How stock options influence whistleblowing intentions

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Abstract

Stock compensation is a widely used economic incentive. Research suggests stock option grants align employee interests with stakeholder interests. Yet, research also suggests stock options may negatively influence whistleblowing. This paper helps resolve this seeming juxtaposition by investigating how vesting period and the market price compared to the option strike price combine to influence whistleblowing. Construal level theory aligns with our results to suggest the manner in which people are influenced. For those whose options are nearly vested, whistleblowing intentions are highest when the option strike price is in the money. For those whose options vest in the future, whistleblowing intentions are highest when the option strike price is out of the money. We also discover that whistleblowing intentions increase with experience and self-interest. Further, those whose options are nearly vested may also be motivated by an intention to engage in illegal insider trading prior to reporting. Implications and suggestions for practice and policy are offered.

Keywords: Stock compensation, stock options, management compensation, construal level theory, whistleblowing, insider trading

How stock options influence people to whistleblow

I. INTRODUCTION

Longstanding literature suggests that stock compensation aligns decision making with long-term shareholder wealth creation (Ittner, Lambert, and Larcker 2003; Sesil, Kroumova, Kruse, and Blasi 2007). Long-term shareholder wealth creation is based, in part, on the ability to stop fraud abuses before they spiral out of control. Therefore, this line of reasoning suggests whistleblowing intentions should be higher in a group of executives with stock compensation than in a group without such compensation.

However, research also suggests stock compensation incentivizes behavior that is often not aligned with long-term shareholder wealth creation (Billings, Moon Jr., Morton, and Wallace 2019). Worse still, recent research (Call, Kedia, and Rajgopal 2016) finds that including stock options as a portion of employee compensation appears to decrease whistleblowing. Similarly, Rose, Brink, and Norman (2018) find unrestricted stock decreases whistleblowing relative to restricted stock. Yet, these studies do not examine both legal components of stock options. Stock option decisions are unique in that *both* the price to buy the stock and the time at which to buy the stock are inherent to decisions surrounding stock options. Research suggests that stock price trends and volatility of the stock impact the decision process of the option holder (Bettis, Bizjak, and Lemmon 2005; Heath, Huddart, and Lang 1999). This is particularly evident when the option strike price is "in the money", a situation where the option strike price[1] is below the current market price (Lewellen 2006). This paper, therefore, attempts to resolve this conflict in literature by experimentally examining how the legal components of a contract associated with

[1] When the market price of the stock is above this strike price, the option is referred to as "in the money". When the market price of the stock is below this strike price, the option is referred to as "out of the money."

stock options -vesting period and market price compared to the option strike price- combine to influence whistleblowing differences.

Literature is otherwise silent on the effect of stock options on whistleblowing. Call et al. (2016) notes a limitation in being unable to examine vesting period. As vesting period and option strike price are the two primary legal components of an employee stock option, we include both components in our examination. If one is interested in keeping the employer strong and in maximizing the value of future options, self-interest and experience should also matter when deciding to whistleblow. Thus, we also include scales to measure self-interest and experience levels. We include traditional demographic questions in our study to learn how these pathways to whistleblowing may vary. We also test these effects on whistleblowing intentions with managers who receive stock option-based compensation and compare their responses against the responses of managers without such compensation.

We engage participants (n=211) in a 2 x 2 between-subjects experiment in which vesting period (near or far) and stock option strike price relative to the current market price (in or out of the money) are manipulated. Literature is consistent in suggesting stock options influence decision making. However, research is conflicted regarding whether that influence is primarily driven by self-wealth creation or shareholder wealth creation. As a result, we begin by hypothesizing that a combination of vesting period and market price relative to strike price will influence whistleblowing. We find support for this contention.

Informed by construal level theory (Trope and Liberman 2010), we form our next hypothesis. Namely, those with clarity in the judgment decision-making process due to having something to lose (those whose options are about to vest and whose options are in the money) or possessing the luxury of time to make "good" moral decisions (those with vesting far and options

out of the money) will be more likely to whistleblow than those lacking this clarity. As such, those with something to lose will whistleblow in order to immediately halt the damage done to the company. Those with the luxury of time, similarly, will whistleblow to promote the best interests of the company. However, those without such clarity may still whistleblow but may be less incentivized to immediately act. We find support for this idea of something to lose: whistleblowing is significantly higher when vesting is near and options are in the money than when vesting is near and options are out of the money. We also find that levels of whistleblowing are high in the highest level of abstract thinking (those with vesting far and options out of the money), supporting the construal level theory's contention that abstract thinking leads towards "good" moral decisions.

Whistleblowing literature has affirmed the importance of experience when considering whether to report fraud (Keil, Tiwana, Sainsbury, and Sneha 2010; Robertson, Stefaniak, and Curtis 2011). Employees with little experience may be fearful of retaliation in a culture unknown to them, while those with increased levels of experience likely understand the importance of whistleblowing. With experience also comes more power to act within the organization, also increasing whistleblowing. Thus, we conduct post hoc analyses and find support for the idea that higher levels of experience lead to increased whistleblowing.

Self-interest can be associated with short-term outcomes and clouding moral judgment (Haynes, Josefy, and Hitt 2015; Singer 2010) and, thus, may initially suggest a reduction in whistleblowing. However, self-interest can also be related to a focus on long-term desires (Agnew 2014). In this framework, self-interest results in the desire to keep one's job by stopping a fraud before it becomes large enough to cause long term damage to the option's value or

eliminates the source of employment altogether. Thus, we conduct post hoc analyses and find that increased self-interest results in increased whistleblowing.

We also discover a competing explanation for high whistleblowing when the vesting period is near and the market price relative to the option strike price is in the money. Sadly, a significant response from our participants suggests an intention to illegally sell their stock prior to whistleblowing. Those high in self-interest appear to drive this effect, suggesting self-interest promotes long-term thinking in some, but also creates havoc in the short run in firms lacking proper internal controls.

We contribute to literature and to practice. We add to literature on stock compensation and how stock compensation influences whistleblowing intentions. Our findings concerning stock compensation also inform practice of the importance of vesting periods in influencing employee decisions to whistleblow. Half of all employees in our study who held stock options stated they would sell their stock if given the opportunity upon discovering fraud[2], an admission which is extremely troubling. Boards and others designing incentive compensation packages need to consider that such compensation packages may affect fraud reporting and need to address the lack of regard for the serious crime of insider trading.

The next section discusses the background literature on stock compensation, whistleblowing, construal level theory, experience, leading to the hypotheses. The experimental method, participant sample description, and variable definitions are included in the Method section. We provide covariate analysis, descriptive statistics, hypotheses results, and supplemental analysis (on experience, self-interest and insider trading) in the Results section.

[2] United States securities law suggests insider trading and related offenses apply equally to those in public and private share trading (Diamond 2015). Thus, we do not distinguish between offenses in each group.

The Limitations and Conclusions section discusses contributions, limitations, and avenues for future research.

II. RELEVANT LITERATURE AND HYPOTHESES DEVELOPMENT

This paper bridges theories relating to whistleblowing and decision making. As such, we investigate literature regarding compensation structure differences and the decisions made within these different structures.

Compensation Incentives

An agency problem can result when managers have differing risk tolerance, strategies, and incentives from stakeholders (Seal 2006). Agency theory suggests stock compensation granted to employees helps alleviate this problem (Cordeiro, Veliyath, and Neubaum 2005). Employee interests should be aligned with those of shareholders when these employees profit from increases in shareholder wealth over time (Ittner et al. 2003; Sesil et al. 2007). Cost accounting practices and policies drive compensation policies and how awards for employee stock options are structured (Mirkin and Green 2006). Given the general desire to align decision making with shareholder interests, the practice of granting stock compensation generally continues to rise over time (Murphy 2013; Revsine et al. 2018).

However, competing research exists to suggest that stock compensation may not always align manager and shareholder interests. For example, risk taking tends to increase when the expiration period of stock options is longer (Chang, Fu, Low, and Zhang 2015). While stock options are generally designed to increase smart risk taking, Billings et al. (2019) find an aversion to smart risk taking through R&D investment when options are highly sensitive to stock price swings. Research also suggests employers pay incentives in the form of stock options when

employees are overly optimistic about firm value (Bergman and Jenter 2007). This practice may lead to employee dissatisfaction when firm values do not match their expectations.

This disagreement about the alignment of shareholder and management values is further complicated by decisions made to "cash in" on the stock compensation granted. For example, high stock price volatility influences stock options holders to exercise their options earlier than those stock options holders experiencing low stock price volatility (Bettis et al. 2005). Heath et al. (1999) suggest that prices moving above the previous year's highest price, doubles exercise activity. Additionally, rank-and-file employee decisions to exercise tend to be predictive in terms of stock performance (Huddart and Lang 2003). Thus, research suggests that while stock compensation is designed to align shareholder and employee interests, this design does not always result in such an alignment. Because the two separate legal components of stock options (vesting period and option strike price) separately produce different effects, it seems likely a combination of both components produces different effects that remain uncaptured unless studied with both components present.

As a result, Hales, Matsumura, Moser, and Payne (2016) call out employee stock options as an example of a practice where firms lack institutional support to gather data necessary to maximize value. Hall (2016) specifically notes the importance of bringing in research focused on psychological mechanisms in relation to management accounting practices, specifically noting research related to contingency compensation.

Thus, literature is widely concerned with ties between stock-options based compensation, stock performance, and risk-taking behavior. Research from Call et al. (2016) attempts to study the unintended consequences of this behavior in relation to whistleblowing and finds that

companies with higher levels of stock option grants experience low levels of whistleblowing. Yet, as Sloan (2016) points out, this behavior appears to be illogical and requires deeper analysis.

Whistleblowing Theory

Whistleblowing is the "the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action" (Near and Miceli 1985, pp. 4). Whistleblowing intentions theory holds that whistleblowing decisions, at a minimum, consider the benefits obtained from reporting against the costs associated with this decision (Keil et al. 2010). Research suggests that when the threshold to achieve an external reward is not met, whistleblowing intentions may diminish significantly (Berger, Perreault, and Wainberg 2017). Other research shows that whistleblowing behavior can be increased externally if a monetary reward is offered by management, contingent on the strength of the evidence (Brink, Lowe, and Victoravich 2013).

Whistleblowing-related research has also examined a variety of other related topics, including the ethical positions of reporters and the materiality of the fraud (Brink, Cerola, Menk 2015); personality and individual characteristics (Gao and Brink 2017); and organizational characteristics (Near and Miceli 1995). Thus, whistleblowing intentions theory suggests it is important to understand the benefits and costs associated with the whistleblowing action, as well as information about the characteristics of an individual employee. Further, literature suggests the context of the decision is important. As a result, the immediacy of the ability to act (stock options vesting near, no vesting period) is important to decision making.

Research by Acre (2010) suggests whistleblowing leads to negative stock performance. Call et al. (2016) draws on this idea, archivally examining the impact of stock option grants as a

compensation incentive to deter employee whistleblowing behavior. Although vesting period remains unexamined, the paper examines decisions when the options have value, implying market price relative to strike price influences the decision. Their study examined class action lawsuits filed between 1996 and 2011 to identify firms that engaged in financial misreporting. They find that firms that grant more stock options are more likely to engage in financial misreporting than firms that grant no or less stock options. Their study concludes that firms implement stock option compensation as a mechanism to cover the financial misreporting and discourage whistleblowing behavior. However, their study lacks the ability to examine vesting periods.

Further, market price relative to strike price alone is insufficient to examine stock compensation decisions. Whether the stock is available to exercise or not also matters. As noted by Rose et al. (2018), stock granted without restriction may reduce whistleblowing intentions since the stock price could drop. However, unlike those with restricted stock in Rose et al. (2018), option holders possess the right but not the obligation to take possession of their stock at a time (and defined price) of their choosing. Because we know that market price relative to strike price can influence the whistleblowing decision, and managerial compensation literature suggests that expiration time (vesting period) matters to managers making decisions, it seems likely that the combination of market price relative to strike price and vesting period will influence the whistleblowing decision. This influence is likely complicated beyond a simple combinatory effect, due in part to psychological conditions discussed above and considered further, below. Thus, informed by literature, we posit the following as our first hypothesis:

H_1: Market price relative to strike price will moderate the relationship between vesting and whistleblowing intention.

Construal Level Theory

Construal level theory suggests a relation between psychological distance and how people think about it: the further away something is, the more abstract it is (Trope and Liberman 2010). When combining stock option pay structure and whistleblowing intention theory, construal level theory (CLT) helps to explain how people may differ in decisions when the options are vesting near and have value (closer) versus when their options are far from an exercise point and/or have no value (farther). The CLT of psychological distance helps explain mental representation of events (Liberman and Trope 2008; Trope and Liberman 2010). Events that are distant evoke a higher-level construal, whereas events that are close evoke a lower level of construal (Trope and Liberman 2010). Psychological distance can be measured in one of four dimensions: temporal distance, social distance, spatial distance, and hypothetically (Weisner 2015).

CLT suggests that information is encoded and retrieved by using cognitive structures that can be processed as thoughts that fall on a continuum between abstract and concrete (Brown 1958; Rosch 1975; Rosch, Simpson, and Miller 1976). Employees display varying levels of construal in workplace situations, and research has found an employee's construal level can forecast their behavior (Reyt and Wiesenfeld 2015; Trope and Liberman 2010; Trope, Liberman, and Wakslak 2007).

The psychologically "farther" a person feels from an event (be it time, physical, social or hypothetical distance), the higher the level of construal in their thought process (Trope and Liberman 2010). Higher levels of construal are associated with broad (abstract) thought processes that attend to big-picture ideas and facilitate emotional and moral decisions. Lower

levels of construal incorporate more detailed (concrete), literal thinking, putting less emphasis on the big picture and more on the task at hand (Fiske and Taylor 1984; Smith 1998).

Research shows that participants will engage in a task more quickly when more concrete details are provided, versus when more abstract details are provided (Liberman, Trope, McCrea, and Sherman 2007). Furthermore, lower levels of construal (more concrete) lead to better performance of a difficult task (Vallacher, Wegner, and Somoza 1989). Therefore, whistleblowing when an employee has compensation at risk (available presently) would trigger lower levels of construal thought processing (concrete); however, when compensation is not at risk (not available presently) it would trigger higher levels of construal thought processing (abstract).

Thus, conditions associated with abstract thought clarity are likely to lead to increases in whistleblowing due to morality-based issues. Likewise, for entirely different reasons, conditions associated with concrete thought clarity are likely to lead to increased whistleblowing. Some employees may choose to sell stock and whistleblow nearly simultaneously. Others may be able to clearly see the long-term ramifications of inaction.

CLT, therefore can provide clarity as to the thought process imbued in a whistleblowing decision. While neoclassic economic theory might normally suggest linearity, such that those with stock options in the money and vesting period which are near would be less likely to blow the whistle, we note that decision making is nonlinear. People often behave in a manner that constantly tries to take care of their own position, but also be moral. The abstract and concrete conditions under CLT allows understanding the value of this clarity in the judgement and decision-making process. Clarity, in turn increases whistleblowing intentions When the abstract

and concrete conditions are mixed, such that the judgment and decision-making process is murky it is likely whistleblowing intentions will be less strong, comparatively.

Thus, research suggests that stock option compensation information underlies the economic motivators for whistleblowing intentions. When this information is then framed within CLT, the information which is clearer will result in higher whistleblowing intentions. Namely, information which is "closer" (stock options valuable and vesting near) will likely result in quick action. Further, because information which is "farther" facilitates moral decision making, we also believe whistleblowing intentions will manifest. Thus, informed by literature, we believe that when low levels of construal are present in the form of vesting periods being near and option strike price being in the money, whistleblowing intentions should increase. We also believe when nothing is at risk in the form of vesting periods being far and option strike price being out of the money, moral processing will eventually drive whistleblowing intentions. Mixed construal conditions should experience lower whistleblowing intentions. These ideas result in our second set of hypotheses:

H_2: The effect of lower levels of construal thought processing (concrete) will influence the likelihood of whistleblowing such that vesting periods which are near will increase whistleblowing intentions to a greater extent when options are in the money as compared to the mixed construal level conditions.

H_3: The effect of higher levels of construal thought processing (abstract) will influence the likelihood of whistleblowing such that strike prices which are out of the money will increase whistleblowing intentions to a greater extent when options are vested in the future as compared to the mixed construal conditions.

III. METHOD

Participants[3]

Participants for this study were recruited through a survey panel company. The participants are 211 individuals who have received stock option compensation from a current or former employer. We felt it was necessary for participants to have had prior stock option compensation so they could appropriately internalize the effects in this study[4]. The participants are 58% male and 42% female. The majority (88%) of participants are 25 to 54 years old and most hold a bachelor's (52%) or graduate (35%) degree. 20% have five or less years of work experience, 36% have 6-10 years, 25% have 11-20 years, and 19% have 21 years or more of work experience. The majority of our participants, 55%, were controllers or managers, while 32% held an executive level position (C-level, VP, board of directors), and 13% held other staff level positions. Participants currently employed by a public company account for 54% of the sample, while 46% are currently employed by a private organization. The participants are primarily employed in either the information services and consulting (31%) or finance (30%) industries, though several other industries are represented. Many of the participants are professionally qualified; 32% hold a CPA license and 16% a hold a CFA. Demographic information is summarized in Table 1.

[Insert Table 1 about here]

[3] IRB Approval #1809026024

[4] At our request, the survey company recruited managers and executives who have received stock option compensation as a part of their compensation in the past year. Participants were selected by the survey company based on their position in the firm and given an exam to test their knowledge of stock compensation structures. Given the large prevalence of CPAs, and the overlap in CFAs and CPAs in the executive structures of companies (https://www.proformative.com/articles/cpa-mba-cma-how-much-do-letters-really-matter), are aligned with paths to executive leadership. Further, we requested a mixture of private and public companies.

Procedures

The panel company invited only individuals who met the requirements for this study. Participants were directed to an online survey where their qualifications were further tested (currently or recently (in the last year) had a job with stock option compensation). Participants read a fictional scenario in which a department manager discovers that the division manager is repeatedly re-categorizing expenses as capitalized assets, thereby committing financial statement fraud and thus overstating earnings per share. Next they read information about the company's policy regarding reporting of illegal, unethical, dishonest, or improper conduct. Participants were told that the department manager receives stock options (which make up about 80% of yearly compensation), and participants were then provided with vesting information and whether the current market price was above or below their purchase price. Participants responded to factual reading checks about the scenario and then, upon passing, proceeded to the dependent variables. Lastly, participants completed some de-briefing questions about themselves.

Independent Variables

We manipulate two variables to create four experimental conditions for the stock option group. The first manipulated variable is vesting period (near or far). In the vesting near condition, 25% of the employee's stock options are available to be exercised the next day (with 25% more available each year thereafter). In the vesting far condition, 25% of the employee's stock options will be available to be exercised in four years (with 25% more available each year thereafter). The second manipulated variable is whether the options are in or out of the money. For the in the money condition, the current price of one share of the company's stock is $30, and the stock options are priced at $20. In the out of the money condition, the current price of one share of the company's stock is $30, and the stock options are priced at $40.

In alignment with Near and Miceli's (1995) identified characteristics associated with whistleblowing, we also study one individual characteristic (self-interest) and one naturally occurring demographic characteristic (years of overall experience). We adopt Gerbasi and Prentice's (2013) 9-item self-interest inventory measure (Appendix). For years of experience, we use a continuous variable of years of overall experience.

Dependent Variable

We measure whistleblowing intention. Participants were asked, "In your opinion, what is the likelihood that you would report the division manager thru the anonymous whistleblowing hotline website." Participants responded on a 7-point Likert-type scale anchored with 1=extremely unlikely and 7=extremely likely.[5]

IV. RESULTS

Reading Check

To ensure that all participants were adequately reading the scenario we included two reading comprehension checks. The reading checks pertained to the expenses at the company, the size of the stock compensation relative to yearly compensation, and how issues can be reported.[6]

[5] Whistleblowing to an anonymous hotline website aligns with the fastest growing and (tied for first) most used practice in industry (ACFE Report to the Nations 2020). and is our variable of interest. However, additional data was collected on whistleblowing to an appropriate person and to an external source. Given that literature suggests external whistleblowing is driven by monetary rewards and whistleblowing in person is not usual in practice, we choose to focus on our variable of interest.

[6] To assure comprehension, we performed two reading checks. Each reading check occurred on the screen immediately after a portion of the situation was presented to the participant. If either reading check was failed more than once, the participants would be removed from the survey. In the first reading check we asked about (Q1) the expenses being reported correctly and (Q2) whether the stock compensation was a large part of the compensation. Five participants (2.4%) answered the first question (Q1) incorrectly, 44 participants (20.9%) answered the second question (Q2) incorrectly, and 18 participants (8.5%) answered both questions (Q1&Q2) incorrectly. No participants (0%) answered either or both questions incorrectly upon a subsequent reading and opportunity to answer. In the second reading check we asked about (Q3) the independence of the whistleblowing website. Thirteen (6.2%) participants answered (Q3) incorrectly (none previously answered the previous check question incorrectly). No participants (0%) answered this question incorrectly upon a subsequent reading. Given all participants demonstrated

Covariates

We tested several potential covariates. We found work experience, self-interest, and social desirability bias to be significant. Experience and self-interested are discussed in depth in the post hoc analyses. Survey estimates that include sensitive questions, such as those pertaining to fraud, may be distorted by social desirability bias and lead to inaccurate estimates if this bias is not controlled for (Krumpal 2013). We gathered both first and third person responses to our dependent variable so that social desirability bias could be computed as the difference in these responses, a common method for calculating social desirability bias in whistleblowing studies supported by Ahmad, Ismail, Azmi, and Zakaria (2014).

We use a hierarchical regression to show the effects of these covariates on our results. Experience is added to Model 2, self-interest to Model 3, and social desirability bias to Model 4.

Descriptive Statistics

Table 2 Panel A provides the mean values for the hierarchical regression analysis. Table 2 Panel C Model 1 includes the manipulated independent variables and the measured variables of self-interest and experience. Model 2 adds social desirability bias to demonstrate that results are robust to these phenomena. Stock options in the money has a mean value of 5.73 (SD = 1.67), while stock options out of the money has a mean value of 5.64 (SD = 1.89). Vesting near has a mean of 5.74 (SD = 1.81), while vesting far has a mean of 5.64 (SD = 1.76).

[Insert Table 2 Panel A about here]

Tests of Hypotheses

Below are the tests of our hypotheses. All results are presented with one-tailed p-values and reported using Model 4 which includes the covariates.

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comprehension upon a subsequent reading and no significant differences existed in the answers of those who answered incorrectly, all participant responses (n=211) are retained for purposes of analysis.

H1

The first hypothesis proposes an interaction between vesting period and market price relative to options strike price. We first ran an analysis of variance, shown in Panel B of Table 2, to determine significance ($p < 0.05$). A linear regression can control for the effect of one independent variable on another, and we wanted to avoid this in the initial run. We followed up the ANOVA with a linear regression to determine the strength of the effect. Our hypothesis remains significant to testing using both methods. Table 2 Panel C displays the regression results. Model 4 shows that the interaction is significant ($p < 0.05$), and both independent variables are marginally significant ($p < 0.10$). This interaction is graphically depicted in Figure 1. The highest whistleblowing intention mean values are observed for stock options with vesting periods which are near and option strike prices that are in the money ($M = 6.04$). The next highest intention mean comes from stock options with vesting periods which are far and option strike prices that are out of the money ($M = 5.80$). The reverse is also true, with the opposing cells having lower whistleblowing intentions. This juxtaposition suggests compensation contract structure may have effects on whistleblowing intentions.

[Insert Table 2 Panels B and C about here]

[Insert Figure 1 about here]

H2 & H3

The second hypothesis suggests that vesting near increases whistleblowing intentions most when options are in the money. Table 2 Panel A shows whistleblowing intentions are highest in this cell ($M = 6.04$). Table 2 Panel D tests the significance of the difference of whistleblowing intentions of each combination of vesting period and market price relative to option strike price available to participants. The data suggest that the cell with vesting near and

options in the money is positively significantly different than the mixed construal cells (both vesting near with options out of the money and with vesting far and options in the money). However, we also hypothesize that vesting far and options out of the money (abstract construal) would be significantly higher than the mixed construal cells. Our results in Table 2 Panel D do not support this hypothesis. The data suggest that whistleblowing is driven by high levels of concrete construal thinking, but not significantly by high levels of abstract construal thinking. Thus, the hypotheses are partially confirmed.

[Insert Table 2 Panel D about here]

Further, in order to see if stock compensation (without consideration of the combination of the legal components of the option) made a difference in whistleblowing intentions, we collected data from a control group without such options.[7] Untabulated results indicate that the mean differences are not significant ($t = 1.073$, $p > 0.10$) as the mean reporting intentions for the control group is 5.85 (SD = 1.25) compared to 5.69 (SD = 1.78) for the stock options group. This finding supports Sloan's (2016) assertion that stock options, by themselves, do not reduce whistleblowing behavior. Taken together, our results suggest studies involving whistleblowing influenced by stock options needs to include both legal components of an option in the research design to provide useful conclusions.

[7] Control study participants are 216 individuals employed 30 or more hours a week in a salaried position. The participants are 76% male and 24% female. The majority (90%) of participants are 25 to 54 years old and most hold a bachelors (59%) or graduate (24%) degree. 38% have five or less years of experience, 24% have 6-10 years, 19% have 11-20 years, and 19% have 21 years or more of experience. Participants were asked if they had ever held stock options or restricted stock, 57% indicated that they had held stock options while 42% indicated that they had held restricted stock.

Post Hoc Analysis

Experience

Work experience is sparsely studied (Lee and Xiao 2018). Perhaps this is because of previous findings that work experience does not significantly influence whistleblowing (Alleyne, Charles-Soverall, Broome, and Pierce 2017). Yet, experience takes many forms, and the context of this experience may influence its effect on whistleblowing. For example, within accounting, there is research which suggests significant auditing experience influences whistleblowing (Robertson et al. 2011). Likewise, additional literature outside of accounting appears more uniform in suggesting a positive relationship. For example, Kegans, McCamey, and Hammond (2012) find a significant positive relationship between years of overall experience and responsibility or concern about the life of the employing organization. Further, Keil et al. (2010) find a significant positive relationship between whistleblowing and years of work experience.

Table 2 displays the regression with experience in Models 2-4. We first test the effect of experience overall and find it to be significant ($p < 0.001$), and it remains so even with the addition of self-interest and social desirability bias. Our data indicates that increases in experience generally suggest increases in whistleblowing intentions.

Self-Interest

Allen and Ng (2001) conduct a study of CPAs and conclude that self-interest clouds moral reasoning, especially when economic rewards are at stake. Bocian and Wojciszke (2014) find self-interest causes those who benefit from an immoral act to find this act to be much more tolerable than they otherwise would. Further, research suggests people may even allow or cause purposeful harm to their organization in order to serve their self-interest (Vadera and Pratt 2013)

However, research indicates this view of self-interest may be overly simplified. For example, moral actors often balance morality and their own needs, resulting in decisions described as "enlightened self-interest" (Frimer, Walker, Dunlop, Lee, and Riches 2011). The balance between selfish monetary interests and the moral self can lead to internal struggles which, in turn, lead to action (Jennings, Mitchell, and Hannah 2015). When one feels slighted, self-interest may lead to whistleblowing (Roberts 2014).

However, people may act unethically to benefit their own organization at a cost to themselves (Umphress, Bingham, and Mitchell 2010). This line of research suggests people who identify with the organization will take action (such as whistleblowing) when they believe it will benefit them in the future. Thus, this line of self-interest literature suggests people may whistleblow in order to protect the longevity of the organization and the security of their job. Thus, self-interest is an important factor in whistleblowing.

Table 2 displays the regression with self-interest in Models 3 and 4. We first test the effect of self-interest overall and find it to be a significant ($p < 0.001$) predictor of intention to whistleblow, and it remains so with the addition of experience and social desirability bias. Our analysis of self-interest shows that as self-interest rises so does intention to whistleblow. This conflicts with our original understanding of self-interest, but further analysis below may suggest why.

Experience, Self Interest and Insider Trading

As noted, much research suggests high self-interest can result in short-term thinking and less moral action. This aligns with the clarity provided in the concrete condition of CLT. In a follow-up question, we asked participants in the condition with options vesting near whether they would choose to sell their stock upon discovery of accounting improprieties. This condition

creates a situation where participants could perform insider trading. In this situation participants can receive unjust profits from selling before a potential fall in share price due to the disclosure of whistleblowing allegations. As a result, we are able to indirectly analyze the influence of option strike price (being in or out of the money), self-interest, and experience on the intention to perform insider trading when vesting period is near. Table 3 displays the results of the regression. While the value of the options contract (in the money or out of the money) did not significantly influence our participant's actions, years of experience ($p < 0.001$) and self-interest ($p < 0.010$) did significantly influence their actions.

[Insert Table 3 about here]

While it is disappointing that the data in our study suggests lower levels of experience correspond with higher levels of insider trading, we believe our results will be useful for practice and future research as described in the next section. Similarly, increased levels of self-interest result in significantly increased intentions to insider trade. Thus, some of our participants who are higher in self-interest are willing to sell their position[8], take profit from their options, whistleblow, and potentially receive credit for their actions.[9] Future research on options should note the importance of combining self-interest with self-interested actions, especially when counter-intuitive results may ensue.

As Rose, Brink, and Norman (2018) point out, "Managers who hold unrestricted stock have the opportunity to sell their shares before anyone blows the whistle and stock prices decline. Thus, unrestricted stock may promote a desire to avoid whistleblowing and sell stock in the short term to avoid share price declines that result from whistleblowing or public disclosure

[8] We do not have sufficient power to make statistically significant claims for this group given the limited sample size.

[9] Previously insider trading was seen as tough to prosecute and may have made it easier for our participants to sell their stock. However, a recent U.S. Supreme court decision makes it much easier to prosecute (Van Voris 2020).

of fraud" (p. 856). Rose et al. (2018) studied those with unrestricted stock. We wondered if these findings might also align with our group with stock options. Of the participants in the vested conditions (i.e., those who were able to sell their stock), 65% of them stated they would choose to sell their stock upon discovery of accounting improprieties. By doing so, these participants revealed they would engage in insider trading to avoid share price declines that may happen after the financial difficulties are revealed. The results did not vary based on the market price (options in or out of the money). Further, intention to whistleblow was not correlated with intention to sell the stock. The sample was evenly split on the order of events; that is, the likelihood to sell stock was unaffected by whether whistleblowing occurred prior to or after selling their stock. When participants were asked if they realized this was insider trading, 85% indicated that they did. This admission is also disappointing and further discussion ensues below.

V. CONCLUSIONS AND LIMITATIONS

Conclusions

The whistleblowing scenario in this paper allows us to explore how the legal components of stock options (vesting period and market price relative to option strike price) interact, as well as how these components work in conjunction with self-interest and with demographic variables to promote (or discourage) whistleblowing. As such, this paper has three primary contributions. First, we produce evidence that studies examining the influence of stock options on whistleblowing should examine both legal components of an option before drawing conclusions. Specifically, we expand the knowledge regarding how both vesting and market price relative to option strike price influence reporting. Second, we contribute to the literature on self-interest; we discover a potential problem in practice that insider trading may be starting to be seen as acceptable behavior. Finally, we contribute to knowledge on how experience influences

whistleblowing; it is important to analyze experience based on low, middle, and high splits since each level of experience may differ significantly in influencing whistleblowing intentions.

As noted, Sloan (2016) calls for research to examine the puzzling findings from Call et al. (2016) regarding reductions in whistleblowing in the presence of increased stock option grants. We examine a control sample without any stock compensation experience and find more support for Sloan's contentions than for Call's conclusions. Because Call et al. (2016) lacks vesting period data, we help explain Call's deviation by examining both legal components of stock options (vesting period and option strike price).in combination. We find that mixed conditions in construal level thinking best explain their results. In addition, we do not bias our results with a sample based on those previously captured with financial fraud. We suggest construal theory helps to explain behaviors. Indeed, our findings suggest that a time dimension of holding options (vesting period) appears to completely change the nature of whistleblowing behavior. Sloan believes managerial incentives may pay a part in influencing whistleblowing. We find data that supports Sloan's assertion, requiring archival confirmation. Thus, we expand research on the effects of options on whistleblowing in alignment with Sloan (2016), but also expand the application of construal level theory. Future research using construal theory in combination with time elements of executive compensation may help explain unexpected outcomes. Further, management should be aware of the complexity of option contract structure in promoting (or reducing) whistleblowing. Our data suggest best practice to promote a culture of whistleblowing may be for management to grant options which are out of the money and vest far in the future. Thus, as the organization performs well, such options will be in the money by the time the options are close to vesting. This custom aligns with current policies at many stock granting organizations; therefore our research provides support for these current policies.

Literature suggests self-interest factors into whistleblowing decisions, and we discover that high self-interest may result in less noble actions. Our data imply that, when options are vested, as self-interest increases the intention to perform insider trading increases. This finding opens avenues for future research. When an individual characteristic, self-interest, can produce contradictory findings, future researchers may wish to probe deeper to see if other related characteristics may be influencing this result. Given the gravity of our discovery, future research is needed to specifically probe the effect of information discovery on insider trading. Since a substantial number of our participants appear willing to commit insider trading, controls that stop or delay this intention need to be investigated. Further, policymakers such as the Security and Exchange Commission need informed that the lessons of the past may have begun to fade in our collective consciousness. Namely, the lack of headline-making prosecutions due to insider trading from the early 2000s may have emboldened potential criminal actors, or at least allowed them to forget the severity of the consequences. Publicizing the recent Supreme Court decision (Von Voris 2020) should help raise awareness of the ease and prevalence of prosecution.

Moreover, while a small number of studies examine the influence of years of work experience on whistleblowing, still fewer attempt to categorize these years to determine if the influence varies from category to category. Our data suggest that those with less experience may benefit from indoctrination into a stronger culture of whistleblowing, yet we note that the most experienced group appears less likely to whistleblow than the group in the middle of their careers. Thus, future research may want to explore this first group more to discover why this reduction in action occurs.

Limitations

We acknowledge there are limitations to this study. We do not measure or judge the specific importance of the option strike price (amount in the money) to each participant. Participants may weigh the associated monetary rewards differently as a result. In addition, although our stock options vesting policy (4-year vesting periods) attempts to mirror that of many organizations, other organizations may have different vesting policies and several individuals in our study may be subject to these different, unmeasured, policies. Also, although we use participants with real employee stock options experience, it is possible that our participants may have many unmeasured characteristics which are higher than those of the general population and drive much of the behavior we observe. Finally, although we attempt to simulate real world practice and policy, our experiment is conceptual in that we ask our participants to imagine a situation.

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Appendix
Self-Interest Inventory
Gerbasi and Prentice 2013

Please indicate the extent to which you agree or disagree with the following statements.
Likert scale where 1 = Strongly Disagree and 7 = Strongly Agree

1. I am constantly looking for ways to get ahead.
2. Hearing others praise me is something I look forward to.
3. Doing well in my pursuits is near the top of my priorities.
4. I try to make sure others know about my successes.
5. I look for opportunities to achieve higher social status.
6. Success is important to me.
7. Having a lot of money is one of my goals in life.
8. I keep an eye out for my own interests.
9. I am constantly looking out for what will make me happy.

Cronbach's Alpha = 0.911

Figure 1
Observed Interactions

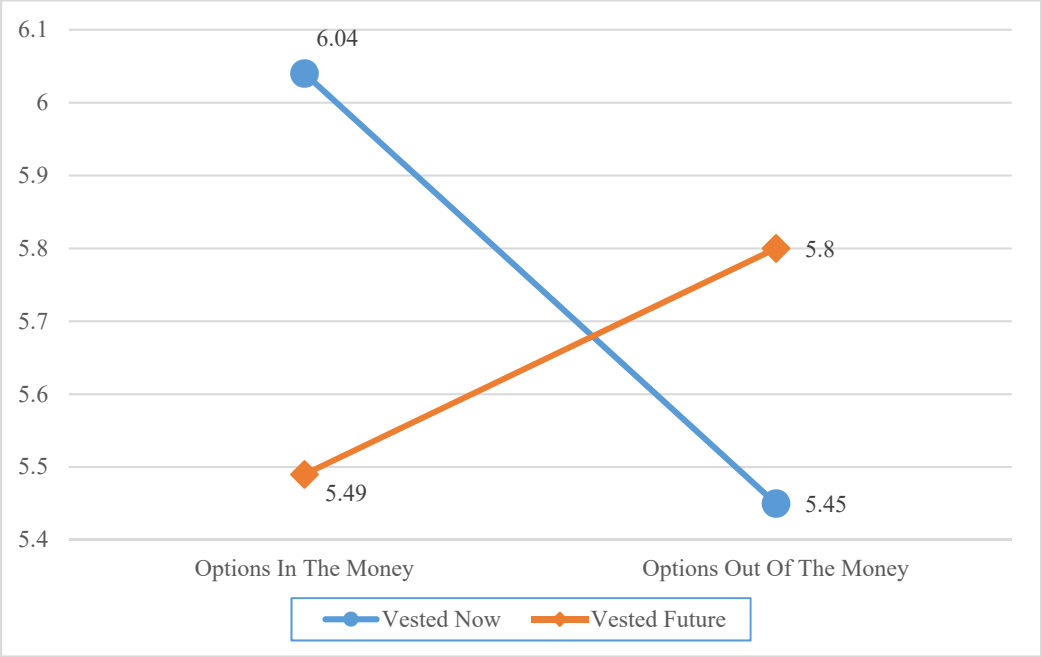

Table 1
Demographic Information

		Options n=211	**Control n=216**
Gender			
	Male	58%	76%
	Female	42%	24%
Age			
	18-24	4%	2%
	25-34	32%	56%
	35-44	39%	25%
	45-54	17%	9%
	55-64	6%	6%
	65+	2%	2%
Education			
	No College	1%	7%
	Some College	7%	7%
	Associate's	4%	3%
	Bachelor's	52%	59%
	Graduate	35%	24%
Organization Type			
	Public	54%	NA
	Private	46%	NA
Years of Experience			
	1-5	20%	38%
	6-10	36%	24%
	11-20	25%	19%
	21+	19%	19%
Credentials			
	CPA	32%	32%
	CFA	16%	8%
	Other	13%	2%
Job Title			
	Executive / C-level / VP / Board of Directors	32%	NA
	Controller / Manager	55%	NA
	Other Professional	13%	NA

Table 2
Analysis of Intention to Whistleblow

Panel A: Means, (Standard Deviations), and {Cell Size}

	Options In	Options Out	Total
Vesting Near	6.04 (1.41) {46}	5.45 (2.10) {47}	5.74 (1.81) {93}
Vesting Far	5.49 (1.82) {59}	5.80 (1.70) {59}	5.64 (1.76) {118}
Total	5.73 (1.67) {105}	5.64 (1.89) {106}	5.69 (1.78) {211}

n = 211

Panel B: ANOVA Results

	SS	df	MS	F	p-value
Intercept	6745.93	1	6745.93	2135.72	0.000
Vesting	0.531	1	0.531	0.168	0.341
Options	1.105	1	1.105	0.350	0.277
Vesting x Options	10.572	1	10.57	3.350	0.034
Error	653.84	207	3.159		
Total	7490.00	211			

p-values are one-tailed.
n = 211
R^2 = 0.017, Adj R^2 = 0.003

Panel C: Hierarchical Regression Results

Model	Variable	Unstd. Beta	SE	Std Beta	t	p-value
1	Constant	6.043	0.262		23.063	0.000
	Vesting	-0.552	0.350	-0.154	-1.579	0.058
	Options	-0.597	0.369	-0.168	-1.619	0.054
	Vesting x Options	0.902	0.493	0.228	1.830	0.034
2	Constant	4.766	0.460		10.350	0.000
	Vesting	-0.615	0.342	-0.172	-1.800	0.037
	Options	-0.623	0.360	-0.175	-1.731	0.042
	Vesting x Options	0.931	0.481	0.235	1.933	0.027
	Experience	0.133	0.040	0.225	3.337	0.001
3	Constant	1.979	0.716		2.763	0.003
	Vesting	-0.486	0.325	-0.136	-1.494	0.068
	Options	-0.533	0.342	-0.150	-1.558	0.060
	Vesting x Options	0.911	0.456	0.230	1.996	0.024
	Experience	0.124	0.038	0.210	3.279	0.001
	Self-Interest	0.511	0.104	0.316	4.910	0.000
4	Constant	1.805	0.616		2.933	0.002
	Vesting	-0.434	0.279	-0.121	-1.552	0.061
	Options	-0.431	0.294	-0.121	-1.466	0.072

	Vesting x Options	0.888	0.392	0.225	2.265	0.012
	Experience	0.131	0.033	0.221	4.020	0.000
	Self-Interest	0.497	0.089	0.308	5.566	0.000
	Social Desirability Bias	-0.530	0.062	-0.472	-8.586	0.000

p-values are one-tailed.
n = 211
Model 1: $R^2 = 0.017$, Adj $R^2 = 0.003$
Model 2: $R^2 = 0.068$, Adj $R^2 = 0.050$
Model 3: $R^2 = 0.166$, Adj $R^2 = 0.145$
Model 4: $R^2 = 0.387$, Adj $R^2 = 0.369$

Panel D: T-test Results Comparing each Stock Option Cell

	t	df	SE	p-value
Vest Near X Options In vs. Vest Near X Options Out	1.587	91	0.375	0.058
Vest Near X Options In vs. Vest Far X Options In	1.691	103	0.325	0.047
Vest Far X Options In vs. Vest Far X Options Out	0.956	116	0.324	0.171
Vest Far X Options Out vs. Vest Near X Options Out	0.949	104	0.369	0.173

p-values are one-tailed.

Dependent Variable is "In your opinion, what is the likelihood that you would report the division manager thru the anonymous whistleblowing hotline website." Responses were given on a Likert-scale anchored with 1 = Extremely Unlikely and 7 = Extremely Likely.
Vesting is defined as "0" when the options are vesting near and "1" when the options are vesting far.
Options is defined as "0" when options are in the money (option price below market price) and "1" when options are out of the money (option price higher than market price).
Self-Interest is the average of a 7-item scale where higher indicates higher self-interest.
Experience is a continuous variable indicating how many years of work experience the participant has.
Social Desirability Bias is calculated by subtracting first person responses from third person responses.

Table 3
Supplemental Analysis of Intention to Sell Stock (Insider Trading)

Regression Results

	Unstd. Beta	SE	Std. Beta	t	p-value
Constant	0.549	0.270		2.037	0.045
Option Value	-0.026	0.092	-0.027	-0.280	0.780
Self-Interest	0.115	0.042	0.267	2.746	0.007
Experience	-0.055	0.015	-0.354	-3.650	0.000

p-values are one-tailed.
n = 93
R^2 = 0.177, Adj R^2 = 0.149

Dependent Variable is "Following your discovery of the possible accounting improprieties, would you sell your stock?" with 0 = no and 1 = yes.
Option Value is defined as those options which are vested with "0" when the vested options are in the money (option price below market price) and "1" when the vested options are out of the money (option price higher than market price).
Self-Interest is the average of a 7-item scale where higher indicates higher self-interest.
Experience is a continuous variable indicating how many years of work experience the participant has.