# Stock Price Reaction when Covid -19 Exist: Moderating by Firm's Operating Cash Flow

## *(Reaksi Harga Saham Ketika Kewujudan Covid-19: Penyederhanaan Operasi Aliran Tunai oleh Firma)*

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*ABSTRACT*

*COVID-19 has been declared a global pandemic by the WHO, rendering the stock markets volatile. Investors predict that the pandemic can be a threat to a company's cash flow, whereas managers use the last year's financial condition to defend their stock price. We evaluate whether the company's operating cash flow moderates the company's financial condition and stock price reactions, in addition to making a comparison between the period before and during the COVID-19 pandemic using Difference in Difference. The regression analysis model used is a random effect model. The objects of this research are the hotel, tourism, restaurant, and retail trade sub-sector companies in the first quarter and second quarter of 2020, and 2019 and 2018 annually. We found that none of the firm's financial condition affected the stock's price reaction. We also found that operating cash flow strengthens the relationship between cash and ROA to the stock price. The results of this study further imply that the COVID-19 pandemic caused a significant stock price reaction when compared between the time before and during the COVID-19 disaster in Indonesia. The current study is hoped to contribute towards supporting the government in formulating policies to stimulate the currently-slumping economy. This study can also assist the investors in preparing their analysis to determine whether what action they should take in regards to their stocks, considering that our research implicitly reflects the development of conditions in several industrial sectors.*

*Keywords: COVID-19; stock price; financial condition; operating cash flow*
*JEL Codes: G01, G30, G31*

*ABSTRAK*

*COVID-19 telah dinyatakan sebagai pandemik global oleh WHO, menjadikan pasaran saham tidak stabil. Pelabur meramalkan bahawa wabak itu boleh menjadi ancaman kepada aliran tunai syarikat, sedangkan pengurus menggunakan keadaan kewangan tahun lalu untuk mempertahankan harga saham mereka. Kami menilai sama ada aliran tunai operasi syarikat menyederhanakan keadaan kewangan syarikat dan reaksi harga saham, selain membuat perbandingan antara tempoh sebelum dan semasa pandemik COVID-19 menggunakan Perbezaan dalam Perbezaan. Model analisis regresi yang digunakan adalah model kesan rawak. Objektif penyelidikan ini adalah syarikat subsektor hotel, pelancongan, restoran, dan perdagangan runcit pada suku pertama dan suku kedua 2020, dan 2019 dan 2018 setiap tahun. Kami mendapati bahawa tidak ada keadaan kewangan syarikat yang mempengaruhi reaksi harga saham. Kami juga mendapati bahawa aliran tunai operasi mengukuhkan hubungan antara tunai dan ROA dengan harga saham. Hasil kajian ini lebih jauh menunjukkan bahawa pandemi COVID-19 menyebabkan reaksi harga saham yang ketara jika dibandingkan antara waktu sebelum dan semasa bencana COVID-19 di Indonesia. Kajian ini diharapkan dapat memberikan kontribusi untuk mendukung pemerintah dalam merumuskan kebijakan untuk mendorong ekonomi yang sedang merosot. Kajian ini juga dapat membantu para pelabur dalam menyiapkan analisis mereka untuk menentukan apakah tindakan yang harus mereka lakukan terhadap saham mereka, mengingat bahawa penyelidikan kami secara implisit mencerminkan perkembangan keadaan di beberapa sektor industri.*

*Kata kunci: COVID-19; harga stok; keadaan kewangan; operasi aliran tunai*

INTRODUCTION

The novel coronavirus was identified on January 7, 2020, announced by the government of the People's Republic of China, followed by the WHO's declaration of the Coronavirus (COVID-19) as a global health crisis on March 11, 2020, after 118,000 cases with 4,291 deaths were reported in 114 countries (Kinateder et al. 2021). The beginning of COVID-19 was found to have a relatively small impact on financial markets, but after the outbreak was declared a health emergency, a large surge caused a crisis (Kinateder et al. 2021). Indonesia is one of the countries that are negatively affected by the COVID-19—at the time of writing, Indonesia ranks 10th in Asia, with the death rate being ranked 6th in the world. Its cure rate was the 14th in the world by July 2020 and currently, Indonesia is ranked 23rd in the world, to which the Indonesian government responded by promulgating the Regulations on Large-Scale Social Restrictions (PSBB), as stipulated under the Government Regulation Number 21 of 2020.

The massive impact of the pandemic on Indonesia seems to have shaken the capital market and Indonesia's economy per se. COVID-19 has enormously disrupted the supply chain, falling production, and falling domestic demands due to the loss of income and jobs (Hassan et al. 2020). A study by the Institute for Economic and Community Research, Faculty of Economics and Business, University of Indonesia on Halimatussadiah et al. (2020) as illustrated in Figure 1, revealed that the sectors most affected by COVID-19 are the restaurant and hotel sector, as well as the recreation and tourism with the percentage change rate for "Business as Usual" of -9% and -8.15%, respectively. They added that the fiscal stimulus would reduce the negative impacts of COVID-19 on the output of each sector. The stimulus

that has been initiated has not been sufficiently capable of aiding some of the most affected sectors.

The pandemic has caused the investor sentiment to become the companies' attention because investors' reactions will affect their share prices in the capital market. Companies try to provide the best possible signal through financial report information to investors. Financial information about any company is vital in appraising the value of stock prices. Investors consider such public financial information to assess any firm's potential future perspective (Syed & Bajwa, 2018). COVID-19 is a rare phenomenon in which investors are not all-wise in responding to the signals given, be it from the companies or global (external) markets. These irrational or illogical decisions might lead to biases that affect the investors' behaviours (Chaffai & Medhioub 2018). Fama states that investors cannot gain excess profit with some investment strategies (Yardımcı & Erdem 2020). However, investors may get higher returns by considering calendar effects in financial markets (J. Zhang et al. 2017). A company's level of stability bolsters the investors' confidence in placing their wealth by buying shares on the said company. Therefore, the more investors who invest in a company can increase the price of the shares they own.

Financial decision-making is affected by emotional factors, and investors make irrational decisions (Chaffai & Medhioub 2018). In addition to fighting against the slowdown in the economy, companies must also maintain the investors' confidence by giving signals so that their investment decisions do not undermine them. Metawa et al. (2019) in a previous study state that there was no significant effect of investment experience on any of the behavioural factors and investment decisions. During this pandemic, investors also learn how to predict a company's potential outside of the usual economic conditions. A company's signal becomes a
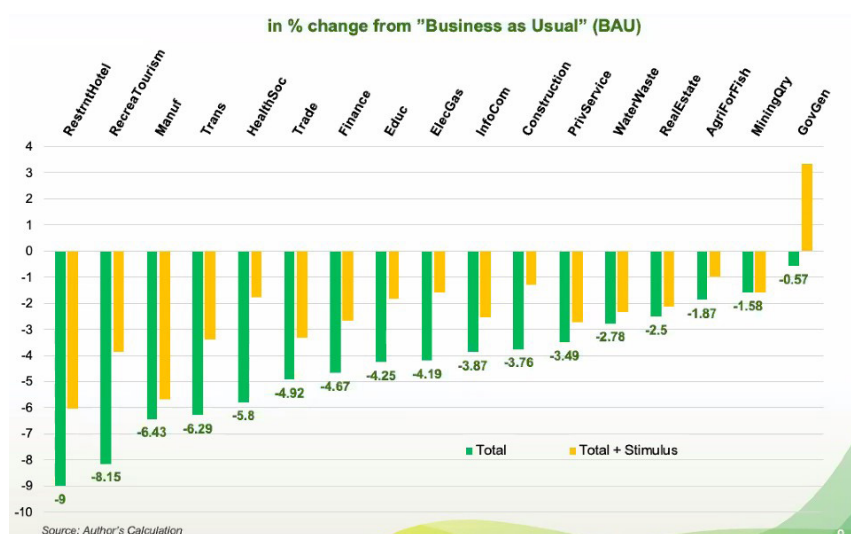


FIGURE 1. Percentage of changes of BAU in each industrial sector
*Source:* LPEM-FEB UI, 2020

determinant for investors to consider their investment prospects in the company. Companies convey the signal by publishing financial statement information, which describes how the company is doing.

Discussing the impact of COVID-19 on a country's economy is exciting and is an incredible momentum for researchers to discover new findings. Many researchers have linked the effects of the pandemic crisis with the 2008 economic crisis. However, not many researchers have assessed the reaction of cross-company stock prices to COVID-19. Ding et al. (2020) claim that they presented the first study in this regard. By examining companies' characteristics collectively, which include the firm size, leverage, cash, and profitability, Ding et al. (2020) identified the association between the respective characteristics and the reaction of stock prices to the pandemic. They found that companies with more vital financial conditions before COVID-19 experienced better stock price reactions compared to those with a lot of debt, less company cash, and smaller profits.

Standard textbooks on financial statement analysis recommend focusing on operating cash flow (OCF). A good OCF turnover is expected to be able to strengthen competitive conditions in the stock market (Cheng et al., 2020), as is the case with research conducted by Qaisi (2020), Cheng et al. (2020), and Francis et al. (2013). The importance of the existence of OCF is due to the presence of accounting standard policies when measuring accruals in the form of estimates. Hence, financial reporting has the potential to obscure financial performance. It might also affect the risk of declining stock prices, given that it can facilitate the hoarding of terrible managerial news and the transfer of company resources (Cheng et al., 2020). When OCF fraud is present, it will be more difficult for investors to understand its actual performance, thus causing investors to be hesitant to make decisions. As additional information that is important in determining investors' decisions, we cannot rule out the fundamental influence of the company's financial condition and suspicion that OCF can provide a strong interaction between the company's financial condition in affecting the decline in stock prices during COVID-19.

Our research presents an academic contribution, specifically in addition to literature related to stock price movements and the latest literature related to economic conditions during the COVID-19 pandemic. Ding et al. (2020) claimed they are the first literature to discuss companies' characteristics that can withstand the COVID-19 pandemic's impact. However, this study has not examined, more specifically, the impact of a pandemic on stock price movements in several industrial sectors that are genuinely affected. We compared the years before to during COVID-19, and we observed that this can fill a literature gap related to industrial economic conditions during the pandemic crisis. We delved into this issue in more detail by comparing the interim reports for the first quarter and second quarter of 2020 with the company's annual reports for 2019 and 2018. Hence, the impact of COVID-19's presence can be established. It is expected that the result of this study can assist the government in legislating policies to stimulate the currently-slumping economy. This study also assists the investors in preparing their analysis in determining whether to sell or hold or buy a stock, considering that our research implicitly reflects the development of conditions in several industrial sectors.

Our research also provides new insights into expanding new research on OCF management even though we did not examine the opacity of OCF and only observed the value of OCF tied through the control variable. Moreover, the implementation of the PSBB policy certainly disturbs the company's operations, which had been running well thus far. Ergo, this research examines this issue from a new perspective, which is not yet the scope of other previous studies.

## LITERATURE REVIEW

### EFFICIENT MARKET HYPOTHESIS

Fama first introduced the efficient market hypothesis (EMH) in 1970, postulating that a market is assumed to be efficient if no investor obtains an abnormal return after adjusting with the risks (Gumanti 2011) and categorized it under three circumstances; weak efficiency, semi-strong efficiency, and substantial efficiency (Apolaagoa et al. 2020; Sánchez-Granero 2019). The value stated in the stock price of a company reflects the current condition of the company (Apolaagoa et al. 2020), meaning that in the event of a change in the value of a company, the market will move to adjust the change in value. Fama (1965) established that the EMH could be further classified into three forms: a weak, semi-strong, and strong form of market efficiency. When historical market data and past prices are fully reflected in share prices but cannot predict future prices, any market with this element is considered a weak form. Any market is considered a semi-strong form when all publicly available information is fully reflected in the stock price. Finally, any market will be considered as a strong form of efficiency when all available public and private sources of information are fully reflected in the share price (Shed & Bajwa 2018).

Santoso and Ikhsan (2020) explain that the stock's opportunity to go up is the same as the stock's opportunity to go down. In conditions full of uncertainty about the choice to buy and hold shares, hoping that stock prices will increase in the future, it is considered the right decision. Today, technological advances are one of the supporting factors for achieving the EMH due to the easy access to information, some of which are real-time financial conditions reflected in interim or annual financial reports, current economic conditions, and market's response to phenomena. However, it should be

emphasized that access to information in the era of big data, which creates an enormous flow of information, can also give birth to confusing information due to the inefficient use of interrelated information sources (Pernagallo & Torrisi 2020).

### SIGNALING THEORY

Companies are considered to have more and more in-depth information compared to the others outside the company. Positive or negative information provided by internal parties will be well received by external parties to consider decision-making (Yasar et al. 2020). Cornelly et al. (2011) state that managers intensively send positive signals to investors to indicate that they perform better than other companies. Information conveyed to the public regarding a company's excellent condition through financial reports indicate that it does not have significant problems in performing its operational activities. Companies can distinguish themselves from incompetent companies by sending credible signals regarding their quality to the capital market (Spence 1973).

Good signals and credible companies can increase their share price (Yasar et al. 2020). One form of the company's signal is the company's financial condition, which is disclosed in the annual report as a form of communication between internal parties to external parties (Rajandran 2020; Sun et al. 2020). Yasar et al. (2020) explain that this theory is closely related to the previously-discussed EMH. Every new information might trigger investors to update their expectations using a comprehensive analysis based on that. This information is valuable if the investments in place or opportunities to invest can positively affect the firm's future cash flows. The firm-specific bad news is more likely to be withheld during high-sentiment periods, leading to a greater likelihood of future crashes (Chui & Zhang 2019). If the manager can give a clear signal, the public will be impressed, and information will be trusted such that this will be reflected in the price of the stock (Sukesti et al. 2021).

### HYPOTHESIS DEVELOPMENT

#### FINANCIAL CONDITION ON STOCK PRICE

Ding et al. (2020), Rinaldo and Endri (2020), and Asikin et al. (2020) state that pre-pandemic financial conditions had formed a stock price reaction to COVID-19. Firm size is a value that provides an overview of the number of assets owned by the company (Nasution & Sari 2020). Investors often use firm size as a reference to overview a stable company condition (Anggasta & Suhendah 2020). Ding et al. (2020) revealed that larger company size has a reasonably good impact on stock movement reactions. Large companies' indicator is seen from how the firm's

growth is positive, where companies like this will be more attractive to investors. Investors tend to trust big companies with a large amount of assets more because they are considered to have the ability to manage the assets efficiently and it indicates that they are good at converting their investments into profits (Sukesti et al. 2021). Companies that are already stable and large will maintain and improve firm company performance as reflected in stock prices.

$H_{1a}$. Firm size has a significant effect on stock prices.

Leverage is long-term debt plus term debt in current liabilities, divided by total assets, in percentage points (Ramelli & Wagner, 2020). Opler and Titman (1994) argue that leverage can significantly affect a firm's operating performance during a market downturn, especially during the economic recession due to the COVID-19 pandemic. The impact of investor sentiment on crash risk is more pronounced in firms with higher leverage ratios, greater default risk, and larger analyst forecast dispersion (Cui & Zhang, 2020). For the same risk class firms, a levered one should have a higher systematic risk than an unlevered one (Zhang & Zhou, 2020). Ramelli and Wagner (2020) revealed in their research that high leverage exacerbates company value by shifting stock prices in the capital market. Leverage becomes very influential if the company experiences a substantial price decline due to the pandemic. The company must establish a target capital structure whereby they get a stable stock price and bright prospects (Iqbal et al. 2016).

$H_{1b}$. Leverage has a significant effect on stock prices.

Ding et al. (2020) formulate cash as the total amount of cash-in-hand and short-term investments divided by total assets. Ramelli and Wagner (2020) revealed in their research that low cash worsens firm value by shifting stock prices in the capital market. Cash becomes very influential when companies experience an extreme price decline due to a pandemic. De Vito and Gómez (2020) state that the company's high cash allows the company to survive the pandemic and survive in an excellent position to invest in the recovery period. Holding cash enables firms to avoid the high cost of external financing and provides a cheaper financing option (Alnori 2020).

$H_{1c}$. Cash has a significant effect on stock prices.

ROA (Return on Assets) can be described as the earning power or its ability to generate profits for the company by using its assets (Rinaldo & Endri 2020). Research by Ding et al. (2020), Sukesti et al. (2021), and Jatmiko (2019) show that companies with a high profitability ratio, proxied by ROA, possess a better stock price reaction impact. When investors consider a company to have good profitability prospects in the

future, they will pay a high price for each company's share (Setiawanta & Septiani 2017). A high ROA indicates that a company has a reliable performance, as far as its finance and operation are concerned. A low ROA is not a good sign of its growth (Sukesti et al. 2021).

$H_{1d}$. ROA has a significant effect on stock prices

### OCF AS A MODERATOR: FINANCIAL CONDITION ON STOCK PRICE

According to Jabbari et al. (2013), the primary cash flow statement's main purpose is to describe information regarding the company's cash receipts and cash payments during a financial period. Furthermore, as stated by Francis et al. (2013), it also informs the investors concerning the company's prospects and to replicate cash flows from future operations. OCF is of paramount importance to be taken into account, given that the company's financial statements are full of accrual accounting. Its estimation within has the potential to obscure the company's performance as reflected in revenue. Previous studies have pointed out that OCF has additional information content beyond income, especially at extreme income levels (Cheng et al., 2020), a finding of which is quite in the same vein as those of the recent studies by Bushman et al. (2016) and Barth et al. (2018), which emphasize that investors focus more on OCF as a result of investor behaviour that places more emphasis on cash flow in recent years. OCF has a necessary urgency in examining the financial conditions listed in the financial statements, given that the information contained in OCF can view the running cash flow conditions in the company.

OCF contains information on how the company processes its business activities because OCF is the net inflows and outflows of primary operating operations. Cash inflows are different from revenues because of the unearned and the credit portions. In contrast, cash outflows are different from expenses due to the prepaid and accrual expenses (Ragab & Hani, 2018). By understanding the OCF information, investors will know the company's assets considering the accrual-based financial statements. Thus, the existence of OCF will strengthen the four essential elements of a company's financial condition into a more useful signal to support the investors' decision-making.

Therefore, the following hypothesis is derived:

$H_{2a}$. With OCF, the effect of firm size on stock prices will be higher.

$H_{2b}$. With OCF, the effect of leverage on stock prices will be higher.

$H_{2c}$. With OCF, the effect between cash on stock prices will be higher.

$H_{2d}$. With OCF, the effect between ROA on stock prices will be higher.

### COMPARISON OF CHANGES IN STOCK PRICES DURING COVID-19

The financial markets have never been gloomier than in response to the COVID-19 pandemic (Baker et al. 2020). Ramelli and Wagner (2020) found that stock prices experienced a reaction due to the spread of COVID-19; this is marked by economic instability in the future. This pandemic has prompted disruption in world stock markets. In other words, stock prices worldwide are experiencing significant changes after the outbreak. The global financial crisis was more like a virus, as it was slow to infect the currency markets, whereas COVID-19 has been a massive and rapid shock to the system (Hofmann et al. 2020). The global financial situation puts significant pressure on institutional and small investors to diversify their assets to a safe haven within the asset classes (Li & Lucey 2017). Capital markets in various countries have plummeted, and it is not easy to recover their stock prices. So, we compared to before the pandemic, especially for the industrial sector whose activities were limited due to the government's policies to prevent this virus's spread, such as the hotel, restaurant, tourism, and retail trade sectors.

$H_3$. There are significant changes in stock prices before and during COVID-19.

## METHODOLOGY

### SAMPLE AND RESEARCH DESIGN

This research examines companies' sub-sector at the hotel, tourism, restaurant, and retail trade listed on the Indonesia Stock Exchange. Indonesia is the research object because there have not been many studies examining the impact of the COVID-19 pandemic on capital market movements in developing countries, particularly in the Indonesian capital market. The data collected are financial reports and reports for 2018 and 2019 and interim financial reports for the first and second quarters of 2020. Financial report data was obtained through the IDX website (www.idx.co.id) and the related company's website when the financial statements were not available on the IDX website. Interim reports for the first and second quarters of 2020 are part of this research. The spread of the COVID-19 pandemic in Indonesia began to flare up in March 2020, and the impact on business is still being experienced until the second quarter of 2020.

The research sample is determined using a purposive sampling method. The sample selection criteria are as Table 1.

The latest data were obtained in August 2020. However, there are still 11 companies that have not published interim reports for the second quarter of

2020. Therefore, they were eliminated from the research sample. Companies with IPO in 2019 and 2020 were also eliminated since the research observation period started in 2018, meaning that those companies did not have the complete data needed. As a result, the sample consists of 24 sub-sector companies in hotel, tourism, restaurant, and 21 companies from the retail trade sub-sector.

TABLE 1. Sample Selection Criteria

| Criteria | Total Sample of Companies |
|---|---|
| The population of the hotel, tourism, restaurant, and retail trade | 62 |
| Companies that did not issue audited financial reports or interim financial reports on the period | (11) |
| Companies whose IPO is in 2019-2020 | (6) |
| Total Samples of Companies | 45 |

Sample selection was determined based on criteria tailored to the objectives of the study.
*Source:* Author, 2020

## MEASUREMENT VARIABLES

### STOCK PRICE

Stock prices have a high level of fluctuation, meaning that it changes up and down daily. Such fluctuation is prompted by the supply and demand for a stock, which follows the law of economics: when a stock is over demand, the price tends to rise, and vice versa. The information listed on the IDX website contains three parts of the price listed, precisely the stock price at a high price, low price, and closing price. As stated by Saroinsong et al. (2018), stock prices are often reviewed or used as a reference, specifically at the closing price. Ergo, this study also uses the closing price at the end of the first quarter, the second quarter of 2020, 2019, and 2018.

### FINANCIAL CONDITION

The financial condition of a company before the pandemic could shape a response to any developments in the COVID-19 case and its impact on company operations. In evaluating this financial condition, in accordance with the measurements from Ding et al.'s (2020) research, there are four essential financial characteristics, namely company size, leverage, cash, and ROA. Firm size is measured using the natural logarithm of total assets. Leverage is measured using the ratio of total liabilities divided by total assets. Cash is measured using total cash and cash equivalents plus

short-term investment divided by total assets. ROA is measured as the ratio of net income to total assets (Asikin et al., 2020; Rinaldo & Endri, 2020).

### OPERATING CASH FLOW

The measurement of operating cash flow (OCF) uses a measurement performed by Francis et al. (2013). They initially compared the persistence of the measurement used to the measurement offered. However, in the end, it was stated that there were no significant changes. Thus, this study still applies the current measurement, where operating cash flow receipts are reduced by income and interest tax payments, and prohibits from reducing capital expenditure. Therefore, it was calculated by the formula:

$$\text{OCF} \quad : \quad \frac{\text{Net OCF}}{\text{Average Asset}} \quad (1)$$

## RESEARCH DESIGN

The test in this study used a random effect model regression analysis. The choice of analysis method was confirmed after the Hausman Test and Breush and Pagan Lagrangian testing, of which the discussion will be presented in the next section. The statistical analysis tool used was STATA 16. This study controls research bias by tying the differences between years of study and between firms collectively. The regression in this study did not experience multicollinearity problems, while the heteroscedasticity and autocorrelation problems were corrected using Newey-West standard errors. This study compares the time span using Difference in Difference (DiD) by testing using propensity matching first. In testing the hypothesis, this study follows the first regression model using linear regression and moderating regression analysis (MRA), as in Eq. (2) and Eq. (3). The second regression model uses the Difference in Difference (DiD), as in Eq. (4). Therefore, we estimate the research model as follows:

$$\begin{aligned}
\text{STOCK}_{i,t} = {} & \alpha + \beta_1 \text{FIRM}_{i,t} + \beta_2 \text{LEV}_{i,t} \\
& + \beta_3 \text{CASH}_{i,t} + \beta_4 \text{ROA}_{i,t} + \beta_5 \text{ROE}_{i,t} \\
& + \beta_6 \text{SALES}_{i,t} + \beta_7 \text{CAPE}_{i,t} + \\
& \beta_8 \text{ACC}_{i,t} + \varepsilon_{(i,t)} \quad (2)
\end{aligned}$$

$$\begin{aligned}
\text{STOCK}_{i,t} = {} & \alpha + \beta_1 \text{FIRM}_{i,t} + \beta_2 \text{LEV}_{i,t} \\
& + \beta_3 \text{CASH}_{i,t} + \beta_4 \text{ROA}_{i,t} + \beta_5 \text{ROE}_{i,t} \\
& + \beta_6 \text{SALES}_{i,t} + \beta_7 \text{CAPE}_{i,t} + \\
& \beta_8 \text{ACC}_{i,t} + \beta_9 \text{FIRM}_{i,t} * \text{OCF}_{i,t} \\
& + \beta_{10} \text{LEV}_{i,t} * \text{OCF}_{i,t} + \\
& \beta_{11} \text{CASH}_{i,t} * \text{OCF}_{i,t} + \\
& \beta_{12} \text{ROA}_{i,t} * \text{OCF}_{i,t} + \varepsilon_{(i,t)} \quad (3)
\end{aligned}$$

$$\begin{aligned}
\text{STOCK}_{i,t} = {} & \alpha + \gamma_1 \text{time}_{(i,t)} + \gamma_2 \text{loss}_{(i,t)} + \\
& \gamma_3 \text{time} * \text{loss}_{(i,t)} \quad (4)
\end{aligned}$$

Details:
STOCK : Stock price
FIRM : Firm size
LEV : Leverage
CASH : Cash
ROA : Return on asset
ROE : Return of equity
SALES : Sales growth
OCF : Operating cash flow
CAPE : Capital expenditure
ACC : Total accrual
Time : The difference in the point in time of the observation year
Loss : The loss dummy the company accrues in the year of observation; the loss is 1

In the first regression equation, the primary independent variable is the firm's financial condition, which consists of four variables: company size, leverage, cash, and ROA—in line with Ding et al. (2020), evaluating how the company's financial condition before 2020 shaped the movement of its stock price during the COVID-19 pandemic. The moderating variable that is considered to have an essential role in strengthening the relationship of the company's financial condition to stock prices is operating cash flow, which is adopted from Cheng et al. (2020). In minimizing bias due to the lack of scope that affects the dependent variable, this study also uses control variables, specifically ROE, sales growth, capital expenditure, and total accruals used to control the OCF variable.

The second regression equation uses the Difference in Difference (DiD) approach, which tests whether the COVID-19 pandemic causes significant stock price changes. The period used for treatment is 2020 in the first and second quarters compared to 2019 and 2018. Furthermore, the measure of whether the COVID-19 pandemic has an impact is seen from the losses experienced by companies, which was measured using

dummy variables, when the loss is 1, and otherwise. These losses are then treated and interacted between the first and second quarters of 2020 compared to 2019 and 2018.

## RESULTS

### STATISTIC DESCRIPTIVE

In determining which regression analysis model to use, this study conducted two stages of testing. First, as in Table 2, comparing the random effect model and the fixed effect model produces a significance of 0.9980, which means that H0 is accepted. In other words, the random effect analysis model is more appropriate for this regression model than the fixed effect model. Furthermore, comparing the LSDV model with the random effect model produces a significance of 0.00, which means that the random effect data panel model is more appropriate than the Pooled Least Square (PLS). The most appropriate model selection was based on comparisons in the Hausman Test and the Breush Pagan Lagrangian (Widarjono, 2009). Table 2 shows that the appropriate regression analysis model used in analyzing testing is the random effect model.

TABLE 2. Regression Analysis Model Selection Test

| Model Test | Significant | Result |
|---|---|---|
| Hausman Test | 0.9980 | Random effect |
| Breush and Pagan Lagrangian | 0.000 | Random effect |

*Source:* Author, 2020

Table 4 is a multicollinearity test that sees whether there is a violation of classical assumptions due to

TABLE 3. Descriptive statistics

| Variable | Mean | P25 | Median | P75 | Std Dev |
|---|---|---|---|---|---|
| STOCK | 1122.383 | 222 | 692.5 | 1317.5 | 1384.526 |
| FIRM | 24.36041 | 21.37329 | 26.79233 | 27.93751 | 4.961312 |
| LEV | .3164438 | .0982544 | .2431058 | .4762989 | .2516218 |
| CASH | .05617647 | .3890262 | .5522869 | .7317045 | .2335893 |
| ROA | .0118095 | -.0153686 | .0041824 | .0393602 | .0811273 |
| ROE | -.0000927 | -.0314472 | .0058523 | .080207 | .209455 |
| OCF | .0286947 | -.021692 | .0045295 | .0597692 | .1446697 |
| SALES | -3.519608 | -2.469231 | -.1800947 | .0856397 | 30.05806 |
| CAPE | -.0390274 | -.0646445 | -.0171611 | -.0020254 | .082128 |
| ACC | 2.33e+09 | -5.90e+08 | -1264850 | 1.56e+07 | 2.38e+10 |

The sample consisted of 180 firm-year observations for the period from 2018 to second quarter 2020. The sub-sectors tested were the hotel, tourism, and restaurant sub-sector as well as the retail trade sub-sector.
*Source:* Author, 2020

independent variables with a strong correlation in a regression model. A regression model is assumed to have multicollinearity if the correlation coefficient between variables is more significant than 0.8. From the table results, there is no correlation value between variables that approaches or exceeds 0.8, which means no indication of a strong correlation between variables. The highest correlation is only in the association between capital expenditure and operating cash flow of 0.4785, while the correlation between other variables is not higher than that.

Table 3 shows the statistical descriptions of the variables used in the empirical models. The data consists of 45 companies comprised of 180 observation samples starting from 2018 until the second quarter of 2020. The average stock price of two industrial sectors, specifically hotels, tourism, restaurants, and retail trade, is around Rp 1,122 per share. These companies' very high stock price volatility is up to around 1,384%, which indicates that the stock price has experienced a very sharp change. Judging from the leverage, the average value of the debt ratio is 0.316, which means

TABLE 4 Correlation coefficients

|  | STOCK | FIRM | LEV | CASH | ROA | ROE | OCF | SALES | CAPE | ACC |
|---|---|---|---|---|---|---|---|---|---|---|
| STOCK | 1.0000 | | | | | | | | | |
| FIRM | -0.1489 | 1.0000 | | | | | | | | |
| LEV | -0.0808 | 0.0090 | 1.0000 | | | | | | | |
| CASH | 0.0810 | -0.3670 | -0.2326 | 1.0000 | | | | | | |
| ROA | 0.2851 | 0.0173 | -0.2264 | 0.0019 | 1.0000 | | | | | |
| ROE | 0.2765 | 0.0547 | -0.0734 | -0.1350 | 0.7914 | 1.0000 | | | | |
| OCF | 0.1668 | -0.2088 | -0.0121 | 0.2762 | 0.3068 | 0.2735 | 1.0000 | | | |
| SALES | -0.0932 | -0.0552 | 0.0983 | -0.0065 | 0.0234 | 0.0088 | 0.0721 | 1.0000 | | |
| CAPE | -0.1847 | 0.0939 | 0.0042 | -0.1508 | -0.2660 | -0.2176 | -0.4785 | 0.0253 | 1.0000 | |
| ACC | -0.0496 | 0.1249 | 0.0032 | -0.1961 | 0.3259 | 0.1693 | -0.2196 | -0.0012 | 0.0641 | 1.0000 |

Test the correlation between variables used in the regression model. From these results, the variables do not have a strong correlation, where the coefficient value is less than +/- 0.8
*Source:* Author, 2020

TABLE 5. Results of Multiple Linear Regression and Moderating Regression Analysis

| Variable | Linear Regression | | MRA Regression | |
|---|---|---|---|---|
| | Coeffisien | Significant | Coeffisien | Significant |
| FIRM | -39.8082 | 0.120 | -10.42825 | 0.680 |
| LEV | -48.36324 | 0.924 | -155.0438 | 0.761 |
| CASH | 81.55521 | 0.870 | 135.8092 | 0.771 |
| ROA | 3586.746 | 0.145 | 2037.711 | 0.313 |
| ROE | 851.0479 | 0.233 | 567.3872 | 0.279 |
| SALES | -4.699853 | 0.000 | -3.92096 | 0.000 |
| OCF | -265.7326 | 0.712 | 4615.127 | 0.440 |
| CAPE | -1488.375 | 0.252 | -1924.459 | 0.217 |
| ACC | -6.99e-09 | 0.004 | -5.55e-09 | 0.005 |
| FIRM*OCF | | | -141.6957 | 0.420 |
| LEV*OCF | | | 8864.865 | 0.312 |
| CASH*OCF | | | -6688.947 | 0.007** |
| ROA*OCF | | | 31331.54 | 0.000*** |
| Firm random effect | | Yes | | Yes |
| Year random effect | | Yes | | Yes |
| Newey-West Std.error | | Yes | | Yes |
| N | | 180 | | 180 |

***p<0.01; **p<0.05; *p<0.1
Linear regression uses a random effect model, and uses the Newey-West standard error

that the company considers not maintaining the level of debt it possesses, encompassing that number with a low standard deviation of 0.25. The average cash reserve ratio is 5.6%, which can be stated to be considerably low in cash reserves and short-term investments owned by the company. As measured by an average ROA, the profitability is 1.18%, which means that the company assets' ability to generate company profits is only 1.18%.

## REGRESSION

The pre-pandemic financial conditions played a role in shaping the stock price reactions during the COVID-19 pandemic. The pandemic's impact on companies' operationalization is mostly experienced by companies engaged in tourism, hospitality, restaurant, and retail trade subsectors. This is because the pandemic limits the space for consumers to enjoy what is offered by these companies. Consequently, when the pandemic puts pressure on company sales, companies seek liquidity or other sources of funds to cover costs. This activity causes the stock market to consider its cash reserves, leverage, and profitability while reprimanding its value, as reflected in the stock price.

Hypothesis testing focuses on the factors of differences in companies and differences in observation years, both of which are controlled to produce biased output, in addition to testing linear regression using the Newey-West standard error. We found that, among the company's four basic financial conditions, none of them is proven to influence stock price changes significantly. As shown in Table 5, linear regression column, the significance value of the four main variables exceeds 0.05, which means it is proven that hypotheses 1a, 1b, 1c, and 1d are not statistically supported.

This study also examines the effect of the moderating role of OCF, as Table 5 of the MRA Regression column discloses that the role of OCF as a moderating variable is proven to strengthen the relationship between the essential elements of financial statements in shaping stock prices, especially during the COVID-19 pandemic. OCF is able to strengthen the influence of ROA and Cash on stock price with a value of 0.007 and 0.000, which means that the significance value is below 0.05, substantiating that hypotheses 2a and 2b are statistically rejected, whereas hypotheses 2c and 2d are statistically supported.

## DISCUSSION

### THE EFFECT OF FIRM'S FINANCIAL CONDITION ON STOCK PRICE

The four main components in the financial statements, according to Ding et al. (2020), are unable to influence stock price movements, especially during the COVID-19

pandemic. This follows the signaling theory, which means that investors do not pay companies' signals by publishing their financial reports' attention, where investors pay more attention to the signals given by the global market and external industrial conditions, such as the unfavorable economy in all countries. This forces investors to immediately move their portfolios to investment instruments which have much lower risk. The issue is also influenced by investors' tendency to follow market movements or the lack of information held by investors, which causes panic selling and affects stock prices in the capital market.

This finding is also relevant to EMH theory, where an information-sensitive market is an ideal market. With investors not paying attention to company signals through their financial reports, companies have limited time in preparing reports that are considered slow for investors to see the company's condition, causing investors to react to any developments in the COVID-19 pandemic information that impacts the economic activity. This also shows that the Indonesian capital market is sensitive because investors react quickly to any information that they receive, especially during a pandemic like this where the economic cycle is not as stable as the previous years.

Previous studies have also proven the absence of influence between the financial statements' components on stock prices. Firm size does not affect stock price formation. According to the findings of Sukesti et al. (2021), Jeroh (2020), and Ding et al. (2020), firm size cannot form stock prices. The absence of a significant influence from the firm size shows how COVID-19 has vastly struck all kinds of industries and companies, regardless. This also reveals how no company is ready against a crisis, causing the economy and the capital market to fall down abruptly.

Another signal that the company attempts to show is that the condition of the company through leverage cannot form the stock price either. Coinciding with Iqbal et al. (2016), leverage measured using the debt-to-equity ratio is not significant in streamlining stock prices. Iqbal et al. (2016) argue that more debt is not profitable for the stock market value. This also shows that the pecking order theory does not apply in these conditions, given that the average debt ratio can pass the optimal point. Contrary to Ding et al.'s (2020) findings, cash owned by companies is also incapable of establishing stock prices. This difference in findings was because the level of cash reserves owned by the company was considerably low, as described in the descriptive statistics, only about 5% of the total assets were owned by the company. Therefore, when a company experiences economic pressure, the company cannot optimize the remaining cash that it possesses and is also unable to maximize its potential resources; this also causes variables such as leverage and company size to fail in forming stock prices.

ROA is one of the signals usually given by companies, but the findings of this study indicate that ROA does not affect stock prices. Mohamed et al. (2020) revealed that predicting stock prices is a challenge for investors, and a tool to predict this uses financial performance predictors. He found that, out of the four financial performance predictors, ROA had the lowest significance. This finding is also consistent with Setiawanta et al. (2020), who state that the fluctuation ROA values in companies tend to not show the decline in company performance, so that ROA profitability information does not help investors in seeing how companies meet assets from sales volumes. A low ROA value does not give a wrong signal to investors from a signaling theory perspective, nor does a high ROA value (Setiawanta et al., 2020). In the frenzied condition of crisis that strikes investors, the company's performance shown by ROA is not sufficient to signal because investors need faster information, which causes stock price movements to be incompatible with the company's actual capabilities.

## THE ROLE OF OCF IN MODERATING THE EFFECT BETWEEN FIRM'S FINANCIAL CONDITION AND STOCK PRICE

One of the cash flow analysis objectives is to observe whether the cash flow components contain information regarding its financial health (Sayari et al. 2013). By analyzing operating cash flow, the company can reflect that, in addition to the company being able to pay for its liquidity, the company can also healthily perform its operational activities. OCF has been proven to strengthen the relationship between several financial elements of the company and share prices. In general, the company's OCF can be seen from its business turnover, whether it is chocked up or not. OCF can strengthen the Cash and ROA variables, both of which are related to OCF. Cash is one of the elements of a company's cash flow, while ROA reflects the company's ability to generate profits.

OCF is considerably sensitive to sales since managing sales is a technique of manipulating company activities that will affect the operating cash flow (Andreas 2017). According to Hutton (2009), if the OCF index increases, it will be more useful to reveal confidential information. Information surrounding the company's cash flow has a crucial role in minimizing the risk of falling stock prices in the future. This is also supported by the evidence that OCF has informative content in both markets with a positive and significant relationship with stock prices. The shapely value shows that OCF is relatively more important than the total accrual concerning stock prices (Ragab & Hani 2018). Therefore, it answers the questions why OCF can significantly strengthen the effect of ROA on stock prices. ROA consists of net sales divided by total assets; this shows that OCF is sensitive to sales, given that sales can be manipulated. As a result, the stock price does not reflect the company's actual condition and can drop when the company is experiencing an economic crisis.

Our findings are in line with the Ding et al. (2020), who also added that companies with more cash and greater profits would be more resilient to the effects of a pandemic. Companies that can maximize the ability of all of their assets to generate profits will have a significant impact on higher investor confidence, resulting in better stock prices. This study is in line with the research of Cheng et al. (2020) and Barth et al. (2018), which confirms the importance of OCF as a performance indicator and reports the negative impact of excess OCF on shareholders' value as reflected in the risk of accidents. Although the risk of stock price accidents are not tested, stock price accidents have presumably occurred due to the COVID-19 pandemic.

This finding is also consistent with what was expressed by Jin and Myers (2006), who argue that the company's excess cash allows insiders to take over more cash flow when it is good news, given that outsiders have different perceptions surrounding the company's unclear cash flow, and vice versa. The existence of excess cash flow in the sluggish global economy will provide its advantages for the company. With reduced turnover, the company must strive to utilize the company's cash. Companies whose sectors are heavily affected and restricted due to the COVID-19, such as tourism, hospitality, and restaurants are more likely to find their stock prices plummet during the pandemic if they do not concentrate on the vital role of OCF.

OCF has demonstrated its important role, meaning that investors appreciate the company's easily visible signals. If it is related to the findings in the Eq. (2) regression, then Eq. (3) illustrates that investors who understand and analyze the company's operational conditions at the time of the pandemic will consider how the company's cash flow is by analyzing the company's cash and performance as reflected through the ROA, so that they can predict the company's ability to survive during a pandemic, thus helping investors in making decision. On the other hand, these findings are also validated by the EMH theory, as shown by the presence of other information obtained by investors about the company that, in this case, the OCF, the capital market will be sensitive and will move according to the condition of the company as far as investors are aware.

## ADDITIONAL TEST

### THE EFFECT OF TIME LAG ON STOCK PRICE

We assume that there is a possibility that the stock price formed in the capital market is a reaction to the company's past performance and its value has survived until now, so we test the time lag with the following regression equation:

$$\begin{aligned}
STOCK_{i,t+1} = {} & \alpha + \beta_1 FIRM_{i,t} + \beta_2 LEV_{i,t} \\
& + \beta_3 CASH_{i,t} + \beta_4 ROA_{i,t} \\
& + \beta_5 ROE_{i,t} + \beta_6 SALES_{i,t} \\
& + \beta_7 CAPE_{i,t} + \beta_8 ACC_{i,t} \\
& + \beta_9 FIRM_{i,t} * OCF_{i,t} \\
& + \beta_{10} LEV_{i,t} * OCF_{i,t} + \\
& \beta_{11} CASH_{i,t} * OCF_{i,t} + \\
& \beta_{12} ROA_{i,t} * OCF_{i,t} + \varepsilon_{(i,t)}
\end{aligned} \qquad (5)$$

Our findings do not differ much from the main findings in this study. As shown in Table A1, the four primary financial conditions of companies are unable to form stock prices during a pandemic. However, when interacted with OCF, OCF strengthens the significant influence of cash on stock prices. This is the same as what we get from the results of Eq. (3), although in Eq. (5), OCF cannot strengthen the effect of ROA on stock prices.

These findings confirm the existence of EMH and the signaling theory that occurs in the Indonesian capital market. The stock price is formed by investors who are responsive to all the information they get. By looking at the influence of current financial conditions to form stock prices in the future, it is quite natural that there is no influence from financial statement elements because the company's condition will influence the future share price at that time. The company's financial condition in the past can indeed be the basis for the formation of share prices, but still, the main factor is the latest information about the company. From the previous findings in this study, there are indications that investors keep tabs on the company's OCF, which is shown from how the company operates, and this is the provision that investors must know about the business model and how the company operates.

Cash is a form of assets that can be moved quickly by a company. With standard financial reports that apply an accrual basis, cash is vital to see how much assets the company holds so that it can increase investor confidence in the company. Since the company's cash flow still contains accrual information, the information related to the company's assets becomes more evident to investors. This is one of the causes of the significance equation in Eq. (3) and Eq. (5).

### THE IMPACT OF COVID-19 ON STOCK PRICES

DiD estimation has become a popular method for estimating causal relationships (Bertrand et al. 2003). DiD estimation consists of identifying a specific treatment and comparing the differences in results before and after treatment. This study compares whether the company suffered losses during the pandemic period, precisely the period I and II of 2020, compared to before the pandemic, specifically in 2019 and 2018. If the company suffered losses in the first and second quarters of 2020, it indicates that it was quite affected by the COVID-19 outbreak. Descriptively, there were 67 observation samples that did not experience losses and 23 observation samples that experienced losses in 2018-2019. Meanwhile, in the early 2020, there were only 35 observation samples that did not experience losses, and those who experienced losses increased to 55 observation samples.

Before running DiD, we performed a propensity matching (PSM) test. PSM is a method that is carried out by balancing or equating groups of research subjects with the matching method. By this method, the treatment group is paired with the non-treatment group based on the observed covariates (Amanda 2017). Matching will usually reduce the unpaired control group, so that some data is not used. From table A2, it is known that the matched data were 57 observations, while 79 groups failed to find their treatment partner. The T-stat significance value of the unmatched data is -2.98, meaning that the treatment has a significant effect since it exceeds the value of 1.96. Meanwhile, the value of Average Treatment effect among Treated (ATT) is 1.01, which means that the effect of the average stock price is not significant.

Furthermore, this study looks through DiD, judging from the statistical significance value in the bottom row of Table A3 that shows the significance of 0.003, which means that it is significantly below the 5% tolerance. That being the case, changes in stock prices experience a significant difference in values generated by the comparison of losses that occurred between the pandemic and the period prior. It can be assumed that the majority of companies experienced a significant decrease in stock prices as measured by the losses that the company experienced; this is following the theory of market efficiency, which states that stock prices reflect the state of the company and when the company experiences a loss, the stock price will undoubtedly move according to the development of the company's condition. This test also answers whether the subsector companies of tourism, hospitality, restaurant, and retail trade experienced a significant setback during the COVID-19 pandemic and resulted in a fairly large decline in stock prices. For example, Ramayana Lestari Sentosa (LARS), which engages in the retail trade sector, had their stock price at the number of IDR 1,065 per share at the end of 2019, but it dropped to IDR 466 per share later in the first quarter of 2020. The scheme was not much different from its competitor, namely Matahari Department Store (LPPF), which also experienced a significant decline, where their stock price was valued at IDR 4,210 per share at the end of 2019 and fell to IDR 1,335 per share entering the first quarter of 2020.

This decline in stock prices could also be caused by the fact that the company experienced a shock due to this pandemic. As time went on in the second quarter of 2020, most companies had started to experience

an increase in stock prices even though they had not recovered entirely enough to be back to how it was before the pandemic hit. This indication can be an insight for the government in implementing future policies in stimulating the economy both during this pandemic or when this pandemic ends. This research can also be an input for investors when it is the right time to buy, hold, or even sell shares of companies that cannot improve their performance similar to before the pandemic occurred.

## CONCLUSION

This study examines the correlation between the financial condition and stock price by using operating cash flow as a moderating variable, and analyzes when there is a time lag. In addition, we also conducted tests by studying at the effect of COVID-19 on stock prices in the capital market before and during the pandemic using the difference-in-difference method using data from companies in the tourism, hospitality, restaurant, and retail trade subsectors from 2018 to the second quarter of 2020. We found that none of the four basic elements of financial statements significantly influence the share price. When interacted with OCF, OCF can strengthen the relationship between cash and ROA on stock prices. This indicates that if the company can manage excess cash flow during the sluggish global economy, it will benefit.

These findings indicate that many investors did not pay attention to the company's signals because they tend to focus on the signals given by the global market and the development of the spread of the COVID-19 case. In other words, investors perceive all companies—large and small—to experience a shock due to economic constraints. However, when investors have OCF information, investors can make better decisions because, with OCF, investors can assess how much cash the company holds to rotate and have time to assess the company's profitability performance before moving the asset portfolio to a lower instrument risk.

This finding also confirms that the Indonesian capital market is a market that is sensitive to all information related to the economy under the EMH theory. This can be seen from the situation of the COVID-19 pandemic, which caused investors to panic and ignores the condition of the company first, causing the capital market's response to weaken. However, when investors have enough information to estimate the company's prospects, this information can build the company's share price to recover, and the capital market will react quickly.

This research contributes to developing the economic literature during the pandemic period, especially in developing countries, namely Indonesia, because not many researchers have researched this in

this area. This study also enriches the literature on stock price formation and OCF, becoming an essential topic for analysis, especially by academics and investors. Our research has implications for the government to examine whether the implementation of the PSBB policy is appropriate to revive the business economy, mostly to protect investors investing in Indonesia. It can be said that the world is not ready for a pandemic that has a significant impact on the economy in all countries. It is hoped that this research can be a reference for policymakers as to how investors in Indonesia respond to economic conditions, so that it can become a basis in formulating policies on economic recovery in the future.

This study has limitations due to the selected scope of the research, mainly that it cannot examine factors whose sources are not from financial reports, considering that the selected research period is until the second quarter of 2020. Hence, we faced a difficulty in finding other factors whose sources cannot be obtained faster and more updated such as financial reports. The research variables used are still simple variables whose measurements are not yet advanced and only focus on sectors affected by the pandemic. In other words, the variables have not discussed all sectors in Indonesia. Thus, it is perceived that they do not describe the current economic conditions profoundly.

There are still many opportunities to develop research related to the phenomenon of the impact of COVID-19 on the economy experienced by companies operating in Indonesia. Over time, further research can also include the impact of the announcement of a recession on stock movements in the event of another similar economic condition in Indonesia in the future. Alternatively, if there is no recession, more can be explored on what causes the economy to grow, and compare it to the period during the pandemic. Further research can also analyze stock price crash risk and the opacity of OCF, where these variables are variables and advanced analysis of the variables examined in this study.

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# APPENDIX

### TABLE A1 Time Lag Regression

| Variable | t+1 Regression | |
|---|---|---|
| | Coeffisien | Significant |
| FIRM | -14.82773 | 0.486 |
| LEV | -223.8335 | 0.587 |
| CASH | 155.1553 | 0.700 |
| ROA | -4.959678 | 0.998 |
| ROE | 816.6659 | 0.043 |
| SALES | -2.571894 | 0.000 |
| OCF | 1363.336 | 0.778 |
| CAPE | -2090.792 | 0.174 |
| ACC | -3.25e-09 | 0.069 |
| FIRM*OCF | -34.61662 | 0.810 |
| LEV*OCF | 7166.569 | 0.213 |
| CASH*OCF | -4540.566 | 0.035 |
| ROA*OCF | 15309.41 | 0.105 |
| Firm random effect | Yes | |
| Year random effect | Yes | |
| Newey-West Std.error | Yes | |
| N | 180 | |

***p<0.01; **p<0.05; *p<0.1

### TABLE A2a Propensity Match

| Rugi1 | Coef. | S.E. | P> |z| |
|---|---|---|---|
| FIRM | .3388802 | .1759304 | 0.054 |
| LEV | .0677251 | 1.610815 | 0.966 |
| CASH | 2.269067 | 1.561838 | 0.146 |
| ROA | -972.4933 | 357.0078 | 0.006 |
| ROE | 54.0113 | 27.74379 | 0.052 |
| SALES | .2366808 | .263503 | 0.369 |
| OCF | -15.65107 | 13.20946 | 0.236 |
| CAPE | -41.61911 | 21.43431 | 0.052 |
| ACC | 1.43e-10 | 3.58e-10 | 0.690 |
| Prob > chi2 | | 0.000 | |
| Pseudo R2 | | 0.932 | |
| Regression | | Probit | |

*Note:* 79 failures and 57 successes completely determined.

### TABLE A2b Propensity Match

| Variable | Sample | Treated | Controls | Difference | S.E. | T-stat |
|---|---|---|---|---|---|---|
| stockprice | Unmatched | 778.602564 | 1385.27451 | -606.671946 | 203.825858 | -2.98 |
| | ATT | 778.602564 | 606.307692 | 172.294872 | 171.208313 | 1.01 |

*Note* : S.E. does not take into account that the propensity score is estimated.
T-stat > 1.96 is significant

### TABLE A3. Difference in Difference

| Outcome | Stock Price | Std. Error | P>|t| |
|---|---|---|---|
| Before | | | |
| Control | 1669.537 | | |
| Treated | 452.913 | | |
| Diff (T-C) | -1.2e+03 | 319.501 | 0.000*** |
| After | | | |
| Control | 841.114 | | |
| Treated | 914.800 | | |
| Diff (T-C) | 73.686 | 285.863 | 0.797 |
| Diff-in-Diff | 1290.310 | 428.717 | 0.003** |

***p<0.01; **p<0.05; *p<0.1