THE INFLUENCE OF GENDER DIFFERENCES OF COMPANY EXECUTIVES IN INDONESIA AGAINST THE RISK OF FALLING STOCK PRICES

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Abstract
The purpose of this study is to determine the influence of gender differences between men and women on the risk of falling company stock prices in Indonesia. The study also wants to see if female executives have a positive or negative influence on the risk of falling stock prices. This study has an observation in which there are 433 companies listed on the Indonesia Stock Exchange from 2010 to 2019 with certain criteria. There are 2 models used in this study, namely the Logit Model, and the Generalized Method of Moments (GMM). The results showed that female executives did not have a significant influence on the risk of falling company stock prices. In addition, the position of the CFO compared to the CEO also does not have a significant positive influence in influencing the risk of falling stock prices.

Keywords: CEO; gender executive; stock price

INTRODUCTION

Background

The word gender is usually used to give a group that distinguishes between men and women. The difference lies in terms of existing responsibilities, followed by the division of labor given to a man and woman even to the point of division of roles for a man and a woman which is usually set by the general public, especially in Indonesia. Based on a result of a population survey agency conducted in 2015, it is projected that the number of people in Indonesia later in 2020 will reach 269.6 million people. With the percentage of the male sex reaching by 50.2% while the female sex fills by 49.8%.

According to the results of Mckinsey's research in 2018, it is stated that university graduates between female and male genders in Indonesia are almost equal. However, when exploring the real world of work, female workers who fill *middle management* positions are only 20% and for women who work in the position of *Chief Executive Officer* (CEO) it is stated at only 5%, which means that the higher a position they achieve, the less / less the number of women who finally succeed in filling jobs in the position.

In America there are studies documenting the material impact of executive gender on corporate decision-making. Huang and Kisgen (2013) found that companies that have *male top level management* tend to have more acquisitions and do debt issuances than women. In addition, Faccio et al (2016) also showed that female CEOs who manage a company tend to show, unstable income then lower company leverage to a fairly high survival rate than those managed by men. However, in contrast to previous opinions that tend to be negative towards women's *gender*, Barua et al (2010) and Francis et al (2015) argue that the appointment of female CFOs is reported to improve the quality of accruals and increase the level of accounting conservatism.

Many people give opinions about the condition of gender differences, namely between men and women in a sociological, cognitive, and economic studies behavior, namely first,

women usually have aversion to high risk compared to men who like high risks causing differences in terms of their gambling habits and investments to their portfolio risk profiles. Second, women lack confidence and optimism than men when it comes to demonstrating ability, confidence in answers, stock trading, and choice towards compensation schemes. Third, women have better compliance with tax rules, business ethics, financial reporting guidelines, financial market regulations, and professional financial advice than men.

However, there is an importance for a woman to also lead a company, namely, according to Mckinsey Associate partner Sebastian Jammer, women are believed to be able to lead an organization in a more 'healthy' direction because women have the ability to improve performance, especially in the financial part of the company. One of the strong reasons for this is the sensitivity of women who are believed to be able to make corporate strategies that are suitable for the needs of the consumer community. Another reason is, the existence of a female figure at the *top-level management* can create egalitarian leadership where when there is a presence of this figure Jammer stated that this can motivate other female workers to be more enthusiastic about playing an active and professional role so that they can be in the same position, namely at the *top-level management*. The last reason is that women are believed to have a variety of ideas in making decisions and existing corporate governance.

There are studies documenting gender differences among educated top executives so that companies run by female executives can adopt different corporate policies run by male executives. Until finally triggering a question whether it is true that the gender of a company's executive can affect a stock price of the company it manages. The focus of the author here is to see the risk of *stock price crash risk* on its effect in the company's stock price, especially those led by *male and female genders* who can capture risks in the return of shares.

LITERATURE REVIEW

Gender differences and executive decisions

Gender behavioral differences. Lots of the literature on financial studies and psychology has found that first, men are more confident than women when it comes to *driving ability* (Svenson, 1981) or confidence in exam answers (Lundeberg et al., 1994). In the context of the company's financial decisions, for example, there is a consideration of a one-period project that costs $ 1 today, with the expected payment in one year α with a discount rate σ then, an overconfident manager is interpreted as someone who overestimates his own ability to influence the α In addition, the manager is said to include *overconfidence* can also be interpreted by, as a person who believes that his estimate of α more accurate, which implies the presence of *underestimation* to the level of discount σ (Larwood & Whittaker, 1977).

Research By (Huang & Kisgen, 2013) proves that companies managed by female executives tend to make fewer acquisitions and very rarely issue debt than companies managed by male executives. In addition, in making significant corporate financial decisions, investors also prefer to choose companies managed by female executives. This is because when a comparison is made between companies managed by men and women, companies managed by women have a higher return announcement around acquisitions and debt offerings than those managed by men.

Meanwhile, companies managed by men provide narrower revenue estimates and are less likely to use the option earlier, then (Huang & Kisgen, 2013) also show that companies with male equities are more likely to carry out the destruction of the value of acquisitions and the possibility of male executives being removed from their posts as executives.

Lastly (Malmendier & Tate, 2005) classifies executives who are overconfident if they continuously fail to reduce exposure to their *company's idiosyncratic risk*. Executives have some flexibility in exposing the value of a company's equity, and overconfident executives estimate too high a result that leads them to believe that the stock is *undervalued*, or *equal*.

Second, women have a higher risk aversion than men in terms of gambling habits and portfolio risk profile investments. (Levin et al., 1988) conducted tests that examined individual responses to a series of gambling, and the combined effects of situational and experiential variables, or subjects. The result despite the predominance of gambling with a positive expected value, women are unlikely to show a willingness to bet in any framing conditions, which causes the framing effect to be reduced for women. This is because women are more careful in making decisions than men (Hudgens & Fatkin, 1985)

Third, women have better compliance with tax rules, business ethics, financial reporting guidelines, financial market regulations, and professional financial advice than men. In terms of corporate financial policy regulation, there is a study from (Graham et al., 2013) which found that the regulation of corporate financial policy is also influenced by the behavioral nature of top executives such as risk aversion and optimism.

The significance of CEOs and CFOs. Bertrand and Schoar (2003) found that there was a significant permanent influence of managers on company decisions. Their research found that both CEO and CFO positions are significant to investment policy and financial policy. CFO Fixed Securities look significant as a company-level predictor in terms of investment and acquisition amount, *leverage*, interest coverage, and cash holdings. Meanwhile, the CEO's fixed effect is a significant predictor on the company's investment policy, but it is not so noticeable on the company's financial policy (Bertrand & Schoar, 2003).

Frank and Goyal (2011) conducted a test of the influence of CEOs and CFOs within the company. As a result, they found that leverage within the company is influenced by certain managers and the CFO explains more about the variation in leverage than the CEO. In addition, Kaplan et al., (2012) conducted a study on which types of CEO characteristics increase and are selected for the likelihood of being hired and their optimal characteristics within leveraged buyouts (LCOs) and venture capital deals (Frank & Goyal, 2011).

The Bad News Hoarding Theory

The theory of hoarding good news began as a motivation for strategies from managers to hide and accumulate bad news in the company. (Jin & Myers, 2006) found a related evidence and the nature of agency problems that motivated managers to control the strategy of disclosing bad news about the company to the public, this motive was based on financial motives which became an important reason for managers to collect news in the company. Meanwhile, there is also motivation from a nonfinancial point of view as expressed by (Ball, 2009) namely managers hiding negative information to maintain a very strong company performance. So it can be concluded that both financial and nonfinancial motivations can be an excuse for managers to hoard their company's bad news to investors and the public.

Stock Price Crash Risk

The risk of falling stock prices is a condition when the stock price declines sharply in a relatively short period of time (Aman, 2013). In theory according to (Jin & Myers, 2006) the risk of falling stock prices is caused by managers who have a tendency to save bad news that occurs to their company from investors and this is done many times, so that when the bad news has accumulated beyond a certain threshold, the manager will eventually reveal information to the market at once and end up on a large negative drop in the stock price.

There are several other factors that can affect the risk of falling stock prices such as tax avoidance. (Kim et al., 2011b) found that tax avoidance can affect the risk of falling stock prices. These tax avoidance activities can create opportunities for managers to carry out activities designed to hide bad news and mislead investors. Managers can justify the vagueness of tax avoidance transactions by claiming that there is a complexity and an atmosphere of confusion necessary to minimize the risk of detection of tax avoidance arrangements by the *Internal Revenue Service* (IRS). To some extent, this avoidance activity is protected from the investigation of the audit committee and external auditors.

The impact of tax avoidance activities on investor welfare depends on the strength of the company's security mechanism (Kim et al., 2011b) using the level of analyst coverage, institutional ownership, and shareholder rights as representatives of external monitoring forces. The results show that there is a positive relationship that avoidance of accident risk in the future is reduced in companies that have strong external monitoring.

Hypothesis

In previous studies, researchers have documented the influence of the possibility that CEOs who have strong *power* could have an impact on the empirical relationship between the gender of CFOs and the risk of future accidents. The influence of gender *differences in the top* executives has a different impact on the company. Therefore, the author wants to know the influence of these gender differences on the impact of companies in Indonesia.

The influence of women's gender in the *top executive* of a company on the decreasing risk of falling company stock prices. One of the factors that can affect the stock price is the fundamental condition of the company. Therefore, in accordance with the differences in characteristics between men and women, these two genders will also have differences in decision-making and how to hoard bad news during their leadership to make the company's stock price stable. As an investor they have the expectation of having a *high return* therefore investors will tend to like top executives who are male gendered where a man has a high level of optimism and is more courageous to make financial decisions that are more risky so that there will be a greater opportunity for investors to get high returns also in the future than financial decision making made by woman.

H_1: There is an influence between gender differences within a company's top executives on the company's share price.

Is the CFO more influential than the CEO in influencing the risk of a company's stock price falling? The CEO and CFO are both influential on the company's investment policy and financial policies. However, CFOs are more able to explain the various variations in leverage, acquisition amounts, interest coverage, and cash ownership than CEOs. The CFO is more significant to the company's investment policy.

H_2: THE CFO is more influential than the CEO in influencing the risk of falling company stock prices

RESEARCH METHODOLOGY

Data

This section will describe the data that will be used in conducting this study, the population used is all companies that have *Top Executives*, both women and men in Indonesia with the data period used in 2010-2019. The type of data that will be used is a data panel and

comes from data on the company's financial statements and stock prices that can be obtained from S&P Capital IQ, Indonesia Stock Exchange (IDX) or Indonesia Stock Exchange (IDX).

The companies taken are companies listed on the Indonesia Stock Exchange and *Non-financial* Companies. Then the year of the company to be excluded from the sample according to previous research ((Hutton et al., 2009)(Kim et al., 2011b)) namely companies that have lost accounting data, the presence of lost/incomplete stock price data during the last year, have non-positive data on book value and company *assets*, and finally companies that have less than 26 weekly stock return observations. To control potential *outliers*, the authors follow (Kim et al., 2016) and exclude the observations of companies that fall into the upper and lower percentiles of *leverage*, the comparison of *returns on assets*, *market value of equity*, and *market-to-book*.

Empirical Models

The empirical model used in this study is as follows which will then be named as model (1):

$$Crash\ Risk_{j,T+1} = \beta_0 + \beta_1\, Excecutive\ Gender_{j,T} + \dot{y}\,(Dturn_T + Ncskew_T + Sigma_T + Return_T + Size_T + Mtb_T + Leverage_T + Roa_T + Accm_T + Litigationrisk_T)_j + \theta_i + \mu_T + \varepsilon_{j,T}$$

Table 1. Operational Variables

Variable	Definition
Dturn$_T$	$Average\ Monthly\ Share\ Turnover_T - Average\ Monthly\ Share\ Turnover_{T-1}$ Where $Monthly\ Shareturnover = \frac{Monthly\ Trading\ Volume}{Total\ Number\ of\ Share\ Outstanding\ over\ the\ month}$
Ncskew$_T$	$Ncskew_{j,T} = \frac{n_{j,t}\,(n_{j,t}-1)^{\frac{3}{2}}\ \sum_{t=1}^{nj,T} W_{j,t}^3}{(n\,j,T-1)\,(nj,T-2)\,(\sum_{t=1}^{n,j,T} W_{j,t}^3)^{\frac{3}{2}}}$
Sigma$_T$	$Standar\ Deviation\ of\ of\ firm-specific\ weekly\ returns_T$
Return$_T$	$(Mean\ of\ firm-specific\ weekly\ return_T) \times 100$
Size$_T$	$\frac{Market\ Capitalization\ at\ the\ end\ of\ fiscal\ year}{Total\ Share\ Outstanding}$
Mtb$_T$	$\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Equity}$
Leverage$_T$	$\frac{Long\ term\ debt}{Total\ Asset}$
ROA$_T$	$\frac{Income\ before\ extraordinary\ items}{Total\ Asset}$
Accm$_T$	$\frac{TA_{j,T}}{Asset_{j,t-1}} - \left(\alpha\ \frac{1}{Assets_{j,t-1}} + \beta_1 \frac{\Delta Sales_{j,t} - \Delta receivable_{j,t}}{Assets_{j,t-1}} + \beta_2 \frac{PPEj,t}{Assets_{j,t-1}}\right)$
Litigationrisk$_T$	Variables that will be worth one for companies engaged in biotechnology, *computers*, electronics, retail and zero value outside of these fields.

where Crash Risk $_{T+1}$ is measured by one of Crash $_{T+1}$, Ncskew$_{T+1}$, Duvol $_{T+1}$. In accordance with the previous accident risk study, when the dependent variable is Crash $_{T+1}$, logit regression will be used and when the dependent variable is Ncskew$_{T+1}$ and Duvol$_{T+1}$ using GMM regression. All regression controls for the Fama-French 48 industry (θ_i) (Fama and French, 1997) and fixed effect years (μ_T). Robust Z- value and t-value are corrected for residual regression grouping at the enterprise and year level (Petersen, 2009).

Research Variables

The study, conducted to measure the effect of executive gender differences on future falling stock prices, will use the following dependent variables and independent variables.

Dependent Variables. The dependent variable of this study is the risk of company-specific accidents. The authors construct three specific measures of the company against the risk of falling stock prices for each company-year observation following the previous accident risk literature (e.g., (Chen et al., 2001); (Hutton et al., 2009); (Kim et al., 2011a, 2011b)(Kim et al., 2011b)). The first variable is *Crash*, an indicator variable for companies that experience at least one week of stock price crashes during the fiscal year. The authors estimate the company's specific residual weekly return from the regression of the extended market index model as follows during fiscal year T which will hereinafter be referred to as model (2):

$$r_{j,t} = \alpha_{j,t} + \beta_{1\,j}\, r_{m,t-2} + \beta_{2\,j}\, r_{m,t-1} + \beta_{3\,j}\, r_{m,t} + \beta_{4\,j}\, r_{m,t+1} + \beta_{5\,j}\, r_{m,t+1} + \epsilon_{j,t}$$

where $r_{j,t}$ is the return of the stock j in week t and $r_{m,t}$ is the return of the market index on week t. The author complements the standard market index model with two terms lead and lag to correct out-of-sync trades (Dimson, 1979). This regression separates the company's returns into returns that correlate with stock market movements and returns due to company-specific shocks (εj,t). For company J in week T, its company-specific weekly returns are defined as follows referred to as model (3):

$$W_{j,t} = ln\,(1 + \epsilon_{j,t})$$

The transformation of natural logarithms reduces the positive slope in the distribution of stock returns and increases the symmetry of Wj, t. The *Crash* variable is a *dummy* variable, where = 1 if the company experiences at least one week of stock price fallout during the fiscal year, and = 0 if it is the other way around.

The second variable is the Ncskew variable, a negative conditional skew of the company's specific weekly returns for one fiscal year. Following (Chen et al., 2001), (Kim et al., 2011a) and (Kim et al., 2011b), the author calculates ncskew$_{j,T}$ which is defined as follows called model (4) :

$$Ncskew_{j,T} = \frac{n_{j,t}\,(n_{j,t} - 1)^{\frac{3}{2}}\ \sum_{t=1}^{nj,T} W_{j,t}^{3}}{(n\,j,T - 1)\,(nj,T - 2)\,(\sum_{t=1}^{n,j,T} W_{j,t}^{3})^{\frac{3}{2}}}$$

where $n_{j,T}$ is the number of company-specific weekly returns available to company j during fiscal year T. Scaling the third central moment of raw with the normalization factor, the standard deviation of the rank of three in the denominator - allows comparison across company-specific returns with different variants. The first minus sign in Model Equation 4 ensures that

the increase in $Ncskew_{j,T}$ corresponds to company j having a higher risk of falling stock prices in fiscal year T, i.e. a more negatively inclined distribution of returns.

The third variable is Duvol, volatility down to the top of the company's specific weekly returns for a fiscal year. Following (Chen et al., 2001) (Kim et al., 2011a) and (Kim et al., 2011b), the author calculates $Duvol_{j,T}$ as follows and will be named the model (5):

$$Duvol_{j,t} = ln \left\{ \frac{(n_{u,j,t} - 1)\ \Sigma_{t=1}^{nd,j,T} W_{j,T}^2}{(n_{d,j,T} - 1)\ \Sigma_{T=1}^{n_{u,j,T}} W_{j,T}^2} \right\}$$

where $n_{u,j,T}$ ($n_{d,j,T}$) is the number of weeks up (down) for company j shares during fiscal year T. For each j share during fiscal year T, we specify the week up (down) as the week when the company's specific weekly return is above (below) its annual average. Intuitively, Duvolj, T is the natural logarithm ratio of the standard deviation Wj, t at the week down with the standard deviation Wj, t in the week and above. Similar to the $Ncskew_{j,T}$ convention, the increase in $Duvol_{j,T}$ corresponds to the j corporation having a higher risk of falling stock prices in fiscal year T.

The author continues these three variable measures with 1 year in the author's main analysis, namely in model 1, so that the author's dependent variable refers to the next 1 year of the risk of falling stock prices: $Crash_{T+1}$, $Ncskew_{T+1}$, and $Duvol_{T+1}$.

Independent Variables and *Control* Variables. Independent Variables this study is based on executive gender indicators namely $FemaleCEO_{j,T}$ and $FemaleCFO_{j,T}$ This executive gender variable is *a dummy* variable where = 1 if between companies j have female executives in fiscal year T and = 0 if otherwise. Following the literature on previous accident risks (e.g., Chen et al., 2001; Hutton et al., 2009; Kim et al., 2011a, 2016), the control variables to be used are as follows. DturnT is a declining stock trading volume, which is a proxy for the heterogeneity of investor opinions. Chen et al. (2001) found that companies with a high intensity of dissent among investors were more likely to experience a fall in stock prices.

NcskewT is the risk of a fall in the previous stock price. SigmaT is a special weekly stock volatility company return. Where this is the standard deviation from the company's specific weekly returns during the fiscal year. ReturnT is the average of a company-specific weekly stock return. Chen et al. (2001) also found companies with higher average past stock returns and volatility were more likely to collapse in the future. This variable is derived from the company-specific average of weekly returns during the fiscal year multiplied by 100

SizeT is the natural logarithm of market capitalization at the end of the fiscal year. MtbT is. The ratio of the equity value of the market to the book value collected at the end of the fiscal year. LeverageT is the ratio of long-term debt to total assets calculated at the end of the fiscal year. RoaT is the return on assets. What is derived from the income before *the extraordinary item* is divided by the highest total assets, collected at the end of the fiscal year. AccmT is the sum of the 3-year movement of the absolute value of the discretionary accrual, which is a proxy for the opacity of financial reporting.where the discretionary accrual is derived from the estimated model jones (1991) moderated. Discretionary Accrual is one of the ways of assessment to detect whether the company is practicing profit management or not.

Hutton et al. (2009) documented a positive relationship between the opacity of financial reporting and the risk of future stock price crashes. Finally, the authors follow Fang et al. (2009) and Callen and Fang (2015), to control litigationriskT variables, indicating industries with a high risk of litigation. This variable is a *dummy* variable whose indicator is equal to 1 for companies in biotechnology, computers, electronics, and retail and zero is the other way around.

To account for executive gender variations across different industries and over time, the study controlled the Fama-French 48 industry (Fama and French, 1997) and the effect remained yearly across all our regressions.

Panel Model Selection

This section will describe the type of panel data that the author will use. The data that the author will use is panel data where the number of companies to be studied will be observed repeatedly over and over again over different time periods. There are 3 types of panel data that exist, namely *the pooled* OLS, *Fixed Effect*, and *Random Effect* models.

Model Pooled OLS. The *Pooled* OLS model is the simplest approach in estimating data panels. The way this model works is by assuming that all the subjects in this model are the same. This means that the regression coefficient to be used has an assumption that is the same for all research subjects, where in this case the research subject in question is the company. The disadvantage of this model is that it does not see the difference in time and subject so, this model assumes that its independent variables are(Wooldrige, 2016) *non-stochastic* meaning that independent variables correlate with *error terms*. Not only that, the value of the variable is considered not dependent on the error value, with the meaning that the error value is normally distributed where it has an average value equal to zero, and has a constant *variance* value.

The result of regression using this method will have a high *R-squared* value , this gives an indication that there is a possibility of autocorrelation. If in the regression there is autocorrelation, then the value of the coefficient estimation using the OLS method is considered inefficient even though it *remains unbiased.* If used, it can lead to incorrect decision making resulting from improper estimates of *standard errors*.

Model Fixed Effect. The *Fixed Effect* model relies on assumptions regarding intercepts, coefficients, slopes and residuals, all free variables in this model are independent of *error* values. This method uses *dummy* variables as a tool to measure the difference in intercepts so that each equation will have a different interception. *Fixed effect* is an object with a constant that remains the magnitude value of a period to the next, therefore, the value of the *dummy* intercept used here will remain the same, according to the name of the model, namely *fixed effect* (Wooldrige, 2016). If it were going to use *dummy* variables to insert interception differences, then the model would be said to be a *least-square dummy variable* (LSDV). This model allows for a correlation between the individual and *the time effect* with independent variables.

Model Random Effect. Unlike the *fixed effect* model, the *random effect* model has a random intercept value with a constant average ratio. The intercept value is the average value of the entire *intercept* in the *unit-cross section.* This model considers that the amount of time is greater than the number of individuals, has no autocorrelation, no correlation between *components of error*, no correlation between components, follows the normal distribution, and the error value is not correlated with independent variables. Therefore, choosing a (Wooldrige, 2016) *fixed effect* model is a better choice than using a *random effect model.*

Test the Data Panel

In this section will describe the test methods that the author will use.

Chow Test. This test was carried out to select a model on the regression of panel data, namely between the *fixed effect* model and the *pooled regression* model with the hypothesis:

H_0: Pooled Least Square

H_1: Fixed Effect Model

If the value of $F_{counts} > F_{(N-1,\ NT-N-K)}$, then H_0 will be rejected and accept H_1 so that the model to be selected is the *Fixed Effect Model.*

Hausman Test. The Hausman test is performed to see if there is a relationship between errors in the model (composite errors) and one or more independent variables in the model. This is done to choose a *random effect* model or with *a fixed effect* model with a hypothesis:

H_0: Random Effect Model
H_1: Fixed Effect Model

If the value of $W > X^2(\alpha,K)$ or *the p-value value* is less than the significant value that has been set, then H_0 is rejected and accepts H_1 , which is using a *fixed effect model.*

Breusch-Pagan Test. The Breusch-pagan test is a *langrage multiplier* test performed to test whether the model to be analyzed uses a *random effect model* or *a pooled least square model* with a hypothesis:

H_0: Pooled Least Square
H_1: Random Effect Model

If LM Statistic > the chi-square table value, then H0 is rejected and H1 is accepted so that the model to be used is a *random effect* model.

Diagnostic Test

In every data used in a study, it is necessary to interpret it, therefore before being interpreted, the author will test the classical assumptions. This classical assumption test aims to provide certainty that the regression equation to be obtained has a precise, consistent and unbiased estimate.

Heterochemedasticity Test. In this section, testing is carried out to ensure that the variant is homoskedastic. If a heteroskedasticity variant is found, the standard deviation obtained will become too large or too small which results in the data being inefficient even though it *remains unbiased* and consistent.

Such inefficient data will make the level of trust smaller than it should be. The Heterokedasticity test that will be used is the Modified Wald Test, it's just that there is a weakness in using this test, which is that it can only be used on fixed effect models. This test follows the *chi-square* distribution, with df=N-1, with the hypothesis:

H_0: Homoskedastic
H_1: Heteroskedastis

If the *p-value* < α, then H_0 is rejected and accepts H_1 so that the variant is heteroskedastic.

Autocorrelation Test. Autocorrelation is a test performed to see if error values have a correlation with each other, or it can be assumed that error values have no patterns. If *the errors* values are correlated with each other, causing the regression results will be inefficient even though they are *unbiased*.

Therefore, the *standard error* estimate is wrong and results in conclusions that will be made incorrectly. The method used to perform this test is the Wooldrige Test (WT) with the hypothesis:

H_0: No autocorrelation
H_1: There is autocorrelation

If the *p-value value* < α, then H_0 is rejected and receives H_1 which means that there is an autocorrelation.

Cross Sectional Dependences Test. This test is carried out if there is a correlation between errors and independent research variables that arise due to the presence of unreserved factors. The test carried out to see the existence of cross sectional dependence is to test the problem with the hypothesis:

H_0: No Cross Sectional dependence
H_1: Cross sectional dependence

If the *p-value* < α, then H_0 is rejected and receives H_1 which means that there are cross sectional dependences

Logit Regression Model

The OLS method cannot be used when x and y are not linear. This is because there are asumis violations such as *error terms* that are not normally distributed, the value of the suspected Y exceeds the range of 0 to 1, therefore Logit regression is used. The Logit regression model is used when its dependent variable is binary where this variable is a finite dependent variable or *LDV* (*Limited dependent Variable).* Binary variables have only two values i.e. zero or one. (Wooldrige, 2016)

Generalized Method of Moments

GMM or *Generalized Method of Moments* is used to deal with potential endogeneity problems in the model. The GMM model was chosen because it can control the endogeneity of the lagging dependent variables present in the dynamic panel model. Where this endogeneity is the correlation between the explanatory variable (X) and the error term in the panel model. In addition, GMM can control the heterogeneity of panels that are not observed as well as the presence of measurement errors

GMM estimators are divided into 2, namely *difference GMM* and *System GMM*, each of which consists of *one step* and *two steps*. *Difference GMM* corrects endogeneity by changing all regressors through *differencing* and eliminating fixed effects (Manuel Arellano and Stephen Bond, 1991). Meanwhile, *system GMM* corrects endogeneity by introducing more instruments to dramatically increase efficiency, turning instruments into non-correlated (exogenous) with fixed effects (Arellano & Bover, 1995)

RESULTS AND DISCUSSION

Discussion related to descriptive statistical results, testing the validity of dependent and independent variable data, and regression results from the research model used. These results will then be compared with the research hypothesis that has been made.

Descriptive Statistics

In this descriptive statistical section, it consists of the number of *observations, mean*, standard deviation, minimum and maximum values of data used in this study. The result of the average or mean value is obtained from the total amount of variable data owned divided by the amount of data studied.

Table 2. Descriptive Statistical Results

Variables	Obs	Mean	Std.Dev	Min	Max
Crash Risk Measures					
$CRASH_{T+1}$	723	0.0809404	0.2717868	0	1
$NCSKEW_{T+1}$	723	283.7201	442.5258	35.385	2769.379
$DUVOL_{T+1}$	723	-0.044507	0.32347	-0.8472978	0.8754687
CEO&CFO gender Variables					
Female CEO_T	1655	0.0592145	0.2360971	0	1
Female CFO_T	1655	0.1081571	0.3106726	0	1
Other Variables					
$Dturn_T$	1655	0.0015614	0.0030862	0	0.0189281
$Ncskew_T$	1655	254.6287	382.7735	35.385	2769.38
$Sigma_T$	1655	0.0501773	0.021853	0.0092711	0.1109731
$Return_T$	1655	0.3141477	0.6791463	-1.144867	2.775161
$Size_T$	1655	9.36e+12	2.61e+13	2.44e+10	1.98e+14
Mtb_T	1655	3090.072	11154.95	-41.07787	83158.78
$Leverage_T$	1655	0.1271758	0.1562271	0	0.781837
Roa_T	1655	0.055213	0.067479	-0.08768	0.35458
$Accm_T$	1654	-0.0322836	0.1345987	-0.04819891	0.4287375
$Litigationrisk_T$	1655	0.0380665	0.1914146	0	1

The standard deviation value on the data indicates the data spread of the variable in the sample. The minimum and maximum values in the table indicate the lowest value and the highest value of the data of a variable. Table 2 presents a statistical summary of each variable to be used in the analysis of the empirical model. The results of the sorting process carried out on hundreds of companies registered in Indonesia in 2010-2019, obtained 433 companies with a total of 723 observations as samples in this study. Each Variable to be studied has been *winsorization* at the level of 1% this is done to reduce the extreme number value that becomes an *outlier*.

In this variable, there are several *dummy* variables that are used to express certain conditions such as the *Crash* variable, which is an indicator for companies that experience at least one week of stock price fallout during the fiscal year. *Gender Differences* where there is female *gender* at the CEO and CFO level executives, finally litigational variables that indicate industries with high litigation risk such as industries in biotechnology, computers, electronics, and retail. If any of the above conditions are met then the value of the *dummy* variable will be one and zero if it is the other way around.

From table 2 the average value and (standard deviation) on 3 variable sizes of crash risk this study namely Crash, Ncskew, and Duvol are 0.0809404 (0.2717868), 283.7201 (442.5258), -0.044507 (0.32347). From the results of obervation if you select the *crash* variable, it can be seen that companies in Indonesia as many as 8.09% have experienced at least one *crash* in the fiscal year in the observation.

The average value of the Female CEO variable is 0.0592, showing only 5.92% of the total observations, in this case it is a company in Indonesia that has a female CEO. Meanwhile, the average value on the Female CFO variable is 0.10851 which states that 10.851% of the total company observations in Indonesia have female CFOs. Overall, it can be concluded that women in Indonesia are more appointed as CFOs than company CEOs.

The variable $Dturnt_T$ has an average of 0.00156 and a standard deviation of 0.003086 indicates the average difference in monthly share turnover in fiscal year T to the monthly share turnover of fiscal year T-1 is 0.00156 times, with a minimum value of 0 and the maximum value of the monthly turnover difference is 0.018 times.

The average of the $Ncskew_T$ variable is 254.6287 with a standard deviation of 382.7735. Ncskew is a negative conditioning skew variable of company-specific weekly returns with a

minimum value of 35,385 and a maximum of 2769.38. The company-specific weekly stock return volatility or called the SigmaT variable has an average of 0.05017 with a standard deviation of 0.0218, the minimum value of this sigmaT variable is 0.0092711 and the maximum is 0.1109731

In the variable $Return_T$ it is known that the average value is 0.3141 and the standard deviation of this variable is 0.6791. Over the past 10 years, the average weekly return for companies in Indonesia during the fiscal year has been 31.41% with a minimum value of -1,144 company-specific weekly returns of -1,144 and the maximum company-specific weekly returns earned is 2.7751. The variable $Size_T$ is a measure of how big the company is. It is known that the average size of companies in Indonesia for these 10 years is 9.36e + 12 standard deviations of 2.61e + 13 with the smallest company size value is 2.44e + 10 and the size of the largest company in Indonesia is 1.98e + 14.

The average *variable Market to book value of equity ratio* is 3090,072 times large with a standard deviation of 11154.95. the value of the smallest market to book value of equity is -41.07 times and the maximum value of the ratio is 83158.78 times. The Leverage variable in table 4.1 shows that the average leverage value of companies in Indonesia is 0.1271 with a standard deviation of 0.1562. The minimum value of the company's Leverage in Indonesia is 0 and the maximum value is 0.7818. The ROA variable for companies in Indonesia has an average value of 5.52% with the minimum value on this variable is -8.76% and the maximum value of this variable is 35.45%. Finally, the $Litigationrisk_T$ variable is a variable that indicates an industry with a high risk of litigation with a minimum value of 0 and a maximum of 1.

Female Executive and Stock Price Crash Risk Measure

Female Executive and Dependent Variable: CRASH. In this section, the Crash dependent variable is one of the company's three specific measures against the risk of falling stock prices. The regression model used in this section is to use the logit regression method against the empirical model.

Table 3. Female Executive and Dependent Variable Regression Results: Crash

Variables	Sample CFO		SAMPLE CEO		Sample CEO and CFO	
		Previous Research Results		Previous Research Results		Previous Research Results
Female CFO	-0.2076316	-0.155**			-0.0760653	-0.518**
	(0.4551467)	(-2.083)			(0.4699897)	(-2.120)
	[0.648]				[0.871]	
Female CEO			-0.737934	0.087	-0.7070599	0.110
			(0.7482028)	(0.764)	(0.771221)	(0.957)
			[0.324]		[0.359]	
DturnT	-188.6566*	-0.010	-180.9608*	0.242	-181.4368*	-0.008
	(19.6432)	(-0.045)	(100.3782)	(1.013)	(100.3631)	(-0.037)
	[0.065]		[0.071]		[0.071]	
NcskewT	-0.0003057	0.027	-0.0002904	0.041	-0.0002924	0.026
	(0.0004197)	(1.067)	(0.0004177)	(1.644)	(0.0004176)	(1.058)
	[0.466]		[0.487]		[0.484]	
SigmaT	-20.88643**	25.296***	-21.62035***	11.393***	-21.59024***	25.284***
	(8.087119)	(5.461)	(8.122908)	(2.677)	(8.116234)	(5.454)

	[0.010]		[0.008]		[0.008]	
ReturnT	-0.1856867	2.814***	0.1854334	1.557**	0.1855421	2.813***
	(0.2263737)	(3.571)	(0.2258867)	(2.199)	(0.2257887)	(3.566)
	[0.412]		[0.412]		[0.411]	
SizeT	-6.67e-15	0.061***	-6.74e-15	0.013	-6.76e-15	0.061***
	(7.55e-15)	(3.334)	(7.55e-15)	(0.700)	(7.55e-15)	(3.339)
	[0.377]		[0.373]		[0.371]	
MtbT	3.65e-06	-0.015	3.58e-06	-0.011	3.44e-06	-0.015
	(0.0000145)	(-1.441)	(0.0000145)	(-1.124)	(0.0000145)	(-1.465)
	[0.801]		[0.805]		[0.812]	
LeverageT	-1.265548	-0.027	-1.197396	-0.047	-1.200412	-0.027
	(1.005088)	(-0.185)	(1.0032)	(-0.322)	(1.00262)	(-0.179)
	[0.208]		[0.233]		[0.231]	
RoaT	-1.544639	1.498***	-1.539495	1.193***	-1.561022	1.503***
	(2.070202)	(4.705)	(2.068885)	(3.792)	(2.072307)	(4.717)
	[0.456]		[0.457]		[0.451]	
AccmT	0.7089403	0.127	0.7248226	0.198**	0.7331883	0.128
	(1.194126)	(1.461)	(1.197696)	(2.364)	(1.197696)	(1.469)
	[0.553]		[0.545]		[0.540]	
Litigationriskt	-0.9515442	-0.053	-0.9411338	-0.050	-0.9468828	-0.051
	(1.035066)	(-0.573)	(1.035376)	(-0.544)	(1.035997)	(-0.552)
	[0.358]		[0.363]		[0.361]	
Observation	722		722		722	
Prob > Chi^2	0.0251		0.0182		0.0288	
Pseudo R^2	0.0479		0.0501		0.0502	
Each variable has been *performed winsorization* with a significant rate of 1%. ***Standard errors are* reported in parentheses.** **his probability result was reported in an elbow-kicked mark** **Significant at 1%, **Significant at 5%, *Significant at 10%**						

Female Executive and Dependent Variable: NCSKEW. NCSKEW dependent variables are regressed using the *Generalized Method of Moments* or commonly abbreviated as GMM. Heteroskedasticity assays, autocorrelation tests and *cross sectional dependences* tests cannot be performed in this section. Therefore, problems cannot be detected through these tests. However, the data used is likely to have these problems so that handling of these problems is needed.

The *GMM* regression model selected in this section is the *two-step GMM system.* This is because *the two-step GMM system* is more *robust* than the *one-step GMM system*, besides that the *two-step GMM system* is more efficient and *robust* against heteroskedasticity and autocorrelation (Roodman, 2009). Therefore, when using this *two-step GMM system*, the problems in this model have been resolved so as to produce valid and unbiased regression results.

Table 4. Female Executive and dependent variables: NCSKEW

Variables	Sample	CFO	Sample	CEO	Sample	CEO and CFO
		Previous Research Results		Previous Research Results		Previous Research Results
Female CFO	-3.844874	-0.057**			-6.74922	-0.058**
	(35.88805)	(-2.132)			(37.19079)	(-2.172)
	[0.915]				[0.856]	
Female CEO			14.5812	0.042	17.41969	0.046
			(49.59257)	(0.919)	(51.53924)	(0.992)
			[0.769]		[0.736]	
DturnT	-2091.022	0.020	-2077.822	0.085	-2097.56	0.021
	(2435.843)	(0.269)	(2421.234)	(1.163)	(2436.94)	(0.279)
	[0.391]		[0.392]		[0.390]	
NcskewT	-0.0002694	0.025**	0.0010916	0.027***	0.0008948	0.025**
	(0.1107375)	(2.337)	(0.1107713)	(2.586)	(0.1106581)	(2.328)
	[0.998]		[0.992]		[0.994]	
SigmaT	-2976.821***	5.373***	-2953.517***	3.046**	-2955.956***	5.365***
	(1090.547)	(3.989)	(1106.463)	(2.456)	(1105.834)	(3.982)
	[0.007]		[0.008]		[0.008]	
ReturnT	32.38246*	0.516***	32.35783*	0.361**	32.47658*	0.515***
	(17.00905)	(2.758)	(16.97406)	(2.231)	(17.00493)	(2.753)
	[0.058]		[0.058]		[0.057]	
SizeT	1.18e-12	0.020***	1.18e-12	0.010	1.17e-12	0.020***
	(1.98e-12)	(3.027)	(1.98e-12)	(1.504)	(1.99e-12)	(3.030)
	[0.552]		[0.553]		[0.555]	
MtbT	-0.0020028	-0.001	-0.0019831*	-0.002	-0.0019977*	-0.002
	(0.0011573)	(-0.345)	(0.0011494)	(-0.469)	(0.0011591)	(-0.362)
	[0.085]		[0.086]		[0.086]	
LeverageT	377.4306**	-0.067	376.3607**	-0.067	375.9395**	-0.066
	(172.778)	(-1.203)	(173.0957)	(-1.231)	(172.9039)	(-1.189)
	[0.030]		[0.030]		[0.030]	
RoaT	-156.173	0.675***	-151.833	0.623***	-154.5826	0.677***
	(254.8899)	(5.562)	(254.4309)	(5.160)	(256.3027)	(5.573)
	[0.541]		[0.551]		[0.547]	
AccmT	-224.4414	0.068*	-226.004	0.088**	-226.1752	0.068*
	(141.6174)	(1.710)	(141.846)	(2.372)	(141.8286)	(1.719)
	[0.114]		[0.112]		[0.112]	
Litigationriskt	26.4579	-0.050	26.50082	-0.052	26.09769	-0.050
	(65.4667)	(-1.234)	(65.38799)	(-1.286)	(65.53183)	(-1.216)
	[0.686]		[0.686]		[0.691]	
N	722		722		722	
Prob >F	0.000		0.000		0.000	
AR(2)	0.409		0.410		0.412	
Sargan test of chi²	0.635		0.631		0.634	
Hansen test of chi²	0.870		0.868		0.869	

Each variable has been *performed winsorization* with a significant rate of 1%.
***Standard errors are* reported in parentheses.**
his probability result was reported in an elbow-kicked mark
Significant at 1%, **Significant at 5%, *Significant at 10%

Female Executive and Dependent Variable: DUVOL. Duvol dependent variables are also regressed using the GMM method or its abbreviation *Generaliized Method of Moments*. The *GMM* regression model that will be selected in this section is also *a two-step GMM system* where the *two-step GMM system* is more *robust* than *the one-step GMM system*, besides that the *two-step GMM system* is more efficient and *robust* against heteroskedasticity and autocorrelation (Roodman, 2009). Therefore, when using this *two-step GMM system*, the problems in this model have been resolved so as to produce valid and unbiased regression results. Here's the female executive regression as to the dependent variable: duvol

Table 5. Female Executive Regression Results Against Dependent Variables: Duvol

Variables	Sample CFO		SAMPLE CEO		Sample CEO and CFO	
		Previous Research Results		Previous Research Results		Previous Research Results
Female CFO	0.0075081	-0.023*			0.0191891	-0.024**
	(0.0568444)	(-1.948)			(0.0632964)	(-1.993)
	[0.895]				[0.762]	
Female CEO		0.004	-0.0407753	0.022	-0.0487686	0.023
		(0.102)	(0.0820925)	(1.117)	(0.0897716)	(1.177)
			[0.620]		[0.587]	
DturnT	-0.2399803	0.009**	-0.4182823	0.029	-0.388627	0.004
	(5.673817)	(2.001)	(5.669124)	(0.834)	(5.613502)	(0.112)
	[0.966]		[0.941]		[0.945]	
NcskewT	-0.0002429	1.652***	-0.0001657	0.010**	-0.0001302	0.009**
	(0.0008798)	(2.969)	(0.0008735)	(2.231)	(0.0008665)	(1.990)
	[0.783]		[0.850]		[0.881]	
SigmaT	-4.114601	0.179**	-3.66186	0.862	-3.420124	1.648***
	(5.808329)	(2.345)	(5.748295)	(1.575)	(5.73889)	(2.961)
	[0.479]		[0.525]		[0.552]	
ReturnT	-0.0200778	0.011***	-0.0133486	0.126*	-0.0108294	0.179**
	(0.0711098)	(3.585)	(0.0708138)	(1.683)	(0.0698067)	(2.340)
	[0.778]		[0.851]		[0.877]	
SizeT	-4.85e-16	0.000	-5.85e-16	0.007**	-6.09e-16	0.011***
	(1.30e-15)	(0.046)	(1.29e-15)	(2.403)	(1.26e-15)	(3.588)
	[0.708]		[0.651]		[0.630]	
MtbT	2.91e-06	-0.053**	2.90e-06	-0.000	2.93e-06	0.0000
	(1.43e-06)	(-2.154)	(1.39e-06)	(-0.035)	(1.39e-06)	(0.025)
	[0.043]		[0.039]		[0.036]	
LeverageT	-0.0411565	0.318***	-0.0343795	-0.053**	-0.0306113	-0.053**
	(0.147697)	(5.887)	(0.1432458)	(-2.195)	(0.1426142)	(-2.138)
	[0.781]		[0.810]		[0.830]	
RoaT	0.4051315	0.033**	0.4169299	0.303***	0.4279332	0.319***
	(0.4360173)	(2.138)	(0.4176317)	(5.711)	(0.4126795)	(5.900)
	[0.354]		[0.319]		[0.301]	
AccmT	0.2266355	-0.017	0.2315439	0.038**	0.2297107	0.033**

Variables	Sample CFO		SAMPLE CEO		Sample CEO and CFO	
		Previous Research Results		Previous Research Results		Previous Research Results
	(0.2309677)	(-0.999)	(0.2216237)	(2.563)	(0.2168637)	(2.149)
	[0.327]		[0.297]		[0.290]	
Litigationriskt	0.0062274	-0.023*	0.0126836	-0.017	0.0161745	-0.017
	(0.1000554)	(-1.948)	(0.0996515)	(-1.020)	(0.0999434)	(-0.978)
	[0.950]		[0.899]		[0.872]	
N	722		722		722	
Prob >F	0.040		0.038		0.056	
AR(2)	0.907		0.915		0.916	
Sargan test of chi²	0.000		0.000		0.000	
Hansen test of chi²	0.000		0.000		0.000	
Each variable has been *performed winsorization* with a significant rate of 1%. ***Standard errors are* reported in parentheses.** **his probability result was reported in an elbow-kicked mark** **Significant at 1%, **Significant at 5%, *Significant at 10%**						

Analysis of Women's Gender Regression Results against the Risk of Falling Stock Prices

Regression Result Analysis of the First Hypothesis. The first hypothesis in this study is to assume that there is a relationship between gender differences at the executive level of the company and the risk of falling stock prices. The first hypothesis states that the gender of women in the *top executive of* a company can reduce the risk of falling stock prices of the company.

Table 6. Conclusion dependent variables against CEO&CFO gender variables

	Sample CFO	SAMPLE CEO	Sample CFO &CEO	
			Female CFO	Female CEO
CRASH	-0.2076316	-0.737934	-0.0760653	-0.7070599
	[0.648]	[0.324]	[0.871]	[0.359]
NCSKEW	-3.844874	14.5812	-6.74922	17.41969
	[0.915]	[0.769]	[0.856]	[0.736]
DUVOL	0.0075081	-0.0407753	0.0191891	-0.0487686
	[0.895]	[0.620]	[0.762]	[0.587]
Each variable has been performed *winsorization* with a significant rate of 1%. . **The probability result is reported in square brackets** **Significant at 1%, **Significant at 5%, *Significant at 10%**				

The results of the regression of the three dependent variables show that there is an insignificant relationship between gender differences in this case men and women in the company's top executive positions to the risk of falling stock prices in Indonesia. This can be seen in the conclusion table where both the variable coefficients of the CFO and CEO are insignificant.

The results of this regression are different from those of researchers (Li & Zeng, 2019)). Previous research has shown a significant negative relationship between Female CFOs and *crashes*. The results of the study (Li & Zeng, 2019)) stated that companies with female CFOs experienced a lower risk of falling stock prices of special companies 1 year compared to companies with male CFOs. meanwhile, in Indonesia, unfortunately, from this research, it has

been proven that the differences between men and women in the position of CEO or CFO do not have a significant influence on the risk of falling stock prices in the future.

This can mean that gender differences in the company's top executives are not one of the factors that risk falling stock prices in companies in Indonesia. There are several other factors that can cause the risk of a stock price fall, such as the results of research (Hutton et al., 2009) that profit management actions carried out by companies aim to cover up the company's bad news from investors to a certain point, in addition to equity incentives between CFOs and CEOs (Kim et al., 2011a), tax avoidance actions (Kim et al., 2011b) and business strategy can also be a potential factor in influencing the risk of falling stock prices. Maybe some of these factors have more influence on companies in Indonesia but this requires further research.

Regression Result Analysis of the Second Hypothesis. The next hypothesis in this study is to assume that there is a relationship between the difference in position as CEO and CFO in influencing the risk of falling stock price of a company. The second hypothesis states that CFOs are more influential than CEOs in influencing the risk of falling company stock prices. This can be seen in the regression result table of three measures of risk of falling company stock prices.

Table 7. Conclusion Dependent Variables against CEO&CFO position variables

	Sample CFO	**SAMPLE CEO**	**Sample CFO &CEO**	
			Female CFO	Female CEO
CRASH	0.2245451	-0.2710853	0.2569073*	-0.3185677
	(0.121)	(0.191)	(0.079)	(0.128)
NCSKEW	0.0061781	-0.0028074	0.0065757	-0.0040735
	(0.125)	(0.522)	(0.108)	(0.364)
DUVOL	0.0261143	0.06072	0.0233537	0.0585778
	(0.462)	(0.236)	(0.510)	(0.241)

Each variable has been performed *winsorization* with a significant rate of 1%. .
His probability result was reported in the away game
Significant at 1%, **Significant at 5%, *Significant at 10%

In conclusion from the results of the regression table in this study, the position of the CFO was not shown to have a more significant influence on the risk of falling company stock prices in Indonesia than the POSITION of CEO

The CEO has the responsibility of being a leader and is obliged to know everything that happens to his company, therefore his role can have an influence on a decision in the company including financial decisions, while the CFO has a role to be responsible for reporting the company's financial information. Both the ROLE of CEO and CFO have an involvement in a company's financial decisions that can influence the movement of its company's stock price (Bertrand & Schoar, 2003). However, from the results of this study, it is not proven that the role of the CFO in Indonesia is more influential than the role of the CEO in raising or reducing the risk of falling company stock prices in the future.

CONCLUSIONS AND SUGGESTIONS

Conclusion

The risk of falling stock prices is a situation where stock returns have very extreme negative returns. Gender differences at the company's executive level can be a factor that affects the risk of future accidents due to differences in their leadership attitudes within the company.

This study used 433 public companies in Indonesia from 2010 to 2019. The results of the first test found that gender differences at the executive level of the company have no influence on the risk of falling stock prices in the future, which means that both men and women's differences in *top executive* positions are not one of the factors that risk the risk of falling company stock prices in Indonesia

The second is not proven that CFOs have more influence on the risk of falling stock prices than CEOs. Although due to its duties and responsibilities, namely regarding finances, it makes the CFO look more influential as a potential that causes the risk of falling stock prices in the future, in Indonesia, both the CEO and CEO positions have no influence on the risk of falling company stock prices in the future.

Suggestion

Based on the results of research that has been carried out on the influence of executive gender differences on the risk of falling company stock prices in Indonesia, the researchers have several suggestions for further research so that they can be even better. The advice that can be given to the next research is that the next research can add a longer period so that it can capture the phenomena related to this research more accurately. In addition, it can add other research variables such as age, work experience or CFO / CEO sex change transition to find out the effect on the risk of further stock price fall.

REFERENCES

Safe, H. (2013). An analysis of the impact of media coverage on stock price crashes and jumps: Evidence from Japan. *Pacific Basin Finance Journal*. https://doi.org/10.1016/j.pacfin.2013.02.003

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*. https://doi.org/10.1016/0304-4076(94)01642-D

Ball, R. (2009). The Global Financial Crisis and the Efficient Market Hypothesis: What Have We Learned? *Journal of Applied Corporate Finance*. https://doi.org/10.1111/j.1745-6622.2009.00246.x

Bertrand, M., & Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*. https://doi.org/10.1162/003355303322552775

Chen, J., Hong, H., & Stein, J. C. (2001). Forecasting crashes: Trading volume, past returns, and conditional skewness in stock prices. *Journal of Financial Economics*. https://doi.org/10.1016/S0304-405X(01)00066-6

Dimson, E. (1979). Risk measurement when shares are subject to infrequent trading. *Journal of Financial Economics*. https://doi.org/10.1016/0304-405X(79)90013-8

Frank, M. Z., & Goyal, V. K. (2011). Corporate Leverage: How Much Do Managers Really Matter? *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.971082

Graham, J. R., Harvey, C. R., & Puri, M. (2013). Managerial attitudes and corporate actions. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2013.01.010

Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2012.12.005

Hudgens, G. A., & Fatkin, L. T. (1985). Sex differences in risk taking: Repeated sessions on a computer-simulated task. *Journal of Psychology: Interdisciplinary and Applied*. https://doi.org/10.1080/00223980.1985.10542887

Hutton, A. P., Marcus, A. J., & Tehranian, H. (2009). Opaque financial reports, R2, and crash risk. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2008.10.003

Jin, L., & Myers, S. C. (2006). R2 around the world: New theory and new tests. *Journal of Financial Economics*, *79*(2), 257–292. https://doi.org/10.1016/j.jfineco.2004.11.003

Kim, J. B., Li, Y., & Zhang, L. (2011a). CFOs versus CEOs: Equity incentives and crashes. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2011.03.013

Kim, J. B., Li, Y., & Zhang, L. (2011b). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2010.07.007

Kim, J. B., Wang, Z., & Zhang, L. (2016). CEO Overconfidence and Stock Price Crash Risk. *Contemporary Accounting Research*. https://doi.org/10.1111/1911-3846.12217

Larwood, L., & Whittaker, W. (1977). Managerial myopia: Self-serving biases in organizational planning. *Journal of Applied Psychology*. https://doi.org/10.1037/0021-9010.62.2.194

Levin, I. P., Snyder, M. A., & Chapman, D. P. (1988). The interaction of experiential and situational factors and gender in a simulated risky decision-making task. *Journal of Psychology: Interdisciplinary and Applied*. https://doi.org/10.1080/00223980.1988.9712703

Li, Y., & Zeng, Y. (2019). The impact of top executive gender on asset prices: Evidence from stock price crash risk. *Journal of Corporate Finance*. https://doi.org/10.1016/j.jcorpfin.2019.07.005

Lundeberg, M. A., Fox, P. W., & Punćochaŕ, J. (1994). Highly Confident but Wrong: Gender Differences and Similarities in Confidence Judgments. *Journal of Educational Psychology*. https://doi.org/10.1037/0022-0663.86.1.114

Malmendier, U., & Tate, G. (2005). CEO overconfidence and corporate investment. *Journal of Finance*. https://doi.org/10.1111/j.1540-6261.2005.00813.x

Manuel Arellano and Stephen Bond. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. In *Review of Financial Studies*. https://doi.org/10.1093/rfs/hhn053

Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal*. https://doi.org/10.1177/1536867x0900900106

Svenson, O. (1981). Are we all less risky and more skillful than our fellow drivers? *Acta Psychologica*. https://doi.org/10.1016/0001-6918(81)90005-6

Wooldrige, J. M. (2016). Introductory Econometric 6 th. Cencage Learning.