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The Effect of Performance Shares on Executive Incentives

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THE EFFECT OF PERFORMANCE SHARES ON EXECUTIVE INCENTIVES

by

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ABSTRACT

Pawliczek, Andrea (Ph.D., Accounting)

The Effect of Performance Shares on Executive Incentive

Thesis directed by Professor Yonca Ertimur and Associate Professor Alan Jagolinzer

I explore the determinants of performance share awards (PSAs), focusing on the factors associated with the recent increase in PSA use, and the effects of PSA use on key characteristics of compensation, pay levels and pay-for-performance sensitivity. PSAs are equity awards for which the number of shares that vest varies based on performance compared to pre-determined goals. I find that poor Say-on-Pay voting outcomes are associated with more aggressive adoption of PSAs and that PSAs have primarily replaced stock options in equity awards. Compared to stock options, PSAs have not affected ex ante compensation levels (grant date fair value), but have resulted in ex post payouts that are less variable and no lower. Moreover, PSA payouts increase in measures of CEO power. Collectively, these results tend to support the hypothesis that PSAs are being used to disguise compensation rather than improve incentive alignment.

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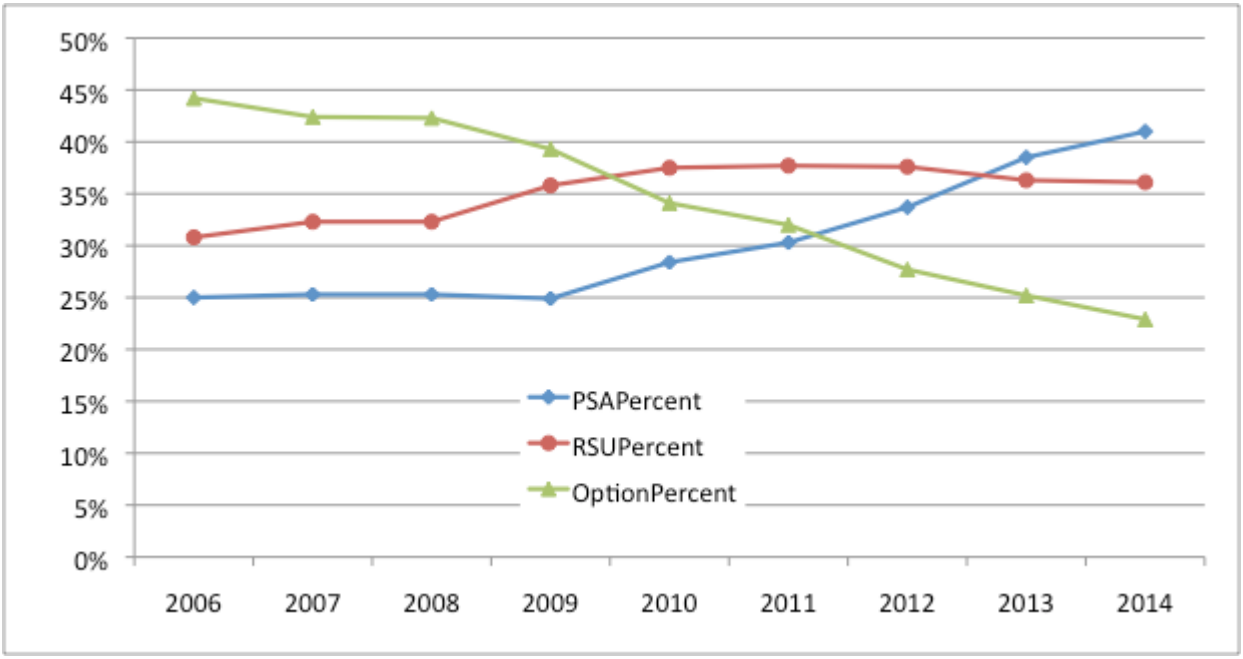
1. Introduction

The optimality of executive compensation is a topic of significant debate with two distinct views emerging (Murphy, 2012). Some argue managerial power has resulted in compensation that is excessive and not sufficiently sensitive to performance (e.g. Bebchuk and Fried, 2005). Others argue executive compensation is largely optimal or near-optimal, acknowledging a few "bad apples" may exist (e.g. Core, Guay, and Thomas, 2005). Because of its complexity and the persistence of events that are indicative of agency problems (e.g., accounting scandals of the early 2000's and option backdating; Heron and Lee, 2007), executive compensation has come under increasing scrutiny. More recently, concerns about the role of pay packages in excessively risky behavior in the financial sector during the financial crisis (Bhagat and Romano, 2009) motivated the passage of the Dodd-Frank Act, which mandates nonbinding shareholder votes on executive pay (Say-on-Pay). Compensation practices have continued to evolve during this time of increasing scrutiny. One such evolution is the material shift towards performance share awards (PSAs), a shift that has become pronounced since the financial crisis. PSAs are equity awards for which the number of shares that vest varies based on performance compared to pre-determined goals. One stated purpose of PSAs is to potentially "drive improvement" regarding misaligned incentives.[1] In this study, I examine the determinants and the implications of PSA use.

PSAs have become an increasingly important part of equity compensation, increasing from an average of 25% of CEO equity compensation in 2009 to over 40% in 2014 for companies in the S&P 1500 (see Figure 1). As of 2014, about 60% of S&P 1500 companies granted some form of performance equity awards. It is not clear why firms

[1] https://www.issgovernance.com/file/publications/evaluatingpayforperformance.pdf, p. 3 of 29.

Figure 1 – Equity by Type for S&P 1500 Firms
This graph below presents the percent of equity awards represented by PSAs, options, and time-vested restricted stock for S&P 1500 CEOs from 2006 to 2014. The graph only includes CEOs who were granted some equity as part of their compensation.



choose to shift to PSAs, particularly if their prior compensation structure could be presumed optimal (e.g., Core, Guay, and Thomas 2005). It is also not clear what the implications of this material shift in compensation structure are (e.g., the effect of PSA adoption on pay levels and pay-for-performance sensitivity).

PSAs are inherently more complex than traditional time-vested equity awards because their value is sensitive to firm performance in two ways. First, for a PSA award the number of shares (vesting percentage) that an executive actually receives at vesting depends on some metric of firm performance (e.g. EPS or relative total shareholder return (TSR)).[2] Second, the final value of a PSA award is sensitive to changes in the company's stock price. Traditional

[2] I use the term PSAs throughout this document to refer to equity awards where the number of shares that the executive ultimately receives depends on firm performance after the grant date. Typical PSAs feature a threshold, target, and maximum number of shares. In most cases, an executive may receive no shares if performance falls below a threshold and any number of shares between a threshold and maximum as determined by performance relative to goals (e.g. any number of shares between 25,000 and 100,000 once threshold performance is exceeded) while in some cases only set levels are possible (e.g. 0, 50,000 or 100,000).

time-vested equity awards (i.e. options and restricted stock) are only subject to this second type of performance sensitivity. While investors can easily calculate the realizable value of restricted stock and options by observing the stock price, this assessment is often much more challenging for PSAs because it requires investors to estimate the expected vesting percentage, which is frequently based on non-GAAP measures (See Appendix 1 for further details about PSAs).[3]

In initial analysis, I examine the determinants of the recent increase in PSA use. Prior evaluations of PSAs (e.g., Bettis, Bizjak, Coles, and Kalpathy, 2010 and 2015) identify firm characteristics associated with PSA use—PSA use increases with firm size and decreases with the volatility of stock returns. However, this research does not consider the recent upward trend in PSA use or the cross-sectional variation in the proportion of compensation firms assign to PSAs. I propose that one determinant of the increase in PSA use over time is the advent of Say-on-Pay voting, which became mandatory for companies at annual meetings after January 21, 2011.

Say-on-Pay voting offers shareholders an additional opportunity to voice their concerns with pay levels, sensitivity, or other practices. Although Say-on-Pay votes are only advisory and rarely fail (36 S&P 500 firms had failed votes from 2011 to 2015), compensation may still evolve as a result of these votes. A recent survey of asset managers found that 58% believe that Say-on-Pay is "effective in influencing or modifying pay practices".[4] Findings in prior literature support the idea that companies change compensation practices in response to

[3] Once the performance period for an award is complete, companies usually disclose the vesting percentage in their proxy statements. But this disclosure is not mandatory and not in a standardized form, making assessment of vesting percentages challenging even when the information is available. Based on a 2015 survey of asset managers, only 6% felt proxy statements were "very clear and effective" at communicating "whether performance-based compensation plans are based on rigorous goals" (Larcker and Tayan, 2015).

[4] "2015 Investor Survey: Deconstructing Proxy Statements — What Matters to Investors." 2016. *Stanford Graduate School of Business*. Accessed September 22. https://www.gsb.stanford.edu/faculty-research/publications/2015-investor-survey-deconstructing-proxy-statements-what-matters.

proxy advisors' recommendations and poor Say-on-Pay voting outcomes (Ertimur, Ferri, and Oesch, 2013; Larcker, McCall, and Ormazabal, 2015).

Using a comprehensive sample of S&P 1500 firms from 2010 to 2014, I find that PSA use is associated with more favorable Say-on-Pay voting outcomes. In turn, firms with poor prior Say-on-Pay voting outcomes use PSAs to a greater extent in subsequent compensation. In terms of economic magnitude, poor Say-on-Pay voting performance (more than 30% "Against"[5]) is associated with 7.6% greater use of PSAs, or about $339,000 greater grants of PSAs on average. To understand how PSA adoption affects compensation (e.g. whether PSAs increase pay-for-performance sensitivity), it is necessary to understand if any form of compensation is replaced by PSAs. I find that PSAs tend to replace options in compensation packages. I also find PSA use is positively associated with prior PSA adoption by other firms in the industry and negatively correlated with the volatility of stock returns.

Having established that the increase in PSA use is strongly associated with the introduction of mandatory Say-on-Pay voting, I turn my attention to whether this change has enhanced incentive alignment. On one hand, if Say-on-Pay voting compels compensation changes towards investor preferences, PSAs may better align incentives by decreasing excessive pay or increasing pay-for-performance sensitivity. On the other hand, the complexity and reporting rules associated with PSAs make it possible for firms to use PSAs to disguise compensation. By adopting PSAs companies may claim compensation is performance-based when actual compensation is in fact higher or less performance sensitive.

[5] ISS Recommendations state the compensation committee members may be the target of "withhold" recommendations if a company receives less than 70% support in its Say-on-Pay proposal and fails to adequately respond. Ertimur et al. (2013) find firms are more likely to change compensation plans when votes fall below this threshold.

Specifically, ex ante valuations of PSAs are highly dependent on target values;[6] thus, reported values (in the Summary Compensation Table) can be substantially lower than true expected values if targets are set low relative to actual expectations. Moreover, it is challenging for investors to assess the difficulty of targets in PSA awards, especially when they are based on non-GAAP measures.

I evaluate the effect PSA use has on compensation in a sample of S&P 500 firms from 2010 to 2014. Specifically, I consider the impact of PSAs on ex-ante pay levels (grant date fair value) and ex-post realized payouts. I also evaluate the variability in ex-post payouts of PSAs compared to other forms of compensation. To assess the effect of PSAs on ex-post levels of pay and pay-for-performance sensitivity, it is essential to accurately evaluate the vesting percentage (i.e. the number of shares the executive actually receives). In this paper, I depart from prior research and hand-collect the vesting percentage of PSA awards from proxy statements. Prior work (Bettis et al, 2015; Bizjak et al, 2016; Holden and Kim, 2014, Core and Packard, 2016) considers the ex-ante valuation of PSAs and the effect of PSAs on common measures of compensation sensitivity (delta and vega). When evaluating ex-post outcomes from PSAs, these papers either simulate the outcomes or estimate ex-post vesting percentages based on financial statement information available in databases (e.g. Compustat). This approach limits the ability to assess ex-post outcomes and payouts for two key reasons. First, the estimates of vesting percentages from financial statements are unlikely to accurately capture PSA vesting percentages that are often based on non-GAAP measures.[7] Second,

[6] ASC 718 provides reporting rules for performance shares. PSAs with performance conditions (i.e., accounting numbers such as EPS) are valued at the target number of shares times share price on grant date. PSAs with market conditions (e.g. TSR) are valued using simulation or modeling. This value generally exceeds the target number of shares times price at grant date.

[7] To illustrate the extent to which such estimates can deviate from actual outcomes, consider the following example. Bettis et al. (2015) states that the probability of meeting an awards threshold for PSAs calculated by simulation (financial statement data) is 57% (56%) and the probability of exceeding the maximum is 45% (43%).

authors must exclude awards based on non-financial measures and non-standard financial measures (e.g. sales in a specific group of countries) or awards where goals are not disclosed in absolute terms (e.g. threshold for award is 90% of EPS target but actual target value is not disclosed).[8] Hand-collection of ex-post outcomes enables me to circumvent these issues and more accurately assess payouts from a wider variety of PSAs.

In my analysis, I focus on how PSAs affect ex-ante and ex-post pay levels and the performance sensitivity of compensation compared to options, the form of compensation that PSAs most often replace. I do not find evidence that PSA adoption has affected ex-ante pay levels compared to options. However, PSAs generally vest at an average of 115%, well above target levels, suggesting that grant date fair values underestimate the true value of awards. Moreover, PSAs result in less variable payouts on average and are less likely to generate no payout compared to options, suggesting PSAs have not increased pay-for-performance sensitivity or exposure to downside risk. Further, I find that two measures of CEO power – CEO-Chairman duality and excess compensation (based on grant date fair value) – are associated with PSAs vesting at higher levels. Collectively, these findings suggest that PSA adoption does not increase pay-for-performance sensitivity and that PSAs could exacerbate issues in instances when the compensation setting process may have already been suboptimal. These results are more consistent with firms using PSAs to disguise misaligned compensation–i.e., companies appear to adopt PSAs to suggest increasingly performance-

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These values mean that the awards vests between threshold and maximum only 12% (13%) of the time. In contrast, in my sample I find awards vest between threshold and maximum 75% of the time. Additionally, Bettis et al. (2015) suggest that performance-based restricted stock awards payout a mean (median) $0.58 ($0.58) per dollar of grant date fair value while I find PSA awards payout to be $1.67 ($1.44).

[8] Additional work has evaluated incentives to manage earnings to reach threshold or target levels both for PSAs and bonus plans (Bizjak, Hayes, and Kalpathy, 2015; Bennett et al., 2015), again using estimates of vesting levels based on Compustat data.

sensitive compensation, yet set parameters that offer higher-than-expected payouts to executives.

I contribute to the literature on executive compensation (in particular to studies on PSAs). In contrast to prior work regarding PSAs (Bettis et al., 2010 and 2015; Holden and Kim, 2016; Core and Packard, 2016), my paper is the first to include actual outcomes from PSA awards. With this data, I am able to compare ex post payouts from PSAs to other types of equity awards, a comparison that was infeasible lacking actual ex-post outcome data because of the inability to accurately estimate vesting percentages for PSA awards. My results demonstrate that PSAs have relatively similar but slightly less variable payouts as compared to options, the type of compensation PSAs most frequently replace.

Additionally, I contribute to research exploring the relationship between CEO power and compensation (e.g. Bebchuk and Fried), by specifically identifying a method through which more powerful CEOs may extract rents–e.g., by setting easier performance targets. This finding augments Abernathy, Kuang and Qin (2014), who find that CEO power is positively associated with vesting for performance-vested stock options (PVSOs) in a sample of UK firms.

Finally, I add to prior literature regarding the effects of shareholder voting on compensation (Armstrong, Gow, and Larcker, 2013; Ertimur, Ferri, and Oesch, 2013; Iliev and Vitnova, 2015) by documenting a specific change (i.e. PSA adoption) that appears to derive from firms' response to Say-on-Pay voting. Further, my results help clarify the mixed evidence as to whether Say-on-Pay voting helps to better align compensation with investors' preferences by documenting that PSA adoption does not seem to have addressed key concerns

with compensation (i.e. PSA adoption has not increased pay-for-performance sensitivity or downside risk).

2. Theoretical Background and Prior Literature

In this section, I discuss the role of compensation in managing agency conflicts and the design of compensation contracts. Specifically, I address why companies may choose PSAs as opposed to other forms of compensation. I consider both the unique properties of PSAs in terms of providing incentives and other factors that may influence this decision, including tax consequences, financial reporting concerns, and shareholder perceptions.

2.1 Incentive properties

Compensation contracts represent a key governance mechanism to manage agency conflicts that arise from the separation of ownership and control that exists at most public companies (Berle and Means, 1932; Jensen and Meckling, 1976). Appropriately structured compensation contracts can help companies both select executives and manage moral hazards issues once the executive is employed. Short of the ability to directly observe managerial effort, in their efforts to mitigate conflicts with managers, shareholders must settle for second-best contracting solutions that generally tie at least some portion of compensation to firm performance (Holmstrom, 1979). In these contracts, shareholders must balance the desires to induce higher managerial effort with the need to give away ownership to do so and take into account the fact that risk-averse managers require higher expected pay to compensate for uncertain outcomes.

A company selecting to offer performance-based compensation to its executives has many choices available: cash bonuses based on different performance measures (e.g. EPS), time-vested restricted stock, stock options, or PSAs.[9] PSAs represent a complex form of

[9] While annual compensation represents and important component of an executive's incentives, it is important to note that executive's have incentives beyond those provided by their annual flow pay. As Core, Guay, and Larcker (2005) note, executives are provided with stock-price based incentives through their existing portfolio of

performance based-compensation with several unique features. First, the value of PSA awards is always tied to multiple performance measures; the number of shares an executive receives is determined based on a metric specified in the award (e.g. EPS, relative TSR) and because the award is paid shares stock price also influences the value. Second, PSAs often contain thresholds below which no award is paid; exceeding the threshold results in a discreet jump in award value (e.g. below the threshold and executive receives no shares but above the threshold he receives 20,000) (See Appendix 1 for additional discussion of PSA features). Because no theoretic work speaks to PSAs directly, I consider how prior literature about the selection of compensation contracts applies to PSAs.

Given managers are risk-averse, the optimal performance measure is the one with the highest signal-to-noise ratio (i.e. the one most reflective of managerial effort) (Holmstrom, 1979). Companies may further seek to filter out measurement noise by using multiple performance measures with relative weights based on the signal-to-noise ratio (Lambert and Larcker, 1987) or relative performance evaluation (RPE) (Holmstrom), although in practice RPE may be limited by other factors including its effect on market competition (Aggarwal and Samwick, 1999; Lambert, 2001). Several works suggest that when a firm has greater growth opportunities stock price (especially longer term price changes) may serve as a better metric because future benefits are not represented in accounting numbers (Smith and Watts, 1992, Bizjak, Brickley, and Coles, 1993).

This literature implies that traditional stock compensation (i.e time-vested restricted stock and options) should predominate when stock price is more indicative of managerial effort and growth opportunities are greater while cash compensation based on accounting

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stock and options. Delta and vega are commonly used to capture these portfolio incentives. Finally, regardless of his contract or portfolio, a CEO has incentives to increase company performance if this effort adjusts the market's belief about his ability (i.e. career concerns; Gibbons and Murphy, 1991).

metrics should predominate when these metrice are more reflective of effort. It is unclear how PSAs fit with this theory because their value depends on the joint realization of stock price and at least one other metric, often an accounting metric (e.g. EPS determines the number of shares awarded and the value of those shares depends on stock price), exposing executives to the risk associated with both measures. Moreover even if companies felt it appropriate to base compensation on multiple performance measures, it is unclear from this literature why PSAs would be superior to other compensation arrangements based on multiple metrics (e.g. some cash compensation based on an EPS target and some time-vested restricted stock or options).

The level of risk also varies across different types of compensation and may affect their use in compensation packages. Stock options represent riskier compensation than restricted stock, but provide greater incentives than an equal value of restricted stock. Prior work differs about the conditions under which restricted stock or options may be optimal (Hall and Murphy, 2002; Jenter, 2002; Feltham and Wu, 2001, Lambert and Larcker, 2004; Armstron, Larcker, and Su, 2010).

PSAs clearly provide riskier incentives than time-vested restricted stock because the number of shares ultimately awarded varies with performance for PSAs. Ex ante, the relationship between the risk level of PSAs and stock options is unclear and likely depends on the exact features of particular PSAs (e.g. the performance metric, the difficulty of performance goals, the maximum share award relative to target, etc.)

Finally, some work speaks to non-linear incentives (e.g. threshold bonuses), another feature present in many PSA awards. Psychology goal setting literature suggests that "tight but achievable targets" may offer optimal motivation; these targets require significant effort to achieve but are not so difficult that workers give up (Locke and Latham, 2002; Merchant and

Manzoni, 1989). Thresholds have a potential downside, especially those based on accounting numbers, because managers may manipulate performance in order to reach them (Healy, 1985; Leone and Rock, 2002; Kuang, 2008). Many PSA awards do feature thresholds at which a fixed number of shares are awarded (often 50% of target), so this feature could be important if outcomes are often near threshold levels.

Although no theoretical work speaks directly to the design or optimality of PSAs, Kuang and Suijs (2006) model performance vested stock options (PVSOs), a common feature of compensation in the UK, finding that PVSOs induce higher managerial effort and improve performance as long as vesting targets are not too difficult.[10] Several empirical papers have also explored the use and design of PVSOs in the UK (Carter, Ittner, and Zechman, 2009; Abernathy, Kuang, and Qin, 2014). Carter, Ittner, and Zechman focus on relative performance evaluation (RPE) use in PVSOs and find that most RPE awards do not fully vest. Abernathy, Kuang, and Qin look specifically at target setting finding the more powerful CEOs receive awards with easier targets. Ittner et al. (2007) explore the determinants of PVSOs on a small sample of US firms, finding fewer PVSOs for more volatile firms and firms with higher market to book ratios. PVSOs are similar to PSAs in that they include performance-vesting, but PVSOs are riskier than PSAs because the underlying instrument is a stock option (usually granted at the money) versus a share. While PVSOs represent the riskiest form of equity compensation, the place of PSAs is not clear.[11] This makes it unlikely that PSAs will serve the same role as PVSOs in compensation.

[10] A key factor in the adoption of PVSOs (as opposed to time-vested stock options) in the UK was the Greenbury Report (1995), which made several recommendations regarding compensation and governance (Conyon and Murphy, 2000). One recommendation stated that all new equity grants "should be subject to challenging performance criteria."

[11] Stock is less risky than stock options. Time-vested equity is less risky than performance-vested equity. Thus, time-vested restricted stock is the least risky form of equity compensation. PVSOs are the riskiest. Time-vested

2.2 Tax Consequences

Under section 162(m) of the Internal Revenue Code, companies are only allowed to deduct $1 million of compensation expense per executive. Certain types of compensation are exempt from this cap, including qualified performance-based compensation. Most non-equity incentive (cash) plans qualify for this exemption. Stock options granted at or out of the money and most PSAs[12] qualify for this exemption as well. Time-vested restricted stock does not. All else equal, companies would be expected to prefer compensation that meets this exemption. If companies are replacing non-exempt time-vested restricted stock with PSAs, tax consequences could be a consideration.

2.3 Financial Reporting Concerns

Companies may also be concerned with how compensation expense affects financial reports, especially the income statement. Stock option expensing stands out from other forms of equity compensation in this regard. Prior to 2005, companies did not have to include the expense of the fair value of stock options (i.e. the value calculated by a Black-Sholes model or similar) at grant date in their income statements. Empirical evidence supports the view that this favorable accounting treatment may have led companies to compensate more in stock options relative to other forms of compensation (Carter, Lynch, and Tuna, 2007). Core and Packard (2016) find some evidence suggesting that financial reporting concerns may affect the design of PSAs as well; they find firms with greater financial reporting concerns are more likely to use PSAs with accounting measures that provide greater financial reporting

stock options and PSAs fall between these extremes; the relative risk of PSAs versus stock options is not obvious.

[12] PSAs must meet all of the criteria required under 162(m) to qualify for the exemption. Most plans fulfill these requirements. If performance goals are not set within 90 days of the beginning of the performance period, PSAs do not qualify as performance-based compensation.

flexibility. The financial statement effects of PSAs are more limited in magnitude compared to historical influence of stock option expensing because all PSAs are expensed to some extent (features just influence future adjustments).

2.3 Shareholder Perceptions

Companies may also consider how reported compensation is perceived, especially the values reported in the Summary Compensation Table (SCT). With the advent of Say-on-Pay voting in 2011, shareholders have an additional opportunity to express their opinions about compensation practices. Either by themselves or through proxy advisory firms (PAs), shareholders evaluate executive pay levels compared to peer companies and firm performance. Although Say-on-Pay voting is only advisory, companies may want to avoid the bad press or scrutiny that may accompany a failed vote or low voting outcome. While cash compensation is reported at the actual value paid, equity compensation is reported at ex ante valuations.

The ability to manipulate ex ante valuations (i.e. report a lower value than the true expected value as assessed by the executive or board) varies by the type of equity and the associated reporting rules. PSAs are the type of equity compensation with the most potential for such manipulation (See Table 1 for details). Evaluation of PSAs by those outside the company is further complicated because ex post reporting is not mandatory and does not come in a standard form, making it difficult for outsiders to evaluate whether targets were set fairly.[13] Compensation scrutiny may also be encouraging companies to use performance-based compensation as PAs view this type of

[13] Firms are not required to formally adjust values in the Summary Compensation Table as the probability of achieving a particular PSA target changes (i.e. as the company performs below or above target levels). Adjustments are made in the calculation of compensation expense for the Income Statement if the award is based on non-price conditions and in the "Outstanding Equity Awards" table in the Proxy Statement. The actual

Table 1 – Ex Ante Value by Equity Compensation Type
This table presents how the ex ante (grant date value) is calculated for various types of equity grants.

Compensation Type	Ex Ante Reported Value (in Summary Compensation Table)	Opportunity to manipulate ex ante valuation
Time-vested restricted stock	Grant Date Stock Price * Number of Shares	Very Low
Time-vested options	Black-Sholes or other modeling	Low (model selection or assumptions)
Performance Shares – performance condition (e.g. EPS)	Grant Date Stock Price * Target Number of Shares	High (set an easy target)
Performance Shares – market condition (e.g. relative TSR)	Monte Carlo simulation or other model	Medium to High (model selection or assumptions, low targets if probability of achievement not adjusted)

compensation more favorably. ISS, the most influential PA, does not consider time-vested restricted stock or options granted at the money to be performance-based, while PSAs are classified as performance-based.

number of shares that vest for a PSA award is also reported in the "Options Exercised and Stocks Vested" table in the Proxy Statement upon completion and payment of the award; but PSA shares may be aggregated across multiple grants and with time-vested restricted stock making it difficult to assess the specific shares associated with a particular award.

3. PSA Determinants

In this section, I examine the potential reasons for the recent increase in PSA use. PSAs substantially increased from an average 25% of CEO equity compensation in 2009 to over 40% (based on grant date fair value) in 2014 for companies in the S&P 1500 (see Figure 1), overtaking time-vested restricted stock as the largest component of equity grants for these CEOs in 2013. For S&P 1500 CEOs that were awarded PSAs in 2014, the mean (median) value of PSA grant was $3.3 million ($2.3 million) (Table 2). Thus PSA grants are an economically meaningful component of at-risk compensation for executives in the sample, even taking into account portfolio considerations because a PSA award may be entirely forfeited if performance thresholds are not achieved. In 2014,

Table 2 – PSA Use

This table presents the percentage of CEOs receiving some PSAs as part of their compensation for firms in the S&P 1500 by year. The mean and median values of PSA grants by year are also provided.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
% of firms with PSAs	27%	33%	33%	34%	40%	44%	51%	56%	60%
Only including firms that awarded some PSAs									
Median Grant Date Value of PSAs (000)	1,707	1,635	1,725	1,498	1,694	1,800	1,924	2,207	2,259
Mean Grant Date Value of PSAs (000)	2,797	2,727	2,826	2,336	2,684	2,700	2,863	3,078	3,317

CEOs who received PSAs had an average delta of $855,000[14], or about one quarter the size of the average PSA.

Prior work evaluates the determinants of PSAs (Bettis et al., 2010, Bettis et al, 2015) and finds PSA use is more common for larger and less volatile firms and more frequent in

[14] Delta is the change in value of firm wealth due to a 1% change in stock price. Average delta for CEOs who did not receive PSAs in 2014 was $2,155,000, about 2.5 times greater than for CEOs who received some PSAs ($855,000).

later years. Core and Packard (2016) find a positive association between PSAs with accounting conditions and financial reporting concerns (i.e. income statement effects). The literature to date, however, does not explicitly consider the reasons behind the recent increase in PSA use.

As I discuss in Section 2, one potential reason to use PSAs as a component of executive compensation is their unique incentive properties. However, it is difficult to attribute the substantial increase in PSA use in recent years to their incentive properties alone. This explanation would require a significant shift in the economics that make PSAs superior to other compensation for a large number of companies. Instead, I propose mandatory Say-on-Pay, which coincided with the increase in PSA adoption, as a potential contributing factor.[15] In fact, anecdotal evidence from narrative descriptions in Proxy Statements suggests a relationship between Say-on-Pay voting and PSA adoption (see Appendix 2 for examples).

To examine the role of Say-on-Pay in the increase of PSAs, I construct a sample of CEOs at S&P 1500 firms for whom compensation data is available in Execucomp. I limit the sample period to fiscal years for which firms had prior Say-on-Pay voting outcomes (generally fiscal year 2012 or later[16]). I focus on the effect Say-on-Pay voting has on PSA use in subsequent compensation packages[17].

[15] Another potential event that might influence equity choice is the mandatory expensing of stock options, which began in 2005. While this event may explain the downward trend in option use just after this event (2006 and 2007), it seems an unlikely as a major contributing factor to the increase in PSA use, which did not begin in earnest until 2010 (see Figure 1).

[16] For companies with public float exceeding $75M, Say-on-Pay voting became mandatory for annual meetings occurring after January 21, 2011. Thus, companies first had previous Say-on-Pay voting results when determining 2012 compensation. Note that in the 2011 Proxy season companies selected their Say-on-Pay voting frequency (annual, biennial, or triennial); companies selecting less frequent votes will not have voting results every year.

[17] See Appendix 3 for analysis of how PSA use influences Say-on-Pay voting outcomes.

I evaluate the determinants of PSAs and other forms of equity compensation, considering Say-on-Pay voting outcomes as a potential determinant in the following regression.

$EquityTypePercent = \alpha + \beta_1 * VotingAgainstLag + \gamma * \text{Controls} + \varepsilon$	(1)

The dependent variables are *PSAPercent, OptionPercent*, and *RSUPercent,* the percent of equity grant represented by PSAs, options, and time-vested restricted stock, respectively. *VotingAgainstLag* – the percent of votes "Against" in the Say-on-Pay Proposal that took place in the prior year – is the variable of interest. I expect a positive (negative) coefficient on this variable if a greater proportion of votes "Against" leads to adoption (abandonment) of this type of compensation. I use an alternative measure of voting outcomes, *LowVoteLag,* which is an indicator variable set to one if prior year voting outcomes were more than 30% "Against."[18] I draw primarily from prior literature exploring PSA determinants for other control variables (Bettis et al., 2010, Bettis et al., 2015). These controls include prior industry use of PSAs (*IndustryPSA)*, volatility of stock returns, market to book ratio, firm performance (TSR and ROA), CEO ownership, and institutional ownership. I estimate additional specifications to focus on the changes rather than levels of PSAs by including 1) an autocorrelation term *LagPSAPercent* and 2) fixed effects by executive.

Table 3 presents the results from these regressions. I consistently find that poor prior voting outcomes are associated with higher PSA use as signified by the positive coefficients on *VotingAgainstLag* and *LowVoteLag.* These results are also economically significant. Having prior voting outcomes below 70% (*LowVoteLag* = 1) is associated with a 7.6% increase in

[18] ISS Recommendations state the compensation committee members may be the target of "withhold" recommendations if a company receives less than 70% support in its Say-on-Pay proposal and fails to adequately respond. Ertimur et al. (2013) find firms are more likely to change compensation plans when votes fall below this threshold.

PSAPercent – equivalent to a $339,000 greater grant of PSAs at sample mean level of equity grants. Columns (3) and (4) of Table 3 provide two specifications that focus on change rather than levels of PSAs by including an autocorrelation term and CEO fixed-effects, respectively. These regressions emphasize how compensation changes after voting outcomes, controlling for prior compensation. The positive association between *VotingAgainstLag* and *PSAPercent* remains.[19] As for control variables, consistent with prior work (Bettis et al., 2010 and 2015), I find the prior industry PSA use (*IndustryPSA)* is a strong predictor of PSA adoption. While this result cannot explain the initial decision to adopt PSAs, it may contribute to the trend (i.e. once some firms in an industry adopt PSAs others are more likely to do so). This finding may be at least partially explained by the prevalence of benchmarking in compensation decisions, especially by compensation consultants. Also consistent with prior literature, I find *PSAPercent* decreases with *Volatility* and *CEO Ownership%*. For CEOs with large ownership stakes the incentive provided by their equity portfolio overwhelms the incentives provided by alternate forms of compensation, likely discouraging PSAs or other incentive compensation arrangements.[20] I do not find an association between PSA use and *Sales*, a proxy for firm size. In Column (3), I find a significant and positive association between *Institutional Ownership* and *PSAPercent*, providing evidence that another measure of compensation and governance scrutiny may influence PSA use.

[19] *PSAPercent* is a bounded dependent variable ($0 \leq PSAPercent \leq 1$) and OLS models are not ideal in such situations because predicted values may fall outside this range. One alternative is to use a GLM model in the binomial family with a logit link, appropriate for dependent variables that are proportions. An alternative would be to use an indicator variable as the dependent variable (=1 if *PSAPercent*>0) and a probit model. I provide these specifications in Table 3, Panel B, Columns (4) and (5) and find consistent results.

[20] Guay, Kepler and Tsui (2016) reach a similar conclusion about annual bonus plans, documenting that they provide more meaningful incentives early in a CEO's career when his firm equity holdings tend to be lower.

Table 3 – Equity Compensation Structure

Panel A: This table presents the results of estimating regressions of different forms of equity on their determinants. The dependent variables are PSAPercent, OptionPercent, and RSUPercent, which represent the percentage of a CEO's total equity grant in a given year that is made up of PSAs, options, and time-vested restricted stock respectively. IndustryPSA is the average PSAPercent for other firms in the 2-digit SIC code in the prior year. VotingAgainstLag is the percentage of votes cast for a company's Say-on-Pay proposal during the vote occurring in the prior year. Annual return on assets (ROA) and total shareholder return (TSR) as well as lags of these variables are also included. Ownership% is the number of shares owned by the CEO divided by shares outstanding. CEOChair is an indicator set to 1 if the CEO is chair of the board. CooptedBoard is the percent of the board appointed after the CEO started. Only years in which a CEO had some equity are included. Results are consistent if this exclusion is not applied. All of the remaining variables are as defined in Appendix 5. Year indicators are included but unreported.

***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively. Standard errors are calculated based on clustering by executive. T-statistics are reported in parentheses.

	(1) OLS	(2) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Dependent Variable	PSAPercent	PSAPercent	PSAPercent	PSAPercent	OptionPercent	RSUPercent
VotingAgainstLag	0.193***		0.190***	0.085**	-0.128***	-0.019
	(3.266)		(5.03)	(2.15)	(-4.57)	(-0.54)
LowVoteLag		0.076***				
		(2.77)				
PSAPercentLag			0.789***			
			(61.14)			
OptionPercentLag					0.744***	
					(46.68)	
RSUPercentLag						0.724***
						(47.16)
IndustryPSA	0.476***	0.475***	0.0955***	0.029		
	(5.32)	(5.29)	(2.59)	(0.28)		
ROA	0.0251	0.015	0.095	0.012	-0.058	-0.076
	(0.20)	(0.12)	(1.17)	(0.11)	(-0.70)	(-0.93)
ROAlag	-0.064	-0.077	-0.174*	0.064	0.205***	0.101
	(-0.53)	(-0.64)	(-1.95)	(0.67)	(2.68)	(1.11)
TSR	-0.008	-0.007	-0.002	0.020*	0.025*	-0.006
	(-0.42)	(-0.38)	(-0.23)	(1.69)	(1.89)	(-0.48)
TSRlag1	-0.015**	-0.014**	-0.009**	0.013	0.005	0.011
	(-2.36)	(-2.16)	(-2.22)	(1.26)	(0.61)	(1.40)
TSRlag2	-0.016**	-0.018***	-0.007	0.009	0.002	0.003
	(-2.49)	(-2.63)	(-1.64)	(0.82)	(0.39)	(0.62)
Volatility	-0.389***	-0.384***	-0.101**	-0.068	0.054	0.184***
	(-4.20)	(-4.14)	(-2.25)	(-0.85)	(1.37)	(3.77)
Ownership %	-1.251***	-1.271***	-0.255	-1.182	-0.028	0.656***
	(-3.63)	(-3.68)	(-1.53)	(-1.16)	(-0.19)	(3.10)
CEO Chair	-0.002	0.000	-0.003	-0.010	0.013*	-0.019**
	(-0.09)	(0.00)	(-0.33)	(-0.57)	(1.79)	(-2.21)
Coopted Board	0.020	0.021	0.011	-0.071	-0.015	-0.011
	(0.63)	(0.66)	(0.84)	(-1.07)	(-1.21)	(-0.69)
Investment	0.0078	0.005	0.035	0.164	0.054	-0.151**
	(0.07)	(0.04)	(0.62)	(0.82)	(1.12)	(-2.36)
Market To Book	0.0003	0.0003	0.0002	-0.0001	-0.0002	-0.0001
	(0.93)	(0.91)	(0.86)	(-0.26)	(-0.72)	(-0.96)
Sales	0.0004	0.0005	0.0000	0.0015	-0.0000	-0.0000
	(0.80)	(0.92)	(0.06)	(0.82)	(-0.65)	(-0.40)
Institutional Ownership	-0.004	-0.001	0.053**	-0.034	-0.047**	-0.016
	(-0.065)	(-0.02)	(2.24)	(-0.69)	(-2.17)	(-0.63)
Constant	0.530***	0.352***	0.290***	0.486***	-0.086***	0.064*
	(7.87)	(8.01)	(7.32)	(7.36)	(-2.91)	(1.66)
SE Clustered By CEO	Yes	Yes	Yes		Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
CEO FE				Yes		
Observations	3,053	3,053	3,053	3,053	3,053	3,053
R-squared	0.069	0.067	0.638	0.060	0.615	0.563
Number of Groups				1,384		

Table 3, Panel B: This panel presents the results of estimating regressions of different forms of equity on their determinants, specifically addressing potential concerns with OLS specifications. The first three columns include PSAPercent, OptionPercent, and RSUPercent estimated in seemingly unrelated regressions (SUR). The dependent variables are PSAPercent, OptionPercent, and RSUPercent, which represent the percentage of a CEO's total equity grant in a given year that is made up of PSAs, options, and time-vested restricted stock respectively. Column (4) provides a GLM model (binomial family, logit link) designed to model dependent variables that are proportions. Column (5) presents a Probit model (DV=1 if the executive has some PSAs). VotingAgainstLag is the percentage of votes cast against a company's Say-on-Pay proposal during the vote occurring in the prior year. Annual return on assets (ROA) and total shareholder return (TSR) as well as lags of these variables are also included. Ownership% is the number of shares owned by the CEO divided by shares outstanding. Only years in which a CEO had some equity are included. Results are consistent if this exclusion is not applied. All of the remaining variables are as defined in Appendix 5. Year indicators are included but unreported.
***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively. Standard errors are calculated based on clustering by executive. Z-statistics are reported in parentheses.

	(1) SUR	(2) SUR	(3) SUR	(4) GLM	(4) Probit
Dependent Variable	PSAPercent	OptionPercent	RSUPercent	PSAPercent	PSAPercent>0
VotingPercentLag	0.185***	-0.135***	-0.017	0.821***	0.676***
	(5.80)	(-4.83)	(-0.51)	(3.75)	(2.84)
PSAPercentLag	0.598***				
	(71.69)				
OptionPercentLag		0.593***			
		(68.68)			
RSUPercentLag			0.568***		
			(63.67)		
IndustryPSA	0.027			2.00***	1.363***
	(1.12)			(7.23)	(3.92)
ROA	0.067	-0.012	-0.093	0.137	0.274
	(0.87)	(-0.17)	(-1.15)	(0.24)	(0.56)
ROAlag	-0.168**	0.220***	0.046	-0.250	-0.661
	(-2.12)	(3.18)	(0.55)	(-0.45)	(-1.44)
TSR	-0.005	0.026***	-0.009	-0.033	-0.034
	(-0.46)	(2.73)	(-0.77)	(-0.38)	(-0.52)
TSRlag1	-0.010	0.004	0.011	-0.090*	-0.097**
	(-1.59)	(0.77)	(1.64)	(-1.73)	(-1.99)
TSRlag2	-0.009	0.001	0.0055	-0.111*	-0.072*
	(-1.36)	(0.25)	(0.79)	(-1.92)	(-1.64)
Volatility	-0.206***	0.081**	0.210***	-1.726***	-1.426***
	(-4.71)	(2.14)	(4.61)	(-5.19)	(-3.90)
Ownership %	-0.483***	-0.018	0.768***	-6.433***	-6.442***
	(-3.42)	(-0.15)	(5.19)	(-4.14)	(-4.48)
CEO Chair	-0.001	0.019***	-0.024***	-0.009	0.004
	(-0.13)	(2.67)	(-2.84)	(-0.16)	(0.06)
Coopted Board	0.012	-0.019	-0.004	0.103	-0.028
	(0.83)	(-1.560)	(-0.28)	(1.041)	(-0.23)
Investment	0.030	0.118**	-0.200***	0.002	0.736
	(0.54)	(2.39)	(-3.39)	(0.00)	(1.58)
Market To Book	0.0002	0.0001	-0.0002	0.001	0.0002
	(1.16)	(-0.55)	(-0.88)	(0.87)	(0.26)
Sales	0.0001	-0.0000	-0.0001	0.0018	0.0032
	(0.64)	(-0.42)	(-0.81)	(1.34)	(0.94)
Institutional Ownership	0.025	-0.042*	0.003	0.06	0.187
	(0.94)	(-1.84)	(0.12)	(0.031)	(0.87)
Constant	0.396***	-0.066**	0.119***	0.943***	0.943***
	(11.56)	(-2.25)	(3.38)	(3.49)	(3.49)
SE Clustered By CEO					Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,053	3,053	3,053	3,053	3,053
R-squared	0.603	0.591	0.538		0.057 (Pseudo)

Next, I conduct additional analyses to identify the source of the increase in PSA, i.e., what form of equity compensation PSAs are replacing. I estimate Equation (1) alternatively with *OptionPercent* and *RSUPercent* as the dependent variables. Columns (5) and (6) of Table 3 present the results. I find that *VotingAgainstLag* is negatively correlated with *OptionPercent* suggesting firms with poor voting outcomes decrease their use of options.[21] I find no association between *VotingAgainstLag* and *RSUPercent.*[22,23]

These results, along with the trends presented in Figure 1, suggest that PSAs are largely replacing options. This substitution is somewhat puzzling because shareholders did not express a preference for PSAs compared to options as prior PSA and option use have similar affects on subsequent Say-on-Pay voting (see Appendix 3). Prior work shows votes often convey preferences to increase shareholder value (Cuñat, Gine, and Gaudelupe, 2012). Understanding the effects of PSA adoption on compensation will be considered further in the next section.

[21] In untabulated results, I perform a falsification test to validate that voting outcomes themselves influence PSAPercent as opposed to some feature of the firm or executive affecting both voting outcomes and PSAPercent. I include *VotingAgainstPrior*, the percent of votes "For" in Say-on-Pay voting in the vote that occurs in the same year as the compensation as an additional control variable (e.g. For a 2012 compensation package, *VotingAgainsttLag* is for the Say-on-Pay vote about 2010 compensation, which takes place in mid-2011. *VotingAgainstPrior* is for the Say-on-Pay vote about 2011 compensation, which takes place in mid-2012, generally after 2012 equity grants are made). If voting outcomes are actually influencing compensation structure, *VotingAgainstPrior* should have less effect on *PSAPercent* because this vote takes place after decisions about equity grants in most instances. Consistent with this logic, I do not find a significant association between *VotingAgainstPrior* and *PSAPercent.*

[22] When considering the tradeoffs between equity types (i.e, swapping options for PSAs), the regression should be considered jointly, The error terms for regressions of PSAPercent, OptionPercent, and RSUPercent are correlated (e.g. if PSAPercent is higher than predicted then either OptionPercent or RSUPercent must be lower than predicted). While OLS estimators are consistent in these circumstances, they are not efficient. Seemingly Unrelated Regression (SUR) can account for these correlated error terms. I run the regressions for PSAPercent, OptionPercent and RSUPercent as SURs and find results consistent with the OLS results (Table 3, Panel B).

[23] In untabulated analysis, I evaluate the affect of voting outcomes on compensation levels and find mixed results. Low voting outcomes are associated with higher compensation in standard OLS regressions but lower compensation in a CEO fixed effects model.

4. Hypotheses

Anecdotal evidence and the analysis in Section 3 suggest the introduction of mandatory Say-on-Pay voting is a contributing factor to the increasing trend in PSA use at the expense of options. As noted in Section 3, this tradeoff between PSAs and options is not intuitive because shareholders did not express this preference through their Say-on-Pay votes. Further, this shift from options to PSAs does not clearly address concerns with pay-for-performance sensitivity. While certain shifts in equity compensation would clearly increase performance sensitivity (e.g. replacing time-vested restricted stock with options, or replacing time-vested stock options with performance-vested stock options), the difference in performance sensitivity between PSAs and options is unclear without examining the details of PSAs awards (i.e. the relationship depends on the difficulty and structure of the performance targets in PSAs). The focus of the remainder of my study is whether these changes resulted in more efficient compensation arrangements.[24] This question is especially pertinent in this case because of the influence of mandatory Say-on-Pay voting on PSA adoption (i.e. the purpose of Say-on-Pay was to provide shareholders a means to express dissatisfaction with pay practices that might lead to improved compensation practices).

Specifically, I will consider how PSAs affect three key features of compensation: ex ante valuations, ex post payouts, and the variability in ex post payouts. The ex ante valuation of pay is the risk neutral valuation of pay that is reported in the Summary Compensation Table based on accounting rules (ASC 718). While this ex ante valuation represents the

[24] The focus of my study is understanding how PSAs influence executive incentives once the executive is employed (i.e. moral hazard). I recognize that PSAs may also play a role in executive selection (i.e. the ability of a company to attract a particular type of executive based on risk preferences or abilities). I do not focus on this effect in this study because my data covers a short time period, resulting in a limited number of executive turnover events.

expected value of compensation on grant date, the actual ex post payout from an equity grant will differ from this ex ante valuation in almost all cases. For stock options and time-vested restricted stock, the ex post value of equity grants (i.e. realized value) depends on the change in stock price between grant date and vesting or exercise. For performance shares, ex post value is influenced both by changes in stock price and by the vesting level, which determines how many shares actually vest (i.e. firm performance relative to metrics in the award). Both ex ante valuations and ex post payouts represent measures of pay level. I will also consider variability in ex post payouts as a measure of pay for performance sensitivity. I focus on the effect of PSA adoption on pay levels and pay-for-performance sensitivity under several potential scenarios.

4.1 PSAs as a Response to Prior Rent Extraction

Before Say-on-Pay voting, at some firms executive pay may have been excessive relative to the level of risk due to managerial power (Bebchuk and Fried, 2005). In order to achieve excessive pay, executives must be able to "camouflage" these excesses to outside parties (Bebchuk, Fried, and Walker, 2002). Prior work finds that factors likely to increase scrutiny on compensation (thus reducing the ability to camouflage), including institutional investors and outside directors (Hartzell and Starks, 2003, Conyon and Peck, 1998; Core, Holthausen, and Larcker, 1999), decrease pay levels or increase pay-for-performance sensitivity. Say-on-Pay voting may represent another level of scrutiny on compensation practices as Proxy Advisors and investors further investigate pay practices to make recommendations or cast their votes.

To the extent that companies adopt PSAs as a response to this scrutiny and to address associated investor concerns with compensation practices, PSAs should represent a more

efficient compensation arrangement than the one replaced. Under this scenario, PSA use will reduce compensation that is excessive relative to risk, resulting in lower and/or more performance-sensitive compensation. PSAs used for these purposes would have challenging targets with above-target level payouts only achieved with superior performance.

H1a: *PSA use is associated with lower levels of compensation and more performance sensitive compensation.*

4.2 PSAs as a Disguising Mechanism

PSAs offer a significant opportunity to disguise compensation, making it much harder for investors to assess expected payouts and how those payouts are tied to performance compared to time-vested restricted stock or option awards (see discussion in Section 2). Specifically, it is difficult for investors to accurately assess the actual number shares that will vest under a PSA award. While valuation of PSA awards reported in the Summary Compensation Table largely depends on the "target level", companies could set easy targets making executives' expectations of pay and actual payouts on average much higher than target levels.[25] Lacking insider information, investors might not be able to detect such behavior, especially when targets in PSA awards are based on non-GAAP measures. The challenge in evaluating targets may also leave investors unsure of the sensitivity of PSA vesting levels to performance. Even assessing actual outcomes of PSAs may be difficult because disclosure of the actual shares awarded is not standardized or mandatory.

[25] When performance conditions (i.e. metrics based on accounting metrics such as EPS) are used in PSAs, the value of the award reported is the target number of shares times the share price at the time of grant. When market conditions (e.g. total shareholder return) are used as PSA performance metrics, the awards are valued via modeling (e.g. Monte Carlo simulation) generally resulting in higher values than for performance shares with accounting conditions. This increased valuation is driven by the positive covariance between number of shares paid out and share price. Easy targets (i.e. lower than actual expectations) could still lead to undervaluation of the award if the modeling assumptions do not fairly account for target difficulty.

Because PSAs make it easier to disguise compensation levels and risk, the additional scrutiny accompanying the adoption of mandatory Say-on-Pay voting provides incentives for companies to adopt PSAs. Under this scenario, companies may be using PSAs to disguise excess pay or to provide the appearance of changing compensation without substantially changing pay levels or performance sensitivity. In either case, PSA use will result in compensation that is no lower and no more sensitive to performance than the compensation it replaced.

H1b: *PSA use is associated with no change in reported compensation, no change or an increase in realized compensation, and no change or a decrease in performance sensitivity.*

4.3 PSAs as a Mechanism to Focus on performance-sensitivity

Companies must tradeoff between compensation levels and the riskiness of that compensation; risk-averse executives require higher expected pay when compensation is riskier. Companies may choose to place an increased emphasis on performance sensitivity if they believe that recent criticism of pay practices stem primarily from the decoupling of pay from performance. Under this scenario, firms would introduce PSAs to provide more performance sensitive compensation, but such a change would necessitate higher average compensation. Whether this change improves compensation efficiency depends on if prior compensation effectively balanced risk and reward.

H1c: *PSA use is associated with higher levels of actual compensation (ex ante and ex post) and more performance-sensitive compensation.*

I lay out my expectations for three features of compensation under the different scenarios.

Scenarios	PSA Effect on: Ex ante compensation level	Ex post compensation level	Variability of ex post payouts
1) Prior Rent Extraction	Lower	Lower	Higher
2) Disguising Mechanism	No Change	No Change or higher	No change or lower
3) Focus on Performance Sensitivity	Higher	Higher	Higher

5. Data and Research Design

5.1 Data

To examine H1a to H1c, I construct a sample of CEO compensation at S&P 500 firms for fiscal year 2010 to 2014 (2,188 firm years with complete data). I focus on this time period because I am primarily interested in the recent increase in PSA use and the effect of mandatory Say-on-Pay voting. I limit my sample to S&P 500 firms to facilitate hand-collection of details about PSA grants and PSA outcomes (i.e. vesting percentages). An assessment of PSA outcomes requires hand-collection because it is not possible to accurately evaluate vesting based on standard financial measures for several reasons. First, PSAs frequently use non-GAAP measures that cannot readily be calculated from financials statements.[26] Second, companies may not disclose goals in absolute terms (e.g. threshold for award is 90% of EPS target but actual target value is not disclosed), making such calculation impossible. Finally, companies may not disclose details of calculations, which can result in substantially different vesting levels given that most PSA payout functions are non-linear (e.g. whether EPS growth is calculated over an entire three-year period or for each year and then averaged).

I merge the hand-collected data set with Compustat, Execucomp, CRSP, and Thomson Financial for additional control variables.

5.2 Research Design

5.2.1 Ex Ante Compensation

[26] Curtis, Li and Patrick (2015) find that the majority of firms use neither GAAP nor I/B/E/S measures as the basis for annual bonus contracts based on earnings. Additionally firms may use non-financial metrics (e.g, customer satisfaction) or non-standard financial measures (e.g. existing store sales) in PSA awards.

First, I estimate the following regression to evaluate the affect of PSA use on the ex ante value of compensation (grant date value).

$TotalComp = \alpha + \beta_1 * PSAPercent + \beta_2 * OptionPercent \ \gamma * \text{Controls} + \varepsilon$	(2)

The dependent variable, *TotalComp*, is the CEO's total compensation including salary, bonus, non-equity incentives, stock and option grants, and other compensation (TDC1 from Execucomp). *PSAPercent* and *OptionPercent,* the percent of the equity grant represented by PSAs and options respectively, are the main variables of interest. The coefficients on *PSAPercent* and *OptionPercent* represent the risk premiums associated with these forms of equity as compared to restricted stock (the excluded group). I expect positive coefficients on *PSAPercent* and *OptionPercent* because these forms of equity are riskier than restricted stock. The relationship between the coefficients on *PSAPercent* and *OptionPercent* is not clear. A higher (lower) coefficient on *PSAPercent* suggests that PSAs are perceived as more (less) risky than options and thus merit a higher (lower) risk premium. For control variables, I follow Core, Holthausen, and Larcker (1999) and include other determinants of compensation including *TSR, ROA, Sales, Volatility* of stock returns, and *CEOChair* (See appendix 5 for variable definitions). I also include year fixed effects. In some specifications I include additional controls for two measures related to oversight – *InstitutionalOwnership* and *Blockholder* (an indicator equal to one if there is an institutional shareholder with a greater than 5% ownership) and industry (2-digit SIC) fixed effects.

5.2.2 Ex Post Compensation

In the analysis of ex post outcomes, I am limited to awards for which the performance period has ended and for which the company reports outcomes.[27] First, I consider the realized

[27] There are 48 awards where I am unable to collect outcomes data when I believe it should be available.

value of PSAs compared to restricted stock and options. For this comparison, I calculate the realized value of each type of equity per dollar of grant date fair value. I use the Black-Scholes model to value an option granted at-the-money on the same day as the PSA grant and assume a seven year expected life.

Equity Types	Calculation of UnitsPer$ of Grant Value	Final Value Calculation
Time-Vested Restricted Stock	1/GrantPrice	UnitsPer$ * EndPrice
Options	1/OptionValue where OptionValue is calculated based on BlackScholes Model	Max (UnitsPer$ * (EndPrice-GrantPrice), 0)
PSAs	1/(Grant Date Fair Value/Target Shares)	UnitsPer$*VestedPercent *EndPrice

This calculation enables me to compare the levels and variation in realized pay for different types of equity compensation. Given that executives are risk-averse, more variable (i.e. riskier) compensation should be associated with higher average payouts. I also calculate the return required for an option award to result in equivalent payout to a restricted-stock or PSA award (*equivalence return*, see Appendix 4).

5.2.3 Cross-Sectional Variation in Ex Post Outcomes

I then estimate the following regression to evaluate the cross-sectional variation in vesting percentages and variability of vesting percentages for PSA awards.

$VestedPercent = \alpha + \beta_1 * CEOPower + \beta_2 * PSA\ attributes + \gamma * \text{Controls} + \varepsilon$	(3)
$Variability = \alpha + \beta_1 * CEOPower + \beta_2 * PSA\ attributes + \gamma * \text{Controls} + \varepsilon$	(4)

VestedPercent is the level at which the award vested, where 1 (100%) equals vesting at target; in instances where vesting is greater than 100% the executive received more shares than reported at grant date. The realized value of the award to the executive depends on the *VestedPercent* and the stock price at the time of vesting. *Variability* is the absolute value of the difference between *VestedPercent* and 1. *VestedPercent* is a proxy for the level of payout

and *Variability* is a proxy for variation in payout. I only include PSA awards for which the CEO remained in his position through the end of the PSA performance period.

I also include two measures of CEO power. *CEOChair* is an indicator variable set to 1 if the CEO serves as chair of the board. *ExcessComp* is the residual from Equation (2), a regression of total compensation (ex ante valuation) on economic determinants of compensation. More powerful CEOs (or boards that do not effectively manage the compensation setting process) would be expected to have higher levels of *ExcessComp* (Core, Holthausen, and Larcker, 1999). PSAs potentially afford an opportunity to extract additional rents without raising red flags, given the challenge for investors in assessing the payouts associated PSAs. Powerful CEOs might take advantage of this scenario by setting up PSAs with limited risk and higher than expected payouts. If PSAs are being used to disguise compensation, I expect powerful CEOs to take advantage to a greater extent, meaning CEO power measures will be positively associated with *VestedPercent*.

I include both *TSR* and *ROA* as control for firm performance. I also include several characteristics of the PSAs as explanatory variables in these regressions. *MaximumPercent* and *ThresholdPercent* are the maximum and threshold percents relative to target at which the award can vest. I expect *MaximumPercent* to be positively correlated with *VestedPercent* and *Variability*.

Duration is the duration of the performance period in years. I expect a positive association between *Duration* and *Variability* because it is more difficult to forecast for longer time periods. *RelativePercent* is the percent of the PSA that is based on goals compared to other companies (e.g. TSR percentile compared to the S&P 500, EPS growth rank versus a set of competitors). I calculate *Concentration* as $\Sigma weight^2$, where *weight* is the percent of the PSA

related to a specific performance goal. This value increases as the number of performance goals decreases.[28] I expect *Concentration* to be positively correlated with *Variability* because more importance is placed on a single outcome. The expected effect of these three variables on *VestedPercent* is unclear.

Finally, I categorize the PSA awards based on the specific goals. *TSRWeight* is the percent of the award determined by goals related to total shareholder return or stock price. *SalesWeight* is the percent of the award determined by goals related to sales. *EarningsWeight* is the percent of the award related to profit and earnings or associated return measures (e.g. EPS, EBIT, ROE, ROA). Ex ante, I do not have predictions for the effect of these variables.

[28] The calculation of *Concentration* is similar to the calculation of the Herfindahl index. The maximum value of *Concentration* is 10,000 if a PSA has only a single performance goal. A PSA with four equally-weighted performance goals has a *Concentration* of 2500.

6. Results

6.1 Ex Ante Compensation

Table 4, Panel A provides descriptive statistics for this sample. About two-thirds of firm years (1,430), include PSAs, demonstrating that PSA use is more common among the larger firms in the S&P 500 as compared to all S&P 1500 firms (prior sample in Table 1). Firm characteristics are generally similar across firm years with and without PSAs; I find no significant difference in *Sales, ROA, TSR*, *MarketoBook* ratio, or *CEOChair* between the two groups. PSAs are more likely in later years and at firms with lower *Volatility* of stock returns. Firms-years with PSAs also have higher levels of total compensation (*TotalComp*) in univariate tests.

Table 4 – Ex Ante Compensation

Table 4, Panel A: This panel presents descriptive statistics comparing firm years where compensation included PSAs versus firm-years with no PSAs for CEOs at S&P 500 companies. All of the variables are as defined in Appendix 5
***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively.

Variable	Mean for Firm Years with PSAs (N=1430)		Mean Firm Years Without PSAs (N=758)		
	Mean	Standard Deviation	Mean	Standard Deviation	Difference
TotalComp (M)	11.90	8.47	9.61	9.70	2.28***
PSA Value (M)	4.70	4.63	0	0	4.70***
Sales (B)	21.14	37.02	19.02	43.56	21.17
ROA	0.07	0.06	0.07	0.06	-0.00
TSR	0.20	0.33	0.22	0.80	-0.02
Market to Book	3.25	28.33	3.71	10.66	-0.45
PSA Percent	0.60	0.24	0.00	0.00	0.60***
OptionPercent	0.23	0.22	0.42	0.39	-0.19***
Volatility	0.25	0.09	0.29	0.11	-0.04***
CEOChair	0.46	0.50	0.43	0.50	0.03
CEO					-0.011***
Ownership	0.004	0.019	0.015	0.04	
Blockholder					-0.02
Indicator	0.74	0.43	0.76	0.42	
Institutional					-0.01
Ownership	0.73	0.25	0.75	0.26	
Fiscal Year	2012.25	1.45	2011.74	1.44	0.50***

Table 4, Panel B: This panel presents the results of estimating a regression of the ex ante value total CEO compensation in millions (i.e. value from Summary Compensation Table) on its determinants. The dependent variable is TotalComp, which includes salary, cash bonus, non-equity incentives, stock grants, option grants, and other compensation (TDC1 in Execucomp). Explanatory variables include performance measures - return on assets (ROA) and total shareholder return (TSR) – and firm size as measured by net sales (Sales). PSAPercent and OptionPercent are the percent of the CEO's equity compensation made up of PSAs and options respectively. Volatility represents the annualized standard deviation of daily stock returns and MarkettoBook is the company's market to book ratio at the end of the prior year. CEOChair is an indicator set to 1 if the CEO is chair of the board. Year indicators are included but unreported.
The residual from Column (1) is the *ExcessComp* variable used in subsequent analysis.
***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively. Standard errors are calculated based on clustering by executive. T-statistics are reported in parentheses.

Dependent Variable	(1) OLS *TotalComp*	(2) OLS *TotalComp*	(3) OLS *TotalComp*	(4) OLS *TotalComp*
PSAPercent	3.250***	3.825***	3.227***	3.802***
	(3.44)	(4.22)	(3.412)	(4.17)
OptionPercent	3.893***	4.412***	3.824***	4.375***
	(2.68)	(2.71)	(2.65)	(2.69)
Sales	0.046***	0.049***	0.042***	0.048***
	(5.10)	(4.78)	(4.87)	(4.61)
ROA	4.967	3.769	5.284	4.196
	(1.27)	(0.82)	(1.33)	(0.90)
ROAlag	-4.261	-5.253*	-4.908	-5.546*
	(-1.39)	(-1.71)	(-1.57)	(-1.78)
TSR	0.561*	0.104	0.495	0.037
	(1.73)	(0.22)	(1.48)	(0.08)
TSRlag1	1.356**	0.955**	1.387***	0.968**
	(2.46)	(2.13)	(2.59)	(2.22)
MarkettoBook	0.004	0.002	0.004	0.002
	(1.27)	(0.63)	(1.30)	(0.60)
Volatility	0.253	-3.437	-0.110	-3.313
	(0.11)	(-1.26)	(-0.047)	(-1.24)
CEOChair	0.704	0.362	0.716	0.404
	(1.10)	(0.63)	(1.12)	(0.72)
Institutional Ownership			1.638	0.530
			(1.34)	(0.45)
Blockholder			-2.072***	-1.538**
			(-3.06)	(-2.38)
Constant	5.852***	7.455***	6.284***	7.689***
	(5.35)	(4.54)	(5.01)	(4.09)
Standard Error Clustered By CEO	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE (SIC2)		Yes		Yes
Observations	2,188	2,188	2,188	2,188
R-squared	0.076	0.224	0.082	0.228
Test: PSAPercent – OptionPercent = 0	Coefficient = -0.643 F = 0.25 P>F = 0.619	Coefficient = -0.587 F = 0.15 P>F = 0.702	Coefficient = -0.597 F = 0.22 P>F = 0.642	Coefficient = -0.573 F = 0.14 P>F = 0.708

Table 4, Panel B reports the results for the relationship between PSA and ex ante compensation (Equation 2). Both *PSAPercent* and *OptionPercent* have positive coefficients; these types of equity are associated with higher compensation, a logical result given these forms of equity are riskier than time-vested restricted stock. The difference between the coefficients on *OptionPercent* and *PSAPercent* is not significant in any specificications. This finding suggests that executives are granted similar risk premiums when equity is granted in the form of PSAs or options. Results for the economic determinants of compensation are consistent with prior literature; firm size *(Sales)* and *TSR* are positively associated with compensation. Overall, these analyses suggest that PSA use is not associated with lower ex ante (grant date) compensation values.

6.2 Ex Post Outcomes

Next, I turn my attention to the analysis of outcome measures. For these tests, I rely on a sample of 825 firm-years for which I was able to collect the necessary data.[29] Table 5 provides univariate statistics for this sample. On average, 39% of performance goals for PSAs are related to earnings (e.g. EPS, EBIT, ROA), 31% to total shareholder return, and 11% to sales. On average, 37% of PSA goals are relative goals comparing firm performance to a set of other companies. Given some critiques of options relate to the lack of relative performance evaluation (i.e. an executive can benefit from good market or industry performance), it is important to note that only a minority of PSAs (46%) in the sample contain any goals measured relative to competitors, so many awards do not address this concern directly. An

[29] I attempted to collect detailed information on performance shares for all S&P 500 firms for fiscal years 2010 to 2014. This sample (n=825) is much smaller than the number of firm years with PSAs (n=1431). The most common reason for exclusion is that the performance period of the PSA had not ended at the time of data collection (August, 2016), meaning actual outcomes are not available. The majority of PSAs granted in FY2014 have a performance period that ends at the close of FY2016. Thus, outcome data will be available in the 2017 proxy statement.

additional 6% of awards contain a TSR Modifier for which the final number of shares granted is determined by a non-relative goal (e.g. EPS) but this value is adjusted based on TSR relative to competitors (e.g. multiplied by a number between 0.8 and 1.2 depending on TSR rank).

Table 5 – Ex Post PSA Outcomes

Panel A: This panel presents descriptive statistics for firm year where PSA outcomes are available for S&P 500 firms from 2010-2015. All of the variables are as defined in Appendix 5

Variable	Mean	Median	Standard Deviation
N = 825			
TSR	0.20	0.17	0.29
ROA	0.07	0.06	0.05
CEOChair	0.56	1	0.50
ExcessComp	0.19	-1.35	6.90
Total Assets	54,818	16,356	145,950
Volatility	0.25	0.24	0.09
PSAPercent	0.57	0.53	0.25
VestedPercent	1.15	1.14	0.59
Variability	0.49	0.43	0.36
MaximumPercent	188	200	39
ThresholdPercent	27	25	22
Duration	2.62	3	0.77
Concentration	7,241	10,000	3,172
RalativePercent	37	0	43
SalesWeight	11	0	24
EarningsWeight	42	50	42
TSRWeight	32	0	41
TSRModifier	0.06	0	0.24

Panel B: This panel provides details about awards that include goals related to TSR and any metric measured relative to other firms.

Award Goals	Yes	No
N = 825		
Any Goals Related TSR	362 (44%)	463 (56%)
Any Relative Goals	383 (46%)	442 (54%)

Turning my attention to ex post outcomes in Table 6, I find that PSAs vest at a mean (median) of 115% (114%), well above target (100%). Less than 8% of awards vest at 0% while 30% vest at 150% or above (See Table 6). Because ex ante valuation (grant date fair value) of awards is highly dependent on the target value (assuming this target is the expected value), actually vesting percentages over 100% mean that ex ante valuations are frequently understated.[30] At sample medians, this understatement is equivalent to $499,000 (i.e. 14% of median award of $3,564,000).

[30] PSA awards based on accounting conditions are valued by multiplying the target shares time the stock price at grant. Awards with market (stock price related) condition are valued using simulation. The mean (median) award in the sample has an ex ante valuation of 105% (100%) of the target number of shares time price on grant date.

Table 6 – Vesting Percentages of PSA Awards

This table presents the distribution of actual vesting percentage of PSA awards (n=825) of performance share awards for S&P 500 companies. These percentages are from hand-collected data from company Proxy Statements.100% represents target vesting. Both mean (115%) and median (114%) vesting percentages are well above target.

Percentile	VestedPercent	Percentile	VestedPercent
2	0%	52	117%
4	0%	54	120%
6	0%	56	125%
8	17%	58	127%
10	31%	60	130%
12	39%	62	136%
14	49%	64	140%
16	55%	66	142%
18	62%	68	146%
20	65%	70	150%
22	70%	72	150%
24	75%	74	150%
26	78%	76	157%
28	82%	78	160%
30	85%	80	167%
32	89%	82	175%
34	95%	84	181%
36	98%	86	190%
38	100%	88	198%
40	100%	90	200%
42	102%	92	200%
44	105%	94	200%
46	108%	96	200%
48	111%	98	220%
50	114%		

Mean Vesting Percent: 115%
95% Confidence Interval: 111% - 119%

For these same firm-years, I compare payout per dollar of grant date fair value measured at the end of the PSA performance period among PSAs, options, and time-vested restricted stock. The mean payout is highest for PSAs ($1.67) followed by options ($1.51) and restricted stock (RSUs) ($1.42) (Table 7, Panel A). To evaluate the riskiness of these payouts, I look at the distribution of payouts (See Figure 2). As expected, RSUs offer the least risky payout as demonstrated by the flattest curve. Due to this lower risk, RSUs also have the lowest payout.

Figure 2 – Comparison of Payouts by Percentile

This graph shows the payout per dollar of grant date fair value for PSAs, options (granted at the money), and restricted stock by percentile (n=825).

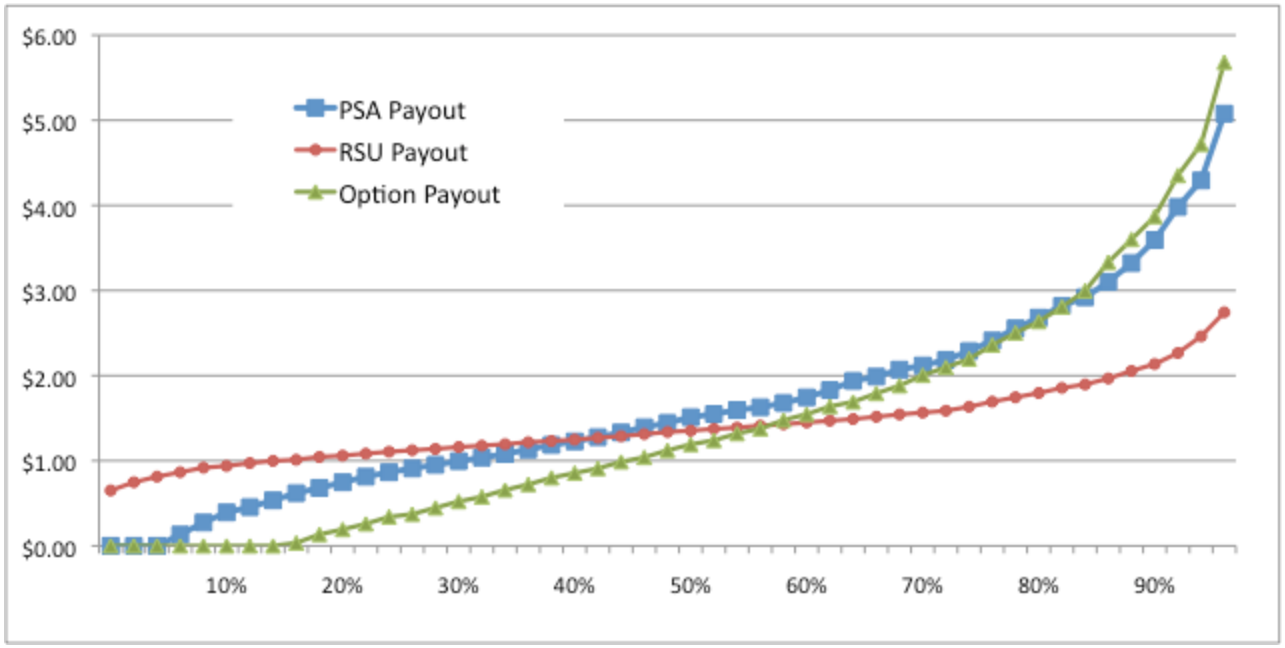


Table 7 – Payout Comparisons

Panel A: This panel presents the distribution of the payout per dollar of grant date fair value of PSAs, time-vested restricted stock (RSU), and options granted at the money.

Percentile	PSA Payout	RSU Payout	Option Payout
10	$0.27	$0.92	$0.00
20	$0.68	$1.05	$0.13
30	$0.95	$1.14	$0.45
40	$1.19	$1.23	$0.80
50	$1.44	$1.34	$1.12
60	$1.68	$1.43	$1.48
70	$2.07	$1.54	$1.88
80	$2.56	$1.75	$2.50
90	$3.32	$2.06	$3.60
Mean	$1.67	$1.42	$1.51

Panel B: This panel presents the frequency of zero payouts from PSA awards (i.e. 0 shares vested). Observation are sorted by whether stock price increased or decreased over the performance period of the PSA. This information is helpful in comparing PSAs to options. In cases, where stock price increased (decreased) an at-the-money option would have a positive (no) value at this point in time.

	PSA Payout		
	Positive	Zero	Total
Stock Price Change			
Positive	653	38	691
Negative	109	25	134
Total	762	63	825

Panel C: This panel presents a within-firm comparison of the frequency with which PSA payout is more than option payout (1) or time-vested restricted stock (2) per dollar of grant date fair value.

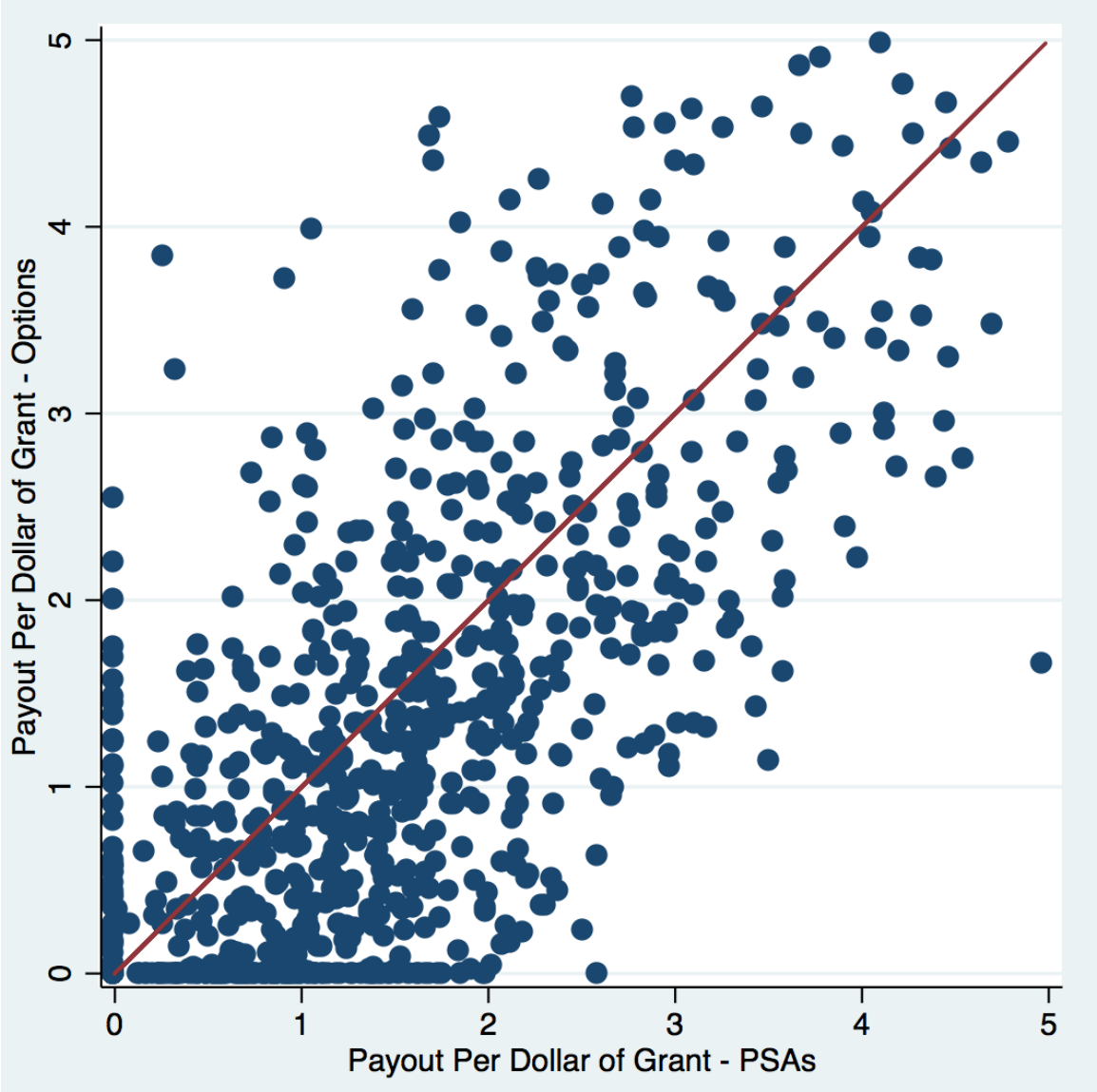
(1) PSA Payout Compared to Option Payout		(2) PSA Payout Compared to RSU Payout	
PSA payout Greater	510 (62%)	PSA payout Greater	488 (59%)
Option Payout Greater	290 (35%)	RSU Payout Greater	337 (41%)
No payout for Option or PSA	25 (3%)		

I next turn my attention to comparing the variability of payouts between PSA and options. Both option and PSAs have instances where there is no payout, although it is much more frequent for options (134 instances with a stock price decrease, ~16%) than PSAs (63 instances, ~7%) as reported in Table 7, Panel B. The low frequency of no pay out cases for PSAs suggest that PSA are not being employed to increase downside risk, a key concern of institutional investors; according to a survey, more institutional investors express concerns with the lack of downside risk in executive pay than the overall link between pay and performance (Larcker, Sheehan, and Tayan, 2016).[31] Options do payout more than performance shares at the high end of the distribution. Only in 3% (25 cases) would neither options nor PSAs payout. Moreover, when comparing results within firms, PSAs payout more than options in 62% of cases (see Figure 3 and Table 7, Panel C). In general, this data suggests that PSA are not riskier than options and at the end of the performance period actually have higher average payout. This relationship is counter to expectations, as less risky compensation should have lower expected payouts.

[31] Based on a survey of buy-side investors, 70% reported that CEO compensation rarely includes "sufficient downside risk" (39% said "less than half the time" and 31% said "never"). Conversely, 66% of investors report that executive pay is "sufficiently linked to performance" at least half the time (25% answered "most of the time" and 41% answered "about half the time"). The survey included 71 institutional investors, 90% of whom had over $1B in assets under management.

Figure 3 – Within Firm Comparison of Payouts

This graph shows a scatter plot of the payouts per dollar of grant date fair value of PSAs and options at a given firm. The line (y=x) represents equivalent payout. Markers above (below) the line represent instances in which options (PSAs) resulted in greater payouts. The greater concentration of markers below the line means the PSA payouts more frequently exceed option payouts (see Table 7, Panel C for details).



In the above analyses, I calculate the payout values at a specific point in time, the end of the performance period. In reality, executives may sell stock or exercise options at a future date, potentially increasing the value of these payouts. Per dollar of grant date fair value, options have more potential upside from stock price increases than restricted stock (i.e. an executive receives more options and units of restricted stock for an equivalent ex ante valuation). Options also have more potential upside than PSAs in most instances. To explore this uncertainty, I calculate the equivalence return, the return needed for option payouts to equal PSA payouts (see Appendix 4 for details on this calculation).

Table 8, Panel A presents the results. The median equivalence return for restricted stock and PSAs respectively is 43.7% and 48.3% as compared to median actual returns of 33.7% at the end of the performance period. These values mean that at the sample median stock price would need to increase an additional 10% (15%) before exercise for executives to realize equivalent returns on options as compared to restricted stock (PSAs). In 65% of cases, the actual returns at the end of the performance period are less than or equal to the PSA equivalence return. For these cases where the PSA equivalence return exceeds the actual return to date, the difference between PSA equivalence and actual return is 39.4% at median. This means that actual returns would have to increase almost by an additional 40% before the realized value of option grants would exceed the value of PSAs,

I evaluate the equivalence values by vesting levels for PSA awards in Table 8, Panel C. These results show that PSA vesting levels are positively associated with stock returns. Additionally, when PSAs vest above target, substantial stock price returns would be necessary for option payouts to exceed those from PSAs. Collectively, the results from Figure 2 and Table 8 suggest that PSA payouts are at least as high and no riskier than option payouts. Thus,

on average the replacement of options with PSAs does not reduce ex-post realized pay or increase pay variability.

Table 8 – Equivalence Returns

This table presents equivalence returns to compare among the common types of equity: PSAs, time-vest restricted stock (RSU), and options granted at-the-money. The equivalence returns is the total share price appreciation (excludes dividends) necessary for the payout from an option grant to equal the payout from an time-vested restricted stock or PSA grant of equivalent grant date fair value (See appendix 4 for the details of this calculation).

A. Summary of Equivalence Returns

Equivalence Return	Median	Mean
Restricted Stock (RSU)	43.7%	48.9%
PSAs*	48.3%	116.0%
Actual Return (at end of performance period)	33.7%	42.1%

* For 7 observations, it is not possible to calculate the PSA equivalence return because PSA payouts always exceed option payouts (because the number of PSAs actually awarded exceeds the number of options granted). These observations are excluded from numeric PSA equivalence return calculations.

B. Comparison Between Equivalence Returns and Actual Returns at end of performance period

	Actual Less Than RSU Equivalence Return		
	No	Yes	Total
Actual Return Less than PSA Equivalence Return			
No	202	83	285
Yes	128	412	540
Total	330	495	825

C. Equivalence Returns By Vesting Level

		RSU equivalence return		PSU Equivalence Return		Actual Return at End of Performance Period	
PSA Vesting Level	N	Median	Mean	Median	Mean	Median	Mean
None (0%)	63	41.3%	47.0%	0.0%	0.0%	7.6%	4.2%
Greater than 0% to less than 50%	53	35.4%	43.2%	9.7%	11.0%	14.3%	12.5%
50% to less than 100%	186	43.6%	47.8%	26.5%	31.9%	21.7%	23.6%
100% to less than 150%	261	41.2%	46.5%	52.1%	62.4%	37.5%	42.3%
150% or Greater	252	48.9%	54.0%	119.0%	293.0%	57.7%	71.0%

6.3 Cross-Sectional Variation in Ex Post Outcomes

Table 9 presents the results from the estimation of equations (3) and (4) evaluating the cross-sectional variation in *VestedPercent* and *Variability*. Column (1) of Panel A shows that *VestedPercent* is positively correlated with *TSR,* meaning increases in firm performance are associated with awards vesting at higher levels. Further, *VestedPercent* increases with both *ExcessComp* and *CEOChair*. This result suggests that in cases where the CEO has more power awards tend to vest at higher levels. The association with *ExcessComp* further implies that PSA use may worsen compensation issues in firms where pay was already suspect. The alternative explanation that more powerful CEOs are actually better managers and increasing performance results in higher vesting is unlikely because estimations include multiple controls for firm performance (i.e. TSR, ROA). In untabulated results, I find no association between *ExcessComp* and future operating or stock performance (i.e ROA or TSR), suggesting that *ExcessComp* is not capturing CEO talent that justifies higher pay levels.

The results also show that *PSAPercent* is positively correlated with *VestedPercent* meaning PSAs vest at higher levels when they represent a larger portion of a CEO's equity award. Two possible explanations exist for this relationship. Executives could focus more on goals related to a PSA award when it represents a larger portion of compensation, but this explanation is unlikely given the measures of firm performance included in estimations. Additionally, I find not association between *PSAPercent* and future operating or stock performance (untabulated results) suggesting that PSA use is not improving overall firm performance. Alternatively, less challenging goals could be set for larger awards to mitigate executive risk.

Table 9 – PSA Outcomes – Cross-sectional Variation

Panel A: This table presents the results of estimating regressions of outcomes of PSA awards on characteristics of the firm, executive, and award. The dependent variable in columns 1 and 2 is VestedPercent, the actual vesting level of the award (target=1). In columns 3 and 4, the dependent variable is Variability, which is the absolute value of the difference VestedPercent and 1. Controls include total shareholder return (TSR) and return on assets (ROA). Two measures of CEO power are included - an indicator set to one if the CEO is the chair of the board (CEOChair) and excess compensation (ExcessComp), which is the residual from a regression of total compensation (ex ante valuation) on its determinants. PSAPercent is the percent of the executive's equity grant represented by PSAs. Several characteristics of the PSA awards are also explanatory variables. Duration is the length of the PSA performance period in years. Concentration is a measure of how concentrated the award is on a specific goal. RelativePercent is the percent of the PSA award tied to goals measured relative to other firms. SalesWeight is the percent of the award tied to revenue or sales related goals. TSRWeight is the percent of the award tied to goals related total shareholder return or stock price. MaximumPercent and ThresholdPercent are the percent of target earned at maximum and threshold respectively.

All of the remaining variables are as defined in Appendix 5. Year indicators are included but unreported.

***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively. Standard errors are calculated based on clustering by executive. T-statistics are reported in parentheses.

	(1) OLS	(2) OLS	(3) OLS	(4) OLS
Dependent Variable	VestedPercent	VestedPercent	Variability	Variability
TSR	0.657***	0.666***	0.133***	0.135***
	(8.86)	(8.88)	(3.15)	(3.20)
TSRLead1	0.522***	0.520***	0.075**	0.076**
	(7.50)	(7.37)	(2.08)	(2.13)
ROA	0.111	-0.133	0.302	0.223
	(0.28)	(-0.34)	(1.15)	(0.89)
CEOChair	0.087*	0.101*	-0.011	-0.009
	(1.71)	(1.96)	(-0.366)	(-0.30)
ExcessComp	0.007***	0.008***	0.002	0.003
	(2.93)	(3.151)	(1.41)	(1.56)
Total Assets (B)	-0.000	-0.000	-0.000	-0.000
	(-0.69)	(-0.47)	(-1.12)	(-1.47)
Volatility	0.749**	0.847***	0.395**	0.410**
	(2.57)	(2.93)	(2.42)	(2.53)
PSAPercent	0.227***	0.223***	-0.085	-0.080
	(2.78)	(2.72)	(-1.57)	(-1.47)
Duration	-0.051*	-0.046	0.035*	0.037**
	(-1.67)	(-1.56)	(1.9)	(2.10)
Concentration/1000	0.007	0.011	0.016***	0.019***
	(0.76)	(1.22)	(3.25)	(3.90)
MaximumPercent	0.004***	0.003***	0.003***	0.003***
	(5.61)	(5.06)	(7.50)	(7.31)
ThresholdPercent	0.001	0.000	-0.000	-0.000
	(0.60)	(0.46)	(-0.22)	(-0.08)
TSRWeight	-0.001*		0.001	
	(-1.73)		(1.30)	
SalesWeight	-0.003***		-0.001	
	(-2.76)		(-1.25)	
RelativePercent		-0.001		0.001*
		(-0.526)		(1.86)
Constant	0.171	0.122	-0.476***	-0.512***
	(0.89)	(0.66)	(-3.99)	(-4.53)
SE Clustered By CEO	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	741	741	741	741
R-squared	0.269	0.253	0.243	0.242

Table 9, Panel B: This table presents the results of estimating regressions of outcomes of PSA awards on characteristics of the firm, executive, and award. The dependent variable NegativeVar in columns (1) and (2) is the distance from target vesting (1-VestedPercent), only for awards that vested below target. The dependent variable PositiveVar in columns (3) and (4) is the distance from target (VestedPercent-1), only for awards that vested above target. Controls include total shareholder return (TSR) and return on assets (ROA). Two measures of CEO power are included - an indicator set to one if the CEO is the chair of the board (CEOChair) and excess compensation (ExcessComp), which is the residual from a regression of total compensation (ex ante valuation) on its determinants. PSAPercent is the percent of the executive's equity grant represented by PSAs. Several characteristics of the PSA awards are also explanatory variables. Duration is the length of the PSA performance period in years. Concentration is a measure of how concentrated the award is on a specific goal. RelativePercent is the percent of the PSA award tied to goals measured relative to other firms. SalesWeight is the percent of the award tied to revenue or sales related goals. TSRWeight is the percent of the award tied to goals related total shareholder return or stock price. MaximumPercent and ThresholdPercent are the percent of target earned at maximum and threshold respectively. All of the remaining variables are as defined in Appendix 5. Year indicators are included but unreported.
***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively. Standard errors are calculated based on clustering by executive. T-statistics are reported in parentheses.

Model Type	(1) OLS	(2) OLS	(3) OLS	(4) OLS
Dependent Variable	NegativeVar	NegativeVar	PositiveVar	PositiveVar
TSR	-0.385***	-0.376***	0.249***	0.249***
	(-3.73)	(-3.62)	(6.17)	(6.11)
TSRLead1	-0.103	-0.109	0.122***	0.123***
	(-1.030)	(-1.12)	(3.22)	(3.28)
ROA	0.74	0.784*	0.045	-0.039
	(1.59)	(1.74)	(0.15)	(-0.14)
CEOChair	-0.068	-0.075*	0.032	0.034
	(-1.49)	(-1.68)	(0.91)	(0.98)
ExcessComp	0.005	0.005	0.000	0.001
	(0.94)	(0.99)	(0.26)	(0.38)
Total Assets (B)	0.000	0.000	-0.000	-0.000
	(0.29)	(0.243)	(-0.86)	(-1.02)
Volatility	-0.361	-0.321	0.503***	0.528***
	(-1.15)	(-1.03)	(2.77)	(2.93)
PSAPercent	-0.203**	-0.187**	-0.067	-0.064
	(-2.32)	(-2.16)	(-1.00)	(-0.98)
Duration	0.090**	0.085**	0.017	0.022
	(2.48)	(2.46)	(0.79)	(1.04)
Concentration/1000	0.015	0.014	0.020***	0.022***
	(1.54)	(1.54)	(3.36)	(3.98)
MaximumPercent	0.001	0.001	0.004***	0.004***
	(1.31)	(1.40)	(6.11)	(6.05)
ThresholdPercent	-0.001	-0.000	0.0001	0.000
	(-0.44)	(-0.42)	(0.15)	(0.20)
TSRWeight	0.001		0.000	
	(1.44)		(0.40)	
SalesWeight	-0.000		-0.001	
	(-0.07)		(-1.08)	
RelativePercent		0.001**		0.000
		(2.20)		(0.62)
Constant	0.097	0.075	-0.588***	-0.622***
	(0.40)	(0.32)	(-3.89)	(-4.40)
SE Clustered By CEO	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	245	245	459	459
R-squared	0.215	0.226	0.343	0.340

Some award characteristics influence PSA *VestedPercent.* As expected, *MaximumPercent* is positively associated with *VestedPercent* because awards with high maximum have more upside. Both *SalesWeight* and *TSRWeight* have a negative relationship with *VestedPercent* meaning awards with these goals on average vest lower than awards with earnings or other goals.[32]

The fact that PSAs based on earnings (the excluded group in the regression) tend to vest at higher levels provides some additional support that PSAs are being used to disguise compensation. Earnings likely provide the most opportunity for disguise as compared to other commonly used metrics in PSAs, sales and TSR. Sales are easier to forecast (Bradshaw, Lee, and Peterson, 2016) making easy targets more readily identifiable and TSR is easily observable to outsiders. Further, earnings values used in compensation are commonly non-GAAP values (Curtis, Li, and Patrick, 2015), and the use of non-GAAP numbers providing additional potential for disguise. Untabulated results provide additional support for earnings-related PSAs being used as disguising mechanism; I find that *CEOChair* is positively correlated with *EarningWeight,* the percent of the PSA award based on earning related goals. This supports the idea that powerful CEOs, who may have greater ability to influence compensation and potentially disguise it, are receiving more awards related to the most-easily disguisable metric.[33]

[32] In untabulated results, I include indicator variables for specific compensation consultants representing more than 5% of the sample and do not find a significant effect on *VestedPercent* or *Variability*. Specific compensation consultants are associated with differences in award features (e.g. the maximum percent, threshold percent, and concentration).

[33] In untabulated results, I deconstruct total shareholder return into its industry and firm specific components (*TSR= TSRFirm + TSRIndustry* where *TSRIndustry* is the median TSR for all firms in the 2-digit SIC code). In a regression of *VestedPercent*, I find positive coefficients on both *TSRFirm* and *TSRIndustry* and one-year lead values of these variables. Additionally, I find that the coefficient on *TSRFirm* is significantly larger than the coefficient on *TSRIndustry*, suggesting the PSA vesting is more sensitive to firm-specific performance. This result suggests that PSAs may at least partially address one specific concern with option compensation – that payouts are equal for any stock price increase whether specific to the firm or industry-wide.

In Table 9, Panel A (3), I find that *Variability* has a positive relationship with *Volatility*, a logical result given firms it is more difficult to set accurate targets in volatile firms. I do not find a significant association between *Variability* measures of CEO power. *Variability* also increases in several measures of PSAs – *MaximumPercent, Duration, Concentration,* and *RelativePercent*. It is likely more difficult to set targets for longer periods leading to the positive association with *Duration.* The positive association with *Concentration* implies that setting multiple targets (lower *Concentration)* mitigates the risk of PSAs. PSA *Variability* also increases when more of the award is placed on relative targets (*RelativePercent)*.

Increased variability has two potential causes: larger positive variation or larger negative variations. It is important to consider which factors are increasing the upside of PSAs for executives (positive variation) versus those associated with negative variation. To explore this, I re-estimate equation (4) with two alternative dependent variables: *NegVariability* defined as *Variability* in cases in which PSAs vested below target and *PosVariability* defined as variability in cases in which PSAs vested above target.

In Table 9, Panel B, columns (1) and (2), as expected I find a negative association between *NegVariability* and firm performance (*TSR* and *ROA*); that is better performing firms have awards that vest at a higher level. There is also a significant negative coefficient on *CEOChair* in column (2), suggesting that firms with a CEO-Chair are less likely to have awards vest far below target. *PSAPercent* is also negatively correlated with *NegVariability*, meaning PSAs are less likely to vest well below target when they represent a larger portion of compensation. *Duration* has a positive coefficient, meaning a longer performance period leads

to lower vesting for awards below target. I also find a positive coefficient on *RelativePercent*, suggesting awards related to relative goals vest more below target.

In columns (3) and (4) of Panel B, *PosVariablity* is the dependent variable. In these regressions, I find positive coefficients on *TSR* and *TSRLead,* signifying that increased performance leads to vesting farther above target. Awards with higher *Concentration* and higher *MaximumPercent* also tend to vest further above target, as do awards at firms with higher *Volatility*.

Overall, the cross-sectional analysis demonstrates that PSA vesting is reflective of firm performance. However, results also suggest that powerful CEOs, who may have greater incentives to disguise compensation, tend to have awards that vest higher. PSA awards vest at higher levels and have less variable payouts when they represent a greater portion of equity compensation. Finally, award feature such as the types of targets and duration of the performance period influence both vesting levels and the variability of payouts.

Summary of Results

The included analyses evaluate the effect of PSAs on the level ex ante compensation, the level and variability of ex post outcomes, and the cross-sectional variation in ex post outcomes. The results show that PSAs and options are associated with higher ex ante pay levels compared to restricted stock, but there is not significant difference in ex ante compensation levels between PSAs and options. In terms of ex post payouts, PSAs awards result in higher average ex-post payouts compared to both options and restricted stock and less frequently result in no payout than options. In cross-sectional analyses, vesting levels increase in measures of CEO power and in the percent of compensation represented by PSA awards. Moreover, vesting levels increase for awards based on measures of income as

opposed to revenues or TSR. Collectively, these results are more consistent with the hypothesis that firms are using PSAs to disguise compensation rather than to limit excessive compensation or increase the riskiness of compensation.

7. Conclusions

I demonstrate that Say-on-Pay voting is associated with an acceleration of PSA adoption and a reduction in option use. While PSAs do not appear to affect ex ante valuations of compensation compared to options, they rarely generate no payout and on average result in payouts that are less variable and no lower as compared to options. Collectively, these results suggest that PSA adoption is not addressing either of the key concerns voiced by advocates of Say-on-Pay voting – pay levels or performance sensitivity. Further, I find that payouts are positively associated with measures of CEO power, instances in which the CEO may have more incentives to disguise compensation. These results are most consistent with PSAs being used as a disguising mechanism. Further, the combination of the complexity of PSAs with results suggesting they are being use to disguise compensation imply that current disclosures related to PSAs may be insufficient.

Finally, I illuminate some features of PSA awards that may affect the properties of PSA payouts. Specifically, I find that PSAs with performance goals tied to total shareholder return and sales tend to vest at a lower percentage. I find increases in variability in payouts for PSAs including longer performance periods, single targets, and relative performance evaluation.

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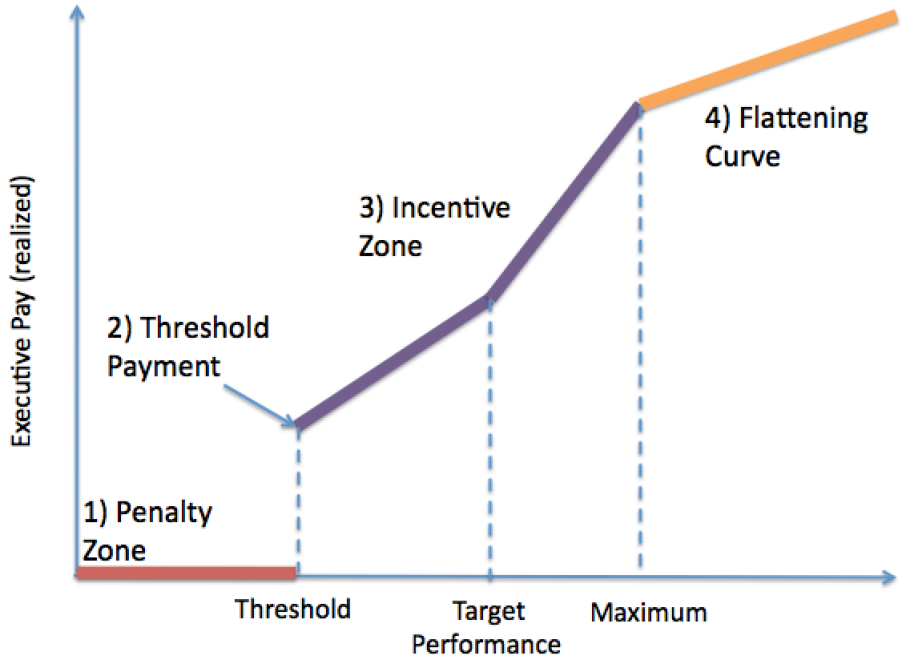
Appendix 1: PSA Award Features

Typical PSAs feature threshold, target and maximum performance goals, and performance relative to these goals determines the number of shares the executive receives at the end of the performance period. These performance goals may be related to accounting performance (e.g. EPS) or market performance (e.g. relative TSR). Awards may include one or multiple performance goals. At the end of the performance period, commonly three years, if target performance is met, the target number of shares is awarded. Performance below the threshold leads to no share award while performance at threshold levels results in a percentage of target shares (most commonly 50%) being awarded. With performance at or above the maximum level, a set percentage of the target number of shares (most commonly 150% or 200%) is awarded. Between the threshold and target and target and maximum levels of performance the percentage of shares is usually interpolated. Along with benefitting from an increasing number of shares as performance on the specified metric increases, executives receiving PSAs also benefit from share price appreciation as they would with a time-vested equity award (See figure below).

The figure below provides an illustration of a potential ex post payout curves of a PSA award based on firm performance.



1) Penalty Zone – Below threshold levels of performance, the executive realizes no pay.
2) At threshold performance levels, the executive receives a percentage (often 50%) of target shares.
3) In the incentive zone, the executive benefits from both an increasing number of shares and stock price appreciation.
4) The curve flattens once maximum performance is reached. The executive can earn no additional shares but still benefits as share price increases.

Appendix 2 – Proxy Statement Excerpts

This appendix includes excerpts from several proxy statements regarding the narrative provided about how Say-on-Pay votes and shareholder concerns about performance-based compensation influenced compensation practices.

Frontier Communications Corporation Proxy Statement
April 3, 2015

Impact of 2014 Say-on-Pay Vote

The Compensation Committee considers the results of the annual stockholder vote on our executive compensation program, in addition to other input from our stockholders, when evaluating and determining compensation policies and the compensation for the CEO and the other named executive officers. The 2014 stockholder vote affirmed the Compensation Committee's decisions for 2013, with a 92.8% stockholder approval of our executive compensation program. In light of this strong stockholder support, up seven percentage points from the prior year, the Compensation Committee concluded that no significant revisions were necessary to the Company's executive compensation program, although the Compensation Committee did implement refinements to the program. Consistent with best practice, the Compensation Committee determined to increase the amount of performance shares as a percentage of total equity for 2015, thereby further aligning executive and stockholder interests.

Alexion Pharmaceuticals Inc Proxy Statement
April 15, 2013

Effect of 2012 Say-on-Pay Vote

At the 2012 Annual Meeting, stockholders were asked to approve Alexion's 2011 executive compensation programs. Approximately 94% of the votes cast on the advisory vote on executive compensation were in favor of Alexion's executive compensation disclosed in the proxy statement. After considering these results and other factors that the Compensation Committee evaluates on a regular basis, the committee concluded that Alexion's existing executive compensation programs continue to be the most appropriate to support Alexion's compensation philosophy and objectives and that no significant changes were necessary. Notwithstanding the vote in 2012, the committee continues to review, assess and adjust Alexion's compensation programs on a regular basis. The introduction of performance-based restricted stock unit awards in 2013 is an example of the committee's commitment to regularly evaluate its practices and to adjust Alexion's compensation programs in a manner that best positions the company to achieve its compensation objectives.

The Allstate Corporation Proxy Statement
April 11, 2012

2011 Say on Pay Vote Results
Stockholders approved the "say-on-pay" resolution last year with 57% of the votes cast in favor. Over the last year Tom Wilson, our chairman, met face-to-face with stockholders representing 30% of our outstanding stock, as well as with several proxy advisory firms, to gather additional feedback on executive compensation. We met with our stockholders throughout the year to obtain additional insight on compensation changes under consideration based on stockholder comments and current market practices.
….
Aspect of Compensation: Long-term Equity Incentives

Feedback: Some stockholders believe that long-term equity incentives should be expanded beyond the impact of stock price changes on stock option valuations.
Other stockholders said that the use of stock options was performance based compensation given the direct tie to stock price improvement.

Compensation Program Changes for 2012: Performance stock awards tied to achievement of performance measures were awarded instead of time-based restricted stock units beginning in 2012. The mix of long-term incentives changed from 35% restricted stock units and 65% stock options to 50% performance stock awards and 50% stock options.

PPL Corporation Proxy Statement
April 9, 2015

Elimination of Stock Options in 2014. During 2013, the Committee determined that stock options should no longer be part of the long-term incentive mix for executive officers. At its October 2013 meeting, after taking into account the increasing number of stock options granted as a result of the Black-Scholes valuation model, the change in the business mix following the major utility acquisitions in 2010 and 2011 and the view of some shareowners that stock options are not performance-based, the Committee concluded that it would no longer grant stock options.

Appendix 3 – PSA Use and Voting Outcomes

I evaluate the influence of PSAs on voting outcomes in the following analysis. First, I assess the affect of PSAs on ISS recommendations in the following regression.

$ISSAgainst = \alpha + \beta_1 * PSAPercent + \beta_2 * OptionPercent + \gamma * \text{Controls} + \varepsilon$	(A1)

The dependent variable in this model is *ISSAgainst,* an indicator variable equal to 1 if ISS recommended voting against the company's Say-on-Pay proposal. The key variables of interest are *PSAPercent* and *OptionPercent*, the percent of equity grant represented by PSAs and options respectively. I control for compensation level (*TotalComp*) and percentage change in compensation (*ChangeComp*). I also control for firm performance (total shareholder return, return on assets), firm size (market capitalization), the volatility of the stock returns, and institutional ownership. I include two proxies for CEO power – whether the CEO is also the chairman of the board (CEO-Chair) and the extent to which the board is co-opted.[34]

Next, I consider the factors that influence voting outcomes, controlling for ISS recommendation in the following regression.

$VotingAgainst = \alpha + \beta_1 * ISSAgainst + \beta_2 * PSAPercent + \beta_3 * OptionPercent$ $\gamma * \text{Controls} + \varepsilon$	(A2)

The dependent variable, *VotingAgainst* is the percent of votes "Against" in the Say-on-Pay vote. Again, the variables of interest are measures of the types of equity in the compensation package, *PSAPercent* and *OptionPercent*. Following prior work on Say-on-Pay voting outcomes (Armstrong, Gow, and Larcker, 2013; Ertimur, Ferri, and Oesch, 2013), I control for ISS recommendation (*ISSAgainst)* and other economic determinants as in equation (A2).

[34] This measure is based on Coles, Daniel and Naveen (2014) and measures the percent of the board appointed since the CEO took office. Coles et al. suggest that these cooopted members would feel beholden to the CEO, resulting in greater CEO power.

Table A3-1 presents the results of these regressions. In column (1), I find significantly negative coefficients on *PSAPercent* and *OptionPercent* meaning these types of compensation are associated with a lower probability receiving an "Against" recommendation by ISS (compared to the use of time-vested restricted stock, the excluded type of equity). I compare the coefficients on *PSAPercent* and *OptionPercent* and do not find a significant difference. This suggests that the use of PSAs versus options does not change the likelihood of an "Against" recommendation, a somewhat surprising finding given that in ISS Guidelines PSAs seem to be considered superior.[35] Other findings are consistent with prior literature: the likelihood of "Against" recommendations increases with compensation levels (*TotalComp)* and changes in compensation (*ChangeComp)* and decreases with improved total shareholder return (*TSR).*

Column (2) presents the results for equation (A2), considering the factors influencing Say-on-Pay voting outcomes. As expected *ISSAgainst* has a strong positive relationship with *VotingAgainst*, increasing votes cast "Against" by about 30%, a magnitude consistent with prior literature. Beyond ISS recommendation, I do not find a significant coefficient on *PSAPercent* or *OptionPercent*; again there is not a significant difference between the coefficient on *PSAPercent* and *OptionPercent*.[36] Other findings are consistent with prior literature: *VotingAgainst* increases with compensation level and decreases with improved *TSR, ROA,* and higher market capitalizations. I also find that two measures of CEO power – CEO-

[35] ISS does not classify time-vested restricted stock or options granted at-the-money as performance-based compensation while ISS does classify PSAs as performance-based. Additionally, ISS values options using their full lives (most commonly 10 years) as opposed to the expected time to exercise (on average 6 to 7 years), substantially increasing the value.

[36] Table A3-1, Column (3) presents a regression of *VotingAgainst*, only including firm-years that did not receive an ISS "Against" recommendation. In this regression, both *PSAPercent* and *OptionPercent* have significantly negative coefficients, suggesting equity type does influence investor votes when ISS has not recommended "Against" a compensation package. Based on an F-test, I do not find a significant difference between the coefficients on *PSAPercent* and *OptionPercent.*

Chairman and *CooptedBoard* – are positively associated with *VotingAgainst* even after controlling for compensation level. These results suggest shareholder may be particularly concerned with compensation practices at firms where the CEO is viewed as powerful. Finally, *InstitutionalOwnership* is associated with higher values of *VotingAgainst,* suggesting that more sophisticated investors may be more critical of compensation packages.

Collectively, these results establish that in evaluating compensation both shareholders and proxy advisors consider the specific types of equity granted and seem to favor PSAs and options over time-vested restricted stock. The findings also suggest that options and PSAs are perceived similarly. These results merit considering how Say-on-Pay voting may in turn be changing the structure of equity compensation as well as compensation levels. This analysis is provided in Section 3 of the paper.

Table A3 -1 – Voting Outcomes

This table presents the results of estimating regressions of either an indicator variable if ISS recommended voting against a company's Say-on-Pay proposal (ISSAgainst) or the percentage of votes cast in favor of the Say-on-Pay proposal (VotingAgainst). In Column (3), the regression only includes firms that did not receive and "Against" recommendation from ISS. EquityPercent is the percent of total CEO compensation composed of equity. PSAPercent and OptionPercent are the percent of the CEO's equity compensation made up of PSAs and options respectively.
TotalComp is the CEO's total compensation, while ChangeComp is the percentage change in CEO compensation,
All of the remaining variables are as defined in Appendix 5. Year indicators are included but unreported.
***, **,and * denote statistical significance (two-sided) at the 1%, 5%, and 10% levels, respectively. Standard errors are calculated based on clustering by executive. T-statistics are reported in parentheses.

	(1) Probit	(2) OLS	(3) OLS
Dependent Variable	*ISSAgainst*	*VotingAgainst*	*VotingAgainst*
ISSAgainst		0.307***	
		(34.88)	
PSAPercent	-0.365***	-0.009	-0.010**
	(-3.09)	(-1.55)	(-2.32)
OptionPercent	-0.317***	-0.008	-0.009**
	(-2.59)	(-1.57)	(-2.08)
EquityPercent	0.013	0.006	0.010
	(0.08)	(0.81)	(1.53)
TotalComp	0.064***	0.003***	0.004***
	(8.08)	(5.24)	(7.74)
ChangeComp	0.169***	0.001	-0.001
	(4.03)	(0.26)	(-0.30)
ROA	-1.130*	-0.105***	-0.091***
	(-1.71)	(-3.90)	(-3.93)
ROAlag	0.064	-0.032	-0.014
	(0.10)	(-1.24)	(-0.60)
TSR	-0.861***	-0.017***	-0.014***
	(-3.9)	(-3.47)	(-4.36)
TSRlag1	-0.142	-0.003***	-0.003***
	(-1.34)	(-3.40)	(-3.92)
TSRlag2	-0.068	-0.002	-0.004***
	(-0.85)	(-0.94)	(-2.96)
Volatility	1.790***	0.037**	0.039***
	(5.34)	(2.31)	(3.34)
Ownership %	0.932	-0.154***	-0.104***
	(1.30)	(-4.50)	(-4.69)
Market Cap	-0.0006	-0.0003***	-0.0003***
	(-0.27)	(-2.63)	(-2.73)
CEOChair	0.078	0.011***	0.007***
	(1.05)	(3.31)	(2.59)
CooptedBoard	0.110	0.011**	0.008*
	(0.87)	(2.03)	(1.76)
Institutional Ownership	0.439*	0.029***	0.004
	(1.78)	(3.07)	(0.61)
Constant	-2.06***	0.033***	0.035***
	(-11.06)	(4.41)	(6.09)
SE Clustered By CEO	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	3,167	3,167	2,811
R-squared (Pseudo for Probit)	0.139	0.669	0.124
Test:	Coefficient= -0.048	Coefficient= -0.0013	Coefficient= -0.013
PSAPercent – OptionPercent =0	$X^2 = 0.12$, $P>X^2 =0.726$	F=0.05, P>F=0.829	F=0.09, P>F=0.759

Appendix 4 – Equivalence Return Calculations

The equivalence returns is the total share price appreciation (excluding dividends) necessary for the payout from an option grant to equal the payout from an time-vested restricted stock or PSA grant of equivalent grant date fair value.

For example, say an executive received the following three grants on the same day, when his company's stock was priced at $10.

Grant Type	Number of Units	Grant Date Fair Value
Time Vested Restricted Stock	1	$10 (current price)
Options	4	$10 (calculated based on Black-Scholes or similar)
PSA	1 (at target)	$10 (current price or monte carlo)

The equivalence return for options and time-vested restricted stock is the return associated with a stock price, P, such that P=4*(P-10). In this case, P=$13.33 meaning the restricted stock equivalence return is 33.3%. At this return both the restricted stock and option grants would result in a payout of $13.33. An executive would be better off with an option grant compared to a restricted stock if return exceeds 33.3%

To calculate the equivalence return for options and PSAs, the vesting percentage of the award is also necessary. The calculation of P for PSAs is V*P = 4(P-10), where V is the vesting percent of the PSA award. Assume a vesting percent of 150%, meaning the executive actually earned 1.5 units of stock. In this case, P=$16 and the equivalence return is 60%. When PSAs are valued at grant date price, the equivalence returns for PSAs will be higher (lower) than the equivalence return for restricted stock when the vesting percentage is above (below) 100%.

Appendix 5 – Variable Definitions

Variable Name	Definition
ISSAgainst	Indicator = 1 if ISS recommends against Say-on-Pay
VotingAgainst	Percent of Votes "Against" Say-on-Pay proposal relating to year's compensation
VotingAgainstLag	Percent of Votes "For" Say-on-Pay proposal for vote that took place in prior year (about compensation from two years ago)
LowVoteLag	Indicator variable equal to 1 if the company received less than 70% of votes "For" in the Say-on-Pay proposal for which the vote took place in the prior year.
TotalComp	Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants in ($M) (TDC1 in Execucomp)
EquityPercent	Percent of Total Compensation is Equity (PSA+Option+Restricted Stock)
PSAPercent	Percent of Equity Compensation that is PSAs (based on Table of Grants of Plan-Based Awards (0 if no equity)
OptionPercent	Percent of Equity Compensation that is Options (based on Table of Grants of Plan-Based Awards (0 if no equity)
RSUPercent	Percent of Equity Compensation that is time-vest Restricted Stock (based on Table of Grants of Plan-Based Awards (0 if no equity)
IndustryPSA	Average PSAPercent for other memember of 2-digit SIC code in the prior year
ChangeComp	(TotalComp – TotalCompLag)/TotalComp, winsorized at 1% level
ROA	Net Income/Total Assets
MarketToBook	PRCC_F*CSHO/(AT-AL) Share Price*Shares Outstanding/ (Assets-Liabilities) for prior year
Investment	(R&D + Advertising +CapEx)/Total Assets in prior year
TSR	Annual Total Shareholder Return
Market Cap (B)	PRCC_F*CSHO/1,000 or Share Price*Shares Outstanding/1,000,000,000
Volatility	Std Deviation of Daily Stock Returns * sqrt250
Ownership %	Shares owned excluding options by executive divided by shares outstanding in prior year
Sales	Net Sales ($B)
CEOChair	Indicator = 1 if CEO is chair of board
CooptedBoard	Number of Board Members Appointed Since CEO took office/Board Size
InstitutionalOwnership	% of outstanding shares owned by institutions as reported in 13F filings
Blockholder	Indicator = 1 if any institutional owner has a greater than 5% ownership
ExcessComp	Residual from equation of TotalComp on economic determinants ($M) (Table 4, Panel B, Column 1)
VestedPercent	Shares vested for PSA awards relative to target (target=1)
Variability	Absolute value of (VestedPercent-1)
MaximumPercent	The maximum percent at which an award can vest relative to target
ThredholdPercent	The threshold percent at which an award vests relative to target
Concentration	$\Sigma weight^2$, where weight is the percent of the PSA related to a specific performance goal
RelativePercent	Percent of the PSA related to performance goals relative to other companies
Duration	Length of PSA performance period in years
TSRWeight	The percent of the PSA award's goals used in determining the number of shares awarded related to total shareholder return or stock price
SalesWeight	The percent of the PSA award's goals used in determining the number of shares awarded related to sales or revenues
EarningsWeight	The percent of the PSA award's goals used in determining the number of shares awarded related earning, profit, or associated returns (e.g. Return on Invested Capital, Return on Assets)
TSRModifier	Indicator=1 if the PSA award contains a provision that the vested percent is adjusted based on relative TSR