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# Political Connections and Stock Price Crash Risk: Empirical Evidence from the Fall of Suharto

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**Abstract:** This study examines the relationship between firm-level political connections and stock price crash risk in Indonesia. It employs the difference-in-difference design to deal with the self-selection bias issue regarding the choice of the firms to become a politically connected firm. We use the sudden resignation of the former President of Indonesia, Suharto, to show that politically connected firms are associated with lower stock price crash risk and that the risk for these politically connected firms increased after Suharto resigned. Furthermore, we found evidence that these negative associations are more pronounced in firms with more complex firm structures.

**Keywords:** politically connected firms; stock price crash risk; complex firm structure

**JEL Classification:** D72; G10; L10

## 1. Introduction

Previous studies have found that firms with political connections receive preferential treatment to finance, enjoy lower debt and equity costs, and have more procurement contracts (Claessens et al. 2008; Boubakri et al. 2012; Houston et al. 2014; Goldman et al. 2013; Harymawan 2018). Other studies have shown, however, that connected firms pay higher audit fees to auditors and charge higher prices for debt to debtholders as a cost of political connections (Bliss and Gul 2012; Gul 2006). Grier et al. (1994) have also examined the benefit–cost model across industries and the contributions of political action committees in each industry, finding that industries with higher potential benefits from government connections contribute more to their connections.

This study extends these prior findings in the political connections literature by investigating the effect of political connections on firms' stock price crash risk. Recent studies have provided evidence that establishing political connections (i.e., hiring a politician as a director) can decrease the firm's stock price crash risk (Luo et al. 2016; Hu and Wang 2018). In contrast, Lee and Wang (2017) and Tee (2018) have shown that connected firms tend to have a higher stock price crash risk. Meanwhile, Roberts (1990) found a relationship between committee seniority in the US Congress and the distribution of federal benefits. He also found that the stock market reacted significantly to the death of Senator Henry Jackson, especially across his various constituent interests. Using the unexpected resignation of former Indonesian President, Suharto, this study was able to investigate the stock price crash risk of connected firms in the period before and after his resignation. This unique event provides a better setting than a simple relationship model for answering the question of whether connected firms have a higher or lower stock price crash risk than unconnected firms.

Investigating the relationship between political connections and stock price crash risk in the pre- and post-Suharto era provides us with a better research setting for several reasons. First, as Fisman (2001) shows, during the Suharto era, political connections in Indonesia were centralized, which provides a better proxy than a decentralized country for evaluating political connections; measuring the value of political connections in a country with decentralized political decision-making is more complex due to the variety of connection types. Second, the unexpected resignation of Suharto is an exogenous event which allows us to make clearer estimates when evaluating the relationship between political connections and stock price crash risk.

In this study, we first employed some univariate tests to describe our data and test the hypotheses. The correlation matrix shows that firms connected to Suharto have a significantly higher stock price crash risk. Then we compared the mean between a group of connected versus non-connected firms. The results also show that firms with Suharto connections had a significantly higher mean of stock price crash risk than firms with no connections.

In the multivariate analyses, we used the ordinary least square regression to test the hypotheses. We found that firms with political connections had a negative and significant association with stock price crash risk. To deal with the endogeneity issue, this study employed the difference-in-difference model, using the unexpected resignation of Suharto as a natural experiment. We found that in the period prior to the Suharto resignation, connected firms were more likely to have a lower stock price crash risk. Interestingly, we found that after Suharto resigned, there was a positive and significant association between political connections and stock price crash risk.

This study contributes to the existing literature of political connections in several ways. Prior studies have examined the relationship between political connections to stock price crash risk (citation). This study adds to this literature by being the first in providing evidence on how political connections affect stock price crash risk by comparing when the political connections are in and out of power. In addition, this study also extends the literature by examining the role of firm complexity on the relationship between political connections and stock price crash risk. For practitioners, this study provides useful information about the changes of stock price crash risk of politically connected firms between pre and post political power. For a regulator, these findings provide an insight that political activities disclosure might help the investor to reduce the information asymmetry between firms and stakeholders to reduce the likelihood of stock price crash risk for politically connected firms in the period post to political power resignation. The remainder of this article discusses the institutional setting of political connections in Indonesia and presents the hypotheses, data, methods, results, discussion, and conclusion.

## 2. Literature Review

### 2.1. Corporate Governance in Indonesia

Since the late 1970s, Indonesia has experienced economic transformation from state-owned enterprise and a small and traditional business-dominated economy to modern private enterprise. Unfortunately, rather than signaling the development of entrepreneurship and healthy business sectors, the transformation marked the beginning of an era where political connections in business became increasingly widespread, with Suharto's cronies at the center. The success of these politically connected firms heavily depended on their ability to acquire and maintain relationships with Suharto's regime in order to secure special privileges from the state.

As noted by McLeod (2000), these privileges included import protection, import licenses, no-bid contracts from government and state-owned enterprises, cheap loans from the state and central banks, rights to extract natural resources, tax relief, and even the right to collect taxes.

At first, the majority of these politically well-connected firms were dominated by the Sino-Indonesian (of Chinese descent) business elites who had been close to Suharto since the 1950s. Suharto's administration granted them special rights to monopolize the import and distribution of sugar, rice, forestry products, and automobiles. Over time, two other elite groups emerged: the well-connected pribumi enterprises and businesses owned by Suharto's children. These three groups formed a core group of cronies in Suharto's regime (Schwarz 1994).

Hill (2000) has shown that the 20 largest conglomerates in 1993, with a total turnover valued at around 21% of GDP, were all connected to Suharto. Three of those twenty conglomerates were owned by Suharto's children. Claessens et al. (1999) has also shown that in 1996 Suharto's cronies controlled 417 listed and non-listed companies on the Indonesian stock market. Together, these companies contributed 16.6% of total stock market capitalization.

### 2.2. After the Fall of Suharto

In 1998, Indonesia was severely hit by a financial crisis. The crisis started in Thailand and South Korea and then spread throughout Asia. During the crisis, the rupiah depreciated by 30%, exports declined, the inflation rate escalated to almost 100%, the poverty rate doubled to over 27%, and economic growth contracted to almost 14% (Hofman et al. 2004). The financial crisis then evolved into a political crisis which led to the resignation of Suharto after 32 years in power. Pangestu and Habir (2002) have argued that the favorable treatment to politically connected firms created moral hazard and caused the crisis as these firms became reckless in their business practices, violating legal lending limits and generating non-performing loans.

Sato (2004) has found that the performance of Suharto-connected firms varied after the crisis. The firms that survived were those established in the 1970s and ranked among the top 20 or top 30 richest in the 1980s and 1996. In contrast, the firms that suffered severely were younger firms established in the 1980s and either ranked in the top 20 in 1996 or else outside the top 20 in the 1980s but inside the top 10 in 1996. Carney and Hamilton-Hart (2015) also found that a significant number of large firms shrank tremendously in 1996 and fell outside the top 200, including the firms of Suharto's children. Ultimately, Suharto's old, well-established cronies seemed to successfully reconsolidate their businesses and actively reconnect with current political actors and government officials in the post-Suharto administration, who were possibly motivated to secure the benefits they had gained under the Suharto government (Winter 2013).

### 2.3. Stock Price Crash Risk

Conceptually, stock price crash risk is premised on the tendency of managers to withhold bad news, which leads to bad news being stockpiled in firms. At a certain point, it becomes too costly or impossible for managers to withhold the bad news any longer. When such a point arrives, all the hidden bad news is revealed to the market at once, resulting in a significant stock price drop, that is, a stock price crash (Kim et al. 2011). Extant studies have investigated various determinants of stock price crash. For instance, Kim et al. (2011) found that corporate tax avoidance enables managers to hoard bad news, which leads to the risk of a stock price crash. He and Ren (2019) have provided evidence that financial constraints are positively associated with future stock price crash risk, via both bad news hoarding and default risk channels. Chen et al. (2016) have found that firms with a higher degree of earnings smoothing are more prone to stock price crashes. For their part, Chauhan et al. (2017) have shown that stock liquidity, which is identified through the threat of intervention and price informativeness, decreases stock price crash risk as it works as a governance mechanism to discipline managers for withholding bad news. In addition, prior research has shown that firms' corporate social responsibility significantly mitigates stock price crash risk (Lee 2016). Our research extends this stream of literature by examining the relationship between stock price crash risk and political connections, using the sudden resignation of Suharto to address the self-selection bias issue.

### 2.4. Hypothesis Development

There are two possible relationships between politically connected firms and stock price crash risk. The first possibility is that firms with political connections are more likely to have higher stock price crash risk. Prior literature has suggested that politically connected firms can derive significant benefits in terms of financing, whereas non-politically connected firms are more likely to suffer from financing constraints (Luo and Zhen 2008). To meet financing requirements, managers are encouraged to whitewash financial statements and hide negative information. These actions may result in an increase in information asymmetry, and the accumulation of bad news may eventually lead to a stock price crash. He and Ren (2019) have also argued that if the institutional setting of the country is not well developed (i.e., inefficient stock market, weak corporate governance, etc.), it will increase the ability of firms to hoard bad news. This situation (hoarding bad news) thus increases the stock price crash risk of connected firms. Based on this, we could say there is a positive association between political connections and stock price crash risk, which is the first possible relationship.

On the other hand, Hu and Wang (2018) have also found that with the preferential access of financing, politically connected firms can reduce bad news hoarding activities to avoid government regulation and maintain access to government subsidies. In this way, the degree of information asymmetry can be reduced, thus decreasing the likelihood of a stock price crash. Furthermore, He and Ren (2019) have argued that if a country has a good institutional setting (i.e., efficient stock market, good governance, pro-business policies, etc.) there is a lower probability of firms hoarding bad news, therefore decreasing stock price crash risk. From this, we could argue that politically connected firms actually have a lower stock price crash risk. Based on above discussion on the possible relationships between politically connected firms and stock price crash risk, the formal hypothesis is as follows:

**Hypothesis 1 (H1).** *There is a relationship between firms with political connections and the level of stock price crash risk.*

Fisman (2001) has found that politically connected firms in Indonesia strongly relied on the benefits from their connections under the Suharto regime and often had privileged access to financing. Suharto's resignation in 1998 represented a fundamental transition in Indonesia's political economy at the national level. The shift is evidenced by the decline in the number of people with military and state backgrounds and the rise of those with private sector backgrounds in Indonesia's political elite (Poczter and Pepinsky 2016). Leuz and Oberholzer-Gee (2006) have also found that political connections can lose their value through election losses. Connected firms thus need to be more responsive to market pressures since they can no longer rely on the same benefits from their connections (Harymawan and Nowland 2016). Suharto's resignation and the subsequent regime change triggered financial and operational shocks for politically connected firms. They then needed to face all kinds of market pressures by themselves, resulting in a higher stock price crash risk. Therefore, we predict that the resignation of Suharto increased the need for politically connected firms to respond to market pressures, resulting in a higher stock price crash risk.

**Hypothesis 2 (H2).** *After Suharto resigned, the risk of a stock price crash for firms with political connections increased.*

The complexity of firm structure may affect stock price crash risk. We measured the complexity of firm structure according to the number of subsidiaries owned by the company. As the number of subsidiaries increases, so too do the benefits derived from political connections.

**Hypothesis 3 (H3).** *The negative relationship between stock price crash risk and political connections is more pronounced for firms with a more complex firm structure.*

## 3. Methodology

### 3.1. Data

Our sample covers the period from 1995 to 2001. We obtained political connection data from the Indonesia Capital Market Directory (ICMD) and information on the total number of subsidiaries from Osiris. Accounting and financial data were retrieved from Compustat Global. We deleted observations with missing Compustat data, stock prices, returns, and trading volume data when estimating our crash risk measures and control variables. We excluded the year of Suharto's resignation (1998) to achieve an unambiguous pre-event and post-event period for the main tests, especially for the difference-in-difference test. The main sample includes 730 firm-year observations.

### 3.2. Measuring Stock Price Crash Risk

We followed Hutton et al. (2009) and Kim et al. (2016) to construct the three measures of stock price crash risk. Our first measure was the firm-specific return crashes. The indicator variable CRASH equals one for a firm-year that experiences one or more crash weeks during the fiscal year and zero otherwise.

To calculate the first measure of crash likelihood for each firm-year, we first estimated the weekly returns by firm and by year with the following regression model:

$$\begin{aligned} rj,k = \alpha j + \beta 1jrm,k - 2 + \beta 2jrm,k - 1 + \beta 3jrm,k + \beta 4jrm,k{+}1 + \beta 5jrm,k + 2 \\ + \beta 6jri,k - 2 + \beta 7jri,k - 1 + \beta 8jri,k + \beta 9jri,k + 1 + \beta 10jri,k + 2 + \varepsilon jk, \end{aligned} \quad (1)$$

where $rj,k$ is the return on stock $j$ in week $k$, $rm,k$ is the return on the value-weighted market index in week $k$ provided by the Center for Research in Security Prices, and $ri,k$ is the return on the Fama–French value-weighted industry index in week $k$. As in Dimson 1979, the lead and lag terms for the market and industry indexes were used to control for nonsynchronous trading. The firm-week return was measured by the natural logarithm of one plus the residual return in Equation (1), with at least 26 weekly return observations available per firm-year. Crash weeks are firm-week returns which are below 3.2 standard deviations of the mean firm-week return of the fiscal year.

For the second measure, we used the volatility of below-mean versus above-mean returns (DUVOL) for each firm-year. The variable DUVOL was calculated by the natural logarithm of the ratio of the standard deviation of weekly returns below the annual mean divided by the standard deviation of weekly returns above the annual mean.

For the third measure, we used the negative skewness of firm-specific weekly returns (NCSKEW). For each firm-year, we multiplied minus one to the third power of weekly returns and then divided it by the third power of the standard deviation of weekly returns. Appendix A presents a summary of all variables used in this research.

### 3.3. Main Model

To test our hypotheses, we performed multiple regression tests with a series of control variables to ensure the results were not subject to some crucial factors which have systematic effects on the cross-sectional variation in stock price crash risk.

To examine our first hypothesis (H1), we estimated the following linear regression, which regresses stock crash risk (*CRASH*, *DUVOL*, or *NCSKEW*) on political connection (*PCON*) and the control variables.

$$DepVart = \beta 0 + \beta 1\ PCONt + \sum \beta i\ Xt + \sum \beta j\ YRDt + \sum \beta k\ INDDt + et, \quad (2)$$

where *DepVar* is *CRASH*, *DUVOL*, or *NCSKEW*; *X* is a set of the control variables, *YRD* is the year dummy, and *INDD* is the industry dummy.

To examine our secondhypothesis (H2), we estimated the following linear regression, which regresses stock crash risk (*CRASH*, *DUVOL*, or *NCSKEW*) on the difference-in-differences dummy (*DID*), political connection (*PCON*), and control variables.

$$DepVart = \beta 0 + \beta 1\ DIDt + \beta 22\ PCONt + \sum \beta i\ Xt + \sum \beta j\ YRDt + \sum \beta k\ INDDt + et, \quad (3)$$

where *DepVar* is *CRASH*, *DUVOL*, or *NCSKEW*. *X* is a set of the control variables, *YRD* is the year dummy, and *INDD* is the industry dummy.

To examine our third hypothesis (H3), we estimated the linear regression using Equation (1), which regresses stock crash risk (*CRASH*, *DUVOL*, or *NCSKEW*) on the political connection (*PCON*). However, this time we divided the full sample into complex and less-complex subsamples. In the complex subsample, the total number of subsidiaries was greater than the median. In the less-complex subsample, the total number of subsidiaries was not greater than the median.

### 3.4. Sample Selection

Our sample consisted of listed companies from Indonesia, covering the period from 1995 to 2001. We adopted the two-digit Standard Industrial Classification (SIC) system to classify the different industrial sectors and removed observations that did not have firm-specific control variables. The final sample for the main model contained 730 firm-year observations. Continuous variables were winsorized at 1% or 99% to control for the effects of outliers.

## 4. Empirical Analysis

Table 1 presents the sample distribution for the period 1995–1997 and 1999–2001. We excluded the year of Suharto's resignation (1998) to achieve an unambiguous pre-event and post-event period for the main tests, especially for the difference-in-difference test. Among the 730 firm-year observations, the number of firms with political connections was 149 and those without political connections 581.

**Table 1.** Sample distribution.

| Year | Number of Firms with Political Connections | Number of Firms without Political Connections | Total |
|---|---|---|---|
| 1995 | 13 | 29 | 42 |
| 1996 | 23 | 62 | 85 |
| 1997 | 29 | 106 | 135 |
| 1999 | 27 | 126 | 153 |
| 2000 | 28 | 125 | 153 |
| 2001 | 29 | 133 | 162 |
| Total | 149 | 581 | 730 |

Note: We excluded the year of Suharto's resignation (1998) to achieve an unambiguous pre- and post-event period for the difference-in-difference model.

Table 2 presents descriptive statistics for the period 1995–1997 and 1999–2001, totaling 730 firm-year observations. All variables are defined in the appendix. The sample mean of *PCON* is 0.204, indicating that about 20% of the sample was connected politically to Suharto and the remaining 80% was not. The dependent variables (*CRASH*, *DUVOL*, and *NCSKEW*) and variable of interest (*PCON*) are presented in current-year values. The control variables are presented in lag-one-year values because lag-one-year values of these variables are used in the regression model.

**Table 2.** Summary statistics (n = 730).

| Variables | Mean | Std | Min | Q1 | Median | Q4 | Max |
|---|---|---|---|---|---|---|---|
| *CRASH* | 0.563 | 0.496 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 |
| *DUVOL* | −0.066 | 0.298 | −1.026 | −0.251 | −0.079 | 0.100 | 2.092 |
| *NCSKEW* | −0.114 | 1.068 | −3.861 | −0.608 | −0.139 | 0.268 | 17.407 |
| *PCON* | 0.204 | 0.403 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| $SIZE_{(t-1)}$ | 4.800 | 1.446 | 1.328 | 3.763 | 4.666 | 5.743 | 8.865 |
| $ROA_{(t-1)}$ | −0.013 | 0.193 | −1.175 | −0.065 | 0.028 | 0.083 | 0.473 |
| $LEVERAGE_{(t-1)}$ | 0.477 | 0.317 | 0.000 | 0.242 | 0.468 | 0.646 | 1.613 |
| $MTB_{(t-1)}$ | 1.323 | 2.252 | −8.558 | 0.385 | 0.908 | 1.711 | 23.928 |
| $NCSKEW_{(t-1)}$ | −0.089 | 1.257 | −8.230 | −0.545 | −0.107 | 0.326 | 10.310 |
| $DTURN_{(t-1)}$ | 0.001 | 0.004 | −0.022 | −0.001 | 0.000 | 0.001 | 0.026 |
| $SIGMA_{(t-1)}$ | 0.063 | 0.038 | 0.015 | 0.036 | 0.055 | 0.078 | 0.421 |
| $RET_{(t-1)}$ | 0.554 | 2.551 | −0.979 | −0.465 | −0.146 | 0.555 | 21.187 |
| Observations | | | | | | | |

This table presents summary statistics for our sample for the period 1995–1997 and 1999–2001.

Table 3 presents the Pearson correlations. It displays the correlations between dependent variables, the independent variable, and the control variables. The significance level is denoted at 10%, 5%, and 1%.

Table 4 presents the characteristics of politically connected and non-politically connected firms. We observed that firms with political connections are in general larger in terms of total assets than those without political connections. These politically connected firms also have higher leverage.

Table 5 presents the regression results for the relationship between political connection and stock price crash risk. The coefficient of political connection (*PCON*) was negative and significant for all three risk models (*CRASH* and *DUVOL* at the 1% level and *NCSKEW* at the 5% level) after controlling the firm-specific control variables. This result was consistent with our prediction, which is that the stock price crash risk is lower for politically connected firms. Therefore, hypothesis 1 is supported.

To use the difference-in-difference model, we needed to test whether the parallel trend assumption holds. The visual inspection method was not appropriate for this study because the main dependent variable (stock crash) is an indicator variable. Therefore, we conducted a formal test on the parallel trend. Our sample contained three pre-treatment periods and three post-treatment periods. Following Autor (2003), we specify the following model:

$$Yit = B_{-2}D_{it} + B_{-1}D_{it} + B_1D_{it} + B_2D_{it} + B_3D_{it} + \text{Firm Fix Effects} + \text{Year Fixed Effects} + e_{it}, \quad (4)$$

where $Y$ is the outcome for firm $i$ at time $t$. We included the interactions of the time dummies and the political connection indicator for the first two pre-Suharto-resignation periods and dropped the one for the year of Suharto's resignation. Therefore, all the other interactions are shown with reference to this omitted period. If the coefficients $B_{-2}$ and $B_{-1}$ were not significant, then the difference in differences was not significantly different between the politically connected firms and non-politically connected firms in the pre-Suharto-resignation periods, indicating that the parallel trend assumption holds.

As we included all the Suharto-connected firms as a treatment group and all the non-Suharto-connected firms as a control group during the sample period, the random sampling assumption for the treatment group and control group was not a concern in our study.

Table 6, panel A presents regression results testing the parallel trend. The coefficients for *PCON1996* and *PCON1997* were insignificant, indicating that the parallel trend assumption holds. Besides, it can be observed from the coefficients for *PCON1999*, *PCON2000*, and *PCON2001* that the increased stock crash risk for Suharto-connected firms fades across the years in the post-Suharto period.

**Table 3.** Pearson correlations (n = 730).

| Variables | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **[1] *CRASH*** | 1.000 | | | | | | | | | | | |
| **[2] *DUVOL*** | 0.303 *** | 1.000 | | | | | | | | | | |
| **[3] *NCSKEW*** | 0.296 *** | 0.851 *** | 1.000 | | | | | | | | | |
| **[4] *PCON*** | 0.042 | −0.096 *** | −0.069 * | 1.000 | | | | | | | | |
| **[5] $SIZE_{(t-1)}$** | 0.168 *** | −0.064 * | 0.008 | 0.391 *** | 1.000 | | | | | | | |
| **[6] $ROA_{(t-1)}$** | 0.053 | −0.029 | −0.022 | −0.002 | 0.044 | 1.000 | | | | | | |
| **[7] $LEVERAGE_{(t-1)}$** | −0.068 * | 0.044 | 0.043 | 0.093 ** | 0.132 *** | −0.589 *** | 1.000 | | | | | |
| **[8] $MTB_{(t-1)}$** | 0.070 * | −0.013 | 0.006 | 0.063 * | 0.141 *** | 0.191 *** | −0.115 *** | 1.000 | | | | |
| **[9] $NCSKEW_{(t-1)}$** | −0.059 | 0.060 | 0.064 * | −0.082 ** | −0.008 | −0.061 | 0.029 | −0.000 | 1.000 | | | |
| **[10] $DTURN_{(t-1)}$** | 0.077 ** | −0.020 | 0.005 | 0.018 | 0.051 | 0.027 | −0.054 | 0.058 | −0.041 | 1.000 | | |
| **[11] $SIGMA_{(t-1)}$** | −0.151 *** | 0.113 *** | 0.045 | −0.065 * | −0.328 *** | −0.136 *** | 0.170 *** | −0.081 ** | −0.029 | −0.054 | 1.000 | |
| **[12] $RET_{(t-1)}$** | 0.007 | −0.012 | −0.049 | 0.051 | −0.030 | 0.165 *** | −0.035 | 0.209 *** | −0.117 *** | −0.007 | 0.239 *** | 1.000 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

**Table 4.** Characteristics of politically connected and non-politically connected firms.

| Variables | Firms with Political Connections N = 149 | Firms without Political Connections N = 581 | Coef | t-Value |
|---|---|---|---|---|
| *CRASH* | 0.604 | 0.552 | 0.052 | −1.131 |
| *DUVOL* | −0.123 | −0.052 | −0.071 *** | 2.601 |
| *NCSKEW* | −0.258 | −0.077 | −0.182 * | 1.854 |
| $SIZE_{(t-1)}$ | 5.916 | 4.514 | 1.402 *** | −11.458 |
| $ROA_{(t-1)}$ | −0.014 | −0.013 | −0.001 | 0.065 |
| $LEVERAGE_{(t-1)}$ | 0.535 | 0.462 | 0.074 ** | −2.533 |
| $MTB_{(t-1)}$ | 1.601 | 1.252 | 0.350 * | −1.692 |
| $NCSKEW_{(t-1)}$ | −0.293 | −0.037 | −0.256 ** | 2.220 |
| $DTURN_{(t-1)}$ | 0.001 | 0.001 | 0.000 | −0.492 |
| $SIGMA_{(t-1)}$ | 0.058 | 0.064 | −0.006 * | 1.761 |
| $RET_{(t-1)}$ | 0.811 | 0.488 | 0.323 | −1.381 |

The asterisks *, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

**Table 5.** Main results: results of regression of political connections on stock price crash risk.

| Variables | (1) CRASH | | (2) DUVOL | | (3) NCSKEW | |
|---|---|---|---|---|---|---|
| *PCON* | −0.366 *** | −2.92 | −0.087 *** | −2.95 | −0.276 ** | −2.54 |
| $SIZE_{(t-1)}$ | 0.275 *** | 4.47 | 0.010 | 0.68 | 0.053 | 1.18 |
| $ROA_{(t-1)}$ | −0.119 | −0.12 | 0.058 | 0.91 | 0.256 | 1.16 |
| $LEVERAGE_{(t-1)}$ | −0.741 *** | −2.65 | 0.010 | 0.19 | 0.090 | 0.49 |
| $MTB_{(t-1)}$ | 0.035 | 0.64 | 0.001 | 0.31 | 0.013 | 0.77 |
| $NCSKEW_{(t-1)}$ | −0.069 | −1.16 | 0.007 | 0.80 | 0.031 | 1.07 |
| $DTURN_{(t-1)}$ | 6.830 | 0.39 | −4.586 *** | −2.97 | −12.449 *** | −2.98 |
| $SIGMA_{(t-1)}$ | −5.672 * | −1.93 | 0.666 | 1.48 | 1.465 | 1.23 |
| $RET_{(t-1)}$ | 0.041 | 1.57 | −0.000 | −0.02 | −0.004 | −0.39 |
| Constant | 2.261 * | 1.70 | 0.109 | 0.30 | 1.832 | 0.89 |
| Year FE | Yes | | Yes | | Yes | |
| Industry FE | Yes | | Yes | | Yes | |
| Observations | 704 | | 730 | | 730 | |
| $R^2$ | | | 0.151 | | 0.118 | |
| Adjusted $R^2$ | | | 0.078 | | 0.042 | |
| Pseudo R2 | 0.120 | | | | | |

Notes: This table presents regression results testing the effect of political connections on stock price crash risk. The second column displays t statistics. Standard errors were clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

**Table 6. Panel A.** Test on parallel trend; **Panel B.** Difference-in-difference results.

| Panel A | | | | | | |
|---|---|---|---|---|---|---|
| | (1) Crash | | (2) DUVol | | (3) NCSkew | |
| *PCON1996* | 0.258 | 0.40 | −0.073 | −1.02 | −0.271 | −0.99 |
| *PCON1997* | 0.063 | 0.10 | −0.050 | −0.73 | −0.118 | −0.45 |
| *PCON1999* | 1.662 *** | 2.81 | 0.222 *** | 3.32 | 0.551 ** | 2.15 |
| *PCON2000* | 0.976 * | 1.72 | 0.196 *** | 2.88 | 0.488 * | 1.87 |
| *PCON2001* | 0.591 | 1.04 | 0.107 | 1.57 | 0.480 * | 1.84 |
| Constant | −11.897 | −0.02 | −0.804 *** | −2.86 | −3.286 *** | −3.06 |
| Year FE | Yes | | Yes | | Yes | |
| Firm FE | Yes | | Yes | | Yes | |
| Observations | 765 | | 886 | | 886 | |
| $R^2$ | | | 0.317 | | 0.248 | |
| Adjusted $R^2$ | | | 0.129 | | 0.041 | |
| Pseudo $R^2$ | 0.138 | | | | | |

Notes: this table presents regression results testing the parallel trend. The second column displays t statistics. Standard errors are clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

**Table 6.** *Cont.*

| Panel B | | | | | | |
|---|---|---|---|---|---|---|
| **Variables** | **(1)** | | **(2)** | | **(3)** | |
| | ***CRASH*** | | ***DUVOL*** | | ***NCSKEW*** | |
| ***DID*** | 2.142 *** | 2.74 | 0.284 *** | 3.84 | 0.933 *** | 2.64 |
| ***PCON*** | −1.576 * | −1.79 | −0.251 *** | −2.61 | −0.816 *** | −2.92 |
| $SIZE_{(t-1)}$ | 0.281 *** | 4.61 | 0.010 | 0.74 | 0.054 | 1.27 |
| $ROA_{(t-1)}$ | −0.203 | −0.22 | 0.045 | 0.87 | 0.213 | 1.13 |
| $LEVERAGE_{(t-1)}$ | −0.835 *** | −3.25 | −0.004 | −0.08 | 0.045 | 0.26 |
| $MTB_{(t-1)}$ | 0.041 | 0.70 | 0.002 | 0.42 | 0.015 | 0.82 |
| $NCSKEW_{(t-1)}$ | −0.051 | −0.94 | 0.008 | 1.10 | 0.036 | 1.41 |
| $DTURN_{(t-1)}$ | −0.147 | −0.01 | −5.234 *** | −3.97 | −14.581 *** | −2.71 |
| $SIGMA_{(t-1)}$ | −5.082 | −1.61 | 0.713 * | 1.65 | 1.620 | 1.40 |
| $RET_{(t-1)}$ | 0.043 * | 1.73 | 0.000 | 0.18 | −0.003 | −0.30 |
| Constant | 2.637 ** | 2.21 | 0.163 | 0.50 | 2.010 | 1.03 |
| Year FE | Yes | | Yes | | Yes | |
| Industry FE | Yes | | Yes | | Yes | |
| Observations | 704 | | 730 | | 730 | |
| $R^2$ | | | 0.188 | | 0.148 | |
| Adjusted $R^2$ | | | 0.116 | | 0.073 | |
| Pseudo R2 | 0.142 | | | | | |

Notes: This table presents regression results testing the effect of Suharto's resignation on stock price crash risk. The second column displays t statistics. Standard errors are clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6, panel B presents the regression results for the effect of the fall of Suharto on the relationship between political connection and stock price crash risk. The coefficient for differences in differences (*DID*) is positive and significant at the 1% level for all three risk models after controlling the firm-specific control variables and country-level control variables. This result is consistent with our prediction, which is that the stock price crash risk of politically connected firms increased after the fall of Suharto. Therefore, hypothesis 2 is supported.

Table 7 reports the results of the sensitivity test for Table 5 on the regression of stock price crash risk on political connection because this test includes the year in which Suharto resigned, 1998. The coefficient of political connection (*PCON*) for all three models was negative (*CRASH* at the 1% level, and *NCSKEW* at the 10% level), indicating that political connection lowers stock price crash risk. The significance level for *NCSKEW* and *DUVOL* in Table 7 was lower than in Table 5. This is because the inclusion of observations for 1998, the year in which Suharto resigned, may have introduced some noise into the regression model.

Table 8 reports the results of the sensitivity test for Table 5 on the regression of stock price crash risk on *DID* because this test includes the year in which Suharto resigned, 1998. The coefficient of *DID* for all three models was significantly positive, indicating that the stock price crash risk of politically connected firms increased after the fall of Suharto.

To investigate whether a political connection exerts distinct impacts on stock price crash risk when interacting with the differential complexity of firm structure (H3), the full sample was divided into two subsamples according to the complexity of firm structure. Table 9 presents the regression results for the effect of complexity of firm structure on the relationship between political connection and stock price crash risk. The coefficient for political connection (*PCON*) was negative and significant at the 1% level for all three risk models for complex firms after controlling the firm-specific control variables. This result was consistent with our prediction, which is that the negative relationship between political connection and stock price crash risk is more pronounced for firms with complex firm structures. Therefore, hypothesis 3 is supported. In addition, we also tested (non-tabulated results) whether the negative associations between political connection and stock price crash risk in complex firms are due to the size effect (Dang et al. 2018). Hence, we run similar regression model except we exclude the *SIZE* variable. We find that the coefficients of *PCON* are still negative.

**Table 7.** Results of regression of political connections on stock price crash risk (including year of Suharto's resignation, 1998).

| Variables | (1) | | (2) | | (3) | |
|---|---|---|---|---|---|---|
| | *CRASH* | | *DUVOL* | | *NCSKEW* | |
| ***PCON*** | −0.373 *** | −3.32 | −0.059 | −1.54 | −0.200 * | −1.65 |
| $SIZE_{(t-1)}$ | 0.255 *** | 4.85 | 0.002 | 0.11 | 0.016 | 0.33 |
| $ROA_{(t-1)}$ | −0.283 | −0.32 | 0.049 | 0.85 | 0.230 | 1.28 |
| $LEVERAGE_{(t-1)}$ | −0.591 ** | −2.22 | 0.011 | 0.28 | 0.045 | 0.34 |
| $MTB_{(t-1)}$ | 0.050 | 1.10 | 0.001 | 0.24 | 0.010 | 0.98 |
| $NCSKEW_{(t-1)}$ | −0.087 | −1.50 | 0.009 | 0.95 | 0.038 | 1.15 |
| $DTURN_{(t-1)}$ | 5.944 | 0.42 | −1.445 | −0.52 | −2.049 | −0.22 |
| $SIGMA_{(t-1)}$ | −4.252 * | −1.80 | 0.616 * | 1.73 | 1.681 * | 1.91 |
| $RET_{(t-1)}$ | 0.040 | 1.63 | −0.001 | −0.37 | −0.003 | −0.31 |
| Constant | 1.737 | 1.25 | 0.113 | 0.38 | 1.616 | 1.00 |
| Year FE | Yes | | Yes | | Yes | |
| Industry FE | Yes | | Yes | | Yes | |
| Observations | 879 | | 886 | | 886 | |
| $R^2$ | | | 0.125 | | 0.088 | |
| Adjusted $R^2$ | | | 0.062 | | 0.022 | |
| Pseudo R2 | 0.111 | | | | | |

Notes: This table presents regression results testing the effect of political connections on stock price crash risk. The second column displays t statistics. Standard errors are clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

**Table 8.** Difference-in-difference results (including year of Suharto's resignation, 1998).

| Variables | (1) | | (2) | | (3) | |
|---|---|---|---|---|---|---|
| | *CRASH* | | *DUVOL* | | *NCSKEW* | |
| ***DID*** | 2.441 *** | 3.46 | 0.274 *** | 4.18 | 0.961 *** | 2.80 |
| ***PCON*** | −1.496 *** | −2.66 | −0.190 ** | −2.38 | −0.662 *** | −2.78 |
| $SIZE_{(t-1)}$ | 0.262 *** | 5.23 | 0.002 | 0.15 | 0.018 | 0.38 |
| $ROA_{(t-1)}$ | −0.361 | −0.44 | 0.040 | 0.85 | 0.197 | 1.35 |
| $LEVERAGE_{(t-1)}$ | −0.657 ** | −2.50 | 0.002 | 0.07 | 0.017 | 0.14 |
| $MTB_{(t-1)}$ | 0.064 | 1.22 | 0.002 | 0.67 | 0.016 | 1.26 |
| $NCSKEW_{(t-1)}$ | −0.073 | −1.25 | 0.010 | 1.14 | 0.041 | 1.40 |
| $DTURN_{(t-1)}$ | 1.527 | 0.10 | −1.871 | −0.62 | −3.540 | −0.33 |
| $SIGMA_{(t-1)}$ | −3.713 | −1.54 | 0.644 * | 1.89 | 1.777 ** | 2.07 |
| $RET_{(t-1)}$ | 0.034 | 1.38 | −0.001 | −0.48 | −0.005 | −0.48 |
| Constant | 2.007 | 1.49 | 0.148 | 0.54 | 1.739 | 1.14 |
| Year FE | Yes | | Yes | | Yes | |
| Industry FE | Yes | | Yes | | Yes | |
| Observations | 879 | | 886 | | 886 | |
| $R^2$ | | | 0.161 | | 0.121 | |
| Adjusted $R^2$ | | | 0.100 | | 0.057 | |
| Pseudo R2 | 0.142 | | | | | |

Notes: This table presents regression results testing the effect of Suharto's resignation on stock price crash risk. The second column displays t statistics. Standard errors are clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

**Table 9.** Results of regression for complex and less-complex firms.

| Variables | CRASH | | | | DUVOL | | | | NCSKEW | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | |
| | Complex Firms | | Less-Complex Firms | | Complex Firms | | Less-Complex Firms | | Complex Firms | | Less-Complex Firms | |
| *PCON* | −0.610 *** | −9.48 | −0.028 | −0.07 | −0.154 *** | −3.09 | −0.103 * | −1.73 | −0.601 *** | −3.14 | −0.237 | −1.19 |
| $SIZE_{(t-1)}$ | 0.296 * | 1.68 | 0.166 | 1.52 | −0.005 | −0.18 | 0.030 | 1.46 | 0.055 | 0.68 | 0.075 | 1.25 |
| $ROA_{(t-1)}$ | 0.312 | 0.24 | −0.067 | −0.05 | 0.046 | 0.40 | 0.066 | 0.78 | 0.251 | 0.60 | 0.222 | 0.99 |
| $LEVERAGE_{(t-1)}$ | −2.047 ** | −2.43 | −0.110 | −0.18 | −0.042 | −0.36 | 0.006 | 0.11 | 0.015 | 0.04 | 0.071 | 0.53 |
| $MTB_{(t-1)}$ | 0.077 | 1.21 | 0.062 | 0.76 | 0.006 | 1.31 | 0.004 | 0.54 | 0.029 | 1.03 | 0.021 | 1.20 |
| $NCSKEW_{(t-1)}$ | −0.071 | −0.50 | −0.053 | −0.44 | −0.002 | −0.14 | 0.011 | 0.53 | 0.017 | 0.28 | 0.046 | 1.02 |
| $DTURN_{(t-1)}$ | −21.782 | −0.53 | 30.546 | 0.92 | −5.211 ** | −2.50 | −1.083 | −0.24 | −19.726 *** | −2.72 | 2.715 | 0.17 |
| $SIGMA_{(t-1)}$ | −5.253 | −1.07 | −6.479 *** | −2.87 | 0.569 | 0.67 | 0.553 | 1.33 | 1.053 | 0.35 | 1.182 | 1.26 |
| $RET_{(t-1)}$ | 0.037 | 0.83 | 0.067 ** | 2.33 | −0.007 | −1.27 | 0.008 | 1.50 | −0.019 | −0.70 | 0.017 | 1.24 |
| Constant | 3.415 ** | 2.24 | 2.929 * | 1.69 | 0.343 | 0.92 | −0.197 | −0.88 | 2.270 | 1.07 | −0.308 | −0.62 |
| Year FE | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Industry FE | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Observations | 299 | | 372 | | 315 | | 397 | | 315 | | 397 | |
| $R^2$ | | | | | 0.278 | | 0.165 | | 0.167 | | 0.151 | |
| Adjusted $R^2$ | | | | | 0.148 | | 0.058 | | 0.016 | | 0.042 | |
| Pseudo R2 | 0.197 | | 0.131 | | | | | | | | | |

Notes: this table presents regression results testing the effect of political connections on stock price crash risk in complex and less-complex subsamples. Complex is a subsample where the total number of subsidiaries is greater than the median. Less-complex is a subsample where the total number of subsidiaries is not greater than the median. The second columns displays t statistics. Standard errors are clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

To ensure that the assignment of observations into the treatment group and control group was random, we adopted the coarsened exact matching (CEM) method. We set each covariate into five equal bins, or strata. Eight covariates were input into the CEM model. Table 10, panel A presents the matching CEM summary. Out of a total of 171 strata generated by the CEM model, 36 strata contained both connected and unconnected observations. A total of 109 out of 149 connected observations were matched with 403 out of 581 unconnected observations.

**Table 10. Panel A.** Coarsened exact matching method—matching summary. Number of strata: 171; Number of matched strata: 36. **Panel B.** Coarsened exact matching method—diagnosis of matching quality. **Panel C.** Coarsened exact matching method—difference-in-difference results.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Panel A** | | | | | | |
| | *PCON* = 0 | | | | *PCON* = 1 | |
| All | 581 | | | | 149 | |
| Matched | 403 | | | | 109 | |
| Unmatched | 178 | | | | 40 | |
| **Panel B** | | | | | | |
| | Pre-match L1 statistics | | | | Post-match L1 statistics | |
| ***SIZE*** | 0.391 | | | | 0.230 | |
| ***ROA*** | 0.156 | | | | 0.144 | |
| ***LEVERAGE*** | 0.195 | | | | 0.163 | |
| ***MTB*** | 0.107 | | | | 0.138 | |
| ***NCSKEW*** | 0.153 | | | | 0.149 | |
| ***DTURN*** | 0.151 | | | | 0.098 | |
| ***SIGMA*** | 0.203 | | | | 0.123 | |
| ***RET*** | 0.069 | | | | 0.083 | |
| **Panel C** | | | | | | |
| Variables | (1) | | (2) | | (3) | |
| | *Crash* | | *DUVol* | | *NCSkew* | |
| ***DID*** | 1.077 ** | 2.10 | 0.312 *** | 3.13 | 1.158 *** | 2.67 |
| $\boldsymbol{PCON_{(t-1)}}$ | 0.591 *** | 3.11 | −0.257 ** | −2.05 | −0.871 ** | −2.37 |
| $\boldsymbol{SIZE_{(t-1)}}$ | 0.294 *** | 5.91 | 0.009 | 0.82 | 0.061 * | 1.69 |
| $\boldsymbol{ROA_{(t-1)}}$ | −1.337 ** | −2.18 | 0.047 | 0.60 | 0.146 | 0.68 |
| $\boldsymbol{LEVERAGE_{(t-1)}}$ | −0.823 *** | −3.60 | 0.008 | 0.09 | −0.047 | −0.24 |
| $\boldsymbol{MTB_{(t-1)}}$ | 0.083 | 0.85 | 0.007 | 1.08 | 0.050 ** | 2.23 |
| $\boldsymbol{NCSKEW_{(t-1)}}$ | −0.099 | −0.56 | 0.032 * | 1.84 | 0.080 | 1.49 |
| $\boldsymbol{DTURN_{(t-1)}}$ | −2.268 | −0.06 | −4.079 | −1.06 | −17.753 | −1.16 |
| $\boldsymbol{SIGMA_{(t-1)}}$ | −6.599 | −1.35 | 0.549 | 0.76 | 2.651 | 1.20 |
| $\boldsymbol{RET_{(t-1)}}$ | 0.211 | 1.55 | 0.035 *** | 2.77 | 0.087 *** | 3.43 |
| Constant | 3.019 * | 1.81 | 0.292 | 0.95 | 2.591 | 1.31 |
| Year FE | Yes | | Yes | | Yes | |
| Industry FE | Yes | | Yes | | Yes | |
| Observations | 475 | | 512 | | 512 | |
| $R^2$ | | | 0.242 | | 0.197 | |
| Adjusted $R^2$ | | | 0.143 | | 0.093 | |
| Pseudo $R^2$ | 0.124 | | | | | |

Notes: this table presents regression results testing the effect of Suharto's resignation on stock price crash risk. Standard errors are clustered by firm and year. The asterisks *, **, *** denote significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

We used L1 statistics to measure the matching quality (Iacus et al. 2012; He et al. 2019). L1 statistics are the absolute difference in the value of covariates between the connected and unconnected firms. Table 10, panel B presents the diagnosis of the matching quality of the CEM method. The results show that the post-match L1 statistics were generally lower than the pre-match L1 statistics, indicating there is a significant improvement in the matching quality with CEM.

Table 10, panel C presents the result of the replication of the baseline model with the difference-in-difference model by the CEM method. The table reveals a consistent result with that in Table 6 Panel B, further supporting our hypothesis.

## 5. Conclusions

Establishing political connections can generate benefits and costs for firms. On the one hand, if politicians are involved in a firm, they can use their network and power to support that firm. However, this can also increase the firm's risk due to potential conflicts of interest. This study has focused on providing some evidence on the relationship between political connections and stock price crash risk in a country with centralized political decision-making. In general, we have shown that firms with political connections have a lower stock price crash risk. This finding indicates that political connections can reduce the probability of a firm experiencing a stock price crash. Using the difference-in-difference method, we found that firms with political connections have a higher stock price crash risk after their connections fall from power. This result implies that the cost of having political connections emerges only after these connections lose power. In addition, we also found that negative associations between political connections and stock price crash risk are more pronounced in firms with more complex firm structures. Despite the issue of the sample period, this study provides a better research setting which produces better information on how political connections affect the stock price crash risk of firms.

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## Appendix A

**Table A1.** Variable definitions.

| Variable | Definition | Data Source |
|---|---|---|
| *CRASH* | 1 for a firm–year that experiences one or more firm-specific weekly returns falling 3.2 standard deviations below the mean firm-specific weekly returns over the fiscal year, with 3.2 chosen to generate frequencies of 0.1% in the normal distribution during the fiscal year period, otherwise 0 | Compustat |
| *DUVOL* | Down-to-up volatility of firm-specific weekly returns | Compustat |
| *NCSKEW* | Negative skewness of firm-specific weekly returns over the fiscal year period. | Compustat |
| *PCON* | 1 for a firm that is politically connected with Suharto, otherwise 0 | ICMD |
| *DTURN* | Average monthly share turnover over the current fiscal year period minus the average monthly share turnover over the previous fiscal year period, where monthly share turnover is calculated as the monthly trading volume divided by the total number of shares outstanding during the month | Compustat |
| *SIGMA* | Standard deviation of firm-specific weekly returns over the fiscal year period. | Compustat |
| *RET* | Mean of firm-specific weekly returns over the fiscal year period | Compustat |
| *SIZE* | Natural logarithm of the market value of equity | Compustat |
| *MTB* | Market value of equity divided by the book value of equity | Compustat |
| *LEVERAGE* | Total long-term debts divided by total assets | Compustat |
| *ROA* | Income before extraordinary items divided by lagged total assets | Compustat |

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