

Government Grants and the Impact of Dividend Announcements on Firms' Stock Price

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Abstract

This study empirically examines the impact of media-reported dividend announcements on the stock returns of US public firms receiving a COVID-19-related one-time government grant. While COVID-19 continued devastating the economy, public firm borrowers that decided to pay out dividends while using government support, exhibited a negative Cumulative Abnormal Return (CAR) of -5.3% around the announcement day. In contrast, investors' reaction to firms announcing discontinuation of dividend payments while receiving COVID-19 grants, results in a much milder CAR of $\approx -1.2\%$. Firm size, leverage, cash/assets, ESG score, and the media coverage proxy influence significantly the returns during the period.

Keywords

Government Grants, COVID-19, Dividend Announcement, Investor Sentiment, Stock Markets

1. Introduction

In the midst of the unprecedented economic challenges in the US elicited by the 2020 Novel Coronavirus (COVID-19) pandemic, the intricate relationship between dividend announcements, government grants, and public firms' stock returns gained popularity in the media. As the US government passed both the CARES Act and the PPP program¹, aimed at supporting firm operations and

¹Coronavirus Aid, Relief, and Economic Security (CARES) Act provided about \$2 trillion in fast and direct economic assistance for American workers, families, businesses, and industries. Under the CARES act, the Paycheck Protection Program (PPP) was meant to support (with about \$658 billion) businesses with the resources they need to maintain their payroll, hire back employees who may have been laid off, and cover applicable overhead. Source:

<https://home.treasury.gov/policy-issues/coronavirus/about-the-cares-act>, and

<https://home.treasury.gov/policy-issues/coronavirus/assistance-for-small-businesses/paycheck-protection-program>.

keeping workers employed, the mass media started increasingly reporting on the public firms receiving grants. These firms were observed to allocate funds towards dividend payouts to shareholders instead of utilizing government support for bolstering firm operations. Eventually, some of them were forced to return the COVID-19 relief loans². After publicly revealing firms' motives towards their dividend payout policies, a drop in firms' stock price is not surprising. A reason behind this is that not only will the dividend announcements impose direct costs on the firms in the form of public scrutiny, and perceived corporate ethical irresponsibility, but it will additionally alter how market participants, stakeholders, and the broader public see these firms in future (Cororaton & Rosen, 2022; Carberry et al., 2018).

Within these lines, this study initially quantifies the current estimate of the economic impact of the dividend announcements upon the stocks listed on NYSE and NASDAQ Composite. It specifically investigates the economic impact of the dividend announcements made by the listed firms receiving government grants aiming at smoothing the negative effects of the pandemic on their operations. The study finds that the Cumulative Abnormal Returns (CARs) are negative, yielding $\approx 6.5\%$, prior to and up to ten days after the announcements. These findings simply imply that firms that receive COVID-19 government grants and announced to pay dividends were negatively seen in the eyes of the market participants. This further leads to investigate the statistical significance of other factors triggering the CARs of the grant receivers. Regression analyses reveal that capital markets do indeed negatively react to the dividend announcements of the firms receiving government support. Interestingly, yet somewhat as expected, the proxy for media coverage shows evidence that the negative effect towards the CARs intensifies with higher media coverage. This finding is consistent with Pacheco and Francis (2020) showing that the coverage highlighted the idea that public firms have other sources of financing, making it inappropriate for them to use the government support in the first place. This finding also supports the reasoning behind the coefficients of the firm size variable being negative. In addition, firm leverage and liquidity levels are found to have a significant impact on the returns, as well as it is firms' ESG performance, which may be reinforced during periods of higher economic uncertainty (Heba, 2022).

As it appears, the immediate relation between the COVID-19 government grants, shares' returns, and firms' dividend announcements has not yet been addressed in the past literature (articles that come close include: Xu et al., 2023; Li et al., 2022; Sterenczak & Kubiak, 2022; Kluzek & Schmidt-Jessa, 2022; Cejnek et al., 2021; Huang, 2020; Harjoto et al., 2020; Krieger et al., 2020; Baker et al., 2020; Baker & Wurgler, 2016). This study contributes to the aforementioned li-

²Among the many cases, AutoNation which is the US largest auto dealership chain, and restaurant chains Ruth's Chris, and Shake Shack agreed to return their government loans after a public outcry. Source:

<https://www.nytimes.com/2020/04/26/business/coronavirus-small-business-loans-large-companies.html>.

terature by examining the effect of investor sentiment on the financial markets by quantifying three confounding effects of the dividend announcements: 1) that dividend announcements made by COVID-19 government grant receivers trigger a negative sentiment effect among the stock market investors, 2) the effects towards the CARs differ among firm size, leverage, liquidity, and firm's ESG performance, and 3) that the media coverage intensifies the effect of the announcements. A policy-related contribution would be that a study of public firm grant receivers' behavior would generate novel policy insights for the design of future emergency lending programs.

2. Data

This study observes a comprehensive set of 1218 newspaper-published articles incorporating information on dividend announcements made by 812 (NYSE Composite and NASDAQ Composite listed firms) COVID-19 grant receivers in the period from January 2020 to January 2022. To ensure that the source of the article is reliable and reaches large masses, "The Wall Street Journal", "The New York Times", and "The USA Today" have been considered³. The newspaper articles are identified via the ProQuest search engine using the keywords: COVID-19 *government grants, dividend announcement, and dividend payout during* COVID-19. Around 84% of the relevant articles come from "The Wall Street Journal", and the rest is from "The New York Times", and "The USA Today" altogether.

To construct the main variable DivPay, *Refinitive Workspace* is used to supply the data on COVID-19 government grants, and firms' dividend announcements and payments. Data on COVID-19 government grants is available for the years 2020 and 2021. DivPay equals to one if a firm in the sample announces a positive dividend payment to its shareholders after receiving a COVID-19 related grant, and DivPay equals zero if a firm announces no dividend payments to its shareholders for the period when a COVID-19 related grant is effective. Of the total number of firms in the sample, 59 firms announced a positive dividend payment, despite receiving COVID-19 related government grant, and 753 announced no dividend payouts, i.e. ceased dividends, while receiving COVID-19 related government support.

Next, to evaluate whether announcing to pay dividends while receiving a government grant has an impact on companies' CARs during the COVID-19, the study exerts the value-weighted CARs as calculated by the *EventStudyTools*⁴ (Wolf et al., 2014).

Lastly, firm fundamentals data is collected from *Refinitive Workspace* (total

³Source: <https://fullintel.com/top-media-outlets/the-top-10-us-daily-newspapers>. Note, as social media source of information cannot always be verified and traced back to the original author, the social media as a source of information is disregarded. Moreover, many social media articles during the COVID-19 pandemic are found adjusted, deleted under suspicious circumstances or even faked after initially receiving reliability criticism.

⁴<https://www.eventstudytools.com/>.

assets, long- and short-term financial debt, cash/assets, ESG score)⁵, and the media coverage proxy data, the Google Trends Index⁶, is collected from Google Trends.

3. Methodology

To evaluate the economic impact of the dividend announcements the event-study method is used upon companies' stock returns through the one-factor value-weighted market model (e.g. Ichev, 2021; Carberry et al., 2018; Donadelli et al., 2016; Peress, 2014; Kaplanski & Levy, 2010a, 2010b)⁷. The event-study results would be biased due to the overlapping windows if all published articles on firms' dividend announcements were considered as independent, hence the "first announcement" selection criterion is used⁸. It is important to note that the selection criterion gives special attention to dividend announcements that happen around the same time as firms' earnings announcements. This is crucial because the time proximity of these events could cause potential confounding effects influencing the estimates, introducing bias. This procedure results in 812 non-overlapping events.

To evaluate the statistical impact of the dividend announcements made by the receivers of COVID-19 government grants on the CARs, the following regression is estimated (Berlinger et al., 2022; Donadelli et al., 2016):

$$\text{CAR}_{i,t} = \gamma_0 + \gamma_1 \text{DivPay}_{i,t} + \gamma_2 \text{Size}_{i,t} + \gamma_3 \text{Leverage}_{i,t} + \gamma_4 \text{Cash/assets}_{i,t} + \gamma_5 \text{ESGscore}_{i,t} + \gamma_6 \text{GoogleTI}_{i,t} + \varphi_t + \epsilon_t \quad (1)$$

where $\text{CAR}_{i,t}$ is the cumulative abnormal return of firm i on event window t , γ_0 is the regression intercept, $\text{DivPay}_{i,t}$ is a dummy variable denoting firms announcing a positive dividend payment after receiving a COVID-19 related

⁵For consistency among the data items, calendar-quarter based periods on *Refinitiv Workspace's* classification is used. Firm descriptives are as follows assets in \$ mil amount to 215.32; number employees equal to 548.89; debt/assets % equals to 34.5, and cash/assets % equals to 20.0.

⁶The Google trends index takes values from 0 to 100. It represents the search activity relative to its highest point during a specified period of time. In this case, data is collected relative to the event windows considered.

⁷The Gujarati technique (Gujarati, 1970) is used to uncover the shifts in the market model estimate, setting 100 days in the estimation period. Event windows $[-10, +10]$, $[-5, +5]$, and $[-1, +5]$ are chosen as such in order to capture the initial public information effect stemming from the dividend payment chronology process (Berk & DeMarzo, 2019).

⁸Bernard (1987) shows that overlapping of event windows results in cross-correlation of the stock returns. The bias recorded is downward-directed and defined as

$$\frac{C_{kk}}{E[\hat{C}_{kk}]} = \frac{\sigma^2}{E[\hat{\sigma}^2]} \times \frac{I_k'(XX)^{-1}(X'AX)(XX)^{-1}I_k}{I_k'(XX)^{-1}I_k}, \text{ where } C \text{ is the correct covariance matrix of the}$$

OLS-based coefficients, $I_k = (K \times 1)$ is a vector with k th element equal to one, and other elements equal to zero, and X is a matrix of independent variables. In this paper, the selection criterion takes the articles, i.e. events, in a chronological sequence, where it starts with the first event in the sample, ignores all events showing up in the following 10 or 5 days-depending on the length of the event window $[-10, +10]$, $[-5, +5]$, and $[-1, +5]$. In addition, the selection criterion continues with the second event ignores the events in the proposed range, and so on. This procedure results in 812 non-overlapping events.

grant⁹, $Size_{i,t}$ is the natural logarithm of total assets, $Leverage_{i,t}$ is firm's long- and short-term financial debt scaled by total assets, $Cash/assets_{i,t}$ is the cash-to-total assets ratio, $ESGscore_{i,t}$ is the ESG score of the firm, and $GoogleTI_{i,t}$ is the Google Trend Index which is used as a proxy for media coverage. φ_t denotes the industry controls.

4. Results

4.1. Event Study

Table 1 together with **Figure 1** summarize the CARs around the dividend announcements for: 1) all firms; 2) firms announcing no dividend payments (i.e. dividend payout cease) to their shareholders while receiving COVID-19 related government grants; and 3) firms announcing positive dividend payments while receiving COVID-19 related government grants. Panel A observes all firms in the sample and shows that the CARs around the dividend announcements are statistically significant and negative in the twenty-day period surrounding the event. For example, the results for the $[-10, +10]$ event window show a negative CAR of $\approx 2\%$, significant at the 1% level (see Patell's Z-scores and StdCsect Z columns for all event windows)¹⁰. Similar results are also recorded for the shorter event windows, reflecting the awareness of the market participants for the negative circumstances which COVID-19 grant receiving firms are currently dealing with, despite their intention to signal any kind of dividend payout policy.

Panel B presents CARs for the 753 firms announcing no dividend payouts, i.e. cease of dividend payments, while receiving a COVID-19 government financial support. For all three event windows, $[-10, +10]$, $[-5, +5]$, $[0, +10]$, CARs are

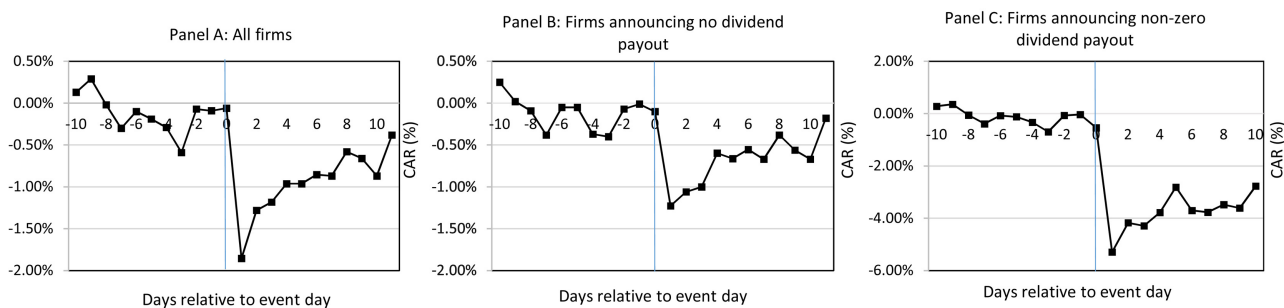


Figure 1. Market reaction.

⁹This study is limited to not being eligible to include lagged variables (e.g. Fama & French, 2002) as the lifespan of the grants is very limited.

¹⁰CARs significance is demonstrated through a range of parametric and non-parametric tests. In Patell Z-score test, each security's abnormal return is normalized by its estimation period standard deviation to limit the potential impact of stocks with high return volatility. StdCsect Z accounts for event-induced volatility and serial correlation (Boehmer et al., 1991). The generalized sign test (Gen Sign Z) shows the proportion of positive and negative CARs against an assumed 50% split under the null hypothesis of no reaction to the event (Cowan, 1992). Lastly, a post-estimation test to examine whether the difference in coefficients between the panels is jointly equal to zero, or significantly different is presented. Test statistics is the ratio of the departure of the estimated value of a parameter from its hypothesized value to its standard error.

Table 1. Market reaction.

Panel A. All Firms					
Event Window	No. of obs.	CAR (%)	Patell Z score	StdCsect Z	G. sign test Z
[-10, +10]	812	-1.855***	-3.324	-2.951	-3.149
[-5, +5]	812	-1.494***	-3.122	-2.600	-2.557
[0, +10]	812	-1.705***	-2.653	-2.721	-4.621
Panel B. Firms announcing no dividend payout					
[-10, +10]	753	-1.227***	-2.590	-2.420	-2.699
[-5, +5]	753	-1.095**	-1.973	-1.967	-2.414
[0, +10]	753	-1.173***	-2.541	-2.462	-2.675
Panel C. Firms announcing positive dividend payout					
[-10, +10]	59	-5.293**	-2.387	-1.987	-3.386
[-5, +5]	59	-4.112***	-3.709	-2.650	-2.962
[0, +10]	59	-5.423***	-3.727	-2.537	-3.580
Difference in coefficients test (Panel B - Panel C)		Diff. in coeff.	Test statistics		
[-10, +10]		-6.520***	-4.177		
[-5, +5]		-5.207***	-3.512		
[0, +10]		-6.596***	-4.223		

Note: The Cumulative Abnormal Returns (CARs) are calculated for the events with non-overlapping event windows using the value-weighted market model positioning 100 trading days in the estimation window. The estimation window ends 3 days prior to the event day, i.e. day 0. The event selection criterion, which has a label “first announcement”, selects events in chronological order and it starts with the first event in the sample, ignores all events showing up in the following 5 or 10 days—depending on the length of the event window ([-10, +10], [-5, +5] and [0, +10]). Then, the next event in succession is taken ignoring the events during the following 5 or 10 days, and so on. Subsequent columns report the Patell Z-score, the standardized cross-sectional Z-score, and the generalized sign test, respectively. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

negative and statistically significant on at least 5% level, and of somewhat lower magnitude than the CARs of the full sample.

About the effects observed, one can conclude that, in general, firms’ performance during the COVID-19 pandemic is perceived negatively by the capital markets participants especially if the firms are tapping to government funds to support their day-to-day operations (Cororaton & Rosen, 2022). Another explanation of the observed results goes along the theories of asymmetric information and signalling to the capital markets. As these are public firm borrowers and information on public firms’ fundamentals is widely available to the investors, dividend omissions convey a negative signal of poor future profitability and earnings volatility (Baker & Wurgler, 2016; Hardy, 2021). On a related note, agency models of dividend policy imply that during times of economic uncertainty, firms are keen on announcing zero dividend payments, i.e. ceasing dividends, to keep extra cash to enhance financial resilience (Krieger et al., 2020; Walkup, 2016; Chay & Suh, 2009).

Panel C presents CARs for the firms announcing to pay dividends while receiving COVID-19 government grants aimed at smoothing the negative economic impact of the pandemic on their operations. The CARs for all three event windows are negative, statistically significant, and of the largest magnitude compared to the other panels. For example, the $[-10, +10]$ event window yields negative CARs of $\approx 6.5\%$, significant at 1% level¹¹. In line with previous studies observing firms' signaling patterns using dividend payouts (e.g. Miller & Rock, 1985; John & Williams, 1985), the CARs suggest that announcing dividend payments while using government funds for reducing negative effects from the pandemic is negatively perceived by the market participants. Heba (2022) suggests that in times of market turbulence firms rather increase dividends to pursue a stable dividend policy and signal prosperous financial performance. However, as one might also predict, this study's results imply that announcing positive dividend payouts to the shareholders while using government grants backfires as a signaling strategy.

Overall, the event study analyses in Panel C support the prediction: that announcing positive dividend payouts to the shareholders while using COVID-19 government support is negatively recognized by the financial market.

4.2. Regression Analyses

Results examining the effect of dividend announcements by COVID-19 grant receivers on the CARs are presented in Table 2. Column (1) - Column (6) of Table 2 summarize the results of the regression analysis in Model (1). The main variable indicating the firms that announced to pay dividends to the shareholders in the period while receiving COVID-19 related government grant, $DivPay_{i,t}$, is negative and statistically significant for all event windows examined (e.g. the $DivPay_{i,t}$, regression coefficient for $[-10, +10]$ window is -0.0511 , significant at 1% level, $[-5, +5]$ coefficient is -0.0414 , significant at 1%, and for the $[0, +10]$ is -0.0587 , also significant at 1%). Complementing the event study results, these estimates conform the prediction that stock market participants punish firms upon their announcement to pay dividends specifically during the COVID-19 period, while the same firms were using government support to smoothen the negative impact of the pandemic. The magnitude of the effect intensifies, increasing the coefficient to -0.0521 , once the proxy for media coverage, $GoogleTI_{i,t}$, is added to the regression. This finding is consistent with Fang and Peress (2009) and Cororaton and Rosen (2022) showing that the higher (Google) search interest in particular firms' activities helps in magnifying the attention given by the investors, which in this case is resulting in a negative backlash for potentially (mis) using government funds for activities of lesser importance than firm survival.

¹¹Conclusions are robust upon controlling for the size of the dividends paid out. Namely, the 59 firms announcing to pay dividends do not change their dividend payout policy over the period of observation.

Table 2. Impact of dividend announcements by COVID-19 government grant receivers on the CARs.

Dependent variable	Value-weighted MM CARs for all firms					
	(1)	(2)	(3)	(4)	(5)	(6)
CAR _{<i>i,t</i>}	[-10, +10]	[-10, +10]	[-5, +5]	[-5, +5]	[0, +10]	[0, +10]
DivPay _{<i>i,t</i>}	-0.0511*** (-3.59)	-0.0521*** (-3.63)	-0.0414*** (-3.10)	-0.0418*** (-3.15)	-0.0587*** (-3.95)	-0.0588*** (-3.97)
Size _{<i>i,t</i>}	-0.0119** (-1.96)	-0.0124** (-1.97)	-0.0109** (-1.98)	-0.0112** (-2.01)	-0.0203** (-2.25)	-0.0209** (-2.28)
Leverage _{<i>i,t</i>}	0.007* (1.84)	0.009* (1.85)	0.0014* (1.67)	0.0015* (1.68)	0.0101* (1.88)	0.0102* (1.90)
Cash/assets _{<i>i,t</i>}	0.0160** (1.96)	0.0163** (1.97)	0.0169** (1.96)	0.0174** (1.98)	0.0195** (2.28)	0.0195** (2.29)
ESGscore _{<i>i,t</i>}	0.0218** (2.10)	0.0227** (2.15)	0.0120** (1.99)	0.0121** (1.99)	0.0240** (2.32)	0.0241** (2.33)
GoogleTI _{<i>i,t</i>}		-0.0856*** (-12.57)		-0.0709*** (-11.42)		-0.0861*** (-12.73)
# of obs.	6496	6496	6496	6496	6496	6496
R-squared	0.535	0.537	0.526	0.529	0.531	0.533
Robust st. errors	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table summarizes the results of the regression analysis in Model (1). CARs are calculated using the value-weighted market model for the [-10, +10], [-5, +5], and [0, +10] windows. The regressions focus on the impact of the dividend announcements made by the receivers of COVID-19 government grants on the CARs. Firm fundamentals are used as controls. T-statistics are in parenthesis, and *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

In addition, the estimated regression coefficients on firm size are negative and significant among all event windows, suggesting that large publicly listed firms receiving government grants are de facto seen with some level of skepticism by the market participants towards their capability to safely manoeuvre through uncertain economic periods (findings consistent with [Cororaton & Rosen, 2022](#); [Leary & Michaely, 2011](#)). Furthermore, firm leverage and the cash-assets-ratio yield positive and statistically significant coefficients on at least 10% level, suggesting that, indeed, firms may have used at least a portion of the borrowings to reduce other debt burdens ([Chodorow-Reich et al., 2022](#); [Fama & French, 2002](#)), as well as, that higher levels of liquidity potentially justify any type of dividend payout policy ([Sterenczak & Kubiak, 2022](#); [Heba, 2022](#); [Lang & Litzenberger, 1989](#)). The positive and statistically significant (at 5% level) ESG score coefficients in relation to the CARs suggest that the ESG performance may be reinforced during periods of higher economic uncertainty. These results are consistent with the inference that investors may utilize ESG performance as a signal for anticipating future returns and risk mitigation ([Li et al., 2022](#)).

5. Concluding Remarks

This study documents that announcing positive dividend payouts to the shareholders while using COVID-19 government support is negatively recognized by the financial market. Tests reveal that size, leverage, cash-to-asset ratio, ESG performance, and media coverage play significant roles in companies' financial performance during the COVID-19 period.

This study is limited to the ability to study the short-term effects of the dividend announcements on the stock markets in the US simply because of the lifespan of the government grants (grants are available only from January 2020 to January 2022) provided for the firms. In addition, it is consciously limited to the use of newspapers as a credible mass media source to create a sample of reported announcements. Another limitation is that the analysis does not differentiate among various types of investors. However, it is worth documenting these effects as market participants may find publicly listed firms' dividend payments during times of uncertainty particularly provocative, hence they potentially re-consider their existing investment strategies.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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