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Executive compensation structure and the motivations for seasoned equity offerings

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Abstract:

We hypothesize that managers who receive high equity-based compensation have greater incentive to avoid ownership dilution by timing their seasoned equity offers to periods when investors temporarily overvalue their stock. We provide empirical support for this hypothesis using a measure of equity-based compensation that reflects the sensitivity of the top five executives' wealth (based on ownership of stock, options, and restricted shares) to a 1% change in stock price. We find that firms associated with high equity-based compensation for top executives experience abnormally low stock returns and relatively unfavorable changes in operating performance in the three-year period following the issue. Overall, the findings support the premise that managers whose wealth is most sensitive to stock price changes are more likely to act in the interest of current shareholders by issuing equity when they believe their stock is overvalued.

Keywords: Seasoned equity offerings; Executive compensation; Equity-based compensation

JEL classification: G32, G34

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Abstract

We hypothesize that managers who receive high equity-based compensation have greater incentive to avoid ownership dilution by timing their seasoned equity offers to periods when investors temporarily overvalue their stock. We provide empirical support for this hypothesis using a measure of equity-based compensation that reflects the sensitivity of the top five executives' wealth (based on ownership of stock, options, and restricted shares) to a 1% change in stock price. We find that firms associated with high equity-based compensation for top executives experience abnormally low stock returns and relatively unfavorable changes in operating performance in the three-year period following the issue. Overall, the findings support the premise that managers whose wealth is most sensitive to stock price changes are more likely to act in the interest of current shareholders by issuing equity when they believe their stock is overvalued.

1. Introduction

Firms that pay higher equity-based compensation to executives should have a lower incidence of managerial decisions that are non-value maximizing because such actions would reduce the manager's own personal wealth (Shleifer and Vishny, 1988). Indeed, firms paying higher equity-based compensation experience more favorable market reactions to divestitures (Tehranian, Travlos, and Waagelein, 1987) and are more likely to make better acquisitions and not overpay for the target (Datta, Iskandar-Datta, and Raman, 2001). Further, these firms have an increased likelihood of voluntary liquidation with a resulting enhancement in shareholder value (Mehran, Nogler, and Schwartz, 1998), and are more likely to invest in risky projects that increase firm value (Guay, 1999).

Datta, Iskandar-Datta, and Raman (2005) show that managers with high equity-based compensation have incentive to issue equity when investors overvalue the firm's shares, benefiting themselves and existing shareholders. The model of Datta et al. (2005) is an extension of Myers and Majluf (1984), who show that firms avoid issuing external equity unless the stock is overvalued to minimize the dilution of existing owners' claim. Investors, aware of this incentive, react more negatively to seasoned equity offer (SEO) announcements when top executives receive higher equity-based compensation. Datta et al. (2005) provide empirical support for their model, and conclude that the degree of overvaluation in equity offerings is associated with the incentive structure for executives at the issuing firm. We motivate our study using similar logic, although we focus on post-issue long-run performance rather than the short-term market reaction to the issue announcement.

More specifically, this paper investigates whether the extent of equity-based compensation for top executives is associated with post-SEO long-run stock and operating

performance. We construct a measure of equity-based compensation, *TPD5*, which reflects the sensitivity of the top five executives' wealth (based on ownership of stock, options, and restricted shares) to a 1% change in stock price. Higher values of *TPD5* are associated with greater equity-based compensation. We hypothesize that managers of high *TPD5* firms have greater incentive to avoid ownership dilution by timing their SEOs to periods when investors temporarily overvalue their stock.² Such managers are less likely to issue SEOs when they believe their shares are accurately valued, preferring instead to use less ownership-dilutive sources of capital, such as internal funds or debt, to finance future investments.

We focus on differences in post-SEO long-run stock and operating performance of high *TPD5* firms versus low *TPD5* firms. Our rationale is two-fold. With respect to stock performance, if investors do not completely capitalize the information embedded in the level of equity-based compensation at the SEO announcement, then the post-SEO stock performance should be predictably lower for high *TPD5* issuers. With regard to operating performance, to the extent that high *TPD5* managers attempt to issue equity at temporary price peaks, they should conduct their SEOs at times when they do not expect operating performance to improve in the near future.

Studying a large sample of SEOs, we find that high *TPD5* issuers exhibit poor future performance while other issuers generally do not. For example, buy-and-hold abnormal stock returns in the three years after issuance average a significant –21% for high *TPD5* firms and an insignificant 7% for low *TPD5* firms. Calendar-time regressions using monthly portfolios indicate that SEO issuers within the past three years that are in the top quartile of *TPD5* yield a

²The idea that managers actively time SEOs to coincide with share overvaluation is consistent with Baker and Wurgler (2002), and survey evidence presented by Graham and Harvey (2001) that find over two-thirds of CFOs surveyed claim that the most important consideration in making an equity issuance decision is related to the extent that managers view the share price of their firm to be overvalued or undervalued.

significant monthly three-factor alpha of -0.54% . After controlling for the Carhart (1997) momentum factor and an investment factor following Lyandres, Sun, and Zhang (2008),³ we find a significant five-factor alpha of -0.47% . Firms with lower values of *TPD5* do not exhibit significant post-SEO stock underperformance. These results support our hypothesis of a timing-related motive for issuers with managers receiving high equity-based compensation.

Furthermore, we report that high *TPD5* issuers exhibit less favorable post-SEO changes in operating performance than low *TPD5* issuers. In particular, our analysis of five measures of operating performance (operating income scaled by sales, operating income scaled by assets, cash flows scaled by assets, cash flows scaled by sales, and return on equity) indicates that high *TPD5* issuers usually experience either no change or a decline in operating performance during the two to three years following the issue, whereas low *TPD5* issuers often are associated with either no change or an increase in operating performance during this period. Regression estimates indicate that high *TPD5* issuers experience significantly less favorable changes in operating performance than low *TPD5* issuers.

These results are consistent with our underlying hypothesis that equity-based compensation aligns managers with current shareholders, and makes it more likely that they issue shares when the stock is overvalued. An alternative, and more nefarious, explanation of the findings relates to the idea that SEO underperformance is linked to earnings management (Teoh, Welch, and Wong, 1998; Rangan, 1998), whereby firms use accruals to artificially inflate earnings prior to issuing equity. According to this explanation, the decline in future operating performance is not because managers foresee poor future performance, and therefore issue stock to capture the premium from overvalued equity, but rather they create stock overvaluation by

³ The investment factor is motivated by the idea that SEO-related investment leads to the conversion of risky growth options into less risky assets in place. Thus, SEO-related investment should lead to a reduction in risk and expected return, which is captured by a negative loading on this factor.

inflating earnings. We test this alternative hypothesis and reasonably rule it out. In particular, we construct measures of discretionary accruals following Kothari, Leone, and Wasley (2005) by using the modified-Jones model and performance-matched modified-Jones model. In our estimations of operating performance, greater discretionary accruals are associated with less favorable changes in operating performance around SEOs, consistent with prior literature on earnings management around SEOs. After controlling for this effect, however, we continue to find that high *TPD5* issuers experience significantly less favorable changes in operating performance than low *TPD5* issuers. Further, there is little statistical evidence that the degree of discretionary accruals differs between high *TPD5* and low *TPD5* groups, or that the change in accruals from pre- to post-issue differs between high *TPD5* and low *TPD5* groups. In short, our findings suggest that firms in which top executives receive a relatively large fraction of total compensation as equity-based compensation are more likely to issue seasoned equity when investors temporarily overvalue the firm's shares. This is consistent with the managerial goal of maximizing the wealth of existing shareholders.

We contribute to a growing number of studies that partition SEO issuers by the managerial incentive to issue overvalued equity and provide evidence of poor long-run stock performance when the incentive is greatest.⁴ For example, Kahle (2000) finds that SEOs following abnormal insider selling underperform in the long run, while those after abnormal insider buying do not. Clarke, Dunbar, and Kahle (2001) find that greater insider trading prior to SEOs announcements is associated with poorer long-run stock performance. Clarke, Dunbar, and Kahle (2004) report that secondary SEOs in which the selling shareholder is a firm insider exhibit abnormally poor long-run stock returns.

⁴ Early studies that report post-SEO stock underperformance include Loughran and Ritter (1995), Spiess and Affleck-Graves (1995), and Loughran and Ritter (1997).

The remainder of this paper is organized as follows. Section 2 describes the sample and provides summary statistics. Section 3 explains our methodology. Section 4 provides the empirical results. Finally, Section 5 concludes.

2. Sample and descriptive statistics

2.1. Sample

The sample of SEOs is collected from Securities Data Company's (SDC) Global New Issues Database and consists of SEOs during 1993-2006. We gather CRSP monthly stock returns from 1993-2009 to examine three-year stock performance following issuance. Excluded are rights offers, unit offers, offers by financials (SIC code 6000-6999) and utilities (SIC code 4900-4999), and offers by non-U.S. firms. To be included in the sample, firms must have ordinary common shares (share code of 10 or 11) listed on the NYSE, AMEX, or Nasdaq, and stock return data available from the Center for Research in Securities Prices (CRSP). The firm must also have financial data available from COMPUSTAT and executive compensation data available from ExecuComp (which includes firms in the S&P 1500 index) for the fiscal year prior to the SEO issue date.⁵

In Table 1, Panel A provides the annual frequency and average issue proceeds for sample offers. The first two columns present statistics for all SEOs (not restricted by executive compensation data). The latter two columns report statistics on the sample of SEOs for which executive compensation data is available from ExecuComp in the prior year. This sample includes 1,287 offers.

⁵ In unreported robustness tests, we exclude SEOs that are followed in the next 36 months by another SEO conducted by the same firm due to the potential contamination in the long-run return analysis. The results using this approach are unchanged from those reported.

2.2. Statistics on executive compensation

Panel B of Table 1 provides descriptive statistics during 1993-2006 for the *Salary & Bonus* and *Total Compensation* paid to the top five executives, and the total *Option Portfolio Value*, *Stock Portfolio Value*, *Restricted Shares Value*, and *Total Portfolio Value* reported by ExecuComp during the fiscal year prior to SEO announcement dates. *Salary & Bonus* is reported directly from ExecuComp (data item TOTAL_CURR) and summed across the top five executives. *Total Compensation* for the top five executives is defined as the sum of salary, bonus, other annual compensation, value of new restricted stock and stock options granted during the year, long-term incentive payouts, and all other compensation paid (data items SALARY + BONUS + OTHANN + ALLOTHTOT + RSTKGRNT + OPTVAL_NEW + LTIP), summed across the top five executives.

Option Portfolio Value is calculated following the Core and Guay (2002) one-year approximation method that uses the Black-Scholes (1973) option valuation model, as modified by Merton (1973) to account for dividends, and is explained further in Appendix A. *Stock Portfolio Value* is calculated as the current stock price times the number of shares owned (data items PRCC_F x SHROWN_EXCL_OPTS), and *Restricted Shares Value* is calculated as the current stock price times the number of restricted shares held (data items PRCC_F x STOCK_UNVEST_NUM). All three of these portfolio values are measured at the end of the year prior to the SEO announcement year, and summed across the top five executives. *Total Portfolio Value* is defined as the sum of these three portfolio values.

We calculate option portfolio delta, stock portfolio delta, and restricted shares portfolio delta as the dollar change in *Option Portfolio Value*, *Stock Portfolio Value*, and *Restricted Shares*

Value due to a 1% change in stock price, respectively. We define *Total Portfolio Delta* as the sum of the option portfolio delta, stock portfolio delta, and restricted shares portfolio delta. *Total Portfolio Delta* measures the total change in wealth in each executive's *Option Portfolio Value*, *Stock Portfolio Value*, and *Restricted Shares Value* due to a 1% change in stock price, measured at the end of the year prior to the SEO announcement and summed across the top five executives. We then compute *TPD5* by dividing each executive's *Total Portfolio Delta* by the *Total Compensation* paid to that executive during the year prior to the SEO announcement, and summed across the top five executives. *TPD5* is the main equity-based compensation variable we use throughout our analysis. It captures the total sensitivity of the top five management team's wealth to stock price and should reflect the magnitude of how managers' interests are aligned with current shareholders.⁶ To remain consistent with prior literature (Guay, 1999; Core and Guay, 1999; Coles, Daniel, Naveen, 2006), we winsorize *TPD5* at the 1st and 99th percentiles.

[Insert Table 1]

The mean (median) *Total Compensation* paid to the top five managers of firms issuing SEOs is \$8.34 million (\$4.16 million). The mean (median) *Total Portfolio Value*, which is the sum of the *Option Portfolio Value*, *Stock Portfolio Value*, and *Restricted Shares Value*, equals \$124.44 million (\$30.43 million). The mean (median) *Total Portfolio Delta* is \$1.29 million (\$366 thousand).

2.3. Firm and offer characteristics

⁶ A potential concern is the possibility for changes in top management from the year prior to the SEO announcement to the announcement year. In our analysis, 89% of sample issuers have either no change in the top five managers or a change to one of the top five managers, and only 2% have a change to more than two of the top five managers. Thus, we reasonably rule out this concern, especially since it is likely that SEO decisions are made collectively by several top managers.

We provide descriptive statistics on market capitalization, capital expenditures scaled by assets, total debt scaled by assets, ownership, relative share issue size, market-to-book ratios, prior six-month stock returns, and abnormal stock returns during the three days centered on the SEO announcement date. We calculate *Market Capitalization* as the number of shares outstanding times the current stock price (CRSP data items SHROUT times PRC) at the end of the month prior to the SEO announcement. We calculate *Capital Expenditures/Assets* (Compustat data items CAPX divided by AT) and *Total Debt / Assets* (Compustat data items DLC plus DLTT, then divided by AT) at the end of the fiscal year prior to the SEO announcement. We calculate *Ownership* as the sum of common and restricted shares held by each executive divided by shares outstanding (ExecuComp data items SHROWN_EXCL_OPTS plus STOCK_UNVEST_NUM, then divided by end-of-year CSHO) as of the end of the prior fiscal year before the SEO announcement, summed across the top five executives. *Market-to-Book* is calculated as the number of shares outstanding times the current stock price (CRSP data items SHROUT times PRC) as of the end of the prior month before the SEO announcement date, plus the total book value of assets minus shareholder's equity where both are measured at the end of the prior fiscal year (Compustat data items AT minus SEQ), all scaled by the total book value of assets at the end of the prior fiscal year (Compustat data item AT). *Relative Share Issue Size* is the number of new shares issued divided by shares outstanding as of the day before the SEO announcement date. *Prior Six-Month Stock Returns* equals the six month buy-and-hold stock return net of the return on the CRSP value-weighted index, ending two days prior to the SEO announcement date.

[Insert Table 2]

Table 2 reports statistics for the full sample of SEOs and separately within quartiles of *TPD5* measured in the fiscal year prior to the SEO announcement date. When assigning a particular SEO to a *TPD5* quartile, we compare it only to SEOs that have been issued over the past 36 months, as opposed to comparing it to the entire sample of SEOs. This allows the breakpoints for the *TPD5* groups to change over time, thereby eliminating any biases induced by time trends in equity-based compensation. The table also reports t-statistics (Wilcoxon z-statistics) for differences in mean (median) values of *TPD5* between the highest and lowest quartiles ($Q4 - Q1$).

Compared to low (*Q1*) *TPD5* issuers, high (*Q4*) *TPD5* issuers generally have significantly greater market capitalization, lower debt ratios, smaller relative share issue sizes, and greater market-to-book ratios. Discretionary accruals in the prior year, based on the performance-matched modified-Jones model, are not significantly different between low *TPD5* and high *TPD5* issuers. Since the quartiles are formed on *TPD5*, ownership levels vary widely across quartiles. The mean (median) ownership percentage ranges from 1.32% (0.40%) in the (*Low*) *Q1* *TPD5* quartile to 18.59% (12.92%) in the (*High*) *Q4* *TPD5* quartile, with the full sample mean (median) ownership percentage being 6.71% (1.42%).

Table 2 also reports the abnormal stock price reaction in the three days centered on the SEO announcement date.⁷ We compute three-day cumulative abnormal returns (CARs) using the Scholes and Williams (1977) market model and an estimation period from 200 to 60 trading days prior to the SEO announcement date. CARs are negative for the full sample of SEO

⁷ The announcement date is the SDC filing date for traditional non-shelf offers. For shelf offers, the SDC filing date is not a good indicator of a forthcoming equity offer. Thus, for shelf offers we define the announcement date as the date on which the firm files a pre-issue prospectus with the Securities and Exchange Commission that indicates the immediate intent to issue. In some cases there is no announcement prior to the issue date; for these offers the announcement date equals the issue date. This convention follows prior researchers (e.g., Autore, Hutton, and Kovacs, 2011).

issuers, and in each of the *TPD5* quartiles, which is generally consistent with several prior studies (e.g., Asquith and Mullins, 1986; Masulis and Korwar, 1986; Mikkelsen and Partch, 1986; Choe, Masulis, and Nanda, 1993; and Bayless and Chaplinsky, 1996, Datta, Iskander-Datta, Raman, 2005). The mean (median) CAR for the full sample of SEO firms is -2.68% (-2.56%), with values across *TPD5* quartiles ranging from -2.41% (-2.40%) to -2.83% (-2.71%). We find no significant differences in CARs between the top and bottom *TPD5* quartiles. This suggests that investors do not place a greater penalty on SEO announcements by firms in which executives have a higher stake in future stock price changes based on their ownership of stock, stock options, and restricted shares.

3. Methodology

Our main focus is on post-issue stock and operating performance. This section describes how we calculate long-run stock and operating performance and how we assess differences between groups partitioned by *Total Portfolio Delta* divided by *Total Compensation* summed across the top five executives (*TPD5*).

3.1. Long-run stock performance

We use buy-and-hold abnormal returns (BHARs) and calendar-time regressions to analyze abnormal stock performance in the three years after the issue.

3.1.1. Buy-and-hold abnormal returns

We compute BHARs following the techniques used by Lee (1997) and Lee and Loughran (1998). We match SEO firms to non-issuing firms with similar size, market-to-book ratios, and

prior stock returns. Barber and Lyon (1997) contend that analysis of long-run abnormal stock returns using control firms based on size and market-to-book ratios result in test statistics that are well-specified. Potential matching firms include all firms that are listed on CRSP (excluding financial and utility firms) for at least three years, and have not conducted an SEO in the prior three years.

First, in each month all eligible matching NYSE firms are sorted into deciles according to their market capitalization, measured as the closing price at the end of the prior month multiplied by shares outstanding. Then, all eligible firms from Nasdaq and AMEX are added into the appropriate size decile, and each size decile is further sorted into quintiles based on market-to-book ratios. Market-to-book ratios for matching firms are calculated at the end of the prior month, identical to our earlier definition (i.e. Table 2). Finally, each portfolio is further divided into three groups based on stock returns over the six months prior to the current month. This procedure results in 150 portfolios formed each month. Based on the three characteristics, each SEO firm is assigned to one of these 150 monthly portfolios during the month the SEO is issued. Of the control firms that are in the same characteristic-based portfolio of each SEO firm, we choose the match that has the closest prior stock return to that of the issuer. We require that the return of the matched firm be within 30% of the return of the SEO firm. We then match any remaining SEO firms with the CRSP Value-Weighted returns.⁸ SEO firms are matched at the end of the month prior to the SEO issuance.

We calculate percentage BHARs as:

$$BHAR_{i,T} = (\prod_{t=1}^T [1 + R_{i,t}] - \prod_{t=1}^T [1 + MR_{i,t}]) \times 100 \quad (1)$$

⁸ There are 205 (out of 1,287) SEOs that are matched with CRSP value-weighted returns, representing about 16% of our sample.

where $BHAR_{i,T}$ is the percentage buy-and-hold abnormal return for SEO firm i for T months, $R_{i,t}$ is the return for SEO firm i in month t , where month $t = 1$ is the month immediately following the issue month, and $MR_{i,t}$ is the return in month t of the matched firm associated with each SEO firm i . We examine BHARs for $T=36$ months following the SEO. When a matched firm delists before the end of the three-year holding period or the sample firm's delisting day, whichever is earlier, CRSP value-weighted returns are spliced into the buy-and-hold return of the matched firm from the removal date.⁹ Lyon et al. (1999) note that replacing a delisted firm with the CRSP value-weighted index does not significantly change the buy-and-hold return for the benchmark.

When available, delisting returns are used for both SEO and matching firms when they delist within the 36-month holding period after an SEO. When a firm delists but has no delisting return reported, we follow Shumway (1997) and Shumway and Warther (1999) by using a delisting return of -30% for NYSE and AMEX firms and -55% for Nasdaq firms.¹⁰

3.1.2. Calendar-time regressions

Fama (1998) and Mitchell and Stafford (2000) argue in favor of using factor model regressions instead of the BHAR approach. Thus, we also test long-run stock performance using industry-adjusted returns in factor model regressions, where the monthly returns are industry-adjusted for each firm by subtracting the 2-digit SIC industry mean return. For each calendar month beginning with January 1996 we form equal-weighted portfolios¹¹ that include firms that

⁹This applies for 193 matched firms that delist, for a total of 3,947 monthly return observations, which is approximately 8% of the total matched-firm monthly return observations used.

¹⁰ There are 113 SEO firms where delisting returns are used, with 8 of these firms using the -55% Nasdaq rule and 8 firms using the -30% NYSE and AMEX rule from Shumway (1997) and Shumway and Warther (1999).

¹¹ We use equal-weighted portfolio returns based on the argument by Loughran and Ritter (2000) that factor models with value-weighted returns as the dependent variable have low power to detect abnormal returns following managerial actions.

issued an SEO in the previous three-year period, and use calendar time industry-adjusted returns to estimate the Fama and French (1993) three-factor model:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p [MKT_t] + s_p [SMB_t] + h_p [HML_t] + \varepsilon_{pt}, \quad (2)$$

where R_{pt} is the monthly industry-adjusted return on the calendar-time portfolios of SEO firms, R_{ft} is the risk free rate¹², and MKT_t , SMB_t and HML_t are the excess market, size, and value factor returns, respectively. The factors are from Kenneth French's website. The estimated intercept, α_p , is a measure of the mean monthly abnormal return for the calendar-time portfolios of SEO firms.

We also estimate Carhart's (1997) four-factor model that accounts for momentum in stock returns:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p [MKT_t] + s_p [SMB_t] + h_p [HML_t] + m_p [MOM_t] + \varepsilon_{pt}, \quad (3)$$

where MOM_t is the momentum factor, also obtained from Kenneth French's website.

Since equity issuers invest more than non-issuers, we also estimate a four- and five-factor model that includes an investment factor that follows Lyandres, Sun, and Zhang (2008):

$$R_{pt} - R_{ft} = \alpha_p + i_p [INV_t] + \beta_p [MKT_t] + s_p [SMB_t] + h_p [HML_t] + \varepsilon_{pt}, \quad (4)$$

$$R_{pt} - R_{ft} = \alpha_p + i_p [INV_t] + \beta_p [MKT_t] + s_p [SMB_t] + h_p [HML_t] + m_p [MOM_t] + \varepsilon_{pt}, \quad (5)$$

where INV is the investment factor of Lyandres, Sun, and Zhang (2008).¹³ It is constructed as the zero-cost portfolio from buying stocks with investment-to-assets (I/A) ratios among the lowest 30% and selling stocks with I/A ratios among the highest 30%, while controlling for size and book-to-market. This is accomplished by performing triple sorts on size, book-to-market, and I/A, and then following the Fama and French (1993) method used to create the SMB and HML

¹² We use the monthly return on a three-year Treasury Security as a proxy for the risk free rate. This choice avoids the implicit assumption of a flat yield curve over our three-year long-run performance analysis. However, the results are similar when we proxy for the risk-free rate using the return on a three-month Treasury Security.

¹³ We thank Lu Zhang for providing this data.

factors. Size groups are formed using the median NYSE market capitalization (stock price times CRSP shares outstanding), and I/A equals the annual change in gross property, plant, and equipment (Compustat annual item PPEGT) plus the annual change in inventories (item INVT) scaled by the lagged book value of assets (item AT). The investment factor captures the difference in monthly returns between low I/A and high I/A firms (low-minus-high I/A). The motivation for including INV is that SEO issuers invest more than typical firms, transforming riskier expansion options into less risky assets in place, hence lowering risk and expected returns. In our study, adding this factor accounts for the possibility that SEOs by high *TPD5* firms are associated with greater investment, and thus lower expected future returns, compared to SEOs by low *TPD5* firms.

In the calendar-time regressions, we use delisting returns (described in Section 3.1.1) for issuers that delist in the subsequent 36 months.

3.2. *Changes in operating performance*

We construct five measures of operating performance using Compustat data: (i) Operating income before depreciation (data item OIBDP) scaled by sales (SALE); (ii) Operating income before depreciation scaled by assets (AT); (iii) Cash flow scaled by sales; (iv) Cash flow scaled by assets, and (v) Return on equity. Using these measures, we focus on changes in operating performance from the year prior to the issue through three years after the issue.¹⁴ We follow Barber and Lyon (1996) to define cash flow as operating income before depreciation (OIBDP) plus the decrease in receivables (RECT), the decrease in inventory (INVT), the increase in accounts payable (AP), increase in other current liabilities (LCO), and the decrease in

¹⁴ Operating income scaled by sales, operating income scaled by total assets, and cash flow scaled by total assets are measures that follow Barber and Lyon (1996), and cash flow scaled by sales follows Heron and Lie (2004).

other current assets (ACO). We follow Hou, Xue, Zhang (2012) in defining return on equity as income before extraordinary items (IB) divided by shareholders' equity (SEQ) plus deferred taxes and investment tax credit (TXDITC) minus preferred stock (PSTKR).

We focus on median values of operating performance because Barber and Lyon (1996) find that nonparametric tests are uniformly more powerful than parametric tests in the analysis of operating performance. We require that SEO firms report data on operating performance during each year beginning in the year before the SEO issue through three years following the SEO. This procedure avoids a selection bias over the event period, and reduces our sample size for the operating performance analysis from 1,287 firms to 1,099 firms.¹⁵

Following Barber and Lyon (1996) and Heron and Lie (2004), we use unadjusted, industry-adjusted, and industry- and performance-adjusted measures of operating performance. For industry-adjusted measures, we subtract from the SEO issuer's operating performance the median operating performance of all firms with the same two-digit SIC code. For industry- and performance-adjusted measures, we subtract from the issuer's operating performance the operating performance of a matching firm that is in the same industry and has similar levels of pre-issue performance as the SEO firms. In particular, we match each SEO firm with a non-issuing firm with the same two-digit SIC code that experienced operating performance within $\pm 10\%$ of the SEO firm in the pre-announcement year. From the possible matches we choose the control firm with the closest operating performance to the SEO firm. If no firms meet these requirements, we match using a one-digit SIC code.¹⁶

We also use a multivariate framework to examine how equity-based compensation impacts the change in operating performance of SEO firms. Specifically, we regress the change

¹⁵ This method follows Heron and Lie (2004). We note that our results are unchanged if we remove this restriction and include all firms in the analysis.

¹⁶ We resort to using one-digit SIC codes for only 35 observations, representing a very small fraction of our sample.

in each of the operating performance measures from the year of the SEO issue to three years following the issue against independent variables indicating the quartile of *TPD5*.¹⁷ In these regressions we control for *Log(Market Capitalization)*, *Log(Proceeds)*, *Relative Share Issue Size*, and *Total Debt scaled by Assets*, where each of these variable definitions are explained above and included in Table 2. We also control for *Prior Operating Performance* and *Discretionary Accruals* in the year before the SEO.

We define *Discretionary Accruals* following Kothari, Leone, and Wasley (2005). In particular, we use the modified-Jones model and performance-matched modified-Jones model. We define total accruals (TA) in each year as the change in non-cash current assets minus the change in current liabilities excluding the current portion of long-term debt, minus depreciation and amortization. The modified-Jones model discretionary accruals are estimated cross-sectionally each year using all firm-year observations in the same two-digit SIC code:

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \beta_0 + \beta_1 \left[\frac{1}{Assets_{i,t-1}} \right] + \beta_2 \left[\frac{(\Delta Sales_{i,t} - \Delta Receivables_{i,t})}{Assets_{i,t-1}} \right] + \beta_3 \left[\frac{PPE_{i,t}}{Assets_{i,t-1}} \right] + \varepsilon_{i,t} \quad (6)$$

where PPE is net property, plant, and equipment. We use the residuals from this annual cross-sectional industry regression model as our measure of the modified-Jones model discretionary accruals as a percent of assets in the prior year.

For our measure of performance-matched discretionary accruals, we match each SEO firm-year observation with another non-SEO firm from the same two-digit SIC code and year with the closest return on assets (ROA) in the year prior to the SEO, where ROA is defined as

¹⁷ In the regressions we cluster by industry and time. We also follow Heron and Lie (2004) and winsorize the operating performance measure at the 5th and 95th percentiles to mitigate the effects of outliers (due to data errors) on our regression results.

net income scaled by current year assets. We define the performance-matched modified-Jones discretionary accruals for each SEO firm as the modified-Jones model discretionary accruals in the given year minus the matched firm's modified-Jones model discretionary accruals in that same year.

4. Empirical results

4.1. Buy-and-hold abnormal returns

Table 3 reports mean and median BHARs for a 36-month holding period beginning the month following an SEO issue. Panel A reports BHARs for the full sample and each of the *TPD5* quartiles. The number of firms, Mean BHAR, and Median BHAR are reported for the full sample and each *TPD5* quartile. Under each Mean (Median) we report t-statistics (sign-test z-statistics) that test whether the mean (median) is significantly different from zero. Panel B reports differences in BHARs between the (*High*) *Q4 TPD5* and (*Low*) *Q1 TPD5* and reports t-statistics and Wilcoxon z-statistics for differences in these means and medians, respectively.¹⁸

[Insert Table 3]

For all issuers, we find an insignificant mean BHAR of -2.12% and a highly significant negative median BHAR of -11.94% . Examining *TPD5* quartiles, the (*High*) *Q4 TPD5* quartile exhibits large negative BHARs. The mean and median BHARs are a highly significant -20.80% and -25.75% , respectively. We observe little statistically significant evidence of poor BHARs for the lower three quartiles of *TPD5*. Panel B reports a significant difference in the mean and median BHARs between the (*High*) *Q4 TPD5* and (*Low*) *Q1 TPD5* quartiles of -27.46% and $-$

¹⁸ Results are reported using unwinsorized returns. In unreported tests, the results are similar using returns that are winsorized at the 1st and 99th percentiles.

20.23%, respectively. This evidence indicates that poor long-run stock performance following SEOs is primarily concentrated in issuers whose managers have high equity-based compensation.

4.2. Calendar-time regressions

Table 4 presents coefficient estimates from calendar-time regressions. We estimate separate regressions for the full sample and within the *TPD5* quartiles, and report t-statistics based on Newey and West (1987) standard errors that control for autocorrelation and heteroskedasticity reported in parentheses underneath each coefficient estimate. We use equal-weighted portfolio returns in each month that consist of SEO firms that have issued within the past 36 months, and the 3-year Treasury Security monthly return as the risk-free rate.

In Panel A, when considering the three- and four-factor models, alpha estimates for the full sample and the (*Low*) *Q1 TPD5*, *Q2 TPD5*, and *Q3 TPD5* portfolios are insignificant, indicating there is no abnormal returns in those portfolios. However, the alpha estimate for the (*High*) *Q4 TPD5* portfolio is -0.54% using the three-factor model and -0.49% when using the four-factor model with both being economically and statistically significant at the 1% level.

[Insert Table 4]

Table 4, Panel B, presents coefficient estimates from calendar-time regressions using both the three- and four-factor models augmented with an investment factor, *INV*, from Lyandres, Sun, and Zhang, 2008. In the full sample of SEO firms, the *INV* factor has a significantly negative coefficient. This suggests that greater investment partially explains low post-SEO returns, consistent with the finding of Lyandres, Sun, and Zhang (2008). However, the inclusion of the *INV* factor does not alter our main result from Panel A that high *TPD5* firms significantly underperform in the long-run, while other issuers do not. In the high *TPD5* quartile,

the four-factor model including the *INV* factor yields a highly significant monthly alpha of – 0.51% and the five-factor model including the *INV* factor yields a highly significant alpha of – 0.47%. Thus, our results are not due to relatively greater investment by high *TPD5* issuers. The calendar-time results presented in Table 4 are consistent with the BHAR analysis reported in Table 3. The BHAR analysis suggests that high *TPD5* firms underperform by about 7% per year, while the calendar-time results suggest an underperformance of about 6% per year. Overall, the evidence supports the idea that managers associated with high equity-based compensation are motivated to issue new equity during periods when they believe that existing shares are overvalued. A more nefarious explanation is that managers of high *TPD5* firms are more likely to artificially inflate earnings prior to SEOs, thus inflating the current stock price at the expense of future returns. In the next section we provide evidence against this alternative explanation.

4.3. Operating performance of SEO issuers

Prior studies report that SEO issuers are associated with deterioration in operating performance during the years following the issue (Hansen and Crutchley, 1990; McLaughlin et al., 1996; Loughran and Ritter, 1997; Heron and Lie, 2004). However, Walker and Yost (2008) find that industry-adjusted operating performance either improves or remains unchanged. Using our five measures of operating performance, we examine whether changes in operating performance are less favorable for high *TPD5* firms.

Table 5 reports our five measures of operating performance (Panels A – E). We present median values of raw operating performance, industry-adjusted operating performance, and industry- and pre-issue performance-adjusted operating performance. We compute operating performance for each year beginning in the year before the issue (year –1) and ending three years

after the issue (year +3) and report the results on the left side of each panel. Year 0 is the issue year. The right side of each panel reports the change in operating performance from years –1 to +2, 0 to +2 and 0 to +3. The bottom of each Panel provides Wilcoxon z-statistics that measure the statistical significance of the differences between the high and low quartiles of *TPD5*.

[Insert Table 5]

As shown in the table, the evidence is somewhat mixed. Across our measures, firms in the highest quartile of *TPD5* exhibit significant declines in operating performance with much greater frequency than firms in the lowest quartile. When considering operating income scaled by sales or assets, the evidence suggests that changes in operating performance for each of the three measures (unadjusted, industry adjusted, and industry- and performance-adjusted) are usually insignificant or significantly positive for the (*Low*) *Q1 TPD5* quartile and usually insignificant or significantly negative for the (*High*) *Q4 TPD5* quartile. For cash flow scaled by assets, we find that changes in operating performance are either insignificant or significantly positive for the three lower *TPD5* quartiles and mainly insignificant for the highest *TPD5* quartile. For cash flow scaled by sales, we find that changes for each of the three measures are either insignificant or significantly positive for all *TPD5* quartiles. Finally, for return on equity, we find that changes for each of the three measures are either insignificant or significantly negative for all *TPD5* quartiles.

The Wilcoxon z-statistics indicate that changes in unadjusted operating performance are significantly more negative for high *TPD5* issuers than low *TPD5* issuers in almost all instances, and changes in industry-adjusted operating performance are significantly more negative for high *TPD5* issuers in the majority of tests. The results are weaker for changes in industry- and performance-adjusted operating performance. In summary, Table 5 generally points to the

conclusion that issuers whose executives receive high equity-based compensation are associated with less favorable pre- to post- issue changes in operating performance than issuers having executives with low levels of equity-based compensation.

Table 6 provides an examination of mean (Panel A) and median (Panel B) discretionary accruals around SEOs. We present values using the modified-Jones model and performance-matched modified-Jones model. We compute discretionary accruals for each year beginning in the year before the issue (year -1) and ending three years after the issue (year $+3$) and report the results on the left side of each panel. Year 0 is the issue year. The right side of each panel reports the change in accruals from years -1 to $+2$, 0 to $+2$ and 0 to $+3$. The bottom of each Panel provides Wilcoxon z -statistics that measure the statistical significance of the differences between the high and low quartiles of *TPD5*.

[Insert Table 6]

Over the entire sample, there is some evidence that discretionary accruals decline after issuance, consistent with the literature that SEO firms, on average, tend to manage earnings prior to SEOs. However, across *TPD5* quartiles there is no clear pattern in discretionary accruals. First, there is little evidence that accruals in a given year differ statistically between low and high quartiles. Second, there is no evidence that changes in accruals around the SEO differ across low and high quartiles. Together, the results suggest that discretionary accruals are not closely linked to the degree of equity-based compensation around SEOs. The evidence does not support the idea that earnings management is more prevalent for firms with high equity-based compensation.

Finally, we examine the effect of *TPD5* on operating performance using cross-sectional regressions. Table 7 presents estimations that explain changes in unadjusted (Panel A) and industry-adjusted (Panel B) measures of operating performance from the issue year to three years

after. We report coefficient estimates and t-statistics (in parentheses) based on standard errors that are clustered by industry and time. We provide two estimations for each measure of operating performance. In the first we include our main explanatory variable which is a binary indicator variable, (*High*) *Q4 TPD5*, that equals one for issuers in the highest *TPD5* quartile and zero otherwise. In the second we include (*High*) *Q4 TPD5* and additional binary indicator variables that reflect the second and third quartiles, *Q2 TPD5* and *Q3 TPD5*. In each regression, we include the following control variables: The natural log of market capitalization, the natural log of proceeds, relative share issue size, leverage defined as total debt / assets, prior operating performance, and discretionary accruals defined using the modified-Jones model.¹⁹

In Panel A, the coefficient of (*High*) *Q4 TPD5* is significant and negative in 7 out of 10 models. In Panel B, this coefficient is significant in 8 of 10 models. However, in both panels, the coefficients of *Q2 TPD5* and *Q3 TPD5* are always insignificant. These estimates imply that issuers whose executives receive high equity-based compensation experience significantly more unfavorable changes in operating performance in comparison to all other issuers (from the first specification) and also compared to issuers whose executives receive low equity-based compensation (from the second specification). In terms of the other variables, we find that better prior operating performance is strongly associated with less favorable changes in operating performance. Further, firms with higher discretionary accruals are often associated with more unfavorable changes in operating performance. Importantly, high equity-based compensation is associated with poor future performance after controlling for the previously documented negative relation between accruals and future SEO performance.

[Insert Table 7]

¹⁹ Our main results are similar in unreported tests using the performance-matched modified-Jones model.

Together, the operating performance results generally suggest that managers who receive high equity-based compensation are more likely to issue equity when they do not have high expectations about operating performance in the near future. This is consistent with the evidence on long-run stock performance. The evidence does not support the hypothesis that managers who receive high equity-based compensation are more likely to manipulate accruals and that this increased manipulation causes the poorer observed future performance for these firms.

5. Conclusion

We find that SEO issuers whose top executives receive high equity-based compensation are associated with abnormally low stock returns and relatively unfavorable changes in operating performance in the three-year period following the issue. We find little evidence of stock underperformance for SEO firms whose executives have low equity-based compensation.

Overall, the findings support the premise that managers whose wealth is most sensitive to stock price changes are more likely to issue equity when they believe their stock is overvalued. These results are consistent with the idea that these managers make equity financing decisions that are in line with maximizing the value to existing shareholders since they have a larger stake in the company as shareholders themselves. By issuing overvalued shares, these managers transfer wealth to existing shareholders at the expense of new shareholders. Managers with low levels of equity-based compensation have a lower sensitivity of total portfolio wealth to a change in stock price, and are therefore less likely to make equity financing decisions for these same reasons. Finally, since our measure of equity-based compensation is known at the time of an SEO, it appears to have predictive ability for future stock performance.

Appendix A: Calculating Total *Option Portfolio Value* and *Option Portfolio Delta*

In calculating the total *Option Portfolio Value* for each executive in ExecuComp, we follow the Core and Guay (2002) one-year approximation method. First, we partition each executive's stock option portfolio into three parts: (1) options from new grants made in the current year, (2) exercisable in-the-money option holdings from previous year grants, and (3) non-exercisable in-the-money option holdings from previous year grants. We then calculate the stock option portfolio value for each partition using data reported by ExecuComp and the Black-Scholes stock option pricing model adjusted for dividends, along with the same assumptions for estimating grant dates and time-to-maturity, risk-free interest rate, dividend yield, and expected stock-return volatility that are used by ExecuComp:

- i. Stock option grants are made on July 1st of the grant year
- ii. Executives hold the option for 70% of the time-to-maturity, where time-to-maturity equals the difference between the expiration date and July 1st of the grant year, reported in years (the overwhelming majority of stock option awards have 10 years to expiration, indicating executives hold most stock options for a period of 7 years)
- iii. The risk-free rate is the 7-year Treasury note (consistent with most options expiring in 10 years and the assumption they are held for 7 years)
- iv. The dividend yield is the average of the last three years
- v. Stock volatility is based on the prior 60 months of stock returns. If 60 months of returns are not available then we use the actual number of months of returns that are available, with the restriction that at least 12 months of return data is available

Dividend yields are winsorized at the 95th percentile and stock volatility is winsorized at the 5th and 95th percentiles to also remain consistent with the ExecuComp methodology.

Based on these assumptions, we compute stock option portfolio value as:

$$\text{Stock Option Portfolio Value} = [Se^{-dT}N(Z) - Xe^{-rT}N(Z - \sigma T^{1/2})] * \text{Number of Stock Options Held}$$

where

$$Z = \left[\ln\left(\frac{S}{X}\right) + T(r - d + \frac{\sigma^2}{2}) \right] / \sigma T^{1/2}$$

N = cumulative probability function for the normal distribution

S = price of the underlying stock

X = exercise price of the option

σ = expected stock-return volatility over the life of the option

r = risk-free interest rate

T = time to maturity of the option in years

d = expected dividend yield over the life of the option

All of these input variables are either directly observable (S and X from ExecuComp; r from the Federal Reserve Bank in St. Louis website) or can be accurately estimated (σ is estimated using CRSP data; T is calculated using the issue date and expiration date for each stock option award as reported by ExecuComp; and d is estimated using Compustat data).

Data pertaining to the current year stock option awards is reported by ExecuComp, and therefore the calculation of the current year stock option award portfolio value is straightforward. After computing these current year stock option award fair values using the methodology and assumptions described above, we compare our calculated values to those reported by ExecuComp under the variable *OPTION_AWARDS_BLK_Value* and find that our values have a correlation of .993 with ExecuComp's. We feel confident that our methodology correctly imitates ExecuComp's methodology, so we proceed to use our methodology to compute stock option award fair values for exercisable and non-exercisable in-the-money stock option holdings from previous year awards.

For exercisable and non-exercisable in-the-money stock option holdings from grants made in previous years, ExecuComp only reports the total number of stock options held of each type and the immediate exercise value of those stock options. It does not report the exercise price or the time-to-maturity of previous stock option grants. To estimate the average exercise price for exercisable in-the-money stock option holdings, we divide the immediate exercise value of these stock option holdings by the actual number of exercisable stock options held to find how much, on average, the stock price is above the exercise price of these options. We then subtract this value from the end-of-fiscal year stock price to determine the exercise price of the exercisable stock option holdings. We then repeat this process to find the exercise price of the non-exercisable stock option holdings.

Next, we estimate the time-to-maturity for previously granted stock options by assuming that the time to maturity of a non-exercisable stock option is one year less than the time-to-maturity of current year stock option grants, multiplied by 70 percent. Similarly, we assume that the time-to-maturity of an exercisable stock option is four years less than the time-to-maturity of current year stock option grants, multiplied by 70 percent. If no stock options are granted in the current year, we assume the time-to-maturity of non-exercisable stock options is nine years multiplied by 70 percent (which is six years), and the time-to-maturity of exercisable stock options is six years

multiplied by 70 percent (which is four years).²⁰ From here we use the end-of-fiscal year stock price as the price for the underlying stock to calculate the exercisable and non-exercisable in-the-money stock option holdings total portfolio values.

With an estimation for the total stock option portfolio values for current year grants, previous year exercisable in-the-money stock option holdings, and previous year non-exercisable in-the-money stock option holdings, our goal is to determine the sensitivity of these portfolio values to changes in stock price levels. Following Core and Guay (2002), we define the stock option portfolio *Delta* as the option value sensitivity to a 1% change in stock price level:

$$Delta = \left[\frac{\partial(option\ value)}{\partial(price)} \right] * \left(\frac{price}{100} \right) = e^{-dT} N(Z) * \left(\frac{price}{100} \right)$$

After calculating the *Delta* for each of the three option portfolios separately, we then calculate the total *Option Portfolio Value* and stock option portfolio *Delta*, a component of *Total Portfolio Delta*, as:

Option Portfolio Value = Current Year Stock Option Grant Portfolio Value + Exercisable in-the-money Stock Option Holdings Portfolio Value + Non-exercisable in-the-money Stock Option Holdings Portfolio Value

Option Portfolio Delta = Current Year Stock Option Delta + Exercisable in-the-money Stock Option Delta + Non-exercisable in-the-money Stock Option Delta

²⁰ The assumptions made by Core and Guay (2002) are reasonable given that most stock option grants have a maturity of 10 years. We reduce the time-to-maturity of exercisable and non-exercisable stock option holdings to 70 percent of Core and Guay (2002) estimates to remain consistent with the methodology used to determine time-to-maturity of current year stock option grants taken from Execucomp.

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Table 1**Distribution of SEOs and Executive Compensation Descriptive Statistics**

This table presents the number of SEOs in the Securities Data Company's (SDC) New Issues database and descriptive statistics for the top five executives compensation measures reported in Standard and Poor's ExecuComp database, which includes firms in the S&P 1500 index. The left side of Panel A presents the number of SEOs and *Average Issue Proceeds*, measured as the net proceeds received, by year from 1993-2006. The right side of Panel A reports the same information for the sub-sample of SEO firms that also have Executive Compensation data available from ExecuComp in the fiscal year prior to the SEO announcement. Panel B reports descriptive statistics for compensation measures awarded to the top five executives during the fiscal year prior to the SEO announcement for SEOs issued from 1996-2006. *Total Compensation* is the sum of salary, bonus, other annual compensation, value of new restricted stock and stock options granted during the year, long-term incentive payouts, and all other compensation paid during the year prior to the SEO announcement. *Option Portfolio Value* is described in Appendix A. *Stock Portfolio Value* is the total number of shares owned multiplied by end-of-year stock price, and *Restricted Shares Value* is the total number of restricted shares held multiplied by end-of-year stock price. *Total Portfolio Value* is the sum of *Option Portfolio Value*, *Stock Portfolio Value*, and *Restricted Shares Value*. *Total Portfolio Delta* is the sum of option portfolio delta, stock portfolio delta, and restricted shares portfolio delta as defined in the text and Appendix A. *TPD5* is *Total Portfolio Delta* divided by *Total Compensation*. All variables are calculated for each executive in the year before an SEO announcement and then summed across the top five executives.

Panel A: Distribution of SEOs, 1993-2006

Full SEO Sample			Executive Compensation SEO Sample	
Year	Number of SEOs	<i>Average Issue Proceeds</i> (\$ Millions)	Number of SEOs	<i>Average Issue Proceeds</i> (\$ Millions)
1993	356	68.90	132	114.57
1994	257	66.74	85	100.99
1995	396	84.91	90	170.64
1996	481	84.73	88	148.99
1997	403	83.38	109	140.18
1998	267	120.38	96	200.89
1999	315	188.99	127	250.57
2000	305	232.11	111	319.82
2001	205	171.86	74	246.47
2002	189	153.74	79	212.74
2003	231	119.55	77	181.61
2004	298	150.61	111	224.24
2005	236	161.31	63	295.37
2006	232	175.08	45	262.54
Total:	4,171		1,287	

Panel B: Compensation Summary Statistics of Top Five Executives of SEO Firms, 1993-2006

Compensation	Mean	Median	Minimum	Maximum
Salary & Bonus (\$000s)	\$2,672.36	\$1,988.50	\$125.00	\$30,180.83
Total Compensation (\$000s)	\$8,337.90	\$4,156.46	\$175.54	\$216,992.33
Option Portfolio Value (\$000s)	\$29,736.13	\$10,895.38	\$14.08	\$929,543.74
Stock Portfolio Value (\$000s)	\$92,515.74	\$13,313.33	\$0.00	\$13,743,958.75
Restricted Shares Value (\$000s)	\$2,372.95	\$0.00	\$0.00	\$188,413.96
Total Portfolio Value (\$000s)	\$124,436.98	\$30,432.73	\$0.00	\$14,043,231.01
Total Portfolio Delta (\$000s)	\$1,292.44	\$366.76	\$0.00	\$140,441.42
TPD5	1.12	0.31	0	19.42

Table 2**SEO Firm and Offer Characteristics**

This table presents descriptive statistics for SEO firm characteristics and the cumulative abnormal return (CAR) during the three days surrounding an SEO announcement for the full sample and *TPD5* quartiles. *TPD5* is *Total Portfolio Delta* divided by *Total Compensation* for each executive during the fiscal year prior to the SEO announcement, summed across the top five executives. *Market Capitalization* is the number of shares outstanding times the current stock price as of the end of the prior month before the SEO is announced. *Capital Expenditures*, *Total Debt*, and *Assets* are reported as of the end of the prior fiscal year. *Discretionary Accruals* are determined using the modified-Jones model and performance-matched modified-Jones model as of the end of the prior fiscal year (see section 3.2 for details). *Ownership* is the sum of common and restricted shares held by each executive divided by shares outstanding as of the end of the prior fiscal year before the SEO announcement, summed across the top five executives. *Relative Share Issue Size* is the number of new shares issued divided by shares outstanding as of the day before the SEO announcement date. The *Market-to-Book* ratio equals the *Market Capitalization* as of the end of the prior month before the SEO announcement plus the total book value of assets minus shareholder's equity both measured at the end of the prior fiscal year, all scaled by total book value of assets at the end of the prior fiscal year. *Prior Six-Month Stock Returns* are net of the CRSP value-weighted index and end two days prior to the SEO announcement. The three-day CARs are centered on the SEO announcement date, and are computed using the Scholes-Williams market model and an estimation period from 200 to 60 trading-days prior to the announcement date. We report t-statistics (Wilcoxon z-statistics) indicating the significance of the difference between the means (medians) of the (*High*) *Q4 TPD5* with the (*Low*) *Q1 TPD5*. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

		Full Sample	(LOW) Q1 TPD5	Q2 TPD5	Q3 TPD5	(HIGH) Q4 TPD5		Q4 – Q1 TPD5
Market Capitalization	N	1,287	311	314	342	320		
	Mean	3,567	1,558	2,431	5,368	4,710	t-stat	2.89***
	Median	964	704	996	1,093	1,153	z-stat	5.27***
Capital Expenditures /Assets	N	1,274	309	311	336	318		
	Mean	8.20%	8.04%	7.54%	7.92%	9.31%	t-stat	1.64
	Median	5.19%	5.15%	4.59%	5.30%	5.94%	z-stat	1.11
Total Debt /Assets	N	1,285	310	314	342	319		
	Mean	25.96%	28.93%	28.67%	24.39%	22.08%	t-stat	-3.74***
	Median	24.77%	26.65%	27.99%	24.66%	17.90%	z-stat	-3.85***
Discretionary Accruals (Modified-Jones Model)	N	1,227	299	303	329	296		
	Mean	0.63	-1.48	1.94	1.50	0.45	t-stat	1.18
	Median	0.62	-0.64	1.34	0.91	0.80	z-stat	1.68*
Discretionary Accruals (Performance-Matched, Modified-Jones Model)	N	1,227	299	303	329	296		
	Mean	0.45	-0.38	2.06	0.45	-0.39	t-stat	-0.01
	Median	0.02	-1.27	2.32	-0.11	-0.11	z-stat	1.37
Ownership	N	1,283	308	314	342	319		
	Mean	6.71%	1.32%	2.06%	4.72%	18.59%	t-stat	14.93***
	Median	1.42%	0.40%	0.91%	1.82%	12.92%	z-stat	17.85***
Relative Share Issue Size	N	1,287	311	314	342	320		
	Mean	14.38%	16.42%	15.31%	13.74%	12.18%	t-stat	-5.11***
	Median	12.21%	13.72%	12.99%	11.79%	10.63%	z-stat	-5.58***
Market-to-Book	N	1,285	310	314	342	319		
	Mean	4.43	4.61	2.65	4.05	6.42	t-stat	1.31
	Median	2.26	1.95	1.71	2.44	3.29	z-stat	8.00***
Prior Six-Month Stock Returns	N	1,286	310	314	342	320		
	Mean	43.50%	52.12%	34.82%	42.33%	44.92%	t-stat	-1.11
	Median	25.85%	30.33%	21.36%	25.88%	25.25%	z-stat	-1.91**
3-Day CAR at SEO Announcement	N	1,284	309	313	342	320		
	Mean	-2.68%	-2.82%	-2.83%	-2.67%	-2.41%	t-stat	0.79
	Median	-2.56%	-2.40%	-2.71%	-2.62%	-2.47%	z-stat	-0.10

Table 3**Long-run Buy-and-Hold Abnormal Returns**

This table presents the buy-and-hold abnormal stock returns (BHARs) of SEO firms matched with non-SEO firms for a three-year period after an SEO issue for the full sample and each *TPD5* quartile. *TPD5* is defined in Table 2. BHARs begin in the month following an SEO issue. Panel A presents mean and median BHARs of SEO firms matched with non-SEO firms having similar market capitalization, market-to-book ratios, and past six-month returns. Market capitalization is closing price at the end of the prior month to the SEO issue date multiplied by shares outstanding. The market-to-book ratio equals the market value of equity (number of shares outstanding times the current stock price) at the end of the month prior to the SEO issue, plus the book value of assets minus shareholder's equity where both are measured at the end of the prior fiscal year, all scaled by the total book value of assets at the end of the prior fiscal year. Past six-month returns are for the six month period ending in the month prior to the SEO issue. Matched firms are required to be at least three-years old, have not issued an SEO within the past three years, and have a six-month return within 30% of the SEO issuer's six-month return. When a match firm meeting these requirements is not available, we match the SEO firm to CRSP value-weighted returns. Percentage BHARs are calculated as:

$$BHAR_{it} = \left(\prod_{t=1}^T [1 + R_{i,t}] - \prod_{t=1}^T [1 + MR_{i,t}] \right) \times 100$$

where $R_{i,t}$ is the SEO return in month t , $MR_{i,t}$ is the matched-firm return in month t , and $BHAR_{i,t}$ is the percentage buy-and-hold abnormal return for SEO firm i for T months. In Panel A the number of firms (N), Mean, and Median BHARs are reported for the full sample and each *TPD5* quartile. The reported t-stat (z-stat) indicates if the mean (median) BHAR is significantly different from zero. Panel B presents differences in mean and median BHARs between the highest and lowest quartiles of *TPD5* and t-stats (Wilcoxon z-stats) indicating the significance of the differences. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: 36-Month BHARs (%) matched on size, market-to-book, and past six-month return

		(Low)			(High)
	All Issuers	Q1 TPD5	Q2 TPD5	Q3 TPD5	Q4 TPD5
N	1,287	315	313	340	319
Mean	-2.12%	6.66%	-5.31%	10.33%	-20.80%***
(t-stat)	(-0.51)	(0.64)	(-0.71)	(1.47)	(-2.60)
Median	-11.94%***	-5.52%	-15.33%*	-5.98%	-25.75%***
(z-stat)	(-3.41)	(-0.91)	(-1.75)	(-0.87)	(-3.30)

Panel B: Differences in 36-Month BHARs (%) between *TPD5* Quartiles

	Difference in 36-Month BHAR			
	Mean	t-stat	Median	z-stat
Q4 (high) – Q1 (low)	-27.46%**	(2.10)	-20.23%**	-2.34

Table 4**Calendar Time Factor Model Regressions of Long-run Returns**

This table presents coefficient estimates from calendar-time industry-adjusted SEO firm portfolio monthly return regressions. Panel A reports results using the Fama-French (1993) three-factor model that includes the MKT, SMB, and HML factors and four-factor model that includes an additional momentum factor, MOM, from Carhart (1997). Panel B reports results using the same three- and four-factor models augmented with an investment factor, INV, following Lyandres, Sun, and Zhang (2008). The factors MKT, SMB, HML, and MOM are obtained from Kenneth French's website, and the INV factor is obtained directly from Lu Zhang. Each month a portfolio is created including all firms that issued an SEO within the past 36-months, and equal-weighted portfolio returns are calculated using current two-digit SIC mean industry-adjusted monthly returns. We use the three-year Treasury Security as the risk-free rate. Results are reported for the full sample and each *TPD5* quartile. *TPD5* is defined in Table 2. Newey-West (1987) t-statistics, robust to heteroskedasticity and autocorrelation, are in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Coefficient estimates from calendar time three- and four-factor model regressions (MKT, SMB, HML, MOM)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	<i>Full</i>	<i>(Low)</i>			<i>(High)</i>	<i>Full</i>	<i>(Low)</i>			<i>(High)</i>
	<i>Sample</i>	<i>Q1</i>	<i>Q2 TPD5</i>	<i>Q3 TPD5</i>	<i>Q4 TPD5</i>	<i>Sample</i>	<i>Q1 TPD5</i>	<i>Q2 TPD5</i>	<i>Q3 TPD5</i>	<i>Q4 TPD5</i>
<i>Alpha</i>										
(%)	-0.214	-0.060	-0.236	-0.065	-0.540***	-0.239	-0.007	-0.329	-0.168	-0.491***
	(-0.86)	(-0.15)	(-0.77)	(-0.31)	(-2.73)	(-0.91)	(-0.02)	(-0.95)	(-0.73)	(-2.65)
<i>MKT</i>	0.180***	0.346***	0.158**	0.049	0.166**	0.198**	0.306***	0.228***	0.126	0.129
	(2.61)	(5.14)	(1.98)	(0.50)	(2.06)	(2.56)	(3.66)	(3.14)	(1.30)	(1.35)
<i>SMB</i>	-0.224***	-0.024	-0.275***	-0.268***	-0.345***	-0.228***	-0.015	-0.289***	-0.284***	-0.337***
	(-3.41)	(-0.25)	(-4.82)	(-5.12)	(-3.19)	(-3.17)	(-0.17)	(-4.15)	(-4.03)	(-3.20)
<i>HML</i>	0.099*	0.144***	0.187**	-0.054	0.117	0.113*	0.113**	0.242***	0.007	0.088
	(1.92)	(3.12)	(2.40)	(-0.76)	(1.45)	(1.78)	(2.15)	(3.00)	(0.09)	(1.08)
<i>MOM</i>	-	-	-	-	-	0.034	-0.075*	0.132***	0.146***	-0.070
	-	-	-	-	-	(0.94)	(-1.75)	(3.66)	(2.72)	(-1.39)
<i>Adj. R</i> ²	0.139	0.165	0.122	0.039	0.147	0.138	0.173	0.152	0.074	0.152

Panel B: Coefficient estimates from calendar time four- and five-factor model regressions (MKT, SMB, HML, MOM, INV)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	<i>Full</i>	<i>(Low)</i>			<i>(High)</i>	<i>Full</i>	<i>(Low)</i>			<i>(High)</i>
	<i>Sample</i>	<i>Q1 TPD5</i>	<i>Q2 TPD5</i>	<i>Q3 TPD5</i>	<i>Q4 TPD5</i>	<i>Sample</i>	<i>Q1 TPD5</i>	<i>Q2 TPD5</i>	<i>Q3 TPD5</i>	<i>Q4 TPD5</i>
<i>Alpha</i>										
(%)	-0.197	-0.046	-0.226	-0.048	-0.511***	-0.228	0.001	-0.322	-0.156	-0.473***
	(-0.88)	(-0.12)	(-0.79)	(-0.25)	(-3.14)	(-0.95)	(0.00)	(-0.98)	(-0.76)	(-2.94)
<i>INV</i>	-0.272**	-0.215	-0.154	-0.267	-0.464***	-0.284*	-0.195	-0.194	-0.312	-0.448***
	(-2.14)	(-1.64)	(-1.03)	(-1.65)	(-3.78)	(-1.95)	(-1.60)	(-1.10)	(-1.40)	(-3.52)
<i>MKT</i>	0.169***	0.337***	0.152**	0.037	0.146**	0.191***	0.301***	0.223***	0.119	0.118
	(3.04)	(5.73)	(2.11)	(0.43)	(2.23)	(2.78)	(3.81)	(3.31)	(1.36)	(1.39)
<i>SMB</i>	-0.206***	-0.009	-0.264***	-0.250***	-0.313***	-0.210***	-0.003	-0.277***	-0.264***	-0.308***
	(-3.38)	(-0.10)	(-5.07)	(-5.34)	(-2.74)	(-3.10)	(-0.03)	(-4.39)	(-4.33)	(-2.68)
<i>HML</i>	0.153***	0.186***	0.217***	-0.001	0.209**	0.174**	0.154***	0.283***	0.074	0.183**
	(2.96)	(3.64)	(2.72)	(-0.01)	(2.47)	(2.39)	(2.64)	(2.96)	(0.80)	(2.18)
<i>MOM</i>	-	-	-	-	-	0.044	-0.068	0.139***	0.157**	-0.055
	-	-	-	-	-	(1.01)	(-1.37)	(3.75)	(2.52)	(-0.96)
<i>Adj. R</i> ²	0.165	0.173	0.122	0.049	0.195	0.167	0.178	0.156	0.090	0.196

Table 5
Operating Performance

This table reports median levels and changes in operating income in the years surrounding an SEO for the full sample and each *TPD5* quartile. *TPD5* is defined in Table 2. We report results for five operating performance measures: operating income before depreciation scaled by sales and assets, cash flow scaled by sales and assets, and return-on-equity (all defined in Section 3.2). We also report results for each using unadjusted, industry adjusted, and industry/performance adjusted measures. Industry-adjusted measures are computed by subtracting the median industry level (based on the two-digit SIC code) in each year.

Industry/performance adjusted measures are computed by subtracting the operating performance of a control firm that is in the same industry as the issuer and has similar pre-issue operating performance. The left side of each panel reports the median level of each operating performance measure for each fiscal year beginning in the year before the SEO issue and ending three years after. The right side of each panel reports the median changes in each operating performance measure over the years identified with asterisks indicating the statistical significance of the change. Wilcoxon z-statistics are reported at the bottom of each panel and indicate the significance of the difference between the median levels and median changes of each operating performance measure for the highest quartile versus the lowest quartile of *TPD5*. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Median operating income scaled by sales (Barber and Lyon; 1996)

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Unadjusted</i>	0.139	0.150	0.149	0.140	0.135	0.005***	-0.002*	-0.005***
<i>Industry Adjusted</i>	0.052	0.067	0.063	0.056	0.051	0.005***	-0.002	-0.006***
<i>Industry/performance adjusted</i>	-0.000	0.012	0.014	0.011	0.017	0.012***	0.003	-0.001
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Unadjusted</i>	0.120	0.138	0.141	0.133	0.133	0.012***	0.003	0.001
<i>Industry Adjusted</i>	0.034	0.051	0.050	0.045	0.050	0.016***	0.003	-0.002
<i>Industry/performance adjusted</i>	-0.000	0.016	0.023	0.012	0.028	0.010***	0.002	0.004
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Unadjusted</i>	0.140	0.148	0.141	0.132	0.127	0.004**	-0.002	-0.007***
<i>Industry Adjusted</i>	0.049	0.060	0.052	0.045	0.038	0.006**	-0.001	-0.007***
<i>Industry/performance adjusted</i>	-0.000	0.012	0.013	0.010	0.008	0.010**	0.001	-0.007
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Unadjusted</i>	0.145	0.159	0.152	0.147	0.142	0.006	-0.001	-0.001
<i>Industry Adjusted</i>	0.063	0.072	0.069	0.057	0.055	-0.001	-0.003	-0.004
<i>Industry/performance adjusted</i>	0.000	0.007	0.010	0.013	0.020	0.013***	0.003	0.002
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Unadjusted</i>	0.154	0.163	0.157	0.148	0.140	-0.001	-0.006***	-0.015***
<i>Industry Adjusted</i>	0.077	0.097	0.089	0.074	0.059	0.002	-0.003	-0.014***
<i>Industry/performance adjusted</i>	-0.000	0.012	0.012	0.016	0.015	0.015***	0.006	-0.001

Wilcoxon z-statistics

(High) Q4 TPD5 – (Low) Q1 TPD5

<i>Unadjusted</i>	4.45***	3.62***	2.14**	1.76*	0.11	-3.37***	-2.61***	-4.03***
<i>Industry Adjusted</i>	5.23***	4.36***	3.14***	2.62***	1.07	-2.26**	-1.82*	-2.77***
<i>Industry/performance adjusted</i>	0.12	-0.18	-1.23	0.18	-1.49	0.19	0.36	-1.94*

Panel B: Median operating income scaled by assets (Barber and Lyon; 1996)

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Unadjusted</i>	0.136	0.134	0.133	0.126	0.121	-0.007***	-0.004***	-0.010***
<i>Industry Adjusted</i>	0.044	0.045	0.049	0.045	0.041	-0.000	-0.002*	-0.007***
<i>Industry/performance adjusted</i>	-0.000	0.006	0.008	0.009	0.006	0.008***	-0.001	-0.004
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Unadjusted</i>	0.119	0.121	0.123	0.123	0.121	0.001	0.002	-0.005
<i>Industry Adjusted</i>	0.029	0.034	0.036	0.041	0.041	0.005*	0.001	-0.002
<i>Industry/performance adjusted</i>	-0.000	0.005	0.010	0.013	0.010	0.012***	0.009	-0.004
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Unadjusted</i>	0.123	0.127	0.127	0.120	0.113	-0.001	0.001	-0.008***
<i>Industry Adjusted</i>	0.035	0.035	0.044	0.034	0.028	0.005	-0.001	-0.006*
<i>Industry/performance adjusted</i>	0.000	0.007	0.011	0.002	-0.001	0.003	-0.006	-0.006
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Unadjusted</i>	0.140	0.134	0.133	0.129	0.129	-0.009**	0.001	-0.006**
<i>Industry Adjusted</i>	0.040	0.043	0.045	0.042	0.047	0.001	-0.001	-0.001
<i>Industry/performance adjusted</i>	-0.000	0.006	0.008	0.010	0.011	0.011*	-0.005	-0.004
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Unadjusted</i>	0.166	0.164	0.158	0.137	0.124	-0.017***	-0.013***	-0.021***
<i>Industry Adjusted</i>	0.074	0.073	0.067	0.057	0.050	-0.006*	-0.006***	-0.013***
<i>Industry/performance adjusted</i>	-0.000	0.006	0.003	0.009	-0.002	0.007	-0.001	-0.000
Wilcoxon z-statistics								
<i>(High) Q4 TPD5 – (Low) Q1 TPD5</i>								
<i>Unadjusted</i>	5.08***	4.63***	3.13***	1.62	0.31	-3.86***	-2.93***	-4.02***
<i>Industry Adjusted</i>	4.59***	4.08***	2.98***	1.71*	0.96	-2.51**	-1.90*	-2.41**
<i>Industry/performance adjusted</i>	-0.83	0.31	-0.31	-0.98	-1.12	-1.05	-1.28	0.81

Panel C: Median cash flow scaled by assets (Barber Lyon (1996))

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Unadjusted</i>	0.115	0.107	0.117	0.122	0.120	0.005**	0.007***	0.004***
<i>Industry Adjusted</i>	0.037	0.039	0.044	0.048	0.047	0.010***	0.010***	0.010***
<i>Industry/performance adjusted</i>	0.000	0.001	0.014	0.007	0.009	0.007***	0.011**	0.009**
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Unadjusted</i>	0.108	0.102	0.102	0.128	0.118	0.011	0.007*	0.003
<i>Industry Adjusted</i>	0.021	0.029	0.033	0.052	0.043	0.009*	0.006**	0.007*
<i>Industry/performance adjusted</i>	-0.000	0.004	0.006	0.007	0.016	0.007	0.019	0.021
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Unadjusted</i>	0.106	0.100	0.117	0.118	0.121	0.013***	0.021***	0.020***
<i>Industry Adjusted</i>	0.030	0.027	0.043	0.045	0.046	0.029***	0.015***	0.026***
<i>Industry/performance adjusted</i>	-0.000	-0.009	0.012	0.003	0.007	0.003*	0.021**	0.018*
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Unadjusted</i>	0.121	0.108	0.121	0.123	0.124	0.005	0.007**	0.011**
<i>Industry Adjusted</i>	0.039	0.042	0.047	0.045	0.050	0.010	0.014**	0.012**
<i>Industry/performance adjusted</i>	0.000	-0.004	0.014	0.004	0.010	0.004*	0.012	0.003
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Unadjusted</i>	0.137	0.130	0.121	0.122	0.115	-0.006*	-0.004	-0.008
<i>Industry Adjusted</i>	0.061	0.054	0.055	0.047	0.047	-0.004	0.004	-0.005
<i>Industry/performance adjusted</i>	0.000	0.018	0.019	0.010	0.005	0.011	-0.005	-0.007
Wilcoxon z-statistics								
<i>(High) Q4 TPD5 – (Low) Q1 TPD5</i>								
<i>Unadjusted</i>	2.71***	2.71***	1.93*	-0.24	-0.38	-2.14**	-2.08**	-2.09**
<i>Industry Adjusted</i>	2.64***	3.02***	2.21**	-0.01	1.05	-1.56	-1.45	-1.58
<i>Industry/performance adjusted</i>	0.58	1.79*	1.95*	0.05	-0.25	0.06	-1.51	-1.21

Panel D: Median cash flow scaled by sales (Heron and Lie; 2004)

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Unadjusted</i>	0.115	0.124	0.129	0.128	0.130	0.014***	0.008***	0.012***
<i>Industry Adjusted</i>	0.038	0.053	0.052	0.052	0.052	0.017***	0.009***	0.012***
<i>Industry/performance adjusted</i>	0.000	0.013	0.019	0.024	0.018	0.024***	0.014***	0.010***
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Unadjusted</i>	0.106	0.120	0.118	0.117	0.123	0.012**	0.008**	0.010**
<i>Industry Adjusted</i>	0.027	0.034	0.045	0.044	0.041	0.022***	0.011**	0.012**
<i>Industry/performance adjusted</i>	0.000	0.014	0.025	0.015	0.014	0.015*	0.016	0.007
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Unadjusted</i>	0.106	0.121	0.128	0.127	0.127	0.021***	0.015**	0.020***
<i>Industry Adjusted</i>	0.030	0.036	0.049	0.048	0.050	0.023***	0.010**	0.017***
<i>Industry/performance adjusted</i>	0.000	0.014	0.017	0.023	0.021	0.024***	0.018	0.017**
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Unadjusted</i>	0.121	0.136	0.140	0.142	0.139	0.013***	0.009**	0.014***
<i>Industry Adjusted</i>	0.045	0.063	0.059	0.058	0.067	0.010***	0.014**	0.012**
<i>Industry/performance adjusted</i>	0.000	0.012	0.027	0.029	0.034	0.028***	0.014	0.013**
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Unadjusted</i>	0.136	0.133	0.137	0.139	0.129	0.009**	0.001	-0.001
<i>Industry Adjusted</i>	0.060	0.068	0.068	0.064	0.054	0.015***	0.004	-0.004
<i>Industry/performance adjusted</i>	-0.000	0.013	0.015	0.023	0.003	0.025***	0.011**	0.001
Wilcoxon z-statistics								
<i>(High) Q4 TPD5 – (Low) Q1 TPD5</i>								
<i>Unadjusted</i>	2.69***	2.29**	1.23	0.99	0.15	-0.69	-1.14	-2.05**
<i>Industry Adjusted</i>	3.58***	3.53***	2.43**	1.58	1.20	-0.36	-0.91	-1.85*
<i>Industry/performance adjusted</i>	0.63	-0.92	-0.20	1.01	-0.64	1.13	-0.08	-0.57

Panel E: Median Return on Equity

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Unadjusted</i>	0.102	0.098	0.105	0.090	0.075	-0.018***	-0.014***	-0.024***
<i>Industry Adjusted</i>	0.041	0.040	0.040	0.031	0.025	-0.014***	-0.015***	-0.021***
<i>Industry/performance adjusted</i>	-0.000	0.013	0.018	0.014	0.012	0.012***	-0.000	-0.004**
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Unadjusted</i>	0.077	0.085	0.109	0.098	0.081	0.003	-0.002	-0.026***
<i>Industry Adjusted</i>	0.017	0.025	0.036	0.034	0.020	0.002	-0.006	-0.030***
<i>Industry/performance adjusted</i>	-0.000	0.014	0.034	0.017	0.012	0.010	-0.001	-0.012
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Unadjusted</i>	0.095	0.084	0.090	0.082	0.075	-0.014**	-0.002**	-0.014***
<i>Industry Adjusted</i>	0.032	0.021	0.036	0.026	0.022	-0.008**	-0.013**	-0.015***
<i>Industry/performance adjusted</i>	0.000	0.005	0.007	0.004	0.005	0.003	-0.001	0.001
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Unadjusted</i>	0.107	0.103	0.102	0.097	0.085	-0.023***	-0.012***	-0.017***
<i>Industry Adjusted</i>	0.047	0.043	0.039	0.028	0.033	-0.028***	-0.013***	-0.013***
<i>Industry/performance adjusted</i>	0.000	0.007	0.015	0.018	0.016	0.017	0.016	-0.003
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Unadjusted</i>	0.123	0.120	0.114	0.093	0.067	-0.027***	-0.028***	-0.038***
<i>Industry Adjusted</i>	0.060	0.059	0.054	0.033	0.026	-0.020***	-0.025***	-0.025***
<i>Industry/performance adjusted</i>	-0.000	0.032	0.020	0.014	0.012	0.015***	-0.008	-0.018**
Wilcoxon z-statistics								
<i>(High) Q4 TPD5 – (Low) Q1 TPD5</i>								
<i>Unadjusted</i>	4.58***	4.45***	1.49	-0.01	-0.36	-3.02***	-3.34***	-2.63***
<i>Industry Adjusted</i>	4.65***	4.53***	2.14**	-0.55	0.45	-2.40**	-2.13**	1.35
<i>Industry/performance adjusted</i>	-0.97	1.27	-0.42	-0.44	-0.43	0.78	-0.47	-0.14

Table 6**Discretionary Accruals using Modified-Jones & Performance-Matched Modified-Jones Models**

This table reports mean (Panel A) and median (Panel B) levels and changes in discretionary accruals in the years surrounding an SEO for the full sample and each *TPD5* quartile. *TPD5* is defined in Table 2. We report results for discretionary accruals computed using the modified-Jones model and performance-matched modified-Jones model (see Section 3.2 for details). The left side of Panel A (Panel B) reports the mean (median) level of each discretionary accrual measure for each fiscal year beginning in the year before the SEO issue and ending three years after. The right side of Panel A (Panel B) reports the mean (median) changes in each discretionary accruals measure over the years identified with asterisks indicating the statistical significance of the change. The bottom of Panel A (Panel B) report t-stats (Wilcoxon z-statistics) indicating the significance of the difference between the mean (median) levels and mean (median) changes of each discretionary accrual measure for the highest quartile versus the lowest quartile of *TPD5*. Values are reported as a percent of assets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Mean Discretionary Accruals as a Percent of Assets

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Modified-Jones Model</i>	0.82	1.18	1.38	0.07	-0.15	-0.77	-1.11**	-1.36**
<i>Performance-Matched Modified-Jones Model</i>	0.33	-0.15	0.61	0.08	-0.04	-0.31	0.19	-0.10
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Modified-Jones Model</i>	-1.62	1.07	1.62	-0.63	-0.39	0.84	-1.70	-1.51
<i>Performance-Matched Modified-Jones Model</i>	-1.32	1.14	0.28	1.59	1.41	2.80*	0.17	0.29
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Modified-Jones Model</i>	1.63	1.89	1.15	0.57	-0.24	-1.05	-1.31	-2.18**
<i>Performance-Matched Modified-Jones Model</i>	2.01	-0.52	1.40	0.32	0.32	-1.67	0.91	0.57
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Modified-Jones Model</i>	1.82	0.64	0.86	-0.77	-0.61	-2.59**	-1.41	-1.26
<i>Performance-Matched Modified-Jones Model</i>	0.10	-1.19	-0.23	-2.59	-2.31	-2.89*	-1.33	-1.03
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Modified-Jones Model</i>	1.25	1.15	1.95	1.15	0.67	-0.06	0.01	-0.46
<i>Performance-Matched Modified-Jones Model</i>	0.46	0.09	1.02	1.21	0.60	0.82	1.11	-0.17
t-statistics								
<i>(High) Q4 TPD5 – (Low) Q1 TPD5</i>								
<i>Modified-Jones Model</i>	1.81*	0.05	0.34	1.69*	0.94	-0.50	1.01	0.56
<i>Performance-Matched Modified-Jones Model</i>	0.80	-0.50	0.50	-0.24	-0.52	-0.74	0.36	-0.18

Panel B: Median Discretionary Accruals as a Percent of Assets

	Fiscal year relative to issue					Changes		
	-1	0	+1	+2	+3	-1 to +2	0 to +2	0 to +3
<i>All Issuers</i>								
<i>Observations: 1,099</i>								
<i>Modified-Jones Model</i>	0.54	1.21	1.27	0.33	0.23	0.04	-0.56***	-0.96***
<i>Performance-Matched Modified-Jones Model</i>	0.03	0.64	0.73	0.01	-0.00	-0.03	0.06	-1.64**
<i>(Low) Q1 TPD5</i>								
<i>Observations: 261</i>								
<i>Modified-Jones Model</i>	-0.63	0.71	1.47	0.08	-0.12	1.51	-0.31	-0.68
<i>Performance-Matched Modified-Jones Model</i>	-1.28	1.02	0.68	0.03	0.29	2.92**	0.56	-1.95
<i>Q2 TPD5</i>								
<i>Observations: 275</i>								
<i>Modified-Jones Model</i>	1.12	1.27	1.37	0.33	0.27	-1.28	-1.52*	-1.84***
<i>Performance-Matched Modified-Jones Model</i>	2.19	0.36	0.77	0.33	0.24	-1.94	0.04	-2.09
<i>Q3 TPD5</i>								
<i>Observations: 291</i>								
<i>Modified-Jones Model</i>	1.00	0.78	1.40	0.20	-0.26	-0.79	-0.63	-0.84*
<i>Performance-Matched Modified-Jones Model</i>	-0.08	1.04	1.50	-0.81	-0.63	-1.14	-1.85	-1.53
<i>(High) Q4 TPD5</i>								
<i>Observations: 272</i>								
<i>Modified-Jones Model</i>	0.40	1.71	0.92	0.69	0.96	1.57	0.16	-0.44
<i>Performance-Matched Modified-Jones Model</i>	0.03	0.40	0.07	0.89	-0.20	1.24	1.48	-0.80
Wilcoxon z-statistics								
<i>(High) Q4 TPD5 – (Low) Q1 TPD5</i>								
<i>Modified-Jones Model</i>	1.86*	0.58	-0.21	0.85	1.00	0.04	0.17	0.42
<i>Performance-Matched Modified-Jones Model</i>	1.81*	-0.63	-0.37	0.07	-1.51	-1.07	0.72	0.02

Table 7
Regressions of Changes in Operating Income

This table reports OLS regressions where the dependent variable is the change in various unadjusted operating performance measures (Panel A) and industry-adjusted operating performance measures (Panel B) from year 0 to +3. Industry-adjusted operating performance is computed by subtracting the median industry level (based on the two-digit SIC code) of each measure in each year. The operating performance measures reported are operating income/sales, operating income/assets, cash flows/sales, cash flows/assets, and return-on-equity, all defined in Section 3.2. The explanatory variables used are: *Q2 TPD5*, *Q3 TPD5*, and (*High*) *Q4 TPD5* which are each set equal to 1 if the firm falls into that specific *TPD5* quartile, and zero otherwise. *TPD5* groups are defined in Table 2. We include as control variables the natural log of *Market Capitalization*, calculated as the stock price times the number of shares outstanding as of the end of the month prior to the SEO issue, the natural log of the issue proceeds calculated as the offer price times the number of shares offered, the relative share issue size calculated as the number of shares offered divided by the number of shares outstanding on the day prior to the issue date, the leverage ratio calculated as total debt divided by assets as of the end of the prior fiscal year, prior operating performance for each specific measure as of the end of the prior fiscal year, and discretionary accruals determined using the modified-Jones model as of the end of the prior fiscal year (see section 3.2 for details). Each operating income measure is winsorized at the 5th and 95th percentiles to mitigate the effects of outliers due to data errors. We report t-statistics in parentheses based on standard errors clustered by industry and time. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Change in Unadjusted Operating Performance from year 0 to +3 Regressions

	Δ Operating Income / Sales		Δ Operating Income / Assets		Δ Cash Flows / Sales		Δ Cash Flows / Assets		Δ Return on Equity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Intercept</i>	-0.049 (-0.37)	-0.049 (-0.36)	0.009 (0.15)	0.009 (0.15)	0.018 (0.17)	0.019 (0.17)	0.046 (0.80)	0.046 (0.80)	-0.083 (-0.60)	-0.083 (-0.60)
<i>Log (Market Capitalization)</i>	0.011 (1.54)	0.011 (1.53)	0.001 (0.23)	0.001 (0.22)	0.001 (0.11)	0.001 (0.11)	-0.005 (-0.92)	-0.005 (-0.92)	0.006 (0.53)	0.006 (0.54)
<i>Log (Proceeds)</i>	-0.010 (-1.15)	-0.010 (-1.06)	-0.001 (-0.09)	-0.000 (-0.02)	-0.001 (-0.08)	-0.001 (-0.09)	0.006 (0.74)	0.006 (0.72)	-0.003 (-0.16)	-0.003 (-0.16)
<i>Relative Share Issue Size</i>	0.064 (1.01)	0.061 (0.93)	-0.015 (-0.35)	-0.017 (-0.39)	0.026 (0.31)	0.027 (0.32)	-0.055 (-1.06)	-0.054 (-1.06)	-0.110 (-1.19)	-0.110 (-1.17)
<i>Total Debt/Assets</i>	0.052** (2.23)	0.052** (2.27)	0.018 (1.29)	0.018 (1.28)	0.019 (1.08)	0.019 (1.08)	-0.001 (-0.05)	-0.001 (-0.05)	-0.041 (-1.24)	-0.041 (-1.19)
<i>Prior Operating Performance</i>	-0.187*** (-3.97)	-0.184*** (-4.00)	-0.240*** (-9.10)	-0.237*** (-9.33)	-0.118*** (-3.03)	-0.119*** (-3.09)	-0.211*** (-6.42)	-0.212*** (-6.41)	-0.189*** (-6.31)	-0.189*** (-6.47)
<i>Discretionary Accruals</i>	-0.039** (-2.54)	-0.036** (-2.38)	-0.030* (-1.75)	-0.028 (-1.62)	0.025 (1.13)	0.024 (1.10)	0.001 (0.06)	0.001 (0.03)	-0.103** (-2.04)	-0.103** (-2.06)
<i>Q2 TPD5</i>		-0.016 (-1.10)		-0.013 (-1.39)		0.005 (0.38)		0.003 (0.36)		-0.001 (-0.09)
<i>Q3 TPD5</i>		-0.008 (-0.65)		-0.006 (-0.77)		0.003 (0.28)		0.002 (0.24)		-0.002 (-0.09)
<i>(High) Q4 TPD5</i>	-0.022 (-1.38)	-0.030** (-2.09)	-0.017** (-2.16)	-0.024*** (-2.89)	-0.027* (-1.75)	-0.025 (-1.58)	-0.019** (-2.30)	-0.017* (-1.78)	-0.040** (-2.41)	-0.041 (-1.57)
Obs.	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099
Adj. R²	0.064	0.064	0.091	0.093	0.026	0.025	0.054	0.052	0.043	0.041

Panel B: Change in Industry-Adjusted Operating Performance from year 0 to +3 Regressions

	Δ Operating Income / Sales		Δ Operating Income / Assets		Δ Cash Flows / Sales		Δ Cash Flows / Assets		Δ Return on Equity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Intercept</i>	-0.062 (-0.70)	-0.062 (-0.70)	-0.005 (-0.12)	-0.004 (-0.10)	0.003 (0.03)	0.001 (0.01)	0.029 (0.58)	0.029 (0.57)	-0.112 (-1.09)	-0.111 (-1.08)
<i>Log (Market Capitalization)</i>	0.013*** (2.69)	0.013*** (2.74)	0.001 (0.22)	0.001 (0.19)	0.006 (0.71)	0.007 (0.73)	-0.007 (-1.16)	-0.007 (-1.14)	0.006 (0.55)	0.006 (0.54)
<i>Log (Proceeds)</i>	-0.012* (-1.87)	-0.011* (-1.76)	0.000 (0.05)	0.001 (0.11)	-0.007 (-0.55)	-0.007 (-0.56)	0.008 (1.07)	0.008 (1.04)	-0.001 (-0.08)	-0.001 (-0.09)
<i>Relative Share</i>	0.060 (1.11)	0.056 (1.00)	-0.033 (-0.85)	-0.034 (-0.86)	0.055 (0.66)	0.055 (0.65)	-0.065 (-1.12)	-0.064 (-1.12)	-0.094 (-1.10)	-0.092 (-1.07)
<i>Total Debt/Assets</i>	0.037* (1.69)	0.037* (1.65)	-0.001 (-0.09)	-0.000 (-0.03)	0.017 (0.75)	0.015 (0.69)	-0.013 (-0.78)	-0.014 (-0.80)	-0.039 (-1.32)	-0.038 (-1.25)
<i>Prior Operating Performance</i>	-0.257*** (-5.58)	-0.254*** (-5.51)	-0.253*** (-4.59)	-0.254*** (-4.49)	-0.184*** (-4.05)	-0.182*** (-4.13)	-0.204*** (-4.50)	-0.203*** (-4.45)	-0.180*** (-4.59)	-0.181*** (-4.72)
<i>Discretionary Accruals</i>	-0.042*** (-2.99)	-0.039*** (-2.65)	-0.025 (-1.44)	-0.024 (-1.37)	0.003 (0.12)	0.004 (0.14)	0.001 (0.03)	0.000 (0.01)	-0.121** (-2.38)	-0.122** (-2.46)
<i>Q2 TPD5</i>		-0.015 (-1.22)		-0.010 (-1.12)		0.004 (0.34)		0.006 (0.62)		0.003 (0.16)
<i>Q3 TPD5</i>		-0.010 (-0.76)		-0.001 (-0.17)		-0.005 (-0.50)		0.001 (0.12)		0.006 (0.30)
<i>(High) Q4 TPD5</i>	-0.018 (-1.40)	-0.027** (-2.39)	-0.016*** (-2.72)	-0.020*** (-3.13)	-0.022* (-1.68)	-0.023* (-1.76)	-0.020*** (-2.80)	-0.018** (-2.15)	-0.032** (-2.17)	-0.029 (-1.14)
Obs.	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099
Adj. R²	0.085	0.085	0.092	0.093	0.040	0.039	0.050	0.048	0.042	0.040