Say-On-Pay Voting: The Moderating Roles of Executive Pay Misassessment and Pay-for-luck Compensation on CD&A Usefulness

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Abstract

Although multiple studies have confirmed the instances of irrational Say-On-Pay (SOP) voting and pay-for-luck compensation, the assessment of executive compensation under these occurrences remained unrevealed prior to our research. This research attempts to address these limitations by defining irrational SOP voting and pay-for-luck variables and modifying the SOP voting determinants model, drawing on information-processing theory. The objectives are to investigate: the moderating effect of executive pay misassessment linked to irrational SOP voting and pay-for-luck compensation on CD&A usefulness, reflected by the association between excessive pay and SOP voting outcomes and the association between pay-performance sensitivity (PPS) and SOP voting outcomes, and shareholder awareness of pay-for-luck compensation, indicated by the association between pay-for-luck and SOP voting outcomes. The results show the significant moderating roles of executive compensation misassessment and pay-for-luck compensation on SOP voting outcomes and shed light on the unawareness of executive pay-for-luck. Overall, this study demonstrates a better explanation of SOP voting decisions through the lens of information-processing theory. Additionally, it provides new evidence of the PPS assessment concerning shareholders unawareness of pay-for-luck compensation.

Keywords: Irrational SOP Voting; Pay-for-luck Compensation; CD&A Usefulness

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Introduction

The debates over managerial power interference in executive compensation have raised public concern about the fairness of executive pay (Bebchuk et al., 2002; Pfeiffer, 2018). Evidence showed that executive compensation in the U.S. has dramatically increased since 1978 and has grown much faster than the stock market and the top 0.1 percent of highly paid workers (Mishel & Kandra, 2021). The rapid growth of executive compensation signifies an unequal distribution of income, which reflects rent extraction in executive compensation (Tsui et al., 2018). Although agency theory suggests that executive compensation can be an effective tool in promoting shareholder value in organizations (Wiseman & Gomez-Mejia, 1998), executive compensation in the U.S. appears to be inconsistent with the suggestion.

Bertrand and Mullainathan (2001) documented an opportunistic compensation incident in which executives were rewarded by luck, which is firm performance subjected to market or industry forces rather than their talents. Bebchuk (2007) explained that managerial power in executive compensation is attributed to the arrangement of executive compensation by the board of directors, whose authority is disrupted by self-serving executives. Public institution endeavored to reduce excessive executive compensation by promoting shareholder activism in the arrangement of executive compensation to realign the board of director authority with shareholder interests. As a result, a non-binding vote on executive compensation was enforced by the U.S. Securities and Exchange Commission (SEC) in 2011.

Particularly, Say On Pay (SOP) voting is a form of shareholder activism related to executive compensation where shareholders can cast their vote on the appropriateness of executive compensation (Stathopoulos & Voulgaris, 2016). The SEC advocates that SOP voting typically takes place in annual shareholder meetings. Shareholders often rely on information disclosed in the Compensation Discussion and Analysis (CD&A) section of the proxy statement to assess the shareholder alignment of executive compensation through excessive pay and pay-performance sensitivity (PPS) indicators and exercise their SOP voting rights (De Falco et al., 2016; Stathopoulos & Voulgaris, 2016; Velte & Obermann, 2021). Although SOP voting was implemented to guard against misaligned compensation to shareholder interests, excessive executive compensation has continued to persist because it was supported by shareholders. Brunarski et al. (2015) suggested that excessive or opportunistic executive compensation obtained by SOP majority votes can become acceptable executive compensation practices in organizations. Therefore, the persistence of excessive executive compensation is possibly a result of the misassessment of executive pay, which leads to irrational SOP voting decisions by shareholders.

This study points out the limitations of prior research on scrutinizing irrational SOP voting and opportunistic compensation. Literature has documented relevant factors in making SOP voting decisions, namely, SOP voting determinants. SOP voting determinants consist of excessive pay, pay-performance sensitivity (PPS), firm performance, firm characteristics, and corporate governance characteristics. The explanatory power of SOP determinants can be attested by the model of SOP voting determinants assuming rational SOP voting decisions and unopportunistic compensation (Fisch et al., 2018). Several studies have reported the insignificant explanatory power of SOP determinants such as excessive pay and PPS (Cai & Walkling, 2011; Fisch et al., 2018; Grosse et al., 2017). The findings of these studies indicated irrelevant factors in making SOP voting decisions, which limited our understanding regarding irrational SOP voting decisions and opportunistic compensation.

This study attempts to address the limitations in the SOP voting literature by modifying the SOP voting determinants model to investigate SOP voting decisions in the context of irrational SOP voting and opportunistic compensation. The objectives are to investigate: the moderating effect of executive pay misassessment linked to irrational SOP voting and pay-for-luck compensation on CD&A usefulness in deriving excessive pay and PPS, reflected by the association between excessive pay and SOP voting outcomes and the association between pay-performance sensitivity (PPS) and SOP voting outcomes, and shareholder awareness of pay-for-luck compensation, indicated by the association between pay-for-luck and SOP voting outcomes.

Particularly, we developed the modified SOP voting determinants model by drawing on information-processing theory. The heuristic-systematic framework of information processing demonstrates two distinct processing modes for analyzing information and making a decision. Heuristic processing is a mental shortcut for utilizing memory for making immediate decisions, whereas systematic processing requires more comprehensive cognition for making careful decisions (Chen et al., 1999; Simon, 1979). Also, information overload can impede systematic processing and trigger heuristic processing in individuals to avoid mental fatigue, thus, reducing the quality of decisions (Falschlunger et al., 2016).[1]

This study operationalized two new variables in verifying CD&A usefulness under irrational SOP voting and pay-for-luck compensation. The irrational SOP voting variable can capture firms whose SOP voting decisions reflect the misassessment of executive compensation due to heuristic processing (Brunarski et al., 2015; Cai & Walkling, 2011). For instance, misaligned executive compensation receives a vote-to-support higher than the previous period; or aligned executive compensation receives a vote-to-support lower than the previous period.[2] In addition, opportunistic compensation in this study refers to executive pay-for-luck. Pay-for-luck compensation is influenced by the idiosyncratic knowledge of executives about future firm performance (Bertrand & Mullainathan, 2001; Bizjak et al., 2008; Garvey & Milbourn, 2006). Executive pay can be opportunistically managed to be more sensitive to executives anticipated strong performance; and less sensitive to predicted weak performance, thereby causing PPS impractical for making SOP voting decisions (Amzaleg et al., 2014; Bebchuk & Fried, 2006).

Utilizing two developed variables, irrational SOP voting and pay-for-luck, as the moderators in the modified model of SOP voting determinants, the usefulness of CD&A can be examined in three scenarios. Scenario I is the control group, which serves as an important benchmark in isolating the moderating effects on CD&A usefulness in determining excessive pay or PPS. Scenarios II and III are the treatment groups concerning irrational SOP voting decisions and pay-for-luck compensation, respectively.

The contributions of this empirical study are threefold. Firstly, this study further advances the knowledge of SOP voting determinants through the lens of information-processing theory in order to address the limitations of SOP voting determinants literature.

[1] Information overload occurs when one has too much information to process, which causes difficulties in understanding and making decisions effectively.

[2] In this study, misaligned executive compensation refers to executive pay proposals with (1) greater excessive compensation than the previous period, (2) lower positive pay-performance sensitivity (PPS) in comparison with the previous period, or (3) a negative PPS in the current period. In contrast, aligned executive compensation refers to executive pay proposals with lower excessive compensation than the previous period or higher positive PPS in comparison with the previous period.

Prior to this study, the empirical evidence of irrational SOP voting and pay-for-luck compensation remained unrevealed because the existing model of SOP voting determinants failed to generate conclusions in such contexts. The extension of SOP voting determinants model through the lens of information-processing theory allows this research to scrutinize irrational SOP voting and pay-for-luck compensation. Our findings based on the modified model of SOP voting determinants shed light on the knowledge of irrational SOP voting and pay-for-luck compensation, in which the moderating effects of irrational SOP voting and pay-for-luck compensation on CD&A usefulness are examined.

Secondly, the investigation of shareholders' awareness of pay-for-luck provides new evidence for the building blocks of SOP voting determinants with regards to PPS assessment of pay-for-luck compensation. Despite the fact that a high and positive PPS is indicative of aligned executive compensation (Jensen & Murphy, 1990), this study shows that executive compensation with a high and positive PPS can be pay-for-luck compensation. According to Brunarski et al. (2015), excessive or opportunistic executive compensation will continue to persist if the SOP majority vote to support is executed by shareholders. Therefore, the unawareness of pay-for-luck compensation demonstrated by this research can suggest a plausible explanation for the persistence of rent extraction in executive compensation, even though SOP voting has already been implemented.

Thirdly, this study provides an insightful contribution to the SOP voting determination study by introducing the operationalization of irrational SOP voting and pay-for-luck compensation constructs, which were limited in the prior literature. These studies assumed rational SOP voting decisions and unopportunistic executive compensation (Armstrong et al., 2013; Balsam et al., 2016; Clarkson et al., 2011; Ertimur et al., 2013; Liang et al., 2020). These variables are important in investigating the moderating effects of irrational SOP voting and pay-for-luck compensation on CD&A usefulness, which can portray a more comprehensive relationship between SOP voting determinants and SOP voting outcomes. Consequently, the conclusions of irrational SOP voting and pay-for-luck compensation can be generated.

As for the practical implications, heuristic processing triggered by information overload is an attribute of irrational SOP voting and unawareness of pay-for-luck compensation, which can cause SOP voting disadvantages in curbing excessive or opportunistic compensation. To limit the disadvantages, this research suggests that the assessment of executive compensation, considering excessive pay and PPS with the realization of pay-for-luck compensation, is sufficient for making rational SOP voting decisions.

Literature Review and Hypothesis Development

The determinants of SOP voting

In this research, SOP voting determinants include executive compensation, firm characteristics, corporate governance characteristics, and corporate reputation, which were frequently examined in empirical SOP voting research (Kaplan et al., 2015; Obermann & Velte, 2018). The relationship between executive compensation and SOP voting outcomes explains how shareholders rationally assess executive compensation and make SOP voting decisions. Previous studies measured executive compensation by total compensation amount, excessive executive compensation, and PPS ratio. E.g., Kimbro and Xu (2016) used total compensation amount as a proxy of executive compensation; Alissa (2015) operationalized excessive

executive compensation as a variable of executive compensation; Fisch et al. (2018) measured executive compensation alignment by using the PPS ratio.

Nevertheless, literature reported mixed relationships between executive compensation and SOP voting outcomes—significant and insignificant relationships. A number of studies found evidence of executive compensation assessment by shareholders in a rational reasoning—shareholders vote to support executive pay proposal with lower total executive pay amount, lower excessive executive compensation, and higher PPS compared with the previous period—reflecting the negative relationship between total or excessive executive compensation and SOP voting outcomes (Armstrong et al., 2013; Balsam et al., 2016; Ertimur et al., 2013) and; the positive relationship between PPS and SOP voting outcomes (Clarkson et al., 2011; Liang et al., 2020). On the other hand, multiple studies found an insignificant association between executive compensation and SOP voting outcomes. For example, Cai and Walkling (2011) found insignificant findings of excessive executive pay for making SOP voting decisions in the U.S. sample. Grosse et al. (2017) reported insignificant excessive executive pay in the Australian context. Fisch et al. (2018) documented no association between low PPS and the 80-percent vote-to-support threshold. The insignificant findings can merely suggest irrelevant determinants in making SOP voting decisions, which limited our understanding regarding irrational SOP voting decisions and opportunistic compensation.

Next, the association between firm characteristics and SOP voting outcome describes how the nature of business can determine the decision of SOP voting. In this study, firm characteristics involve firm performance, and firm leverage. Obermann and Velte (2018) found that firm performance is the most essential firm characteristic in determining SOP voting decisions. Favorable SOP voting tends to be decided when superior firm performance is observed by shareholders, reflecting an increasing function of shareholders' voting support (Kaplan & Zamora, 2018; Krause et al., 2014). Financial performance covers three aspects: non-accounting performance: stock returns (TRI); accounting performance: the return on assets ratio (ROA); and hybrid performance: the market-to-book ratio (MTB). Meanwhile, high leverage firms are more likely to experience high executive compensation amounts (Chemmanur et al., 2013), which reduce SOP voting support (Obermann & Velte, 2018). Therefore, firm leverage, as a decreasing function of shareholders' votes to support (Clarkson et al., 2011; Grosse et al., 2017), which captures solvency risks, is measured by the debt ratio.

Further, the relationship between corporate governance and SOP voting outcomes demonstrates the characteristics of corporate governance that influence SOP voting decisions. The board of directors is the key person driving good corporate governance practices, which involve executive compensation. To promote executive compensation practices, board independence is an essential characteristic. The managerial power in executive compensation could be carried out when directors are less independent (Bebchuk & Fried, 2006). Literature has reported that independent directors are an attribute of favorable SOP voting outcomes. In particular, a more independent director is positively associated with shareholder SOP voting support. Board independence is measured by the proportion of independent directors and executive duality. For instance, Alissa (2015) showed that firms with a larger proportion of independent directors are associated with a higher SOP vote-to-support, and Kent et al. (2018) found that firms with the absence of executive duality tend to receive higher SOP voting support.

Lastly, corporate reputation can determine shareholders SOP voting decisions (Kaplan et al., 2015). Piñeiro-Chousa et al. (2017) showed that the consequences of corporate reputation are sustainable and long-lasting by utilizing the time series of SOP voting outcomes. They found a positive correlation between current and lagged SOP voting outcomes, reflecting the persistence of corporate reputation consequences. Therefore, the effect of corporate reputation on SOP voting decisions can be measured by the lagged value of SOP voting outcomes.

The usefulness of CD&A in estimating excessive pay and PPS

Excessive pay and PPS can be derived from CD&A disclosure. The SEC rule requires CD&A disclosure to cover company background, compensation arrangements, and the discussion of pay and performance relationships. The material information in CD&A enables shareholders to assess executive compensation alignment with shareholder interests and make an informed SOP voting decision (De Falco et al., 2016; Stathopoulos & Voulgaris, 2016; Velte & Obermann, 2021). In this research, the assessment of executive compensation involves the estimation of excessive pay and PPS, where the assessment inputs can be observed in CD&A. The calculations are shown in Appendix A.

SOP voting determinants model: The lens of information processing theory

The model for SOP voting determinants can be expressed in equation (1) to present the relationship between SOP voting outcome and SOP voting determinants. The variables are described in Appendix B.

$$\begin{aligned} SOP_{i,t} = \ & \tau_0 + \tau_1 EXCESSPAY_{i,t} + \tau_2 PPS_{i,t}, + \tau_3 ROA_{i,t} + \tau_4 TRI_{i,t} + \tau_5 MTB_{i,t} + \tau_6 LEV_{i,t} \\ & + \tau_7 DUAL_{i,t} + \tau_8 IND\_COM_{i,t} + \tau_9 CHGLSOP_{i,t} + Ind\_Fixed\_Effects \\ & + Year\_Fixed\_Effects + Error_{i,t} \end{aligned} \quad (1)$$

Nevertheless, the model of SOP voting determinants (equation 1) fails to explain how shareholders assess executive compensation in irrational SOP voting and pay-for-luck compensation phenomena because the factors indicating these phenomena remain unrevealed. To modify the SOP voting determinants model, the lens of information-processing theory is necessary. Information-processing theory explains how individuals develop cognitive thoughts and make decisions through two distinct processing modes: heuristic and systematic processing. Heuristic processing engages a mental shortcut in utilizing memory for making immediate decisions, whereas systematic processing involves more comprehensive cognition for making careful decisions (Chen et al., 1999; Simon, 1979). Moreover, information overload can impede systematic processing and trigger heuristic processing in individuals to avoid mental fatigue. Heuristic processing can lower the quality of decisions under more complex tasks and higher time pressure settings (Falschlunger et al., 2016; Tuttle & Burton, 1999).

Under the systematic process, which involves more comprehensive cognition, shareholders can determine the shareholder alignment of executive proposals by assessing excessive pay and PPS. Subsequently, they can rationally cast their vote based on their assessment outputs. For instance, shareholders decide to vote against executive pay proposals with higher excessive executive pay (Armstrong et al., 2013; Balsam et al., 2016; Ertimur et al., 2013); or executive pay proposals with lower PPS (Clarkson et al., 2011; Liang et al., 2020). However, under the heuristic process triggered by information overload, shareholders may jump right into SOP voting decisions with little consideration of executive compensation. As a result, SOP voters subjected to the heuristic process are more likely to experience irrational decisions.

As previously stated, this study develops two new variables as moderators of CD&A usefulness, which are irrational SOP voting and pay-for-luck compensation. Thus, the usefulness of CD&A with regards to excessive pay and PPS can be examined in three scenarios. Scenarios I[3] and II refer to rational and irrational SOP voting, respectively. Scenario III refers to pay-for-luck compensation.

1) Irrational SOP voting decisions (Scenario II)

Due to the lack of operational variables to examine irrational SOP voting decisions, empirical research on irrational SOP voting is limited. Irrational SOP voting can be defined based on the objective of SOP voting, which aims to engage shareholder opinions about executive compensation alignment in annual shareholder meetings to prevent misaligned executive compensation (Bebchuk et al., 2002; Bebchuk & Fried, 2006). SOP voting can prevent misaligned executive pay because dissenting votes on misaligned executive pay from shareholders can attract director attention to propose better aligned executive compensation with shareholder interests (Kimbro & Xu, 2016; Larcker et al., 2015; Sanchez-Marin et al., 2017). However, the SOP voting decisions, which approve misaligned executive pay and disapprove aligned executive compensation, are an indication of irrational SOP voting. Brunarski et al. (2015) indicated that shareholders voting to support misaligned executive compensation can attract director attention to put forward misaligned executive compensation. Cai and Walkling (2011) showed that SOP dissenting votes on aligned executive compensation can produce negative impacts on firm value.

Drawing on information-processing theory, irrational SOP voting is the result of the misassessment of executive compensation due largely to heuristic processing triggered by information overload. In this research, there are two types of misassessment that lead to irrational SOP voting decisions: A and B. Type A misassessment occurs when shareholders disagree with aligned compensation (Cai & Walkling, 2011). Type B misassessment occurs when shareholders agree to misaligned compensation (Brunarski et al., 2015). Misaligned executive compensation refers to executive pay with (1) a greater amount of excessive or total compensation from the previous period. (2) a lower PPS in comparison with the previous period, or (3) a negative PPS in the current period. In contrast, aligned executive compensation refers to executive pay with a lower amount of excessive or total compensation from the previous period or a higher positive PPS in comparison with the previous period (Armstrong et al., 2013; Balsam et al., 2016; Clarkson et al., 2011; Ertimur et al., 2013; Liang et al., 2020).

An increase in excessive executive compensation from the previous period should result in lower votes to support the compensation proposal, reflected by the negative relationship between excessive executive compensation and SOP voting outcomes. However, in irrational SOP voting (Scenario II), the usefulness of CD&A in determining excessive pay would be weakened or disappear. Thus, it is hypothesized that:

H1: The usefulness of CD&A in determining excessive pay is different between scenarios I and II.

Additionally, a lower value of PPS than the previous year or a negative PPS in the current year should receive fewer SOP votes-to-support from shareholders, as represented by the positive relationship between PPS and SOP voting outcome. Given the PPS misassessment

[3] Scenario (I) is the control group, which serves as an important benchmark in isolating the moderating effects on CD&A usefulness in determining excessive pay or PPS.

(Scenario II), the usefulness of PPS would be weakened or disappear. To verify this argument, it is hypothesized that:

H2: The usefulness of CD&A in determining PPS is different between scenarios I and II.

2) Pay-for-luck compensation (Scenario III)

The evidence of executive compensation's rapid growth in the U.S. reported by Mishel and Kandra (2021) points out the managerial power in executive compensation (Bebchuk et al., 2002; Bebchuk & Fried, 2006). Several studies that presented evidence of pay-for-luck indicated that executive pay is more sensitive to stronger firm performance driven by luck and less sensitive to worse performance caused by luck when exogenous factors in driving firm performance (luck) were anticipated by executives (Amzaleg et al., 2014; Bebchuk, 2007; Bebchuk & Fried, 2006; Bertrand & Mullainathan, 2001; Bizjak et al., 2008; Garvey & Milbourn, 2006).

Summarily, executive pay-for-luck is opportunistic compensation, in which executives can exploit their idiosyncratic knowledge about future firm performance driven by luck and manipulate compensation to their advantage. Executives can opportunistically manage key performance indicators related to their compensation by including anticipated strong performance and excluding predicted weak performance (Garvey & Milbourn, 2006). As a result, the PPS assessment of pay-for-luck should be less reliable for making SOP voting decisions because it absorbs the opportunistic intent of executives.

Shareholders should vote against pay-for-luck compensation, although the assessment of PPS is highly positive. Nevertheless, shareholders' awareness of pay-for-luck remains largely unknown. Given the presence of pay-for-luck (Scenario III), two alternative hypotheses are proposed as follows:

H3a: If shareholders are aware of pay-for-luck, the relationship between pay-for-luck and SOP voting outcomes is negative.

H3b: If shareholders are unaware of pay-for-luck, the relationship between pay-for-luck and SOP voting outcomes is positive or insignificant.

Shareholders' awareness of pay-for-luck suggests that highly positive PPS is unreliable. Consequently, SOP voting support should not be decided based on the PPS assessment of pay-for-luck. Given the presence of pay-for-luck (Scenario III), two alternative hypotheses are proposed as follows:

H4a: If shareholders are aware of pay-for-luck, the usefulness of CD&A in determining PPS would be weakened or disappear in scenario III.

H4b: If shareholders are unaware of pay-for-luck, the usefulness of CD&A in determining PPS would be strengthened or remain unchanged in scenario III.

Research Methodology

Study sample

The research population is the U.S. companies regulated by the SOP voting rule between 2012 and 2019. Our data set excludes the years 2020 and 2021 to extinguish the influence of the COVID-19 pandemic on executive compensation and SOP voting. As a result,

the study samples are companies listed on the Standard & Poor's (S&P) 1500 index between 2012 and 2019. S&P 1500 can be the U.S. stock market representative because its market value of equity covers major market capitalization in the United States. In addition, the data is acquired from Bloomberg databases, including executive compensation, SOP voting outcome, return on assets (ROA), and total securities returns index (stock returns). An observation is excluded in the event of missing data.

The modified model of SOP voting determinants

As regards equation (1), the model of SOP determinants aims to demonstrate the relevant factors in making SOP voting decisions, but it fails to present evidence of irrational SOP voting and pay-for-luck compensation. To address the literature gap, the model in equation (1) is modified by incorporating the variables of irrational SOP voting (scenario II) and pay-for-luck compensation (scenario III), so that their moderating effects on the usefulness of CD&A can be examined. The variables of irrational SOP voting are described in Appendix C1 and pay-for-luck is described in Appendix C2.

Consequently, the SOP voting determinants model in equation (1) was incorporated by the variables of irrational SOP voting (Scenario II): MIS_PAY and MIS_PPS, and the variable of pay-for-luck (Scenario III): LUCK. The modified model of SOP voting determinants is expressed in equation (2), where the dependent variable is $SOP_{i,t}$ is the proportion of votes to support executive pay proposals to total SOP votes. The independent variables consist of the variables specifying irrational SOP voting (MIS_PAY and MIS_PPS), pay-for-luck compensation (LUCK), and the measurements with respect to the baseline model of SOP voting determinants (equation 1). Furthermore, the random effect (u_i), which targets the mean variation of SOP voting outcomes across sampled-firm identities, is added to the model.

$$\begin{aligned} SOP_{i,t} = {} & \tau_0 + \tau_1 EXCESSPAY_{i,t} + \tau_2 PPS_{i,t}, + \tau_3 ROA_{i,t} + \tau_4 RET_{i,t} + \tau_5 MTB_{i,t} + \tau_6 LEV_{i,t} \\ & + \tau_7 DUAL_{i,t} + \tau_8 IND\_COM_{i,t} + \tau_9 CHGLSOP_{i,t} + \tau_{10} MIS\_PAY_{i,t} \\ & + \tau_{11} MIS\_PPS_{i,t} + \tau_{12} LUCK_{i,t} + \tau_{13}(EXCESSPAY_{i,t}\ x\ MIS\_PAY_{i,t}) \\ & + \tau_{14}(PPS_{i,t}\ x\ MIS\_PAY_{i,t}) + \tau_{15}(EXCESSPAY_{i,t}\ x\ MIS\_PPS_{i,t}) \\ & + \tau_{16}(PPS_{i,t}\ x\ MIS\_PPS_{i,t}) + \tau_{17}(EXCESSPAY_{i,t}\ x\ LUCK_{i,t}) \\ & + \tau_{18}(PPS_{i,t}\ x\ LUCK_{i,t}) + Ind\_Fixed\_Effects + Year\_Fixed\_Effects + u_i \\ & + e_{i,t} \end{aligned} \quad (2)$$

To confirm the first and second hypotheses (H1 and H2), the coefficients of excessive pay (τ_1) and PPS (τ_2) are expected to be significantly negative and positive, respectively[4]. As for the moderating effect of irrational SOP voting on CD&A usefulness (scenario II), the coefficients (τ_{13} and τ_{14}) with regard to excessive executive pay misassessment ($EXCESSPAY_{i,t}\ x\ MIS\_PAY_{i,t}$ and $PPS_{i,t}\ x\ MIS\_PAY_{i,t}$) are expected to be significantly positive and negative, respectively. Also, the coefficients (τ_{15} and τ_{16}) associated with PPS misassessment ($EXCESSPAY_{i,t}\ x\ MIS\_PPS_{i,t}$ and $PPS_{i,t}\ x\ MIS\_PPS_{i,t}$) are predicted to be significantly positive and negative, respectively.

Regarding the third and fourth hypotheses (H3 and H4), the negative coefficients of pay-for-luck (τ_{12}) and PPS related to pay-for-luck compensation (τ_{18}) suggest that shareholders are aware of executive pay-for-luck and less dependent on the assessment of PPS when making SOP voting decisions. In contrast, the positive or insignificant coefficients (τ_{12}

[4] Scenario I: rational SOP voting

and τ_{18}) indicate shareholders unawareness of pay-for-luck compensation and reliance on opportunistic PPS when exercising SOP voting rights.

Research Findings and Additional Analyses

Data collection

The study samples retrieved from Bloomberg databases initially consist of 12,048 observations, which are the companies listed on S&P 1500 between 2012 and 2019, as shown in Table 1. In panel A, the observation is dropped when it fails to deliver the complete dataset with respect to this research. As a result, the total sample size is finalized at 5,036 observations after removing missing values. In panel B, the total sample is displayed by years (2012-2019) and scenarios (I-III). Total observations presented in 2019 show the smallest sample size (160 observations), which can be attributable to the missing value of SOP voting. As for scenario I, the control group includes 1,259 observations, which serve as the standard in comparing the moderating effects of irrational SOP voting (Scenario II) and the moderating effects of executive pay-for-luck (Scenario III) on the usefulness of CD&A. As regards scenario II, the sample is sub-classified into MIS_PAY and MIS_PPS, which are non-mutually exclusive incidents; the dummy variables indicating MIS_PAY and MIS_PPS can be simultaneously equal to 1. Therefore, the final observations in scenario II, shown in Panel B, are the outcomes of the deduction between the whole samples of MIS_PAY and MIS_PPS and their intersection samples. On the subject of scenario III, there are 380 observations of the samples respecting executive pay-for-luck (LUCK).

Table 1: Study Sample
Panel A: total observations

S&P 1500 firms (2012-2019)	12,048
(Excluded) missing data:	(7,012)
Final observations	5,036

Panel B: total observations classified by years (2012-2019) and by scenarios (I-III)

Year:	2012	2013	2014	2015	2016	2017	2018	2019	Total
All Observations:	490	632	691	735	762	783	783	160	5,036
scenario I	103	113	204	209	152	205	250	23	1,259
Scenario II*	324	455	394	448	533	490	443	126	3,213
scenario III	38	34	56	45	50	63	73	21	380

Notes: The events between rational (Scenario I) and irrational SOP voting (Scenario II) are mutually exclusive (Chen et al., 1999; Falschlunger et al., 2016; Simon, 1979; Tuttle & Burton, 1999). However, pay-for-luck compensation (Scenario III) is a ***non***-mutually exclusive occurrence.

* The final sample in scenario II includes *MIS_PAY* and *MIS_PPS* observations, which are ***non***-mutually exclusive.

Year:	2012	2013	2014	2015	2016	2017	2018	2019	Total
MIS_PAY	212	274	316	326	329	325	345	66	2,193
MIS_PPS	186	265	257	289	308	270	277	85	1,937
MIS_PAY and MIS_PPS	(74)	(84)	(179)	(167)	(104)	(105)	(179)	(25)	(917)
Scenario II*	324	455	394	448	533	490	443	126	3,213

The estimation of expected executive compensation: expected pay model

The coefficients of expected executive compensation were estimated based on 11,204 observations belonging to the years 2010 and 2019, where the random effect is significant for this model (see Appendix D). Breusch and Pagan Lagrangian multiplier test indicated statistical significance at the 1% level. Utilizing these estimated coefficients, the fitted values of expected executive compensation were computed and used as inputs in calculating excessive executive pay (EXCESSPAY).[5]

Descriptive statistics

Table 2 presents descriptive statistics of all variables with respect to the modified model of SOP voting determinants. The key variables include SOP, EXCESSPAY, PPS, ROA, TRI, MTB, LEV, DUAL, P_IND_COM, and CHGLSOP. Also, the descriptive statistics are separately presented for each scenario. In Panel 2.1, the total observations (n = 5,036) show that the averages of three key variables, which are SOP voting support (SOP); excessive executive compensation (EXCESSPAY); and pay-performance sensitivity (PPS), are 0.920, 0.099, and 0.460, respectively.

Table 2: Descriptive Statistics

Sample/subsamples	Variables	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile
Panel 2.1:						
Total observations	*SOP*	0.920	0.112	0.924	0.959	0.977
(n = 5,036)	*EXCESSPAY*	0.099	0.569	-0.194	0.118	0.424
	PPS	0.460	16.041	-0.824	0.128	1.066
Panel 2.2:						
Control (scenario I)	*SOP*	0.906	0.125	0.908	0.953	0.975
(n = 1,259)	*EXCESSPAY*	0.178	0.614	-0.125	0.197	0.493
	PPS	0.839	22.257	-0.990	0.068	0.974
Panel 2.3:						
MIS_PAY	*SOP*	0.931	0.100	0.932	0.963	0.980
(scenario II)	*EXCESSPAY*	0.045	0.538	-0.224	0.061	0.359
(n = 2,193)	*PPS*	0.265	7.945	-0.714	0.169	1.113
Panel 2.4:						
MIS_PPS	*SOP*	0.926	0.107	0.930	0.962	0.979
(scenario II)	*EXCESSPAY*	0.077	0.551	-0.203	0.098	0.398
(n = 1,937)	*PPS*	-0.388	14.792	-1.173	-0.122	0.717
Panel 2.5:						
LUCK (scenario III)	*SOP*	0.913	0.126	0.921	0.961	0.977
(n = 380)	*EXCESSPAY*	-0.051	0.579	-0.337	-0.018	0.329
	PPS	3.045	26.150	0.252	0.770	1.829

[5] The excessive pay model was expressed in equation (2), page 9.

As regards the dependent variable, the means of SOP voting support concerning all observations and the three scenarios (panel 2.1-2.5) are 0.920 (total), 0.906 (control), 0.931 (MIS_PAY), 0.926 (MIS_PPS), and 0.913 (LUCK), respectively. Specifically, SOP voting support, on average, is over 0.9 for all subsamples. EXCESSPAY with regard to all observations (panel 2.1) is slightly below 0.1, while scenario III displays the lowest excessive pay (-0.051). PPS concerning total observation is slightly below 0.5.[6] The highest PPS is experienced in the pay-for-luck sample (PPS = 3.045), approximately three times higher than the total observation's PPS; concurrently, the lowest PPS is -0.388, which belongs to the sample of MIS_PPS. These extreme PPS belonging to LUCK and MIS_PPS can reflect (i) pay-for-luck compensation characteristic, where PPS is opportunistically high and positive, and (ii) shareholders' irrational SOP voting support the executive compensation proposals that experience negative PPS, individually. The descriptive statistics of other control variables are displayed in Appendix E.

Hypothesis testing results

To test the hypotheses (H1–H4), the modified model of SOP voting determinants expressed in equation (2) was operated under a linear mixed-effect model that contains both fixed and random effects. Fixed effect aims to capture particular variables that remain unchanged across the study sample, which are Ind_Fixed_Effects and Year_Fixed_Effects[7]; meanwhile, random effect targets the variation across sampled-firm identities (u_i). The significance of the random effect for the modified model of SOP voting determinants was examined by the test of likelihood ratio chi-square, where the result confirms that the random effect with regard to sampled firm identities is essential (Chi-square = 504.68, p-value ≤ 0.001). Also, the coefficients shown in Table 3 were estimated based on the maximum likelihood method that is suitable for the model in which the dependent variable is bounded between zero and one (Clark, 2019; Paolino, 2001; Smithson & Verkuilen, 2006).

As for the results respecting equation (1), the coefficients of excessive pay and PPS are significantly negative (p-value ≤ 0.01) and insignificant, respectively. The insignificant PPS coefficient can suggest that pay-performance sensitivity (PPS) is less useful for assessing executive compensation and making SOP voting decisions, which limits the understanding of irrational SOP voting and opportunistic compensation.

To extend the strand of literature, the results regarding equation (2) can confirm the first and second hypotheses (H1 and H2), where the coefficients of excessive executive pay and PPS with regard to scenario I are significantly negative (p-value ≤ 0.01) and positive (p-value ≤ 0.1), individually. Additionally, the interaction of excessive pay concerning scenario II is significantly negative (p-value ≤ 0.01) for MIS_PAY but insignificant for MIS_PPS, and the interaction of PPS with regard to scenario II is insignificant for MIS_PAY but significantly positive (p-value ≤ 0.01) for MIS_PPS. Furthermore, the results of MIS_PAY and MIS_PPS showing positive significance can indicate that shareholders are more likely to vote in support of executive compensation proposals, when they are assessed under heuristic processing.

[6] *PPS* was estimated based on three periods for each firm-year. The observations included the current-year observation *(t_0)* and two observations from the previous years *(t_{-1} and t_{-2})*.

[7] $Ind\_Fixed\_Effects$ is a variable controlling for the effect of industry based on the 1-digit Standard Industry Classification (SIC) codes (n = 9) (Burns & Minnick, 2013). $Year\_Fixed\_Effects$ is a year dummy variable for controlling the effect of time (the reference year is 2012; all years (i.e., 2013, 2014, 2019) is equal to zero).

Table 3: The Modified Model of SOP Voting Determinants Findings

Dependent Variable: *SOP*	**Equation (1)**			**Equation (2)**		
	Coefficients		**z-statistic**	**Coefficients**		**z-statistic**
Intercept	0.921	***	85.39	0.916	***	83.65
EXCESSPAY	-0.064	***	-12.57	-0.081	***	-10.41
PPS	0.000		-0.79	0.000	*	1.7
ROA	0.001	***	3.49	0.001	***	3.65
TRI	0.000		1.28	0.000		1.41
MTB	0.000		0.86	0.000		0.79
LEV	-0.001		-0.08	-0.004		-0.4
DUAL	-0.010	**	-2.38	-0.010	**	-2.35
P_IND_COM	0.014		0.96	0.009		0.61
CHGLSOP	0.001	***	5.85	0.001	***	6.45
MIS_PAY				0.009	***	3.31
MIS_PPS				0.005	*	1.79
LUCK				-0.010		-1.51
MIS_PAY x EXCESSPAY				0.041	***	6.41
MIS_PAY x PPS				0.000		0.08
MIS_PPS x EXCESSPAY				0.011		1.46
MIS_PPS x PPS				-0.001	***	-3.13
LUCK x EXCESSPAY				-0.005		-0.39
LUCK x PPS				0.001	**	2.12
Year_fixed_effect	Included			Included		
Industry_fixed_effect	Included			Included		
Number of observation	*n = 5,036*			*n = 5,036*		
Log-pseudolikelihood	*4454.558*			*4520.135*		

Notes: z-statistics were computed based on clustered-robust standard error. *Two-tailed statistical significance at the 10% level. **Two-tailed statistical significance at the 5% level. ***Two-tailed statistical significance at the 1% level.

Also, Figures 1 and 2 present the interaction plots of EXCESSPAY and PPS respecting MIS_PAY and MIS_PPS, respectively, which can visualize the difference in CD&A usefulness in determining excessive pay and PPS between scenarios I and II. Particularly, the interaction plots aim to illustrate the moderating effect of irrational SOP voting on the usefulness of CD&A with regard to the first and second research objectives.[8] Figure 1 shows the essential difference in CD&A usefulness in assessing excessive pay, while Figure 2 illustrates the significant difference in CD&A usefulness in assessing PPS. Overall, the results can confirm the moderating effect of irrational SOP voting (Scenario II) on CD&A usefulness in determining excessive pay and PPS with respect to H1 and H2.

[8] The first and second objectives are to investigate the moderating effect of irrational SOP voting and opportunistic compensation on (i) the association between excessive pay and SOP voting outcomes, (ii) the association between pay-performance sensitivity (PPS) and SOP voting outcomes.

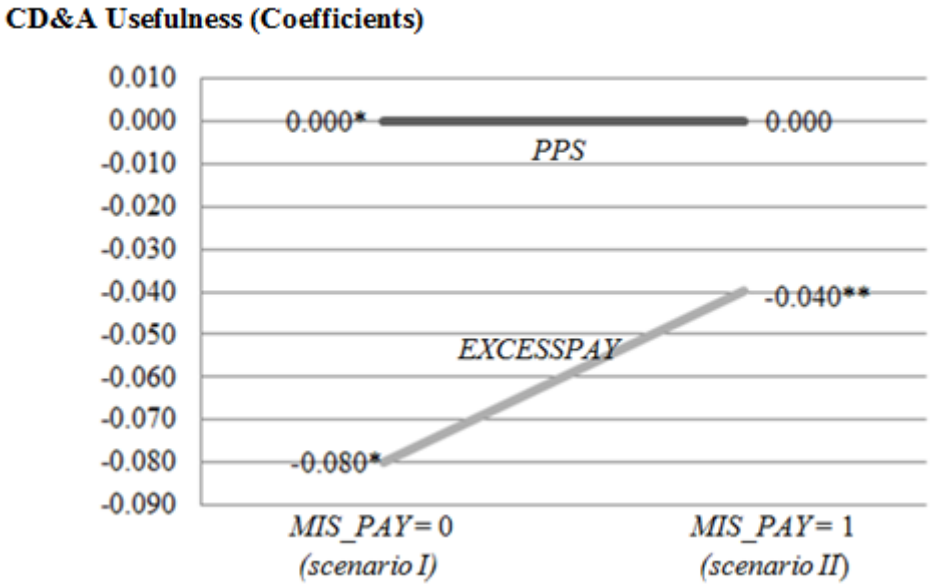

Figure 1: Interaction Plot of *MIS_PAY*

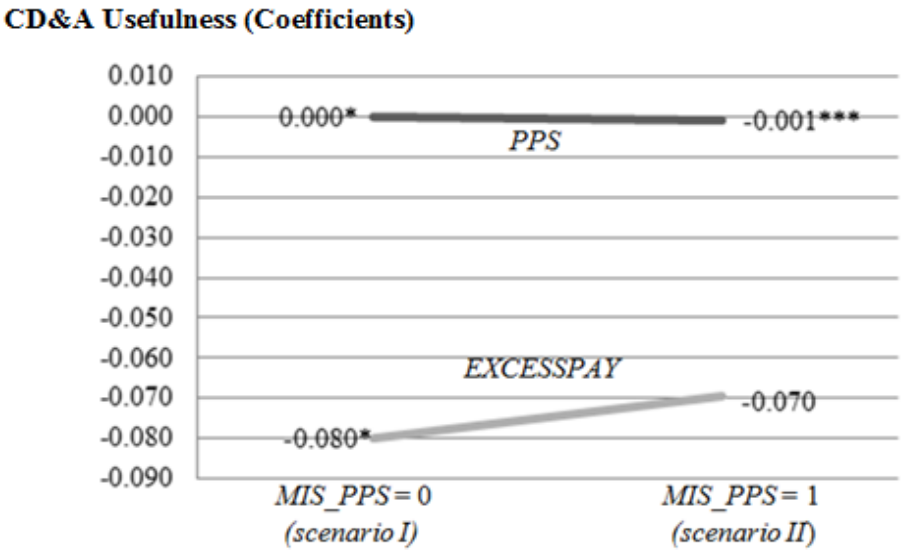

Figure 2: Interaction Plot of *MIS_PPS*

As regard the third hypothesis (H3), the coefficient of pay-for-luck (LUCK) is found to be insignificant. Generally, the results concerning the coefficients of LUCK can suggest that shareholders have less awareness of pay-for-luck compensation when assessing executive compensation and making SOP voting decisions, thereby rejecting H3. Regarding the fourth hypothesis (H4), the coefficients of PPS related to pay-for-luck compensation (LUCK x PPS) are shown to have positive significance (p-value ≤ 0.05), thus rejecting H4a.

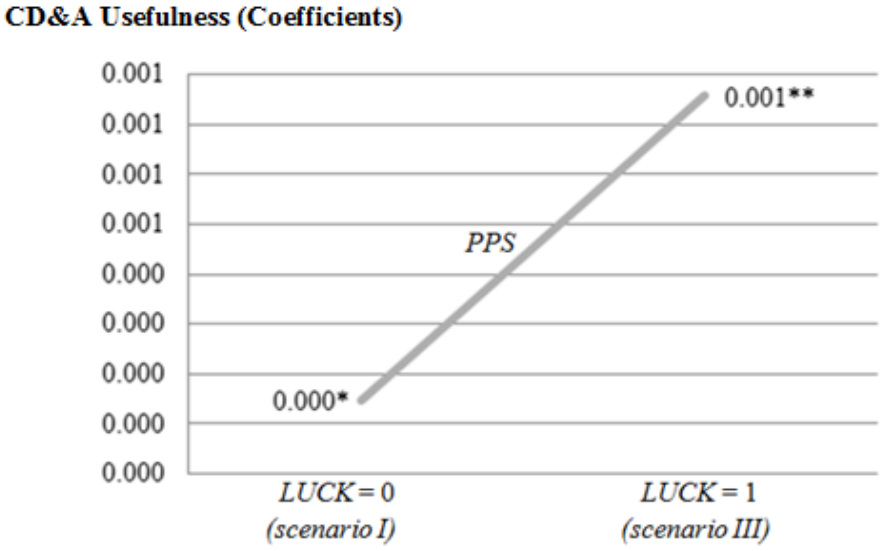

Figure 3: Interaction Plot of *LUCK*

The interaction plot displayed in Figure 3 can portray the variations of CD&A usefulness in determining PPS with respect to pay-for-luck compensation (scenario III) benchmarking with scenario I. The usefulness of CD&A in assessing PPS concerning LUCK is essentially strengthened. On the whole, the insignificance and positive significance results with regard to (H3: LUCK) and (H4: LUCK x PPS) can indicate shareholders unawareness of pay-for-luck compensation and more reliance on opportunistic PPS when exercising SOP voting rights.

Additional analysis

The additional analysis aims to provide robustness testing of equation (2) findings, whereby the changeable criteria of performance variation respecting the LUCK variable were remeasured by the relative threshold that is "above and below median".[9] The robustness tests' results point out that the criterion in classifying between high and low performance variation used by this research is unlikely to have any effect on the modified model of SOP voting determinants findings (See Appendix F).

Discussion and Conclusion

The traditional studies of SOP voting determinants prior to this research failed to explain SOP voting outcomes attributed to irrational SOP voting and opportunistic compensation. Information-processing theory can reinforce this research in attempting to broaden the comprehension of SOP voting practices under the phenomena of irrational SOP voting (Brunarski et al., 2015; Cai & Walkling, 2011) and pay-for-luck compensation (Amzaleg et al., 2014; Bebchuk & Fried, 2006; Bertrand & Mullainathan, 2001; Bizjak et al., 2008; Garvey & Milbourn, 2006).

[9] Amzaleg et al. (2014) used the performance median as a threshold in classifying high and low performance.

Drawing on information-processing theory, the relationship between excessive executive pay and SOP voting outcomes, and the association between PPS and SOP voting outcomes can demonstrate the usefulness of CD&A related to SOP voting decisions. Particularly, the SOP voting decision is a result of executive pay assessments utilizing the calculation of excessive executive pay, PPS and awareness of pay-for-luck compensation. SOP voting decisions can be varied by the two processing modes: rational decisions involve systematic processing and irrational decisions entail heuristic processing triggered by information overload, as presented by the modified model of SOP voting determinants.

Discussion of findings

The research findings revealed that (1) irrational SOP voting (MIS_PAY and MIS_PPS) can moderate the usefulness of CD&A in estimating excessive pay and PPS respecting scenario II to be different from scenario I, (2) pay-for-luck compensation (LUCK) can moderate the usefulness of CD&A in determining PPS in scenario III to be strengthened benchmarking with scenario I, and eventually, (3) shareholders are unlikely to be aware of pay-for-luck compensation when making SOP voting decisions. Overall, the findings of this research can advance the knowledge of SOP voting practices by operationalizing the relevant constructs, as well as provide a more comprehensive explanation regarding the contexts related to irrational SOP voting and pay-for-luck compensation.

The discussions of findings are threefold. Firstly, the findings suggest that the misassessment of executive compensation and executive pay-for-luck play a crucial role in scrutinizing the determinants of SOP voting studies, so that the usefulness of CD&A can be examined under full cognitive assessment (systematic) and mental shortcut (heuristic) processing simultaneously. Without these moderators, the estimation of excessive pay and PPS parameters (Scenario I) will include the influences of irrational SOP voting and pay-for-luck compensation on SOP voting outcomes, which limit the understanding of irrational SOP voting and pay-for-luck. This can be illustrated by the relative findings of PPS assessment between the baseline model (equation 1) and the modified model (equation 2). The insignificance of PPS in equation 1 was shown to be positive and significant in equation 2 in the presence of irrational SOP voting and pay-for-luck moderators.

Secondly, the findings on shareholders' awareness of pay-for-luck compensation can point out new evidence with regard to the assessment of PPS. This research postulates that the assessment of PPS with respect to pay-for-luck compensation should be less reliable, even though a higher and positive PPS can signify better shareholder alignment of executive compensation (Duffhues & Kabir, 2008; Jensen & Murphy, 1990). Nevertheless, the results indicate that shareholders are less aware of executive pay-for-luck existing and opportunistic PPS of pay-for-luck.

Lastly, this research draws attention to the moderating effects of irrational SOP voting and pay-for-luck, by which the developments of these constructs are greatly essential. The lack of supportive literature raised the question of internal validity concerning the indiscriminate criterion of the measurements utilized by this study. The additional analyses shown in Appendix F provided the robustness check of equation (2) findings, where the criterion of performance variation respecting LUCK was remeasured by the relative threshold that is "above and below median" (Amzaleg et al., 2014). The findings from the robustness check can point out that the criterion for classifying between high and low performance used in this research is unlikely to have any effect on the findings of the modified model of SOP voting determinants.

Conclusion and implications

Despite public institutions endeavoring to reduce excessive executive compensation by promoting shareholder activism via the non-binding vote on executive compensation in 2011, excessive and opportunistic compensation have continued to persist because it was supported by shareholders. The persistence of excessive and opportunistic compensation can be attributed to irrational SOP voting decisions, which can destroy firm value (Brunarski et al., 2015; Cai & Walkling, 2011). Regarding the literature, the determinants of SOP voting decisions have been studied in many papers, but none of them address the existing phenomena of irrational SOP voting and opportunistic compensation. Furthermore, the variables indicating irrational SOP voting and opportunistic compensation have never been operationalized by any study. Therefore, this research aims to extend this strand of literature, through which the understandings of irrational SOP voting decisions and opportunistic compensation assessment can be investigated based on information-processing theory.

Utilizing the developed variables as the moderators in the modified model of SOP voting determinants, the usefulness of CD&A can be examined in three scenarios (rational SOP voting, irrational SOP voting and pay-for-luck). The research findings revealed the significance of the moderating roles and point out the unawareness of pay-for-luck.

In conclusion, the findings suggest a better explanation of executive pay assessments linked to SOP voting decisions, by which the evidence of irrational SOP voting and pay-for-luck compensation can be verified based on information-processing theory. Additionally, this study can point out shareholders unawareness of pay-for-luck compensation, which provides new evidence with regard to PPS assessment, where a high and positive PPS could be a result of opportunistic compensation. On the whole, this research implies that the assessment of executive compensation, considering excessive pay and PPS with awareness of opportunistic compensation, is sufficient for making rational SOP voting decisions.

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Appendix

Appendix A: Excessive Pay and PPS Caluculations

Alissa (2015); Gregory-Smith et al. (2014) showed that shareholders could determine excessive executive compensation by using the models from Core et al. (1999) and Core et al. (2008). Excessive executive compensation can be computed from two equations: the expected pay model (equation A1) and the excessive pay model (equation A2). The coefficients obtained from the expected pay model are used in fitting the value of expected executive compensation for each firm-year observation. The expected pay model is expressed in equation (A1).

$$ln\,(COMP_{i,t}) = \gamma_0 + \gamma_1 ln\,(TEN_{i,t}) + \gamma_2 ln\,(SALES_{i,t-1}) + \gamma_3 ROA_{i,t} + \gamma_4 ROA_{i,t-1} + \gamma_5\ RET_{i,t} + \gamma_6\ RET_{i,t-1}\ + \gamma_7 BTM_{i,t-1} + Ind\_Fixed\_Effects\ + Year\_Fixed\_Effects + Error_{i,t} \quad \text{(A1)}$$

Variables	Descriptions
$ln(COMP)_{i,t}$	The dependent variable, which is the natural logarithm of the total executive compensation amount**.** The executive compensation amount is the total executive pay, consisting of long-term performance-based payments, short-term performance-based payments or bonuses, and cash payments.
$TEN_{i,t}$	The tenure of an executive**.**
$SALES_{i,t-1}$	The lagged value of sales, which is proxy for business complexity**.**
$ROA_{i,t}$	The current value of return on assets.
$ROA_{i,t-1}$	The lagged value of return on assets.
$RET_{i,t}$	The current value of stock returns.
$RET_{i,t-1}$	The lagged value of stock returns.
$BTM_{i,t-1}$	The lagged value of book-to-market.
Ind_Fixed_Effects	The variable controlling for the effect of industry based on 1-digit Standard Industry Classification (SIC) codes (n = 9; the reference SIC code is I, which refers to the service industry, where all dummy variables indicating industry such as A, B,…, H are equal to zero.
Year_Fixed_Effects	The year dummy variable employed to control the effect of time (the reference year is 2012; all years (i.e., 2013, 2014,… 2019) are equal to zero).

Excessive executive compensation is subsequently calculated by using the model of excessive pay, where COMP is the actual executive compensation amount disclosed in CD&A and EXPECTEDCOMP is the fitted value of expected executive compensation from equation (A1).

$$EXCESSPAY_{i.t} = ln\left(\frac{COMP_{i,t}}{EXPECTEDCOMP_{i,t}}\right) \quad \text{(A2)}$$

PPS is the sensitivity between executive compensation and firm performance. Specifically, PPS measures the impact of a change in firm performance on the executive's wealth. Higher PPS suggests better alignment between executive compensation and shareholders' interests (Jensen & Murphy, 1990). Besides, higher PPS is associated with corporate governance transparency. For example, PPS is higher for firms that voluntarily disclose management discussion and analysis (De Franco et al., 2013) and in the post-SOX era (Chen et al., 2015).

In this research, PPS is a coefficient calculated by equation (A3) for each firm-year observation, where it was estimated based on three periods for each firm-year. The observations included the current-year observation (t0) and two observations from the previous years (t-1 and t-2). $CHGCOMP_t$ is the percentage change of total executive compensation amount (t) from the previous year (t-1) ; and $CHG\_PERFORMANCE_{i,t}$ is the percentage change of current-period firm performance (i.e., ROA and stock returns) from the previous period. A positive PPS coefficient (b1) indicates aligned executive compensation with shareholder interests (Liang et al., 2020), and a negative PPS coefficient signifies executive pay misalignment (Duffhues & Kabir, 2008).

$$CHGCOMP_t = b_0 + b_1 CHG\_PERFORMANCE_t + error_t \quad \text{(A3)}$$

Appendix B: The Variables in SOP Voting Determinants Model

$$SOP_{i,t} = \tau_0 + \tau_1 EXCESSPAY_{i,t} + \tau_2 PPS_{i,t}, + \tau_3 ROA_{i,t} + \tau_4 RET_{i,t} + \tau_5 MTB_{i,t} + \tau_6 LEV_{i,t} + \tau_7 DUAL_{i,t} + \tau_8 IND\_COM_{i,t} + \tau_9 CHGLSOP_{i,t} + Ind\_Fixed\_Effects + Year\_Fixed\_Effects + Error_{i,t}$$

Variables	Descriptions
$SOP_{i,t}$	The dependent variable, which is the proportion of votes to support executive pay proposals to total SOP votes.
$EXCESSPAY_{i,t}$	The excessive executive compensation obtained by operating equations (1) and (2)**.**
$PPS_{i,t}$	The slope of equation (3) indicating pay-stock performance sensitivity for each firm year**.** PPS is calculated based on three-period observations that include the current year observation *(t_0)* and two observations from the previous years *(t_{-1} and t_{-2})***.** *PPS_ROA* is excluded from the baseline and modified model of SOP voting determinants because pay for accounting performance fails to capture the alignment of executive compensation concerning shareholder interests.
$ROA_{i,t}$	The return on assets ratio.
$TRI_{i,t}$	The total return variant of an index.
$MTB_{i,t-1}$	The market-to-book ratio.
$LEV_{i,t}$	The long-term debts
$DUAL_{i,t}$	A dummy variable equal to 1 if the CEO also serves as chairman of the board and 0 otherwise
$IND\_COM_{i,t}$	The proportion of the independent committee to total committees.
$CHGLSOP_{i,t}$	The percentage change in SOP vote to support from the prior year.
Ind_Fixed_Effects	The variable controlling for the effect of industry based on 1-digit Standard Industry Classification (SIC) codes (n = 9; the reference SIC code is I, which refers to the service industry, where all dummy variables indicating industry such as A, B,…, H are equal to zero.
Year_Fixed_Effects	The year dummy variable employed to control the effect of time (the reference year is 2012; all years (i.e., 2013, 2014,… 2019) are equal to zero).

Appendix C: The Variables of Irrational SOP Voting and Pay-For-Luck

C1: The variables of irrational SOP voting: MIS_PAY and MIS_PPS

Irrational SOP voting is a result of executive compensation misassessment due to heuristic processing; and there are two types of executive compensation misassessment: Type A and B. Type A misassessment occurs when shareholders disagree with aligned compensation. Type B misassessment occurs when shareholders agree with misaligned compensation. The variable of irrational SOP voting can be separated into two categories: the misassessment of excessive executive pay (MIS_PAY) and the misassessment of PPS (MIS_PPS).

MIS_PAY, which is a dummy variable, refers to SOP voting decisions based on the misassessment of excessive executive pay under heuristic processing (Brunarski et al., 2015; Cai & Walkling, 2011). The observation (MIS_PAY = 1) includes sampled firms whose executive compensation amounts and SOP voting support in total are lower than the previous period (Type A) and sampled firms whose compensation amounts and SOP voting support in aggregate is higher than the previous period (Type B) (Armstrong et al., 2013; Balsam et al., 2016; Ertimur et al., 2013).

Notably, there are two reasons that this research relies on the changes in actual compensation amounts instead of the excessive pay calculated by equations (A1) and (A2) in determining irrational SOP voting. Firstly, utilizing actual compensation amounts to establish irrational SOP voting observations can avoid the mechanical relationship between excessive pay and SOP voting outcomes in the model of SOP voting determinants. Secondly, actual compensation amounts can represent the incompletion of excessive pay estimation by shareholders due to the assessment being impeded by heuristic processing triggered by information overload.

Also, MIS_PPS, which is a dummy variable, equals 1 when SOP voting decisions are attributed to both types of PPS misassessment. As for Type A, the observation (MIS_PPS = 1) captures for the sampled firms that the values of PPS are greater and positive but receive lower SOP voting support in total than the previous period. Regarding Type B, the observations demonstrate that firms with (i) negative PPS in the current period, and (ii) lower positive PPS but receive higher SOP voting support in aggregate than the previous period (Clarkson et al., 2011; Liang et al., 2020).

C2: The variable of pay-for-luck: LUCK

Pay-for-luck compensation is a result of managerial power; it is an opportunistic compensation that rewards executives by luck rather than managerial efforts (Bertrand & Mullainathan, 2001). Executives can utilize their distinct knowledge of future corporate performance to manipulate the performance indicators in executive compensation packages by including anticipated strong performance and excluding predicted weak performance (Garvey & Milbourn, 2006). Therefore, PPS of pay-for-luck compensation, which absorbs the opportunistic intent of executives, is impractical for making SOP voting decisions (Amzaleg et al., 2014).

This research defines pay-for-luck observations as firms whose executive compensation appears to be aligned with shareholder interests due to the positive value of PPS, but it is attributed to the executive's foreseen luck, as indicated by the current changes in firm performance (i.e., ROA and stock returns) in the upper and lower quartiles of this study samples (Amzaleg et al., 2014; Bebchuk, 2007). Thus, there are two types of pay-for-luck: (i) firms that experience the deviation of firm performance and PPS in the upper quartile, and (ii) firms that experience the deviation of firm performance and PPS in the lower quartile. Also, the threshold indicating the change of PPS is measured by the variation of PPS with regard to its particular performance in the lower (Q1) and upper (Q3) quartiles, which aim to capture the significant changes of PPS.

Appendix D: The Estimation of Expected Executive Compensation

Dependent variable: *LNCOMP*	**Coefficient**		**Z-statistic**
Intercept	12.868	***	131.12
LNTEN	-0.095	***	-14.09
LNLSALES	0.332	***	29.25
ROA	0.003	***	2.88
LROA	-0.002	**	-2.18
RI	0.000		0.36
LRI	0.000		-1.13
LMTB	0.000		0.23
Year_fixed_effect:			
2011	0.064	**	2.51
2012	0.050	**	1.98
2013	0.075	***	2.96
2014	0.182	***	7.16
2015	0.164	***	6.42
2016	0.220	***	8.66
2017	0.288	***	11.21
2018	0.307	***	11.70
2019	0.344	***	8.79
Industry_fixed_effect:			
A	-0.698		-0.90
B	0.479	***	3.54
C	0.007		0.04
D	0.128	**	1.97
E	-0.087		-0.93
F	-0.365	***	-2.72
G	-0.211	**	-2.20
H	0.127	*	1.78
Number of observation (firm-year)	*n = 11,204*		
R-squared	0.332		

Dependent variable: *LNCOMP*	**Coefficient**	**Z-statistic**
Breusch and Pagan Lagrangian multiplier test:		
Chi-squared	12792.390	
p-value	0.000***	
Standard deviation of residuals within group (σu) = 0.747;		
Standard deviation of residuals (σe) = 0.586 and; Interclass correlation (rho) = 0.619		

Notes: The coefficients' estimation of expected executive compensation (equation 1) was operated under panel data regression with random effect. *Two-tailed statistical significance at the 10% level. **Two-tailed statistical significance at the 5% level. ***Two-tailed statistical significance at the 1% level.

Appendix E: The Descriptive Statistics of the Control Variables

The three perspectives of firm performance, which are accounting, stock, and hybrid performance, are measured by ROA, TRI and MTB, independently. As for accounting performance, the return on assets (ROA) of each subsample is in the range of 5.5–5.7 on average, excluding the lowest means of ROA presented in the samples of LUCK (ROA = 4.282). As regards stock and hybrid performance, the lowest means of TRI and MTB also correspond with accounting performance, where LUCK exhibits the lowest means of TRI (mean = 65.745) and MTB (mean = 3.510). On average, all samples, excluding the samples of LUCK, demonstrate the values of TRI and MTB in the range of 72.5–76.7 and 2.86–2.93, respectively. The supremely low performance with regard to the LUCK subsample indicates that pay-for-luck tends to happen when underperformance is anticipated by executives.

Furthermore, firm leverage measured by debt ratio is approximately 0.25 for all samples, indicating that the sampled firms, on average, exhibited closely twenty-five percent of long-term debt to total assets. The means of DUAL suggest that executives serve as the chairman in the range of 0.40–0.47, meaning that forty percent of total observations, on average, had their top executives as the boardroom's chairman. In addition, the proportion of independent directors to total directors in every sample, on average, is close to fifty percent (between 0.477–0.505). Finally, CHGLSOP, indicating firm reputation, is the percentage change in SOP voting support from the previous year[10]. Unlike the other samples, the CHGLSOP average that belongs to the sample of LUCK (panel 2.5) shows an extreme negative value (CHGLSOP = -0.710), which can suggest the consequence of a bad reputation occurring in the prior year before pay-for-luck compensation phenomena.

Sample/subsamples	**Variables**	**Mean**	**Standard Deviation**	**1st Quartile**	**Median**	**3rd Quartile**
Panel 1:						
Total observations	*ROA*	5.587	7.106	2.417	5.201	8.538
(n = 5,036)	*TRI*	75.339	109.996	31.794	53.341	88.216
	MTB	2.925	43.713	1.589	2.533	4.105
	LEV	0.252	0.205	0.123	0.228	0.337
	DUAL	0.447	0.497	0.000	0.000	1.000
	IND_COM	0.498	0.147	0.429	0.500	0.600
	CHGLSOP	0.224	12.481	-1.706	-0.079	1.557

[10] $CHGLSOP_t = (SOP_{t-1} – SOP_{t-2} / SOP_{t-1})$,

Sample/subsamples	Variables	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile
Panel 2:						
Control (scenario I)	*ROA*	5.610	7.267	2.509	5.254	8.646
(n = 1,259)	*TRI*	76.725	100.286	32.477	54.500	89.279
	MTB	2.865	53.546	1.569	2.581	4.313
	LEV	0.253	0.191	0.122	0.233	0.342
	DUAL	0.477	0.500	0.000	0.000	1.000
	IND_COM	0.500	0.149	0.429	0.500	0.600
	CHGLSOP	0.562	11.747	-1.353	0.012	1.601
Panel 3:						
MIS_PAY	*ROA*	5.531	7.168	2.392	5.264	8.470
(scenario II)	*TRI*	72.532	111.234	30.880	52.600	85.700
(n = 2,193)	*MTB*	2.898	43.807	1.598	2.490	3.899
	LEV	0.252	0.226	0.119	0.225	0.335
	DUAL	0.424	0.494	0.000	0.000	1.000
	IND_COM	0.495	0.148	0.429	0.500	0.583
	CHGLSOP	0.582	12.349	-1.763	-0.105	1.683
Panel 2.4:						
MIS_PPS	*ROA*	5.650	6.760	2.504	5.271	8.668
(scenario II)	*TRI*	75.909	100.384	32.273	53.380	89.294
(n = 1,937)	*MTB*	2.888	25.188	1.610	2.554	4.109
	LEV	0.253	0.197	0.127	0.230	0.340
	DUAL	0.436	0.496	0.000	0.000	1.000
	IND_COM	0.504	0.139	0.444	0.500	0.600
	CHGLSOP	-0.052	12.531	-1.875	-0.105	1.515
Panel 2.5:						
LUCK (scenario III)	*ROA*	4.282	8.462	1.778	4.533	8.071
(n = 380)	*TRI*	65.745	116.482	22.417	38.104	75.238
	MTB	3.510	8.782	1.353	2.053	3.514
	LEV	0.252	0.170	0.142	0.235	0.331
	DUAL	0.405	0.492	0.000	0.000	1.000
	IND_COM	0.488	0.157	0.429	0.500	0.571
	CHGLSOP	-0.710	13.397	-2.531	-0.133	1.157

Appendix F: Additional Analysis

In measuring pay-for-luck variable, the classification of LUCK involved the indiscriminant criteria of performance changes (Amzaleg et al., 2014). The sample of LUCK satisfied the current changes in firm performance in the lower (Q1) and upper (Q3) quartiles. Utilizing indiscriminant criteria due to the lack of supportive literature can critically raise the question of whether the significance of findings is robust to the influence of these criteria. To increase the internal validity of this research, robustness testing is necessary.

The additional analysis aims to provide robustness testing of equation (2) findings, whereby the changeable criteria of performance variation respecting the LUCK variable were remeasured by the relative threshold that is "above and below median". As a result, the LUCK variable reflects (1) sampled-firms whose current changes in firm performance ranked in the above median with the deviation of PPS experienced in the third quartile; and (2) sampled-firms whose current changes in firm performance ranked in the below median with the variation of PPS organized in the first quartile. In addition, the model specification concerning the robustness test is equivalent to the original model demonstrated in Table 3.

Table F1: The Re-Measurement of Executive Pay-For-Luck (LUCK) Observations Presented by Year (2012-2019)

Year:	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
LUCK (Original)	38	34	56	45	50	63	73	21	380
LUCK (Remeasured)	59	57	67	62	86	100	87	30	548

Table F2: Additional Analysis Results

Dependent variable: SOP	**Original results**		**LUCK (remeasured)**	
	Coefficient		**Coefficient**	
Intercept	0.916	***	0.915	***
EXCESSPAY	-0.081	***	-0.081	***
PPS	0.000	*	0.000	*
ROA	0.001	***	0.001	***
TRI	0.000		0.000	
MTB	0.000		0.000	
LEV	-0.004		-0.004	
DUAL	-0.010	**	-0.010	**
P_IND_COM	0.009		0.009	
CHGLSOP	0.001	***	0.001	***
MIS_PAY	0.009	***	0.009	***
MIS_PPS	0.005	*	0.005	*
LUCK (re-measured)	-0.010		-0.007	
MIS_PAY x EXCESSPAY	0.041	***	0.041	***
MIS_PAY x PPS	0.000		0.000	
MIS_PPS x EXCESSPAY	0.011		0.011	
MIS_PPS x PPS	-0.001	***	-0.001	***
LUCK x EXCESSPAY	-0.005		-0.003	
LUCK x PPS (re-measured)	0.001	**	0.001	**
Year_fixed_effect	Included		Included	
Industry_fixed_effect	Included		Included	
Number of observation	*n = 5,036*		*n = 5,036*	
Log-pseudolikelihood	*4520.135*		*4519.476*	

Notes: *Two-tailed statistical significance at the 10% level.
**Two-tailed statistical significance at the 5% level.
***Two-tailed statistical significance at the 1% level.

The re-measurement of the LUCK sample resulted in 548 observations (Table F1). The insignificant coefficients related to remeasured pay-for-luck (LUCK) remain unchanged and the coefficients of PPS related to pay-for-luck compensation (LUCK x PPS) are shown to be positively significant, persistently (p-value ≤ 0.05) (Table F2). Overall, the results of additional analyses show that the remeasured LUCK produces the equivalent findings to the original measurements' results. The robustness tests' results point out that the criterion in classifying between high and low performance variation used by this research is unlikely to have any effect on the modified model of SOP voting determinants findings.