrain	13.0	0.2	0.6	Oman	39.0	0.7	81.4
Bangladesh	69.0	1.2	1.8	Pakistan	145.0	2.5	83.9
Brazil	120.0	2.0	3.8	Peru	55.0	0.9	84.8
Bulgaria	14.0	0.2	4.1	Philippines	60.0	1.0	85.8
Chile	88.0	1.5	5.6	Poland	90.0	1.5	87.3
China	2620.0	44.6	50.2	Qatar	19.0	0.3	87.7
Colombia	29.0	0.5	50.7	Romania	41.0	0.7	88.4
Egypt	54.0	0.9	51.6	Russia	63.0	1.1	89.4
Hungary	6.0	0.1	51.7	Saudi Arabia	50.0	0.9	90.3
India	1085.0	18.5	70.2	South Africa	90.0	1.5	91.8
Indonesia	172.0	2.9	73.1	Thailand	389.0	6.6	98.5
Kuwait	20.0	0.3	73.5	Turkey	72.0	1.2	99.7
Malaysia	358.0	6.1	79.6	UAE	19.0	0.3	100.0
Mexico	45.0	0.8	80.3	Total	5869.0	100.0	
Panel B: Sample distribution per industry							
ICB Industry name	**Freq.**	**Percent**	**Cum.**	**ICB Industry name**	**Freq.**	**Percent**	**Cum.**
Basic Materials	929.0	15.8	15.8	Industrials	1553.0	26.5	82.7
Consumer Discretionary	1089.0	18.6	34.4	Technology	524.0	8.9	91.7
Consumer Staples	630.0	10.7	45.1	Telecommunications	166.0	2.8	94.5
Energy	187.0	3.2	48.3	Utilities	323.0	5.5	100.0
Health Care	468.0	8.0	56.3	Total	5869.0	100.0	

Source: Author's own work.

Descriptive statistics

Table 2 provides a comprehensive overview of summary statistics by dividend-change groups for the 2015-2020 period. Notably, the vast majority of firms in markets have exhibited a propensity for a dividend increase, aligning with the findings reported in extant research conducted on developed markets (Ali, 2022). However, contrary to these previous studies, firms exhibiting a decrease (or no-change) in dividends represent the second (or third) largest group. Additionally, in 2020, the number of firms with dividend increase (DIC) stood at 2,353, surpassing all other types of dividends-change groups, a trend that aligns with Ali's (2022) observations in G-12 countries. However, this pattern has remained relatively flat since 2019, diverging from that observed in developed countries.

[3] The majority of firms in Table 1 are from China and India which account for 63% of the sample. This might lead our estimations to be biased. Hence, we consider the overrepresentation of the sample in the robustness section.

Table 2: Number of Firms per Dividend-Change Group

Dividend	2015		2016		2017		Total
	Obs	%	Obs	%	Obs	%	Obs
DIC	1571	42.3	2294	45.5	2605	47.3	13775
DNC	557	15.0	946	18.8	1026	18.6	5545
DDC	1104	29.7	1277	25.3	1364	24.8	8584
DOM	483	13.0	525	10.4	514	9.3	4165
Total	3715	100.0	5042	100.0	5509	100.0	32069
Dividend	**2018**		**2019**		**2020**		**Total**
	Obs	**%**	**Obs**	**%**	**Obs**	**%**	**Obs**
DIC	2670	44.4	2282	38.6	2353	40.1	13775
DNC	1020	17.0	1125	19.0	871	14.8	5545
DDC	1562	26.0	1652	27.9	1625	27.7	8584
DOM	763	12.7	860	14.5	1020	17.4	4165
Total	6015	100.0	5919	100.0	5869	100.0	32069

DIC: Dividend increase, DDC: Dividend decrease, DNC: Dividend no change, DOM: Dividend omissions.

Source: Author's own work.

Table 2 shows that the number of firms that opted not to change dividends (DNC) in 2020 stood at 871, in contrast to the 1,125 recorded the previous year. This finding contradicts that reported in G-12 nations (Ali, 2022), where the number of firms that maintained dividends in 2019 and 2020 was almost identical. Dividend-decreasing firms (DDC) remained relatively stable both during the pandemic and preceding years, diverging from the sample observed in developed countries (Ali, 2022). Conversely, dividend-omitting firms (DOM) increased over the period, reaching their highest levels during the pandemic year, a trend that aligns with the results of research conducted in the US (Pettenuzzo et al., 2021) and developed countries (Ali, 2022). For the remainder of this study, we will focus on the pandemic year: 2020.[4]

Table 3 presents the descriptive statistics for each dividend group during the pandemic year, which includes firms that increased dividends (Panels A), firms that maintained dividends (Panels B), firms that decreased dividends (Panels C), and firms that omitted dividends (Panels D). All variables used in the analysis are defined in Appendix A. Among the different dividend-change groups, the firms that increased dividends were found to be more profitable and larger, this is consistent with the findings reported in developed countries (Ali, 2022). The firms that decided not to change dividends were observed to be more liquid during the COVID-19 year. However, their profitability, assets turnover, size, and market-to-book ratio were found to be very similar to the dividend-decreasing firms, which contradicts the findings of Ali (2022) in G-12 countries. These results suggest that there are similarities in the characteristics of firms that maintain dividends and those that cut dividends, which is not in line with Ali's (2022) findings that show that firms that decide not to change dividends are much more profitable, have higher assets turnover, are smaller, and experience lower market-to-book ratios. On the other hand, the dividend-omitting firms were found to have negative profitability, lower liquidity, more debt, and a high market-to-book ratio.

[4] The total number of firms paying dividends in our study, including DIC, DDC, and DNC, decreased from 5,059 to 4,849 in 2019 and 2020, respectively. This finding is consistent with the results obtained by Ntantamis and Zhou (2022) in G-7 countries. However, the numbers in each dividend-change group differ significantly from those reported in developed countries (Ali, 2022), indicating differences in dividend behavior between developing and developed markets.

Table 3: Descriptive statistics

Characteristics	Mean	Median	Min	Max	Std. Dev.
Panel A: Dividend increases (DIC)					
ROA %	7.8	6.6	-34.0	27.5	5.8
chE %	3.2	2.5	-87.2	82.2	9.1
ROE %	14.2	12.2	-145.7	61.8	11.2
Operpm %	15.8	12.8	-267.1	65.6	14.4
AstTvr	0.8	0.7	0.0	3.5	0.5
Lev %	43.1	42.6	3.0	94.0	19.5
Size	20.1	20.1	14.6	23.9	1.8
Liq	2.6	1.8	0.2	25.5	2.6
MktBk	0.7	0.4	0.0	9.6	0.9
Panel B: No change in dividends (DNC)					
ROA%	5.3	4.5	-32.1	27.5	5.0
chE%	-1.2	-0.1	-109.8	50.4	8.4
ROE%	9.2	8.6	-145.7	46.7	10.2
Operpm %	10.3	9.3	-267.1	65.6	16.2
AstTvr	0.8	0.7	0.0	3.5	0.6
Lev %	41.6	41.0	3.0	94.0	19.9
Size	19.6	19.6	14.4	23.9	1.8
Liq	2.9	1.8	0.2	25.5	3.4
MktBk	0.8	0.6	0.0	9.6	0.8
Panel C: Dividend decreases (DDC)					
ROA %	4.8	3.9	-34.0	27.5	5.3
chE %	-4.3	-2.5	-109.8	90.1	11.9
ROE %	9.1	7.2	-85.6	61.8	11.3
Operpm %	10.9	9.0	-192.5	65.6	16.0
AstTvr	0.7	0.6	0.0	3.5	0.5
Lev %	43.5	43.8	3.0	94.0	20.8
Size	19.9	19.8	14.7	23.9	1.8
Liq	2.6	1.7	0.2	25.5	2.8
MktBk	0.8	0.6	0.0	9.6	1.0
Panel D: Dividend omissions (DOM)					
ROA %	-0.4	0.4	-34.0	27.5	8.2
chE %	-11.3	-6.2	-109.8	90.1	21.0
ROE %	-2.9	0.9	-145.7	61.8	22.7
Operpm %	-3.5	2.6	-267.1	65.6	33.7
AstTvr	0.7	0.6	0.0	3.5	0.6
Lev %	47.8	48.3	3.0	94.0	20.9
Size	19.2	19.3	14.4	23.9	1.9
Liq	2.3	1.5	0.2	25.5	3.1
MktBk	1.1	0.7	0.0	9.6	1.3

The table presents several characteristics of the sample. It reports the mean, median, maximum, minimum and standard deviation of variables for each dividend's category. All variables are defined in Appendix A. Panels A, B, C, and D present the groups of firms that chose to increase, not change, decrease and omit dividends, respectively.

Source: Author's own work.

Pairwise correlations

Table 4 (see: Appendix) presents the pairwise correlations among the variables used in the analyses during the COVID-19 period. The dividend increases are positively correlated with all profitability measures, asset turnover, and size, but negatively correlated with leverage, liquidity, and market-to-book ratio. Dividend no-change cases have a similar pattern, with the exception that they have a positive correlation with liquidity. Dividend cuts have a positive association with ROA, ROE, operating profit margin, and size, but are negatively associated with changes in earnings, asset turnover, leverage, liquidity, and market-to-book ratio. Dividend omissions display an opposite pattern compared to the other three categories; they have negative correlations with all profitability measures, asset turnover, and liquidity, but positive correlations with leverage, size, and market-to-book ratio. These findings reveal that the no-change dividend and dividend decrease groups exhibit similar correlations with all of the used variables, except for ChE, size, and liquidity. These statistics confirm some differences from those in developed markets (Ali, 2022), which show that firms that decrease dividends are negatively correlated with all profitability measures, firm size, and market-to-book ratio.

Methodology

To examine the impact of the pandemic on corporate dividend policy, we follow the recent study by Ali (2022). We calculate the dividend changes following Nissim (2001), as the difference between dividends in fiscal year t and the dividends in the previous year, scaled by the dividend in the previous year. Then, dividend changes are sorted into four groups: (I) dividend increases, (II) dividend no changes, (III) dividend decreases, and (IV) dividend omission. Next, dichotomous variables are constructed based on each two groups of dividend changes (DivChange). Our dependent variable is a categorical variable that equals 1 or 0. Thus, we apply logistic regression to investigate what factors drive the variation in dividend decisions in emerging countries during the COVID-19 pandemic. The model is specified as follows:

$$Pr(DivChange_i = 1) = \beta_0 + \beta_1 Profitabitliy_i + \Sigma\theta X_i + Industry\ Dummies_j + Country\ Dummies_k + \eta_i \quad (1)$$

Where is a dichotomous variable that takes the value of 1 and 0 for each two groups: dividend increases (= 1) versus dividend no change (= 0); dividend increases (= 1) versus dividend decreases (= 0); dividend omissions (= 1) versus dividend no changes (= 0); dividend omission (= 1) versus dividend decreases (= 0); and dividend decreases (= 1) versus dividend no change (= 0). We have used four different measures of profitability following the recent literature (i.e. Return on assets (ROA %); Change in earnings (chE %); Return on equity (ROE %); Operating profit margin (Operpm %)). ROA % is defined as net income over total assets (Krieger et al., 2021), and chE % is defined as the change in the net income scaled by the book value of equity (Ali, 2020). ROE % is defined as net income scaled by the book value of equity (Richard et al., 2014). Operpm % is operating profit divided by revenue (Fairfield & Yohn, 2001).[5] Control variables, include assets turnover, firm size, leverage, liquidity, and market-to-book ratio (DeAngelo et al., 2004; Denis & Osobov, 2008; Ali, 2022). All other variables are defined in Appendix A. Furthermore, we control for country and industry fixed effects in all regressions.

Empirical results

The estimates for the logistic regression are displayed in Table 5 (see: Appendix), Panels A to D. Considering the results in Panels A to E (Models 1 to 16), we found strong associations between firms' profitability and the propensity to change dividends in emerging countries during the COVID-19 pandemic, which is in line with Ali's recent study (2022) in G-12 countries. Panel A reveals that profitability measures are positive and statistically significant at the 1% level, indicating that firms with higher profitability are more likely to increase dividends than to maintain them. Models 5 to 8 in Panel B document that the likelihood of increasing dividends is more pronounced in firms with higher profitability, as opposed to decreasing them. Firms with lower profitability, as stated in models 9 to 12 of Panel C, are more likely to omit dividends than to maintain their levels. Moreover, Panel D detects that lower profitability increases the likelihood of firms omitting dividends rather than decreasing them. The regression outputs in models 17 to 20 demonstrate that the coefficients of profitability measures are not robustly significant. These findings provide little support for the impact of profitability on the likelihood of firms decreasing dividends compared to maintaining them, which is inconsistent with the findings in developed countries (Ali, 2022). Study (2022) in G-12 countries. Panel A reveals that profitability measures are positive and statistically significant at the 1% level, indicating that firms with higher profitability are more likely to increase dividends than to maintain them. Models 5 to 8 in Panel B document that the likelihood of increasing dividends is more pronounced in firms with higher profitability, as opposed to decreasing them. Firms with lower profitability, as stated in models 9 to 12 of Panel C, are more likely to omit dividends than to maintain their levels. Moreover, Panel D detects that lower profitability increases the likelihood of firms omitting dividends rather than decreasing them. The regression outputs in models 17 to 20 demonstrate that the coefficients of profitability measures are not robustly significant. These findings provide little support for the impact of profitability on the likelihood of firms decreasing dividends compared to maintaining them, which is inconsistent with the findings in developed countries (Ali, 2022).

[5] We have employed different measures of profitability to provide robust evidence of the impact of profitability on corporate dividend policy. The majority of the previous studies have demonstrated the significant influence of profitability on corporate dividend policy (e.g. Fama & French, 2001; DeAngelo et al., 2004; Al-Ghazali, 2014).

The effect of firms' characteristics on the likelihood of firms to change dividends in panel A of Table 5 (see: Appendix) shows that the propensity of firms to increase rather than maintain dividends is positively associated with assets turnover as shown in models 2 and 3, indicating that firms with high assets turnover are more likely to increase dividends. Size bears positive and significant coefficients indicating that larger firms are more likely to increase than maintain dividends. Furthermore, the coefficients of liquidity are statistically insignificant at 10%, suggesting that firms that increase compared to those that maintain dividends do not exhibit significant liquidity differences. The market-to-book ratio is lower in firms that increase rather than maintain dividends. As shown in models 5 to 8 of panel B, the likelihood of firms to increase than decrease dividends is positively (negatively) correlated with assets turnover, size, and market-to-book ratio. Panels C and D reveal that the propensity of firms to omit rather than maintain dividends (penal C) and omit rather than decrease dividends (panel D) is negatively (positively) and significantly related to assets turnover and size (leverage and market-to-book ratio). Panel E reports that asset turnover reduces the propensity of firms to decrease rather than maintain dividends while other factors are not statistically significant.

We extended our analysis to investigate the inconsistent results with Ali's study on the impact of firms' profitability on the likelihood of firms decreasing rather than maintaining dividends. We divided dividend reductions into four groups: (I) reduction less than 25%; (II) reduction between 25% and less than 50%; (III) reduction between 50% and less than 75%; and (IV) reduction greater than 75% and less than 100%. We ran a logistic regression using Eq. (1), where the explanatory variables are (I) a dichotomous variable that is 1 for dividend reduction less than 25% and 0 if dividends are not changed; (II) a dichotomous variable that is 1 for dividend reduction between 25% and less than 50% and 0 if dividends are not changed; (III) a dichotomous variable that is 1 for dividend reduction between 50% and less than 75% and 0 if dividends are not changed; and (IV) a dichotomous variable that is 1 if dividend reduction between 75% and less than 100% and 0 if dividends are not changed.

The estimated outputs of the logistic regression are presented in Table 6 Panel A to D (see: Appendix). We find strong evidence indicating that at a lower level of dividend reduction, Panel A, higher profitable firms are more likely to cut than maintain dividends. The coefficients of leverage and size are positive and significant only in models 1 and 2, respectively. These findings might suggest that a small reduction in dividends could be used by firms not to convey their prospect about future profitability: signaling. The relationship between the propensity of firms to change dividends and profitability diminishes at moderate and high levels of dividend reductions ($25\% \leq DDCD < 50\%$ and $50\% \leq DDCD < 75\%$) as reported in Panel B and C. Specifically, we find that at these levels of dividend reductions, the profitability measures are not robustly significant. Assets turnover is negative and statistically significant in panel B indicating that firms at moderate levels of dividend reduction exhibit lower assets turnover than those that maintain dividends. Panel C shows that size and liquidity bear statistically negative coefficients.

In the case of extreme dividend reduction (a decrease ≥ 75%), as in Panel D, the findings demonstrate a robust significant negative correlation between all the profitability measures and the propensity of firms to decrease rather than maintain dividends, consistent with developed markets (Ali, 2022). Furthermore, firms with extreme dividend reductions exhibit lower asset turnover than those that maintain dividends.

Robustness Check

In the preceding section, we presented compelling evidence of the impact of the COVID-19 pandemic on the dividend policies of corporations in nations except in one group: Dividend decreases vs. dividend no-change. Nonetheless, it is plausible that our findings are attributable to alternative explanations. To fortify our results, we address two critical factors in this section: (1) the sensitivity of sample size; and (2) the distinction between the levels of dividend increases and the maintenance of existing dividend levels.

Sample size sensitivity

The present study encompasses data from 29 distinct countries, albeit with variations in the number of observations for each country, as indicated in Table 1. The preponderance of data from China and India in our sample warrants scrutiny, as this may introduce a potential bias into our estimation through overrepresentation. To address this concern, we re-examine our analysis, as reported in Table 5 (see: Appendix), by omitting data from the aforementioned countries. The estimated outputs from this refined analysis are subsequently presented in Table 7 (see: Appendix). Our findings, which align with those reported in Table 5 (see: Appendix), furnish compelling evidence of the impact of profitability measures on corporate dividend policy, except in one category, i.e., dividend decreases vs. dividend no-change. Moreover, the remaining estimated coefficients demonstrate consistent signs and levels of significance. In light of these findings, we affirm that our estimations remain robust, notwithstanding the potential for overrepresentation in our sample.

The level of dividend increases versus no-change dividends

The relationship between firms' profitability measures and corporate dividend policy has been investigated in Table 6 (see: Appendix), revealing an inconsistency in impact across varying levels of dividend reduction. To provide a more in-depth examination of this phenomenon, Table 7 (see: Appendix) was employed, revealing the pronounced impact of firms' profitability on dividend reduction in the context of extreme reduction. This pattern may also be observed in the case of dividend increases, prompting a replication of the analysis using dividend increases in Table 7 (see: Appendix). Specifically, the dividend increases were partitioned into four distinct groups based on their percentage increase, ranging from less than 25% to greater than 75%. Table 8 (see: Appendix) presents the estimated results based on the specified model, using a dichotomous variable that is 1 for each group of dividend increases and 0 if dividends are not changed.

The results demonstrate that all profitability measures exhibit positive and significant coefficients at all levels of dividend increases, indicating that the impact of corporate profitability on dividend increases is consistent across all levels. These findings provide further support for the results presented in Table 5 (see: Appendix). Moreover, it was found that the primary drivers of increasing dividends at higher levels were profitability and asset turnover, aligning with the findings in the context of dividend reduction.

Conclusion

In this study, we have undertaken an analysis of the impact of the COVID-19 pandemic on dividend policy, drawing upon a large sample of firms from emerging countries. Our investigation has yielded several notable findings. Firstly, we have observed that a majority of firms in our sample have either increased or decreased their dividends during the pandemic. Additionally, we have noted a significant rise in the number of firms that have opted to omit dividends, surpassing those that have maintained their dividend payments during the pandemic. Our regression analyses have further revealed that profitability and firm size are the primary determinants of changes in dividend policy, except for the decision to reduce or maintain dividends.

References

Adaoglu, C. (2000). Instability in the dividend policy of the Istanbul stock exchange (ISE) corporations: Evidence from an emerging market. Emerging Markets Review, 1(3), 252-270, doi.org/10.1016/s1566-0141(00)00011-x.

Adjaoud, F. & Ben-Amar, W. (2010). Corporate governance and dividend policy: Shareholders’ protection or expropriation? Journal of Business Finance and Accounting, 37(5-6), 648-667.

Aivazian, V., Booth, L. & Cleary, S. (2003). Do emerging market firms follow different dividend policies from US firms? Journal of Financial Research, 26(3), 371-387.

Al-Ajmi, J. & Abo Hussain, H. (2011).Corporate dividends decisions: Evidence from Saudi Arabia. The Journal of Risk Finance, 12(1), 41–56, https://doi.org/10.1108/15265941111100067.

Al-Ghazali, A.M. (2014). The Economic and Behavioural Factors affecting Corporate Dividend Policy: Theory and Evidence. Ph.D. Dissertation, University of Bath, Bath, UK. Available online: http://opus.bath.ac.uk/46574 (Accessed: 15.05.2023).

Ali, H. (2022). Corporate dividend policy in the time of COVID-19: Evidence from the G-12 countries. Finance Research Letters, 46(B), 102493, https://doi.org/10.1016/j.frl.2021.102493.

Ali, N., Rehman, M.Z.U., Ashraf, B.N. & Shear, F. (2022).Corporate Dividend Policies during the COVID-19 Pandemic. Economies, 10(11), 263-275, https://doi.org/10.3390/economies10110263.

Allen, D.E. (1992). Target Payout Ratios and Dividend Policy: British Evidence. Managerial Finance, 18(1), 9–21, https://doi.org/10.1108/eb018440.

Ararat, M., Claessens, S. & Yurtoglu, B.B. (2021). Corporate governance in emerging markets: A selective review and an agenda for future research. Emerging Markets Review, 48, 100767, http://dx.doi.org/10.2139/ssrn.3554745.

Baker, S.R., Bloom, N., Davis, S.J., Kost, K.J., Sammon, M.C. & Viratyosin, T. (2020). The unprecedented stock market impact of COVID-19. Review of Asset Pricing Studies, 10(4), 742–758.

Baker, H.K. & Powell, G.E. (1999). How Corporate Managers View Dividend Policy. Quarterly Journal of Business and Economics, 38(2), 17–35.

Benartzi, S., Michaely, R. & Thaler, R. (1997). Do Changes in Dividends Signal the Future or the Past? The Journal of Finance, 52(3), 1007–1034, https://doi.org/10.1111/j.1540-6261.1997.tb02723.x.

Bhattacharya, S. (1979). Imperfect Information, Dividend Policy, and ‘The Bird in the Hand’ Fallacy. The Bell Journal of Economics, 10(1), 259–270, https://doi.org/10.2307/3003330.

Bistrova, J., Lace, N. & Kozlovskis, K. (2013). Ownership type influence on dividend payments in CEE countries. Business: Theory and Practice Journal, 1(3), 259-266.

Brav, A., Graham, J.R., Harvey, C. & Michaely, R. (2005). Payout policy in the 21st century. Journal of Financial Economics 77(3), 483–527.

Cejnek, G., Randl, O. & Zechner, J. (2021). The COVID-19 Pandemic and Corporate Dividend Policy. Journal of Financial and Quantitative Analysis, 56(7), 2389–2410, https://doi.org/10.1017/S0022109021000533.

Chemmanur, T.J. & Tian, X. (2014). Communicating private information to the equity market before a dividend cut: An empirical analysis. Journal of Financial and Quantitative Analysis, 49(5-6), 1167–1199, doi: 10.1017/S0022109014000672.

DeAngelo, H., DeAngelo, L. & Skinner, D.J. (2004). Are dividends disappearing? Dividend concentration and the consolidation of earnings, Journal of Financial Economics, 72(3), 425–456, https://doi.org/10.1016/S0304-405X(03)00186-7.

DeAngelo, H., Gonçalves, A.S. & Stulz, R.M. (2018). Corporate Deleveraging and Financial Flexibility. The Review of Financial Studies, 31(8), 3122–3174, https://doi.org/10.1093/rfs/hhx147.

Deghi, A., Seneviratne, D., Tsuruga, T. & Vandenbussche, J. (2021). Corporate Funding and the COVID-19 Crisis, IMF Working Papers 086, International Monetary Fund, https://www.imf.org/-/media/Files/Publications/WP/2021/English/wpiea2021086-print-pdf.ashx (Accessed: 15.05.2023).

Eugster, N., Ducret, R., Isakov, D. & Weisskopf, J.P. (2022). Chasing dividends during the COVID-19 pandemic. International Review of Finance, 22(2), 335–345, https://doi.org/10.1111/irfi.12360.

Fairchild, R., Guney, Y. & Thanatawee, Y. (2014). Corporate dividend policy in Thailand: Theory and evidence. International Review of Financial Analysis, 31, 129-151.

Fairfield, P.M. & Yohn, T.L. (2001). Using asset turnover and profit margin to forecast changes in profitability. Review of Accounting Studies, 6, 371-385.

Fama, E.F. & French, K.R. (2001). Disappearing dividends: changing firm characteristics or lower propensity to pay? Journal of Financial Economics, 60(1), 3-43.

Fama, E.F. & Babiak, H. (1968). Dividend Policy: An Empirical Analysis. Journal of the American Statistical Association, 63(324), 1132–1161, https://doi.org/10.1080/01621459.1968.10480917.

Floyd, E., Li, N. & Skinner, D.J. (2015). Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends. Journal of Financial Economics, 118(2), 299–316, https://doi.org/10.1016/j.jfineco.2015.08.002.

Glen, J. & Singh A. (2004). Comparing capital structures and rates of return in developed and emerging markets. Emerging Markets Review, 5(2), 161-192, https://doi.org/10.1016/j.ememar.2004.01.001.

Glen, J.D., Karmokolias, Y., Miller, R.R. & Shah, S. (1995). Dividend policy and behavior in emerging markets: To pay or not to Pay". IFC Discussion Paper, No. 26, https://documents.worldbank.org/curated/en/325441468741588836/pdf/multi-page.pdf (Accessed: 15.05.2023).

Grullon, G. & Michaely, R. (2002). Dividends, Share Repurchases, and the Substitution Hypothesis. The Journal of Finance, 57(4), 1649–1684.

Harjoto, M.A., Rossi, F., Lee, R. & Sergi, B.S. (2021). How do equity markets react to COVID-19? Evidence from emerging and developed countries, Journal of Economics and Business, 115, 105966, https://doi.org/10.1016/j.jeconbus.2020.105966.

Hauser, R. (2013). Did dividend policy change during the financial crisis? Managerial Finance, 39(6), 584–606, https://doi.org/10.1108/03074351311322861.

Haque, S. & Varghese, R. (2021). The COVID-19 Impact on Corporate Leverage and Financial Fragility, International Monetary Fund, Issue 265, 1-51, https://doi.org/10.5089/9781589064126.001.

Hoberg, G. & Prabhala, N.R. (2009). Disappearing dividends, catering, and risk. Review of Financial Studies, 22(1), 79-116.

Huang, H. & Ye, Y. (2021). Rethinking capital structure decision and corporate social responsibility in response to COVID-19. Accounting and Finance, 61(3), 4757-4788.

Jabbouri, I. (2016). Determinants of corporate dividend policy in emerging markets: Evidence from MENA stock markets. Research in International Business and Finance, 37, 283-298, doi.org/10.1016/j.ribaf.2016.01.018.

Jensen, M.C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. The American Economic Review, 76(2), 323–329.

Jiang, J., Hou, J., Wang, C. & Liu, H. (2021). COVID-19 impact on firm investment-Evidence from Chinese publicly listed firms. Journal of Asian Economics, 75, 101320, https://doi.org/10.1016/j.asieco.2021.101320.

Krieger, K., Mauck, N. & Pruitt, S.W. (2021). The impact of the COVID-19 pandemic on dividends. Finance Research Letters, 42, 101910, https://doi.org/10.1016/j.frl.2020.101910.

Lintner, J. (1956). Distribution of Incomes of Corporations Among Dividends, Retained Earnings, and Taxes. The American Economic Review, 46(2), 97-113.

Mazur, M., Dang, M. & Vega, M. (2021). COVID-19 and the march 2020 stock market crash. Evidence from SandP1500. Finance Research Letters, 38, 101690, https://doi.org/10.1016/j.frl.2020.101690.

Miller, M.H. & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. The Journal of Business, 34(4), 411-433.

Mitton, T. (2004). Corporate governance and dividend policy in emerging markets. Emerging Markets Review, 5(4), 409-426.

Myers, S.C. & Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics, 13(2), 187-221, https://doi.org/10.1016/0304-405X(84)90023-0.

Nissim, D. & Ziv, A. (2001). Dividend Changes and Future Profitability. The Journal of Finance, 56(6), 2111-2133.

Ntantamis, C. & Zhou, J. (2022). Corporate payout, cash holdings, and the COVID-19 crisis: Evidence from the G-7 countries. Finance Research Letters, 50, 103275, https://doi.org/10.1016/j.frl.2022.103275.

Pan, J. (2021). Emerging markets bearing brunt of latest COVID-19 Delta wave impact. Economics Commentary. https://www.spglobal.com/marketintelligence/en/mi/research-analysis/emerging-markets-bearing-brunt-of-latest-covid19-delta-wave-impact-Sep21.html (Accessed: 15.05.2023).

Pettenuzzo, D., Sabbatucci, R. & Timmermann, A. (2021). Outlasting the pandemic: Corporate payout and financing decisions during COVID-19. Swedish House of Finance Research Paper, 78, 35-87.

Prabheesh, K.P., Padhan, R. & Garg, B. (2020). COVID-19 and the oil price – Stock market nexus: Evidence from net oil -importing countries. Energy Research Letters, 1(2), 1-6, https://doi.org/10.46557/001c.13745.

Rozeff, M.S. (1982). Growth, Beta and Agency Costs as Determinants of Dividend Payout Ratios. Journal of Financial Research, 5(3), 249-259, https://doi.org/10.1111/j.1475-6803.1982.tb00299.x.

Tinungki, G.M., Hartono, P.G., Robiyanto, R., Hartono, A.B., Jakaria, J. & Simanjuntak, L.R. (2022). The COVID-19 Pandemic Impact on Corporate Dividend Policy of Sustainable and Responsible Investment in Indonesia: Static and Dynamic Panel Data Model Comparison. Sustainability, 14(10), 6152, https://doi.org/10.3390/su14106152.

Tripathi, A. & Pandey, A. (2021). Information dissemination across global markets during the spread of COVID-19 pandemic. International Review of Economics and Finance, 74, 103–115, https://doi.org/10.1016/j.iref.2021.02.004.

Wigglesworth, R., Martin, K. & Darbyshire, M. (2020). How Covid-19 sparked a dividend drought for investors. Financial Times. https://www.ft.com/content/2719966c-b228-4300-bdc0-dcbe2f7050fd (Accessed: 10.05.2023).

Wu, Y. (2018). What's behind Smooth Dividends? Evidence from Structural Estimation. Review of Financial Studies, 31(10), 3979–4016.

Yilmazkuday, H. (2022). Coronavirus disease 2019 and the global economy. Transport Policy, 120, 40-46, http://dx.doi.org/10.2139/ssrn.3554381.

Appendix

Appendix: Variable definitions

Variable	Abbreviation	Definition/Calculation
DivChange	DICD vs. DNCD	Dummy variable equals to 1 for dividend increases and 0 for dividend no change
	DICD vs. DDCD	Dummy variable equals to 1 for dividend increases and 0 for dividend decreases
	DOMD vs. DNCD	Dummy variable equals to 1 for dividend omissions and 0 for dividend no changes
	DOMD vs. DDCD	Dummy variable equals to 1 for dividend omission and 0 for dividend decreases
	DDCD vs. DNCD	Dummy variable equals to 1 for dividend decreases and 0 for dividend no change.
Return on Assets (%)	ROA%	(Net Income scaled by total assets) * 100
Change in Earnings (%)	chE%	(Change in the net income over book value of equity) * 100
Return on Equity (%)	ROE%	(Net income divided by book value of equity) * 100
Operating Profit Margin (%)	Operpm%	(Operating profit scaled by revenue) * 100
Asset Turnover	AstTvr	Revenue over total assets
Leverage	Lev%	(Long-term debt scaled by total assets) * 100
Firm Size	Size	Natural logarithm of total assets
Liquidity	Liq	Current assets divided by current liabilities
Market-to-book ratio	MktBk	Market capitalization scaled by book value of equity

Source: Author's own work.

Table 4: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
DIC	1												
DNC	-0.1637*	1											
DDC	-0.2064*	-0.1181*	1										
DOM	-0.1407*	-0.0805*	-0.1015*	1									
ROA%	0.2918*	0.0816*	0.0790*	-0.1140*	1								
chE%	0.1004*	0.0010	-0.0643*	-0.1448*	0.4270*	1							
ROE%	0.2269*	0.0704*	0.0813*	-0.0786*	0.8232*	0.4999*	1						
Operpm%	0.1729*	0.0635*	0.0805*	-0.0405*	0.6031*	0.2537*	0.5108*	1					
AstTvr	0.0621*	0.0242*	-0.0221*	-0.0222*	0.2018*	0.0499*	0.1824*	0.1131*	1				
Lev%	-0.0591*	-0.0523*	-0.0435*	0.0281*	-0.2332*	-0.0433*	-0.1782*	-0.0341*	0.1891*	1			
Size	0.2129*	0.0347*	0.1305*	0.0312*	0.0981*	0.0080	0.1055*	0.1862*	-0.1610*	0.2703*	1		
Liq	-0.0184*	0.0133*	-0.0020	-0.0333*	0.0826*	0.0102*	0.0429*	-0.0532*	-0.1516*	-0.5539*	-0.2186*	1	
MktBk	-0.1166*	-0.0468*	-0.0558*	0.0010	-0.1722*	-0.0187*	-0.0953*	-0.1315*	-0.0900*	-0.0380*	-0.1189*	0.0247*	1

Source: Author's own work.

Table 5 (A): Dividend Changes during COVID-19

Variables	Panel A: DICD vs. DNCD				Panel B: DICD vs. DDCD			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
ROA	0.1310***				0.1250***			
	(8.5200)				(10.4900)			
chE		0.0883***				0.1310***		
		(6.5100)				(9.3800)		
Operpm			0.0341***				0.0337***	
			(5.1100)				(6.3300)	
ROE				0.0657***				0.0498***
				(6.0900)				(7.2000)
AstTvr	-0.0025	0.1940*	0.4870***	0.0111	0.2410***	0.3800***	0.7890***	0.3120***
	(-0.0200)	(1.9200)	(4.3100)	(0.1100)	(2.7800)	(3.9600)	(7.4000)	(3.3900)
Lev%	0.0097***	-0.0063*	-0.0016	-0.0052	0.0058**	-0.0078***	-0.0028	-0.0090***
	(2.7700)	(-1.9400)	(-0.4700)	(-1.5700)	(2.0300)	(-2.8100)	(-1.0600)	(-3.3300)
Size	0.0590*	0.1150***	0.0765**	0.0666*	0.0738***	0.1120***	0.0789***	0.0852***
	(1.7200)	(3.3500)	(2.2600)	(1.9600)	(2.6700)	(3.9200)	(2.8700)	(3.1300)
Liq	-0.0130	-0.0275	-0.0352	-0.0226	-0.0033	-0.0157	-0.0220	-0.0158
	(-0.6400)	(-1.4300)	(-1.5800)	(-1.1700)	(-0.1800)	(-0.9100)	(-1.1800)	(-0.9200)
MktBk	0.0881	-0.1320*	-0.0488	0.0575	0.0894*	-0.0957	-0.0110	0.0438
	(1.1400)	(-1.7600)	(-0.7400)	(0.7200)	(1.8200)	(-1.6100)	(-0.2400)	(0.8900)
Constant	-1.9120*	-1.3500	-1.4550	-1.4600	-2.9500**	-0.9580	-2.5660**	-2.5240**
	(-1.9300)	(-1.3800)	(-1.4500)	(-1.4800)	(-2.5700)	(-0.3800)	(-2.4300)	(-2.0700)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2939.0000	2939.0000	2939.0000	2939.0000	3699.0000	3699.0000	3699.0000	3699.0000
PseudoR2	0.1300	0.1290	0.1070	0.1240	0.1010	0.1590	0.0774	0.0845
chi2	316.8000	280.3000	272.3000	276.0000	326.5000	278.9000	251.7000	286.0000
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Variables	Panel C: DOMD vs. DNCD				Panel D: DOMD vs. DDCD			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
ROA	-0.1380***				-0.1590***			
	(-9.2600)				(-11.4600)			
chE		-0.0609***				-0.0313***		
		(-6.0100)				(-6.3600)		
Operpm			-0.0386***				-0.0444***	
			(-7.0000)				(-7.2800)	
ROE				-0.0635***				-0.0729***
				(-6.7500)				(-9.4900)

Variables	Panel C: DOMD vs. DNCD				Panel D: DOMD vs. DDCD			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
AstTvr	-0.2480**	-0.4380***	-0.5360***	-0.2890**	-0.1040	-0.3840***	-0.4120***	-0.1130
	(-2.0900)	(-3.5600)	(-4.3300)	(-2.4100)	(-0.9900)	(-3.5500)	(-3.8600)	(-1.0300)
Lev%	0.0136***	0.0212***	0.0218***	0.0207***	0.0127***	0.0213***	0.0193***	0.0198***
	(3.3700)	(5.4100)	(5.6400)	(5.2300)	(3.8200)	(6.4600)	(5.8700)	(5.7600)
Size	-0.3570***	-0.4060***	-0.3750***	-0.3630***	-0.3060***	-0.3580***	-0.3100***	-0.3070***
	(-7.9600)	(-9.0400)	(-8.4500)	(-8.1500)	(-8.3400)	(-9.7300)	(-8.6900)	(-8.1000)
Liq	-0.0263	-0.0232	-0.0328	-0.0211	0.0011	-0.0019	-0.0082	0.0063
	(-1.2000)	(-1.1500)	(-1.2300)	(-1.0300)	(0.0600)	(-0.1000)	(-0.3000)	(0.3300)
MktBk	0.1240**	0.2990***	0.1850***	0.1410**	0.0898**	0.2570***	0.1530***	0.1010**
	(2.0200)	(4.1900)	(2.9300)	(2.2100)	(1.9800)	(5.0300)	(3.3400)	(2.2100)
Constant	5.9000***	5.9960***	5.3350***	5.8990***	6.9260***	6.4310***	6.5090***	6.6760***
	(4.2400)	(4.7600)	(3.0700)	(4.7200)	(6.1100)	(6.1600)	(5.8200)	(5.6500)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1728.0000	1728.0000	1728.0000	1728.0000	2437.0000	2437.0000	2437.0000	2437.0000
PseudoR2	0.2100	0.1950	0.1840	0.2030	0.2010	0.1310	0.1730	0.2000
chi2	276.4000	237.4000	281.7000	231.9000	344.3000	283.4000	313.5000	314.0000
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author's own work.

Table 5 (B): Dividend Changes during COVID-19

Variables	Panel E: DDCD vs. DNCD			
	Model 17	Model 18	Model 19	Model 20
ROA	-0.00950			
	(-0.90000)			
chE		-0.04430***		
		(-4.02000)		
Operpm			0.0014	
			(0.4400)	
ROE				0.0023
				(0.4400)
AstTvr	-0.17900*	-0.16200	-0.1960*	-0.2110**
	(-1.72000)	(-1.59000)	(-1.9400)	(-2.0300)
Lev	0.00110	0.00140	0.0021	0.0019
	(0.35000)	(0.44000)	(0.6700)	(0.6300)
Size	-0.00840	-0.01090	-0.0136	-0.0138
	(-0.24000)	(-0.31000)	(-0.3900)	(-0.4000)
Liq	-0.02490	-0.02230	-0.0248	-0.0248
	(-1.34000)	(-1.19000)	(-1.3300)	(-1.3300)
MktBk	-0.00741	0.03070	0.0169	0.0191
	(-0.12000)	(0.48000)	(0.2800)	(0.3100)
Constant	0.82200	0.55000	0.8680	0.8610
	(0.84000)	(0.55000)	(0.9000)	(0.8900)
Industry & Country Dummies	Yes	Yes	Yes	Yes
N	2261.00000	2261.00000	2261.0000	2261.0000
PseudoR2	0.06960	0.08680	0.0694	0.0694
chi2	181.50000	184.30000	181.0000	181.2000
P-value	0.00000	0.00000	0.0000	0.0000

Source: Author's own work.

Table 6: Dividend reductions vs. No-change dividends

Variables	Panel A: (25% > DDCD) vs. DNCD				Panel B: (25%≤ DDCD <50%) vs. DNCD			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
ROA	0.0685***				-0.0134			
	(4.7400)				(-0.8700)			
chE		-0.0083				-0.0447***		
		(-0.9800)				(-2.6100)		
Operpm			0.0127*				0.0061	
			(1.7800)				(1.4200)	
ROE				0.0393***				0.0015
				(5.1800)				(0.2000)
AstTvr	-0.1190	0.0440	0.1010	-0.1230	-0.3370*	-0.3410**	-0.3440**	-0.3790**
	(-0.8300)	(0.3300)	(0.7300)	(-0.8600)	(-1.9300)	(-2.0200)	(-2.0400)	(-2.1600)
Lev%	0.0081*	0.0005	0.0022	0.0003	-0.0017	-0.0014	0.0005	-0.0004
	(1.7900)	(0.1300)	(0.5100)	(0.0800)	(-0.3600)	(-0.3000)	(0.1100)	(-0.1000)
Size	0.0670	0.1050**	0.0809	0.0652	-0.0301	-0.0379	-0.0475	-0.0377
	(1.3100)	(2.0900)	(1.5700)	(1.2700)	(-0.5700)	(-0.7200)	(-0.8900)	(-0.7100)
Liq	0.0007	-0.0042	-0.0078	-0.0052	-0.0221	-0.0214	-0.0229	-0.0225
	(0.0300)	(-0.1700)	(-0.2800)	(-0.2000)	(-0.9000)	(-0.8600)	(-0.8900)	(-0.9200)
MktBk	0.0886	-0.0642	-0.0058	0.0939	-0.0756	-0.0497	-0.0122	-0.0363
	(1.0800)	(-0.7000)	(-0.0700)	(1.1500)	(-0.7100)	(-0.4800)	(-0.1300)	(-0.3600)
Constant	-2.0020	-2.3200*	-1.9110	-1.7160	0.1180	-0.0367	0.3920	0.2080
	(-1.5500)	(-1.7800)	(-1.4700)	(-1.3100)	(0.0800)	(-0.0200)	(0.2800)	(0.1400)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1315.0000	1315.0000	1315.0000	1315.0000	1246.0000	1246.0000	1246.0000	1246.0000
PseudoR2	0.1020	0.0896	0.0933	0.1050	0.0816	0.0945	0.0825	0.0812
chi2	147.9000	129.0000	134.9000	151.7000	111.6000	113.9000	112.3000	110.3000
P-value	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Variables	Panel C: (50% ≤ DDCD < 75%) vs. DNCD				Panel D: (75% ≤ DDCD < 100%) vs. DNCD			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
ROA	-0.0764***				-0.1110***			
	(-3.7600)				(-3.6300)			
chE		-0.0537***				-0.0706***		
		(-3.0500)				(-3.5600)		
Operpm			-0.0071				-0.0168*	
			(-1.2200)				(-1.6500)	
ROE				-0.0196				-0.0238*
				(-1.3900)				(-1.7700)

Variables	Panel C: (50% ≤ DDCD < 75%) vs. DNCD				Panel D: (75% ≤ DDCD < 100%) vs. DNCD			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
AstTvr	-0.0335	-0.1090	-0.2000	-0.1010	-0.6770**	-0.6250*	-0.9510***	-0.8010**
	(-0.2100)	(-0.6800)	(-1.2300)	(-0.6100)	(-2.0600)	(-1.9000)	(-2.7500)	(-2.2700)
Lev%	-0.0033	0.0009	0.0019	0.0020	0.0036	0.0052	0.0104	0.0096
	(-0.6500)	(0.1800)	(0.3900)	(0.4100)	(0.4900)	(0.6700)	(1.4500)	(1.3000)
Size	-0.1020*	-0.1160**	-0.1210**	-0.1130**	-0.0554	-0.0706	-0.0708	-0.0750
	(-1.9100)	(-2.1500)	(-2.2400)	(-2.1000)	(-0.6800)	(-0.8700)	(-0.8700)	(-0.9100)
Liq	-0.0687**	-0.0589*	-0.0671*	-0.0687*	-0.0201	-0.0200	-0.0238	-0.0263
	(-2.0000)	(-1.6500)	(-1.9100)	(-1.9400)	(-0.4700)	(-0.4200)	(-0.5200)	(-0.5900)
MktBk	-0.0042	0.1530*	0.1090	0.0688	-0.2610	0.0443	-0.0811	-0.0936
	(-0.0400)	(1.6700)	(1.2500)	(0.6900)	(-1.4400)	(0.3000)	(-0.5200)	(-0.6200)
Constant	1.3010	0.9340	1.2920	1.4390	0.8260	-0.2670	0.3680	0.5740
	(0.8700)	(0.6500)	(0.8900)	(1.0400)	(0.4400)	(-0.1500)	(0.2000)	(0.3000)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1208.0000	1208.0000	1208.0000	1208.0000	927.0000	927.0000	927.0000	927.0000
PseudoR2	0.0992	0.1150	0.0864	0.0890	0.1370	0.1830	0.1170	0.1170
chi2	116.5000	109.7000	110.8000	107.1000	86.1800	83.2500	75.2400	80.7300
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author's own work.

Table 7 (A): Dividend Changes during COVID-19: Sample Sensitivity

Variables	Panel A: DICD vs. DNCD				Panel B: DICD vs. DDCD			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
ROA	0.13800***				0.0788***			
	(5.13000)				(5.2700)			
chE		0.08010***				0.0757***		
		(3.39000)				(5.5000)		
Operpm			0.02370***				0.0260***	
			(2.71000)				(2.9500)	
ROE				0.06730***				0.0272***
				(4.47000)				(4.2600)
AstTvr	0.04530	0.22600	0.53300**	0.06230	0.3650***	0.5020***	0.8160***	0.4400***
	(0.24000)	(1.21000)	(2.47000)	(0.31000)	(2.8200)	(3.7500)	(5.3700)	(3.3500)
Lev%	0.01280**	-0.00241	-0.00121	-0.00315	-0.0049	-0.0120***	-0.0104**	-0.0154***
	(1.97000)	(-0.40000)	(-0.21000)	(-0.53000)	(-1.1700)	(-2.8000)	(-2.5200)	(-3.7600)
Size	-0.05470	-0.02690	-0.05890	-0.05220	0.05280	0.0649	0.0538	0.0547
	(-0.84000)	(-0.40000)	(-0.93000)	(-0.81000)	(1.2100)	(1.4400)	(1.2100)	(1.2600)
Liq	-0.00687	-0.01920	-0.02820	-0.02290	-0.0175	-0.0307	-0.0133	-0.0289
	(-0.22000)	(-0.63000)	(-0.95000)	(-0.76000)	(-0.7000)	(-1.1600)	(-0.5200)	(-1.1700)
MktBk	0.05320	-0.27400*	-0.14000	0.00248	0.1140*	-0.0210	0.0645	0.0741
	(0.44000)	(-1.86000)	(-1.15000)	(0.02000)	(1.9200)	(-0.3100)	(1.1300)	(1.3200)
Constant	0.69200	1.92000	1.80500	1.36300	-1.6890	-0.2990	-1.6670	-1.1770
	(0.44000)	(1.25000)	(1.18000)	(0.89000)	(-1.3100)	(-0.1600)	(-1.2900)	(-0.9400)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	819.00000	819.00000	819.00000	819.00000	1303.0000	1303.0000	1303.0000	1303.0000
PseudoR2	0.17200	0.16900	0.13700	0.17100	0.1260	0.1700	0.1200	0.1160
chi2	123.80000	96.31000	93.53000	116.70000	162.4000	159.8000	146.7000	161.3000
P-value	0.00000	0.00000	0.00000	0.00000	0.0000	0.0000	0.0000	0.0000
Variables	**Panel C: DOMD vs. DNCD**				**Panel D: DOMD vs. DDCD**			
	Model 9	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**	**Model 15**	**Model 16**
ROA	-0.14800***				-0.1720***			
	(-5.53000)				(-6.7200)			
chE		-0.0569***				-0.0251***		
		(-2.7500)				(-3.5400)		
Operpm			-0.0349***				-0.0388***	
			(-3.5400)				(-4.5600)	
ROE				-0.0611***				-0.0688***
				(-2.9800)				(-5.5300)

	Panel C: DOMD vs. DNCD				Panel D: DOMD vs. DDCD			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
AstTvr	-0.44600**	-0.5180**	-0.6020***	-0.4510**	-0.1320	-0.4490**	-0.4350**	-0.0968
	(-2.10000)	(-2.4500)	(-2.8200)	(-2.2000)	(-0.7600)	(-2.4000)	(-2.3700)	(-0.5500)
Lev%	0.02330***	0.0294***	0.0312***	0.0310***	0.0129**	0.0203***	0.0205***	0.0207***
	(2.96000)	(3.9100)	(4.1500)	(4.0000)	(2.4700)	(3.9400)	(4.0000)	(3.8100)
Size	-0.44400***	-0.4720***	-0.4460***	-0.4400***	-0.2620***	-0.2980***	-0.2650***	-0.2630***
	(-5.15000)	(-5.5600)	(-5.4900)	(-5.3500)	(-4.4600)	(-5.0700)	(-4.7200)	(-4.2700)
Liq	0.00579	0.0195	0.0050	0.0197	0.0197	0.0238	0.0017	0.0332
	(0.19000)	(0.7000)	(0.1500)	(0.7100)	(0.7800)	(1.0200)	(0.0500)	(1.4100)
MktBk	0.00840	0.2840**	0.1310	0.0563	0.0851	0.2570***	0.1680**	0.1010
	(0.07000)	(2.1400)	(1.0500)	(0.4000)	(1.2800)	(3.3900)	(2.5100)	(1.4600)
Constant	7.31100***	6.8880***	6.3830***	7.0830***	6.3950***	5.5720***	5.6540***	5.9140***
	(3.32000)	(3.5100)	(2.7700)	(3.6700)	(4.1200)	(3.9400)	(3.9300)	(3.7900)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	518.00000	518.0000	518.0000	518.0000	951.0000	951.0000	951.0000	951.0000
PseudoR2	0.28300	0.2520	0.2480	0.2620	0.2390	0.1480	0.1910	0.2310
chi2	123.60000	99.4500	121.5000	101.7000	144.6000	124.6000	139.7000	137.7000
P-value	0.00000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author's own work.

Table 7 (B): Dividend Changes during COVID-19: Sample Sensitivity

Variables	Panel E: DDCD vs. DNCD			
	Model 17	Model 18	Model 19	Model 20
ROA	0.00845			
	(0.47000)			
chE		-0.03980**		
		(-2.29000)		
Operpm			0.01190*	
			(1.85000)	
ROE				0.000199
				(0.030000)
AstTvr	-0.24500	-0.25300	-0.29300	-0.223000
	(-1.23000)	(-1.24000)	(-1.48000)	(-1.130000)
Lev%	0.01060*	0.00703	0.01000*	0.009840*
	(1.84000)	(1.22000)	(1.83000)	(1.770000)
Size	-0.06630	-0.06790	-0.07340	-0.064800
	(-1.03000)	(-1.04000)	(-1.14000)	(-1.010000)
Liq	-0.00905	-0.01230	-0.00991	-0.009840
	(-0.32000)	(-0.44000)	(-0.35000)	(-0.340000)
MktBk	-0.17200	-0.17600	-0.14100	-0.194000
	(-1.35000)	(-1.51000)	(-1.16000)	(-1.560000)
Constant	1.76400	1.76900	1.88400	1.791000
	(1.16000)	(1.13000)	(1.24000)	(1.180000)
Industry & Country Dummies	Yes	Yes	Yes	Yes
N	951.00000	951.00000	951.00000	951.000000
PseudoR2	0.10800	0.12400	0.11100	0.108000
chi2	78.96000	78.61000	81.06000	79.100000
P-value	0.00000	0.00000	0.00000	0.000000

Source: Author's own work.

Table 8: Dividend Increases vs. No-change dividends

Variables	Panel A: (25% > DICD) vs. DNCD				Panel B: (25% ≤ DICD < 50%) vs. DNCD			
ROA	0.1350***				0.1540***			
	(8.2500)				(7.7500)			
chE		0.0604***				0.1250***		
		(4.3900)				(5.4600)		
Operpm			0.0414***				0.05710***	
			(6.0400)				(6.50000)	
ROE				0.0708***				0.08600***
				(7.4300)				(7.36000)
AstTvr	0.0845	0.3560***	0.6580***	0.1000	0.1160	0.3830***	0.75400***	0.13700
	(0.6900)	(2.9300)	(5.0500)	(0.8000)	(0.7100)	(2.6100)	(5.04000)	(0.83000)
Lev%	0.0095**	-0.0064	-0.0015	-0.0066*	0.0104**	-0.0104**	-0.00080	-0.00890*
	(2.2600)	(-1.6300)	(-0.3800)	(-1.6600)	(1.9900)	(-2.1100)	(-0.17000)	(-1.84000)
Size	0.1250***	0.1980***	0.1460***	0.1340***	-0.0060	0.0584	0.00121	-0.00202
	(2.8300)	(4.5300)	(3.3400)	(3.0300)	(-0.1100)	(1.0400)	(0.02000)	(-0.04000)
Liq	-0.0064	-0.0110	-0.0348	-0.0151	-0.0555*	-0.0705**	-0.10500***	-0.06600**
	(-0.2500)	(-0.4800)	(-1.2100)	(-0.6300)	(-1.7500)	(-2.3200)	(-3.13000)	(-2.11000)
MktBk	0.0722	-0.2120**	-0.0702	0.0568	0.1090	-0.1700	-0.01400	0.11700
	(0.7100)	(-2.1400)	(-0.7600)	(0.5800)	(0.9300)	(-1.5800)	(-0.14000)	(1.03000)
Constant	-4.2800***	-4.2410***	-4.0570***	-3.8980***	-2.7870**	-2.1180*	-1.97000	-1.96100
	(-3.2600)	(-3.5400)	(-3.2200)	(-2.8800)	(-2.0700)	(-1.6600)	(-1.56000)	(-1.46000)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1544.0000	1544.0000	1544.0000	1544.0000	1230.0000	1230.0000	1230.00000	1230.00000
PseudoR2	0.1300	0.1020	0.1120	0.1270	0.1620	0.1680	0.14100	0.16100
chi2	209.0000	166.7000	180.4000	202.1000	178.1000	147.4000	168.90000	173.70000
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000
Variables	**Panel C: (50% ≤ DICD < 75%) vs. DNCD**				**Panel D: (75% ≤ DICD <100%) vs. DNCD**			
ROA	0.1300***				0.1650***			
	(6.7900)				(5.3900)			
chE		0.138***				0.1470***		
		(5.200)				(3.3500)		
Operpm			0.032***				0.0446***	
			(3.700)				(3.6300)	
ROE				0.0739***				0.0983***
				(6.6400)				(5.5900)
AstTvr	-0.0209	0.228	0.463***	-0.0065	0.4740*	0.7320***	0.9760***	0.5010*
	(-0.1200)	(1.310)	(2.790)	(-0.0400)	(1.7600)	(2.9000)	(4.2700)	(1.8100)

Variables	Panel C: (50% ≤ DICD < 75%) vs. DNCD				Panel D: (75% ≤ DICD <100%) vs. DNCD			
Lev%	0.0039	-0.017***	-0.007	-0.0121**	0.0113	-0.0158	-0.0012	-0.0107
	(0.6700)	(-3.050)	(-1.340)	(-2.2400)	(1.0900)	(-1.5100)	(-0.1200)	(-1.0700)
Size	0.0178	0.111	0.042	0.0194	0.0828	0.1800	0.0639	0.0725
	(0.2600)	(1.620)	(0.620)	(0.2900)	(0.6100)	(1.2000)	(0.4500)	(0.5200)
Liq	-0.0044	-0.025	-0.032	-0.0124	0.0088	-0.0215	-0.0207	-0.0167
	(-0.1400)	(-0.870)	(-0.910)	(-0.4200)	(0.1900)	(-0.4000)	(-0.3300)	(-0.3400)
MktBk	0.0524	-0.189	-0.132	0.0510	0.3600	0.2000	0.2290	0.3620*
	(0.4800)	(-1.400)	(-1.030)	(0.4700)	(1.5800)	(0.6200)	(0.8300)	(1.7300)
Constant	-2.2850	-2.000	-2.150	-1.6980	-6.0130**	-6.1080**	-4.8670*	-4.8860*
	(-1.2800)	(-1.060)	(-1.160)	(-0.9500)	(-2.4100)	(-2.2700)	(-1.9500)	(-1.9100)
Industry & Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1093.0000	1093.000	1093.000	1093.0000	848.0000	848.0000	848.0000	848.0000
PseudoR2	0.1230	0.155	0.097	0.1220	0.2000	0.2300	0.1630	0.2060
chi2	125.1000	106.000	100.700	122.1000	95.1200	82.8800	91.2900	99.7700
P-value	0.0000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author's own work.