Anusandhanvallari
Vol 2025, No.2s
February 2025
ISSN 2229-3388

Dividend Policy Adjustments and Market Signaling Across Crisis and Non-Crisis Periods

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Abstract: This study investigates how dividend policy adjustments function as market signaling mechanisms across crisis and non-crisis periods, with particular emphasis on the COVID-19 financial crisis. The primary objectives are to examine (i) whether dividend payout decisions influence firm performance, (ii) whether performance and financial constraints affect dividend policy, and (iii) how crisis conditions alter the signaling intensity of dividend announcements. Despite extensive literature on dividend irrelevance, signaling, and agency theories, limited empirical research comparatively evaluates dividend signaling strength across stable and crisis environments using integrated dynamic econometric techniques. Furthermore, prior studies have not sufficiently examined how financial constraints mediate dividend decisions during systemic shocks. This study addresses these gaps by providing a dynamic and crisis-sensitive empirical framework.

The research adopts a quantitative panel data methodology using 106 French firms listed on the SBF 120 index over the period 2016–2021, covering both pre-crisis (2016–2018) and crisis (2019–2021) phases. Secondary data were collected from annual reports and financial databases. Descriptive statistics, correlation analysis, VIF diagnostics, and dynamic panel regression models estimated through the System Generalized Method of Moments (SGMM) were employed to address endogeneity, reverse causality, and simultaneity bias. Model validity was confirmed using Sargan tests, Arellano-Bond autocorrelation tests, and instrument diagnostics.

The findings reveal strong dividend persistence over time, confirming dividend smoothing behavior. Financial constraints (KZ index) significantly reduce dividend payouts during crisis periods, while the COVID-19 crisis itself exerted a statistically significant negative effect on both dividend distribution and firm performance (ROA and ROE). Dividend payments negatively affected performance during crisis conditions, suggesting a trade-off between shareholder payouts and financial resilience. Although profitability indicators did not significantly drive dividend decisions during the crisis, firm size, leverage, and growth opportunities positively influenced dividend payouts. The explanatory power and robustness of the dynamic models confirm that dividend policy operates as a signaling tool, particularly under heightened uncertainty.

The novelty of this study lies in its integration of dividend policy, financial constraints, and firm performance within a dynamic crisis-sensitive SGMM framework, providing comparative insights across economic cycles. Unlike prior static or single-period analyses, this research highlights the conditional nature of dividend signaling and the strategic role of payout decisions during systemic disruptions.

The study concludes that dividend policy remains a strategic communication mechanism during crises but entails a trade-off between signaling strength and financial sustainability. Managers must balance liquidity preservation with investor expectations, especially under financial constraints.

However, the research is limited to French listed firms and the COVID-19 crisis period, which may restrict generalizability to other institutional settings or crisis types. Additionally, behavioral finance variables such as investor sentiment were not explicitly incorporated.

Future research should conduct cross-country comparative analyses, incorporate event-study methodologies to capture short-term market reactions, explore sector-specific heterogeneity, and integrate behavioral finance perspectives to better understand dividend signaling dynamics in uncertain environments.

Keywords : Dividend Policy; Market Signaling; Financial Crisis; Investor Behaviour; Dividend Announcements; Corporate Finance; Stock Market Reaction

I. INTRODUCTION

The COVID-19 pandemic had an effect on nearly every industry. As a result, it prompted lawmakers to come up with a strategy to deal with the consequences and find a solution. Notably, in order to signal good news about companies' long-term development prospects, business managers in several nations (e.g., the UK, Germany, France, Italy, Canada, etc.) choose to lower or eliminate dividend payment rates. During the COVID-19 crisis, company stock prices fell, earnings volatility increased, return volatility increased, and overall profitability decreased (Bhattacharya, 1979). Due to the economic crisis, a lack of visibility, and government pressure, businesses are putting money away to keep their balance sheets more stable. Companies without liquidity buffers were more affected by the COVID-19 pandemic than those with larger cash reserves, according to numerous studies. Companies with more cash on hand performed better operationally and invested less. As a result, having cash on hand eased the impact of COVID-19 shocks on company rewards. This demonstrated how financial and/or economic crises affect the financial policies of businesses in the years that follow. Crises, which are external shocks, have a negative impact on firms' performance, sustainability, and cash flows. Investment profitability is lower than anticipated during times of uncertainty, making businesses more susceptible to cash flow issues and financial constraints. According to Bourbonnais (2009), the references also back up this result. According to these authors, the COVID-19 epidemic resulted in firms' financial limitations. Financial constraints have a negative impact on optimal investment, dividend distribution, and company success. They get worse when a business doesn't have enough money coming in and can't get investors from outside the company interested. Therefore, the company needs to pick and choose between good investments since it can't afford to pursue chances that would create value (Chen & Wang, 2012).

However, independent research has focused on dividend policy and crisis-time business success. According to our research, there appear to be few studies that specifically examine how dividend policy impacts a company's performance during a crisis (Leirvik, 2022). During the COVID-19 and subprime crises, these studies investigated this connection. Our study takes into account the financial constraints imposed by the COVID-19 pandemic and examines the relationship between dividend policy and performance using a sample of French companies listed on the SBF120 from 2016 to 2021. To examine the impact of the pandemic, we split the time frame into three three-year segments: the whole period (2016–2021), the pre-pandemic period (2016–2018), and the pandemic period (2019–2021). The System Generalized Method of Moments (SGMM) can be used to investigate the complementarity or subsidiarity of dividend distribution and financial performance (DeAngelo & DeAngelo, 2002). There are a number of reasons why France was chosen as the location for this study. The first is that most studies on the relationship between dividend policy and budget constraints have been conducted in American and Chinese settings. There are a number of quirks specific to the French setting, particularly with regard to the governance structures and legal framework. Numerous studies indicate that French companies' ownership structures differ from those of American and Canadian corporations. France has a more concentrated ownership structure of publicly listed companies compared to the US, which has a more dispersed structure and various governance features (Ref.). Managerial actions regarding budgetary restraints may vary depending on the ownership structure (Ding et al., 2021).

The second justification is that with the passage of new legislation and the establishment of international tax standards in France and the US, this era is recognized for the introduction of anti-corruption and corporate

governance regulations. These subsequent measures had an impact on the fiscal policy decisions that managers made. The findings of the study have important repercussions. They assist us in comprehending how dividend policy affects corporations' performance and financial limitations in times of crisis. Second, the study's findings may be used by lawmakers and regulators to push businesses to maintain a consistent dividend policy even during economic turmoil. Finally, the study's results may aid analysts and investors in evaluating the financial health and performance of French firms by shedding light on the variables that impact dividend choices (Shen et al., 2020).

The remainder of the article is structured as follows: Section 2 contains the research hypotheses and literature review. The study technique is detailed in Section 3. The findings are detailed and analyzed in Section 4. Section 5 of the study discusses the limitations, implications, and directions for future research (Krieger et al., 2021).

II. LITERATURE REVIEW

The importance of dividend policy in estimating company value is a topic of much theoretical discussion. First, shareholders don't care much about dividends or capital gains, as stated in Miller and Modigliani's 1961 thesis of dividend irrelevance. Ref. demonstrates how dividends can assist capital market businesses in staying afloat, supporting this idea. Additionally, the bird-in-hand argument asserts that investors are more likely to invest in dividend-paying businesses. The second point is that after all lucrative and positive-yielding investment opportunities have been funded, agency conflicts and costs can be reduced by paying a share of excess cash flows. Hasan et al. propose this concept. (2021).

Thirdly, according to the dividend pecking order hypothesis (Ref.), investments should be funded first with retained profits. You could argue that pecking order theory is useful for balancing payout options with investment requirements, even though it does not directly address dividends. The majority of the time, dividend policy plays a significant role in the signaling and agency theories. A fundamental element of corporate finance, it is a significant financial decision that may have a significant impact on a company's success. This effect is influenced by a number of factors, including restrictions on corporate and national budgets (Almeida et al., 2004; Hribar & Collins, 2002).

A. Dividend policy and financial performance

Several research have shown that dividend policy and performance are inversely related. investigated, over the course of twelve years in China, the effect of performance on dividend payout. While Return On Asset (ROA) and Return On Equity (ROE) are indicators of performance, the Dividend Payout Ratio (DPR) is a metric of dividend policy. DPR was found to have a positive correlation with both performance indicators through statistical analysis. The research conducted by found a substantial correlation between dividend policy and business financial success in developing nations, which is supported by this conclusion. The author conducted a Panel Data Analysis on 92 companies from the service and industrial sectors that were listed on the Amman Stock Exchange between 2015 and 2019. (Krieger et al., 2021) (Ding et al., 2021; Shen et al., 2020). According to the findings, dividend policy is a key factor in understanding a company's financial success.

If the business is very profitable, which indicates a significant amount of cash flow, a significant dividend payment may be possible. Reinvestment of the company's earnings is an option that might be considered. Therefore, the dividend policy of a company is influenced by the amount of money it makes now or in the future. Many studies have tested this hypothesis and, particularly in emerging markets, have shown a favorable correlation between dividend payments and current profitability. In light of issues with the agency and limitations in funding, research has examined dividend policy and profitability. Their research shows that more profitable companies distribute a larger portion of their profits as dividends rather than keeping any for internal use (Ntantamis & Zhou, 2022; Zheng, 2022).

Numerous studies, including those of, show that the company's income is strongly correlated with dividend payments. By lowering the frequency and severity of agency disputes, dividend payments may boost company performance. It was suggested that, according to signaling theory, there was a positive correlation between dividend payout and revenue in the Tunisian context. According to Makni (2023), this study demonstrated that dividend payments by listed corporations conveyed the company's health to shareholders and other stock market participants. Therefore, dividends inform investors about the present and future cash flow of the business. Investors are informed of the company's earnings potential by them.

B. Dividend policy and financial constraints

Dividend policy and financial constraint have the inverse connection according to the hierarchical order theory. After funding all investment initiatives, the corporation paid dividends, according to Miller and Modigliani (1961).

Almeida et al. say that if dividend distributions were to rise, it could result in a decrease in liquidity for businesses that are struggling financially. (2004). A drop in investment activity can have a domino effect on the company's market standing if this decline continues. When trying to get funding from outside sources, businesses with limited resources are said to pay astronomical fees. Additionally, they are connected to a significant knowledge gap between the investors and the company's management. maintained that no single hypothesis can adequately explain dividend distribution. They used credit ratings as a proxy for the availability of external financing and conducted an empirical analysis of a cross-section of Italian SMEs operating between 2015 and 2019 to draw conclusions on the nature of the link between dividend payment policies and financial limitations. Their findings suggested that companies that have difficulties obtaining external funding might nevertheless choose to pay dividends, leading investors to view this as a favorable indicator of the company's profitability. According to Taleb and Lahouel (2020), companies that are financially strapped are less likely to provide dividends, since there is a positive correlation between company solvency and dividend distribution.

Also, according to Refs., who laid out the groundwork for the theory of financial constraints, when the market is free of constraints, a firm's investment should be in direct proportion to the value of the investment opportunities it faces, regardless of the company's financial situation.

C. Dividend policy during a crisis period

A company's dividend policy may be influenced by its internal dynamics as well as external factors, such a time of economic turmoil. According to previous research (Mili et al., 2017), dividend distributions frequently decrease during financial crises. These studies found a positive correlation between governance measures and dividend payments during financial crises. This is due to the large concentration of ownership and the dominance of institutional investors. discovered that Tunisian enterprises' dividend policy behavior during a crisis was influenced by their ownership structure and board characteristics (Basse et al., 2014). They demonstrated that companies with a greater number of institutional owners have higher dividend payment rates and that the dual role of chairman and CEO influences profit distribution. Boussman et al. (2022), building on previous research, found that the proportion of businesses that paid dividends decreased significantly (by 1% statistically) during the financial crisis (2006–2009). They also discovered that distribution policies varied greatly. It has also been demonstrated that the number of dividend-paying businesses significantly decreased during the Istanbul market financial crisis of 2001. European banks verified this fall in dividends during the financial crisis of 2008–2009. to see how the COVID-19 epidemic might influence dividend policies of companies. An examination of a sample of the G-12 nations reveals that, despite the fact that the proportion of dividend cuts and omissions is significantly higher during the pandemic, the majority of businesses maintain or reduce the percentage of distributed payouts (Falavigna & Ippoliti, 2021). The company uses its consistent payout policy to communicate its financial outlook during times of crisis, in accordance with dividend signaling theory. According to the data (Chen & Wang, 2012),

firm size, profitability, earnings expectations, and debt all appear to have a significant impact on dividend policy choices during the pandemic.

D. Hypothesis

- H1. Dividend payout has an effect on performance.
- H2: Performance has an effect on the dividend policy.
- H 3: Financial restrictions have a negative impact on dividend policy.
- H4: Financial constraints have a negative impact on financial performance.
- H5: The COVID-19 issue had a negative impact on dividend policy and performance.

E. Research Gap

- There is a dearth of data comparing dividend signaling during times of crisis to non-crisis times.
- Integrated descriptive and inferential statistical techniques are not adequately utilized in studies of dividend signaling.
- Not enough thought was given to how the intensity of market responses shifts in response to various economic scenarios.
- This study fills these gaps by employing robust statistical analysis to examine how dividend policy shifts over the economic cycle.

F. Objectives of the Study

- To investigate how dividend policy shifts during times of crisis and relative calm.
- To investigate the market's reaction to dividend announcements in a variety of economic contexts. We want to see how a dividend affects signal strength in stable and crisis situations.
- to find out how changes to dividends affect changes in stock price.
- For the purpose of providing dividend policymakers with actionable implications.

III. RESEARCH METHODOLOGY

A. Sample and collection

We were able to examine the relationship between dividend policy, financial constraints, and performance by combing through a subset of the Data-Stream database containing the annual reports of SBF 120 index companies. These companies' stock market valuations are among the highest. Businesses that were either not based in the United States or did not have sufficient data were excluded from the SBF120 index (Kirch & Terra, 2019). Because of this, we were only able to include 106 French enterprises from various industries that were monitored from 2016 to 2021 in our final sample.

In order to evaluate the impact of the health crisis, we divided the time period into two three-year halves: the entire study period (2016–2021) and the three-year period immediately preceding and following the crisis (2016–2018) and (2019–2021). Thanks to this differentiation, we can evaluate businesses based on their dividend distribution policies.

Additionally, we divided the sample among those businesses that continued to operate following the COVID-19 lockout. To begin, we restricted the scope of our industry observations to ten industries divided by industry classification using the ICB classification. Second, we divided our sample in half and classified industries in

accordance with Bozzolan et al. (2006). The traditional sector, which includes agriculture, chemicals, construction, electronics, manufacturing, oil, utilities, textiles, apparel, and tourism/leisure, makes up one half. The remaining half represents the high-tech sector, which includes media, software, systems integration, telecommunications, biotechnology, entertainment, information technology, retail, high-tech manufacturing, and web services (Almeida et al., 2004). We also found IT companies that were still in business during the COVID-19 blackout. Table 1 outlines the sample for each industry. The conventional and high-tech sectors account for 57.5 percent and 42.4 percent of the total sample, respectively. Additionally, according to the ICB classification, 26.4% of the sample sectors fall under industrial activities. In addition, we divided our sample in half based on our decision to cancel, reduce, or continue the distribution during the crisis (Table 2). Table 2 shows that 51.5% of the sample cancelled dividend payments, while just 20.5% kept them going (Bhattacharya, 1979).

Figure depicts the characteristics of the industry known as "DividPaid" with a high dividend payment. 1. According to this data, the oil and gas industry pays 40.05 percent on average, followed by consumer services at 34.01 percent and telecoms at 28.9 percent.

B. Variables selection

- **Financial constraints:** In the literature, it is measured using many indices, one of which is the KZ index. We calculated the KZ for each firm-year observation. According to the Agency Theory, financial constraints increase agency costs because of tensions between managers and shareholders. A dividend policy's objective is to reduce these conflicts.
- **Dividend paid:** The dividend distribution per share is the determinant. Companies are categorized as financially confined if they do not pay dividends, and as not constrained if they do.
- **Performance:** It is quantified using two metrics: return on assets (ROA) and return on equity (ROE). A company's ability to convert its assets into cash flow is measured by its Return on Assets (ROA). It is calculated by dividing total assets by net income. The financial returns to shareholders are measured by the return on equity (ROE), which is calculated by dividing net income by total equity (Miller & Rock, 1985).
- **Cash flow:** A company's cash flow to total assets ratio is one way to determine how strong its profits are. We anticipate a favorable effect on dividend policy as a result.
- **Firm size:** It's calculated as the natural logarithm of asset value. found a strong correlation between company size and dividend payment ratio. Also, big businesses shouldn't have to worry about money as much as smaller ones do.
- **Debt:** The total debt to total assets ratio is the standard definition. Agency Theory predicts a negative relationship between debt and the dividend payout ratio.
- **Age:** It is determined by the time since the company was founded.

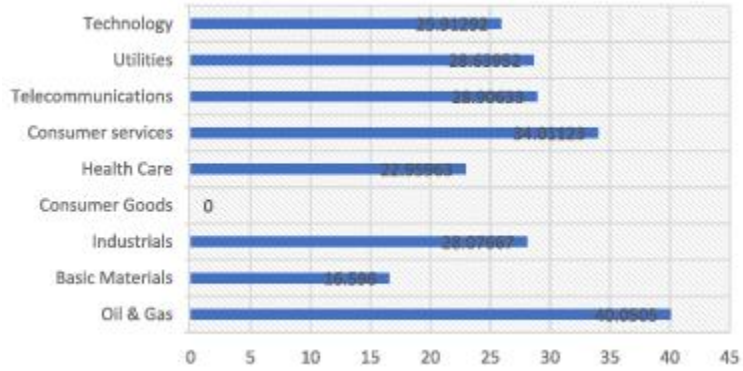
Table 1 Sample distribution by sectors.

Industry Category	Percentage of Total Firms (%)
Oil and Gas	54.70
Traditional Industries	61.75
Basic Materials	54.70
Industrial Firms	28.26
Consumer Goods	20.88
Health Care	54.70

Consumer Services	17.32
High-Tech Industries	45.45
Utility Services (Telecommunications)	4.70
Technology Sector	17.03
Total Number of Firms	106,000

Table 2 Distribution of the sample according to the decision types during the covid 19 crisis.

Category of Choice	Numerical Value	Percentage (%)
Annulled Dividend Distribution	44	41.50
Reduced Dividend Payout	40.37	37.95
Retained Dividend Distribution	22	20.55
Total Observations / Firms	106.37	100.00



- **Sales growth:** It is measured by scaling the rate of change in sales by the sales of the previous year. Companies with more room for growth tend to reduce dividend payments and repurchase more shares. As a result, a negative correlation with the dependent variables may be anticipated.
- **Crisis:** According to Kowalewski et al. (2007), this dummy variable is defined as having a value of 1 during the COVID-19 periods that span from 2019 to 2020 to 2021.
- **MTB:** The market-to-book variable is the book value to market value equity ratio.
- **Industry:** For every Sector, the activity sector accepts the value 1 and returns 0 as a dummy variable. A comprehensive summary of all research variables can be found in Table 3.

C. Model and estimation method

Two models were chosen to investigate the crisis-era link between dividend policy, performance, and financial restrictions (eq (1) and eq (2)).

$$DIVPAID_{it} = \alpha_i + \alpha_1 DIVPAID_{it-1} + \alpha_2 PREF_{it} + \alpha_3 KZ_{it} + \alpha_4 INDUST_{it} + \alpha_5 AGE_{it} + \alpha_6 DEBT_{it} + \alpha_7 GROWTH_{it} + \alpha_8 MTB_{it} + \alpha_9 CASHFLOWS_{it} + \alpha_{10} CRISIS_{it} + \varepsilon_{it} \quad (1)$$

$$PERF_{it} = \alpha_i + \alpha_1 PERF_{it-1} + \alpha_2 DIVPAID_{it} + \alpha_3 KZ_{it} + \alpha_4 INDUST_{it} + \alpha_5 DEBT_{it} + \alpha_6 GROWTH_{it} + \alpha_7 CASHFLOWS_{it} + \alpha_8 CRISIS_{it} + \varepsilon_{it} \quad (2)$$

The formula "i" denotes the constant, "1-10" denotes the coefficients of the independent variable, "it" denotes the estimate error, "i" denotes businesses, and "t" denotes periods.

Table 3 Variables measurements.

Variable Acronym	Variable Name	Measurement / Proxy	Definition / Explanation
DIVPAID	Dividend Payment per Share	Dividend per share	Measures the dividend distributed to shareholders per share
ROE	Return on Equity	Net income / Shareholders' equity	Indicates firm profitability relative to equity
ROA	Return on Assets	Net income / Total assets	Measures efficiency of asset utilization
KZ	Financial Constraints	Kaplan–Zingales (KZ) Index	Captures the degree of financial restriction faced by firms
SECTOR	Industry Sector	Dummy variable (1 = sector firm, 0 = otherwise)	Controls for sectoral differences in industrial activity
AGE	Firm Age	Number of years since incorporation	Indicates maturity and experience of the firm
LEV	Leverage	Total debt / Total assets	Measures the proportion of assets financed by debt
SGROWTH	Sales Growth	$(Sales_t - Sales_{t-1}) / Sales_{t-1}$	Captures firm growth opportunities
MTB	Market-to-Book Ratio	Market value of equity / Book value of equity	Proxy for growth prospects and market valuation
CASHFLOW	Cash Flow Ratio	Cash flow / Total assets	Indicates internal liquidity position
SIZE	Firm Size	Natural logarithm of total assets	Controls for scale effects in firm operations
CRISIS	Crisis Period	Dummy variable (1 = 2019–2021, 0 = otherwise)	Captures the impact of COVID-19 financial crisis

Table 4 Descriptive statistics.

Variable	Pre-Crisis Obs	Mean	Std. Dev.	Min	Max	Crisis Obs	Mean	Std. Dev.	Min	Max	Entire Period Obs	Mean	Std. Dev.	Min	Max
DivPaid	318	25.51	30.74	0.00	200.00	318	30.47	29.52	0.00	200.00	636	28.59	29.90	0.00	200.00
ROA	318	0.25	0.47	0.05	3.32	317	0.49	0.45	0.05	2.25	635	0.37	0.47	0.05	3.32
ROE	318	0.47	1.15	0.05	3.26	318	0.75	1.27	0.13	3.36	636	0.61	1.22	0.13	3.36
KZ	318	0.12	0.49	0.30	5.75	319	0.11	0.46	0.16	5.24	637	0.11	0.48	0.30	5.75
Age	318	70.27	47.08	17	316	309	70.72	47.08	17	316	627	78.02	51.18	19	316
Debt	318	1.31	9.57	0.00	133.00	318	0.46	1.26	0.00	11.80	636	0.88	6.83	0.00	133.00
Growth	318	1.54	7.57	1.00	66.72	318	0.23	2.40	0.28	42.73	636	0.88	5.65	1.00	66.72

MTB	318	1.00	2.68	0.18	12.26	318	1.60	6.28	0.93	11.62	636	1.30	4.83	0.93	12.26
Cashflows	318	1.05	0.45	0.50	1.60	318	1.00	0.66	0.18	1.85	636	1.02	0.57	0.18	1.85
Crisis	318	0.00	0.00	0	0	318	1.00	0.00	1	1	636	0.50	0.50	0	1
Size	318	15.00	9.63	6.93	25.76	318	15.00	9.63	6.93	25.76	636	15.00	9.63	6.93	25.76

We developed two dynamic regression models to look for causal linkages and interdependencies by using the lagged dependent variable as an input. The process of adjusting is documented in the model by including the prior value of the dependent variable. A previous study found that her dividend and performance history have an impact on her current value. When employing a dynamic model, conventional methods of estimation for panel data, such as pooled ordinary least squares (POLS), fixed effects (FE), and random effects (RE), may not be suitable for this study due to the possibility of bias in the coefficient estimates (Hasan et al., 2021). Here, SGMM (system generalized methods of moments) is the way to go. In addition, financial literature frequently employs this strategy. Corporate finance decisions and the interplay between investment, dividend, and external funding are where it is most often used. It has a number of advantages over the SES method. It does, in fact, address issues with omitted variables, reverse causality, and simultaneity bias. Furthermore, this method offers robust tools for the endogenous delayed dependent variable and fixes the independent variables' endogeneity biases (Ain et al., 2021). It applies the level equation with the help of the difference values of lag dependent variables and the difference equation with the help of lag dependent variables. According to Kanakriyah (2020), this method reduces the likelihood of bias in coefficient estimation by taking into account the existence of causal links. For SGMM to be legitimate, there are three requirements, which include:

- **Overidentification Restrictions:** Overidentification constraints must be met, as measured by the Sargan and Hansen tests and others. These tests look at how well the model can represent the current situation and how reliable the estimating tools are.
- **Absence of Autocorrelation:** Autocorrelation should not be included in the difference equation, especially not at orders higher than 1. Tests like the Arellano-Bond (AR) tests are used to investigate this assumption, as stated by Pervan et al. (2015).
- **Sufficient Number of Instruments:** If you're using a dataset with several entities, you should divide them up into more groups than instruments. To prevent the estimate from being underdetermined and to guarantee that the instruments are genuine, this condition must be satisfied.

IV. RESULTS

Here, we lay out the study's variables with their descriptive statistics first. We next publish and analyze the empirical data after displaying their correlation matrix.

A. Descriptive statistics

Descriptive statistics provide a summary of each variable's average value, minimum and maximum values, and standard deviation. Table 4 contains descriptive statistics for each of the variables studied during the crisis, the period prior to the crisis, and the entire study period. The first dependent variable, Dividendpaid, reveals that French firms paid dividends with an average of 28.59 percent from 2016 to 2021. There seems to be a lot of variation in dividend payment behavior among organizations and years, with a standard deviation of 29.9.

Table 4 shows dividend payouts before and after the COVID-19 pandemic. Zhou and Ntantamis (2020) demonstrate that this trend is analogous to the G7 nations' experience of dividend reductions rather than increases. The UK, France, Germany, and Italy are the only countries in the group that saw a significant decrease in dividends

in 2020, as stated by Bhattacharya (1979), Miller and Rock (1985), and Myers and Majluf (1984). When they are unable to do otherwise, it is evident that management would rather choose to drastically reduce dividends. The company's profitability, as measured by ROA and ROE, has also plummeted, from an average of 49% before the crisis to 25% during it, and from 75% to 47% after the crisis. Nevertheless, the SBF 120 enterprises nevertheless manage to turn a profit, with an average financial performance of 61.1% for the full time. Despite this, debt and the KZ index have both increased. We will continue to examine the data to determine how our key variables—dividPaid, Performance, and KZ index—changed over the course of time (Fig. 2). Dividends decreased along with return on assets (ROA) and return on equity (ROE) during the 2019–2020 period. Ntantamis and Zhou (2022) and Krieger et al. (2021) found the same thing, confirming the descriptive statistics.

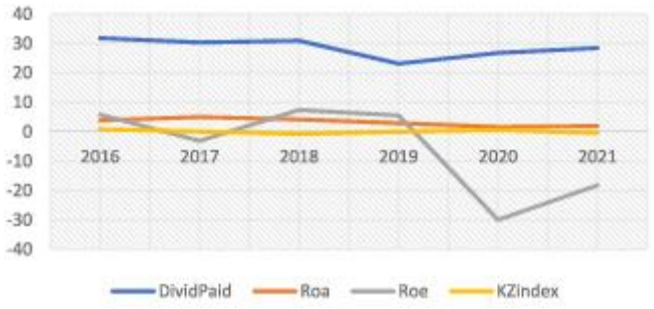


Fig. 2. Variables evolution.

For our findings to be more comprehensive, it is essential to investigate any potential problems with multicollinearity among the variables. Due to multicollinearity, their predicted coefficients become extremely sensitive to seemingly insignificant data changes, resulting in a distortion of the quality of the regression calculation. Brooks claims that coefficients between 0.8 and +0.8 exhibit no evidence of multicollinearity. The low correlation coefficients (less than 0.5), as shown in Table 5, explain why multi collinearity is not present.

The results of the Variance Inflation Factor (VIF) analysis corroborate this conclusion. Table 6 shows that the VIF test yields results less than 2 for all model specifications.

B. Empirical results and discussion

The estimated regressions using the SGMM approach are shown in Table 7. During the health crisis, French firms' performance and dividend policies had causal repercussions, as reported in the findings. The Sargan test for overidentification demonstrates that the instruments are robust and valid enough to handle the endogenous issue of the dependent variable's lag, as shown in Tables 7a and 7b. The results of the three primary tests conducted on the two models are as follows: Additionally, the AR (1) and AR (2) tests demonstrate that the first-differenced errors exhibit some first-order autocorrelation but no second-order autocorrelation in certain circumstances. Last but not least, the fact that there are more groups than instruments is encouraging because it suggests a substantial cross-sectional dimension for identification. Our initial tests of the DivPaid variable's relationship to performance metrics (ROA and ROE), the KZ index, and other control variables are presented in Table 7a. At the same level of significance, the variable DivPaid has a positive association with DivPaidt-1 and a negative association with the KZ index and Crisis, as shown in Table 7a. The COVID-19 issue reduced dividend distribution in the French context. According to this study, companies in Europe are less affected by COVID-19 than those in North America and Japan. French businesses would continue to pay dividends even when their finances were tight because of the inverse correlation between the KZ index and Dividpaid. This would allow them to placate their stakeholders. At the 10% level, the positive significance of the constant variable (αi) supports this. During times of crisis, like the one in, advocates of the dividend policy are supported by this conclusion. As a result, H2 is rejected, but H3 is retained. Actually, when there is uncertainty, getting bank funding becomes more difficult. Companies will have

no choice but to keep more of their earnings rather than distribute dividends. Their objective is to reinvest their revenues internally, which will improve their governance structure and increase their resilience to financial turmoil. ROA and ROE had no effect on the SBF120 companies' dividend distribution policies. These results both support and challenge those of. This inconsistency is justified by the unique circumstances. H2 is therefore rejected. It is important to note that dividends distributed during the COVID-19 crisis did not all have the same effect. In light of the financial and economic concerns brought on by the epidemic, some companies choose to halt or cut dividend payments, while others opted to keep or even raise them. Dividend payments are contingent upon a wide range of company-specific considerations, such as current and projected financial performance, compliance with applicable regulations, satisfaction of shareholders, and preparedness to deal with the COVID-19 pandemic.

When looking at the other factors in Table 7a that explain dividend payment, we can see that only the size, debt, and growth variables have a positive correlation with the variable (DivPaid) at the 5%, 1%, and 5% levels, respectively. Each and every other control variable has no value. Due to the size variable's positive influence (coef =3.3307), capital dispersion and high agency costs are characteristics of big enterprises. To reconcile interests and control agency costs, a strict distribution policy and monitoring and control are required. The agency and signaling theories shed light on the reason why large corporations pay out large dividends: they have fewer opportunities for growth. It demonstrates that larger businesses are more likely to distribute dividends. Our reasoning is based on the work of, who found that big companies would prefer pay out dividends with their free cash flow than put it into new initiatives.

Additionally, despite their financial difficulties, managers continue to take on debt in order to reward shareholders, according to the signaling hypothesis. This is because dividend payments are influenced favorably by debt. By supplying additional funds to support operational expenses and dividends, debt may assist businesses in weathering market upheavals. During times of crisis, when other options, such as stock offers, become less appealing, businesses frequently turn to debt financing. Since French listed enterprises are already in their mature years, this outcome may be explained by the profitability and productivity of this debt. According to the signal theory, which is supported by the data, cash dividends send out positive signals to new investors. Debt, on the other hand, may have a negative impact on dividend distributions if a company experiences financial difficulties and is unable to pay off its debt.

Table 5 Correlation matrix.

Variable	DivPaid	ROA	ROE	KZ	Age	Industry	Debt	Growth	MTB	Cashflows	Crisis	Size
DivPaid	1.00	0.053	0.091	0.054	0.077	0.098	0.008	0.012	0.009	0.002	0.075	0.280
ROA	0.053	1.00	0.037	0.090	0.110	0.180	0.050	0.020	0.280	0.000	0.150	0.080
ROE	0.091	0.037	1.00	0.090	0.060	0.060	0.010	0.030	0.020	0.010	0.060	0.040
KZ	0.054	0.090	0.090	1.00	0.010	0.010	0.296	0.070	0.010	0.480	0.009	0.170
Age	0.077	0.110	0.060	0.010	1.00	0.090	0.060	0.056	0.010	0.020	0.004	0.215
Industry	0.098	0.180	0.060	0.010	0.090	1.00	0.015	0.003	0.009	0.007	0.173	0.072
Debt	0.008	0.050	0.010	0.296	0.060	0.015	1.00	0.302	0.020	0.001	0.062	0.100
Growth	0.012	0.020	0.030	0.070	0.056	0.003	0.302	1.00	0.010	0.110	0.118	0.153
MTB	0.009	0.280	0.020	0.010	0.010	0.009	0.020	0.010	1.00	0.020	0.060	0.052

Cashflows	0.002	0.000	0.010	0.480	0.020	0.007	0.001	0.110	0.020	1.00	0.048	0.060
Crisis	0.075	0.150	0.060	0.009	0.004	0.173	0.062	0.118	0.060	0.048	1.00	0.030
Size	0.280	0.080	0.040	0.170	0.215	0.072	0.100	0.153	0.052	0.060	0.030	1.00

Table 6 Vif test.

Variable	Model 1 (M1) VIF	Model 1 (M1) Tolerance	Model 2 (M2) VIF	Model 2 (M2) Tolerance
DivPaid	1.51	0.651176	1.51	0.662200
ROA	1.09	0.917431	1.08	0.925926
ROE	1.07	0.934579	1.06	0.943396
KZ	1.12	0.892857	1.11	0.900901
Age	1.03	0.967741	1.03	0.967741
Industry	1.05	0.956602	1.05	0.953770
Debt	1.27	0.786246	1.27	0.786246
Growth	1.15	0.867231	1.15	0.868302
MTB	1.09	0.917475	1.09	0.917475
Cashflows	1.35	0.738394	1.35	0.739609
Crisis	1.08	0.927264	1.06	0.944738
Size	1.02	0.979586	1.35	0.739609
Mean VIF	1.17	—	1.16	—

Table 7a Results

Variable / Test	Coefficient / Statistic	Std. Error	Z-Statistic	P-value	Remarks
DivPaid(t-1)	0.25692	0.06344	4.05	0.000***	Significant
ROA	0.11620	0.08300	1.40	0.163	Not significant
ROE	0.23210	0.39200	0.57	0.470	Not significant
KZ	0.00008	9.60E-06	9.05	0.000***	Significant
Industry	0.23599	0.42023	0.56	0.574	Not significant
Age	0.04680	0.12268	0.38	0.703	Not significant
Debt	0.06775	0.01661	4.08	0.000***	Significant
Growth	0.18133	0.07669	2.36	0.018**	Significant
MTB	0.12610	0.09450	1.34	0.182	Not significant
Cashflows	0.16326	1.01259	0.16	0.872	Not significant
Size	3.33070	1.61003	2.07	0.039**	Significant

Crisis	4.53700	1.33988	3.39	0.001***	Significant
Constant	18.24570	9.70854	1.88	0.060*	Marginally significant
Wald χ^2	550.40	NA	NA	0.000	Model significant
AR(1) test	NA	NA	NA	0.000	Expected first-order correlation
AR(2) test	NA	NA	NA	0.213	No second-order autocorrelation
Sargan test	13.4773	NA	NA	0.3353	Instruments valid
Observations	521	NA	NA	NA	Sample size
Number of Groups	105	NA	NA	NA	Cross-sections
Number of Instruments	23	NA	NA	NA	Instrument count

The growth variable has a positive and significant impact on dividend policy. Hasan et al. (2021), who discovered that businesses kept and invested the majority of their income for future growth and improvement, are supported by these findings. Second, the various performance determinants (eq) indicate that both the return on assets (ROA) and the return on equity (ROE) have a negative association with the DivPaid variable at the 5% level. This suggests that businesses deplete their cash reserves when they pay dividends during difficult times. Subsequently, H1 is verified. Specifically, paying out dividends could put the company in a worse financial situation, making it harder for it to weather the storm. Investors, on the other hand, might interpret dividend payments as a sign that they doubt the company's ability to succeed in the future. At the 1% level, the KZ index has a negative correlation with performance metrics like ROA and ROE, with coefficients of 0.0023% and 0.0015%, respectively. H4 is preserved as a result. Our findings are in line with those of. Particularly in 2020, lockdowns caused activities to be suspended or disrupted during times of crisis. Investment in assets, resources, and development potential could be impeded if firms encounter liquidity constraints, increased borrowing costs, and financial market concerns. In addition, when a company is having trouble paying its bills, it may reduce capital expenditures, which may ultimately have a negative impact on performance.

Table 7b Results (dependent variables: ROA and ROE).

Variable / Diagnostic	Model A (ROA) Coefficient / Statistic	Std. Error	Z-Statistic	P-value	Model B (ROE) Coefficient / Statistic	Std. Error	Z-Statistic	P-value
ROA(t-1)	0.57817	0.05281	10.95	0.000***	Not Applicable	Not Applicable	Not Applicable	Not Applicable
ROE(t-1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	0.75537	0.00969	77.93	0.000***
DivPaid	0.02210	0.01101	2.01	0.044**	0.09132	0.05041	1.81	0.070*
KZ	0.00002	2.35E-06	9.97	0.000***	0.00001	4.24E-06	3.59	0.000***
Debt	0.01006	0.01897	0.53	0.596	0.00722	0.00161	4.49	0.000***
Size	0.19547	0.21129	0.93	0.355	7.31330	2.33389	3.13	0.002***
Industry	0.04561	0.09406	0.48	0.628	0.01635	0.02164	0.76	0.450

Growth	0.041999	0.01618	2.60	0.009***	0.00251	0.00597	0.42	0.674
Crisis	1.36340	0.33229	4.10	0.000***	0.18525	0.07147	2.59	0.010**
Constant	0.93849	3.35210	0.28	0.779	0.88804	1.86082	0.48	0.633
Observations	529	Not Applicable	Not Applicable	Not Applicable	530	Not Applicable	Not Applicable	Not Applicable
Number of Groups	106	Not Applicable	Not Applicable	Not Applicable	106	Not Applicable	Not Applicable	Not Applicable
Number of Instruments	22	Not Applicable	Not Applicable	Not Applicable	22	Not Applicable	Not Applicable	Not Applicable
Wald χ^2	197.73	Not Applicable	Not Applicable	0.000	261.49	Not Applicable	Not Applicable	0.000
AR(1) Statistic	3.6951	Not Applicable	Not Applicable	0.0002	2.0020	Not Applicable	Not Applicable	0.0453
AR(2) Statistic	0.9526	Not Applicable	Not Applicable	0.3404	0.6771	Not Applicable	Not Applicable	0.4983
Sargan Statistic	15.8516	Not Applicable	Not Applicable	0.2572	18.99655	Not Applicable	Not Applicable	0.1232

We find that debt has a negative impact on ROE at the 1% level, but no significant influence on ROA when controlling for other factors. The results are in line with previous studies on the topic. According to their research, companies' investment behavior and, by extension, their financial success, are affected by their debt levels. Additionally, a company's ability to deal with economic and financial challenges is harmed when the economy is unstable, as is its financial performance. Size does have a positive correlation with financial success at the 1% level. This demonstrates that big companies are well-equipped monetarily to weather economic and financial storms. As a result, big businesses perform better than smaller ones. Consequently, large businesses generate more revenue than their smaller counterparts. Even though it is not statistically significant, we find that Industrial has a positive effect on ROA and ROE. According to our research, there is no relationship between company performance and the activity sector. The division of labor into distinct business units is more important to the global economy than any other industry could ever be. We find that the growth variable has a positive and statistically significant impact on return on assets (ROA) with a coefficient of 0.0419 or less. Although the effect on ROE is favorable, it is not statistically significant. The findings back up previous research in the Croatian manufacturing sector that found that putting a strong emphasis on a company's goodwill led to higher sales and, ultimately, better performance. That the Crisis variable had a negative effect on performance for both metrics at the 1% level lends credence to H5. The return on equity (ROE) is 0.18, while the return on assets (ROA) is 1.36. This study's findings are consistent with previous research. Following this, H5 is kept. Companies saw a drop in sales, an increase in expenses, and a general worsening of their financial situation as a result of the COVID-19 epidemic and the resulting limitations. However, the epidemic was beneficial to a number of industries, including the internet marketplace and healthcare services. To sum up, the COVID-19 outbreak had a significant impact on French company dividends. Due to the pandemic's impact on business and economic confidence, many corporations were forced to reduce or temporarily suspend dividend payments. The decision has an impact on the company's bottom line, its capacity to fulfill its legal and financial obligations, and the economy as a whole. This is particularly true in the service sectors of the hotel and tourism industries, the food service industry, and retail. Some businesses in these sectors have made the decision to reduce dividends in order to improve their short-term

cash flow. Their long-term investors still benefited from this, as they were able to weather potential financial challenges. Dividends were a way for the corporation to convey its financial status during the COVID-19 crisis. They indicate financial stability and guarantee investor loyalty. By dispersing dividends, businesses may demonstrate their capacity to generate profits in the face of economic uncertainty and challenges.

V. CONCLUSION AND SUGGESTIONS

This study examined dividend policy changes and their role as market signals during and after crises using French companies listed on the SBF 120 from 2016 to 2021. This research adds to the expanding body of literature on the topic of corporate financial decision-making in times of economic uncertainty by providing a dynamic framework for the integration of dividend policy, business performance,and financial limitations.

The empirical findings obtained by employing the System Generalized Method of Moments (SGMM) shed light on numerous significant concepts. First, the significant impact of delayed dividends demonstrates that dividend payments persist over time. This demonstrates that dividend smoothing is actually practiced by French businesses. Furthermore, the KZ index shows that financial restrictions have a negative impact on dividend distributions, suggesting that companies with tighter finances cut or halt dividends during times of crisis. The third point is that the COVID-19 issue had a significant impact on dividend distribution, supporting the idea that businesses prioritize cash preservation and strengthening their balance sheets in times of uncertainty. It is worth noting that dividend distributions during the crisis were not considerably impacted by company performance indicators (ROA and ROE). This suggests that during turbulent times, rather than being influenced by short-term profitability, financial constraints and risk concerns play a larger role in dividend decisions. Alternatively, dividend payments have a detrimental impact on company performance during times of crisis, lending credence to the idea that dividend distributions might reduce enterprises' ability to weather external financial storms.

The results show that dividends are a signaling tool during times of crisis, but they also show that there is a trade-off between paying out dividends to shareholders and being financially resilient. As a result, the research provides solid empirical evidence that dividend policy remains a strategic tool for business managers, particularly during times of crisis.

A. Suggestions

- **Corporate Managers:** Managers should use flexible dividend policies to strike a balance between communicating goals and maintaining liquidity during times of crisis. Firm performance and financial stability may be negatively impacted by excessive dividend distributions during economic downturns.
- **Investors and Financial Analysts:** When interpreting dividend announcements during times of crisis, investors should exercise caution rather than interpret dividend continuity as a sign of strength. Businesses' cash flow, debt, and financial constraints should all be taken into consideration.
- **Regulators and Policymakers:** In order to promote financial stability and the long-term viability of businesses, regulatory bodies may decide to issue interim rules on dividend payments during systemic crises.
- **Corporate Governance Frameworks:** Companies should strengthen their governance systems, especially during difficult economic times, to ensure that dividend decisions are consistent with the generation of long-term value rather than short-term market assumptions.

B. Limitations

- This study relies only on secondary data collected from publicly traded French companies, which could make it difficult to apply the results to non-publicly traded companies or other institutional settings.

- Market Coverage: Due to differences in finance, governance, and legislation, the research's findings may not be applicable to dividend practices in other nations because it is limited to the French market (SBF 120). The COVID-19 pandemic (2019–2021) is the only crisis period for the purposes of this definition. This does not take into account crises of a different kind, such as those that are political, economic, or sector-specific.
- Behavioral Factors: Although they aren't specifically discussed in the paper, investor sentiment, management overconfidence, and market psychology are all behavioral finance factors that could influence dividend decisions.

C. Scope for Future Research

- By comparing dividend policy revisions across nations, future research may provide a better understanding of the impact of institutional and regulatory settings on dividend signaling during times of crisis.
- Other Contexts of Crisis: After the global financial crisis, the energy crisis, or geopolitical shocks have passed, researchers may also investigate dividend behavior during these times.
- Dividend signaling methods might be better understood with the help of behavioral finance integration, which involves taking into account investor mood, management behavioral qualities, and market expectations.
- High-frequency or event-study data may be useful for capturing short-term market responses to dividend announcements during crisis situations.
- Sector-Specific Analysis: Future research may focus on sectoral heterogeneity to see if conventional and high-tech companies' dividend signaling differs during economic downturns.

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