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**Article**

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Randy Beavers |

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## FINANCIAL ECONOMICS | RESEARCH ARTICLE

# CEO Compensation in IPOs

Randy Beavers<sup>1\*</sup>

**Abstract: Research Question/Issue:** Does inside debt compensation affect previous thought on compensation effects in IPOs? What explains variation in compensation when a company goes public? What is the composition of CEO compensation in an IPO? What types of compensation may be more optimal for or are associated with future financial success for the firm?

**Research Findings/Insights:** Using a sample of 852 IPOs in the United States from 2006 until 2014, we find only one-third of firms have or reported having compensation broken down further into categories of pensions, retirement plans, and deferred compensation. These types of compensation are associated with higher financial success through profitability and asset management. Option compensation remains detrimental to a firm's financial success through lower profitability and worse asset management.

**Theoretical/Academic Implications:** A theoretical compensation model provides and empirically explains 79% of the variation in compensation in IPOs in the first year of the public firm. In addition, this study finds the majority of firms are still inaccurately reporting deferred compensation, at least in the Summary Compensation Table. Future research could look to see why this is the case.

**Practitioner/Policy Implications:** Further investigation and potential litigation by the SEC may be necessary in the future to force firms to place information appropriately in the summary compensation table, especially concerning pension plans, retirement accounts, and other deferred compensation. In addition, individuals on compensation committees may consider giving the CEO more long-term compensation through stock and pensions instead of options.

**Subjects:** Corporate Finance; Pensions; Corporate Governance

**Keywords:** corporate governance; executive compensation; initial public offerings



Randy Beavers

### PUBLIC INTEREST STATEMENT

Disclosure rules requiring additional compensation details to be reported only occurred 33% of the time for new publicly traded companies from 2006 to 2014. Companies tended to be more successful if CEOs are paid more with pensions, retirement plans, and other types of deferred compensation instead of stock options. Also, executive compensation has been on the rise again since the financial crisis of 2008, although this is not necessarily the case for salary but through other means of pay.

## 1. Introduction

The literature on executive compensation has focused more on CEO long-term compensation plans, called CEO inside debt. Firms pay CEOs not only in the form of inside equity with stocks and stock options or short-term incentives such as cash and bonuses but also with inside debt in the form of deferred compensation and pensions. Executive compensation in the form of inside debt was mentioned by Jensen and Meckling (1976), who modeled the firm's financing of assets with debt and equity. CEO compensation packages can be structured in a similar fashion as the company's fiscal structure, and many companies are choosing to do so today.

Lack of data and government regulation of how inside debt is accounted for have prevented exploration of this topic in the past. However, this area has expanded through empirical research (Sundaram & Yermack, 2007; Wei & Yermack 2011; Cassell et al., 2012) and theory (Edmans & Liu, 2011). They find that inside debt incentivizes CEOs to choose less risky investments and focus on bondholders' interests over shareholders' interests. This paper expands the literature on executive compensation by analyzing domestic IPO activity and CEO inside debt in the form of long-term incentive plans, such as deferred compensation payments, pensions, long-term incentive plans, and retirement. CEO compensation versus all other employees is the focus of this paper since the data are publicly available for CEOs, and the CEO is most likely to lead changes in financial policy such as issuing an IPO (Cassell et al., 2012).

Wei and Yermack (2011) analyze how the market reacts to inside debt. They find that after the Securities and Exchange Commission (SEC) mandated pension reporting in 2006, firm risk decreases, and firm value decreases as inside debt increases. Cassell, Huang, Sanchez, and Stuart (2012) demonstrate how CEO inside debt affects CEO investment projects. They find that CEOs with high inside debt in their compensation packages tend to choose safe investments, such as capital expenditures over research and development (R&D), and financial policies. This paper extends the knowledge of financing policy by analyzing financial restructuring through an IPO using 852 domestic equity IPO transactions from 2006 to 2014. We introduce another channel of inside debt using non-stock incentive plans for CEO compensation. These are delayed bonuses paid to the CEO only if he remains with the company in subsequent years and if the company remains in existence. For example, a \$1,000,000 bonus is paid over the course of five years. Thus, \$200,000 is reported in the non-stock incentive plan portion of the executive compensation summary table for the current year and any other bonuses similarly paid in this fashion.

First, we summarize the data collected intensely to provide a unique picture of CEO compensation in IPOs since the regulation change. We then use this information to provide a theoretical regression model for components of total compensation with a clear perspective on what should be included in the model. Second, we use the hand-collected data to model empirically the theoretical regression to test it to see if it fits. Lastly, we use T-Tests to separate groups using CEO power and compensation indicators to see what financial variables are affected and how.

We contribute to the literature in many ways. First, we further extend the use of CEO inside debt in the executive compensation space (see Sundaram & Yermack, 2007 and Wei & Yermack, 2011). Second, we extend the definition of financing activities (see Sanchez et al., 2012) by analyzing the financial restructuring of equity IPOs. Third, we contribute to the discussion of debt in IPOs with inside debt versus outside debt (see Datta et al., 2000). Fourth, we consider another channel of inside debt beyond pensions and nonqualified contributions with the consideration of non-stock incentive compensation. Finally, we use a unique hand-collected dataset that allows analysis of executive compensation in the early stages of a firm's life (relative to public disclosure).

## 2. Literature review and hypothesis development

The majority of the literature on executive compensation focuses on stocks and options. The literature has been interested in CEO debt holdings, such as pensions and deferred payments, otherwise known as inside debt. Edmans and Liu (2011) theorize a compensation scheme that includes both equity and debt. They conclude that as a manager's personal leverage, defined as debt over equity, decreases, firm risk increases. Empirically, Rauh (2006) finds that firms with large defined benefit pension

obligations constrain them to invest less due to the extra debt burden. Ceteris paribus, a firm who makes fewer investments, especially risky ones, has fewer chances to fail; thus, firm risk decreases.

Cassell et al. (2012) expand the literature by focusing on investing and financing decisions of the CEO. They find large debt holdings by the CEO will lead him to reduce firm risk for two reasons. First, if inside debt is relatively higher than his equity holdings, he has a lower incentive to increase his wealth via stocks and stock options. The CEO can increase stock value by taking on higher risk in order to reap higher returns. Introducing more inside debt has the opposite effect. He will take on less risk and make the firm equity value less volatile. Evidence shows that CEOs, especially those over the age of 60, tend to become more risk averse and hedge more (Belkhir & Boubaker, 2013). Second, increasing deferred compensation increases the incentive for the CEO to make decisions that will make the firm last after he leaves in order for him to be fully compensated in later periods. He will want to reduce the likelihood of bankruptcy and preserve firm value with any decision he makes (Sanchez, et al., 2012). With respect to financing decisions, CEOs with higher inside debt tend to issue high dividends less frequently. Cassell et al. (2012) find that increases in CEO inside debt reduce stock return volatility, a measure of firm risk. A CEO can also want to pursue an IPO since there is a chance that the cost of credit will decrease (Pagano, Panetta, & Zingales, 1998).

Thus, at the time of the IPO, we should expect initial public data results to demonstrate the firm is operating to survive long-term. In order to do this during the growth stage of the firm, companies should defer compensation through options and pensions. In particular, inside debt incentivizes CEOs to take on even less risk than options. Therefore, we determine Hypothesis 1.

*Hypothesis 1: CEO inside debt is positively associated with risk aversion activities.*

The executive compensation literature has examined inside debt effects on stock prices. Wei and Yermack (2011) find stock prices decrease as inside debt increases. During the financial crisis, stocks performed better with companies that paid CEOs with inside debt. However, the stock price did not immediately increase following the announcement of higher inside debt. The effect was more pronounced for firms where insolvency was more likely (Francis & Yilmaz, 2012). Bennett, Guntay, and Unal (2012) find that bank holding companies had a lower stock price performance when inside debt decreased during the financial crisis since the default risk increased. These studies imply that inside debt is viewed as compensation that ties the CEO's performance more directly in the firm in the sense of a long-term commitment. CEOs will receive much less compensation if the company fails, since the net worth of the majority of his pay, the inside debt holdings, will have no value.

As mentioned above, there has been a number of papers published in the inside debt literature space. Belkhir and Boubaker (2013) find bank CEOs paid with inside debt, defined explicitly as deferred compensation and pensions, hedge with interest rate derivatives, suggesting risk mitigation behavior and lower likelihood of another financial banking crisis. Yu and Thuan (2014) find options incentivize taking risks, regardless if the executive is overconfident or not, whereas stock and cash do the opposite. Choy, Lin, and Officer (2014) find defined benefit pension plans act as inside debt since freezing them causes higher total risk, equity risk, credit, a decline in credit ratings, increase in bond yields, increase in R&D, higher operating risk, and higher financial risk. Anantharaman, Fang, and Gong (2014) find agency conflicts between stockholders and debt-holders are only resolved if compensation is truly debt-like. Supplemental Executive Retirement Plans (SERPs) are unfunded and unsecured, truly serving as "debt", whereas Rank-and-File (RAF) are funded and secured. In addition, Other Deferred Compensation (ODC) may have equity and can be withdrawn from retirement. Phan (2014) finds CEO inside debt is negatively related to corporate risk taking through M&A channels; specifically, abnormal bonds returns and long-term performance are higher and stock CARs are lower. Compensation after the M&A is restructured to mirror the capital structure of the new firm in order to prevent agency conflicts between shareholders and bondholders through the transfer of wealth. Srivastav, Armitage, and Hagendorff (2014) find banks who pay their CEOs with more inside debt are more conservative with bank payouts through

repurchases and dividends. Lu and Yu (2015) find inside debt is positively related to asset tangibility, liquidation value, and capital expenditures. Eisdorfer, Giaccotto, and White (2015) find inside debt is negatively related to dividend payouts, but Caliskan and Doukas (2015) find the opposite. Financial reporting quality is better as CEO inside debt holdings increase (He, 2015). Bank CEOs with higher inside debt had fewer defaults during the most recent credit crisis (Bennett et al., 2012). Bank CEOs with higher inside debt are characterized by higher-quality assets, conservative asset management, and traditional banking (Van Bekkum (2016)). Lee and Shen (2016) find firms with high CEO inside debt issue more debt during deficits and retire less debt during surpluses due to their lower financing cost. Dang and Phan (2016) find CEO inside debt is positively related to short-term debt. Inside debt also reduces incentives to manage or smooth earnings (Dhloe, Manchiraju, & Suk, 2016).

Thus, we would expect firms with higher CEO debt to be more in line with bondholders. In particular, there should be significant correlations with firms paying more inside debt and firm ratios pertaining to higher liquidity, better performance management, etc. In other words, there should be less risk relative to firms that do not pay CEOs with inside debt at this initial stage of the firm going from private to public.

*Hypothesis 2: Higher CEO inside debt is positively associated with bondholder incentive alignment.*

### 3. Data and methodology

We begin in 2006 since the Pension Protection Act of 2006 required companies to begin to report specifically pension values in filings versus brief mentions in notes to the financial statements or off balance sheet transactions. Executive compensation data are hand-collected from prospectuses available through the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database sponsored by the United States Securities and Exchange Commission (SEC). We use information from the final prospectus, Form 424b (1–5), that is filed pursuant to Rule 424(b) (3) of the Securities Exchange Act of 1933. According to the SEC, “The SEC does not require companies that are raising less than \$1 million under Rule 504 of Regulation D to be ‘registered’ with the SEC, but these companies are required to file a Form D with the SEC. The Form D serves as a brief notice that provides information about the company and the offering.” The typical prospectus has a section referring to executive compensation. Specifically, it is required to contain an executive compensation summary table that gives specific details concerning the pay of the CEO and other executives and directors. The compensation data is drawn from this section of the prospectus. IPO company names are gathered from Jay Ritter’s web site and placed into EDGAR’s CIK search system to accurately identify companies reporting to the SEC. Companies are excluded if any of the following occur: their information is unavailable in the SEC database, despite numerous searches and spelling modifications; American Depositary Receipts (ADRs) are excluded from the analysis since they are not truly going public for the first time; the company reports no compensation summary table, either due to no compensation paid to executives or a lack of one at all; the company reports zero compensation for the CEO; the company has multiple CEOs, and finally, no executive is listed as the CEO. The data were hand-collected for 852 IPOs from 2006 to 2014. Financials come from MergentOnline. Summary statistics are provided in Table 1. Detailed explanations of the variables are in Appendix A.

Of the four IPO indicator variables, very few of these types of IPO transactions occurred in the sample period. The majority of CEOs were not also Chairmen; however, many CEOs were also President of their companies, suggesting they had more control. The average salary was just over \$400,000 with bonuses approaching \$500,000. Some compensation variables have fewer observations due to the stricter disclosure enforcement after 2006. For example, only ten firms reported other annual compensation, and three firms reported restricted stock awards and long-term incentive plan payouts. On average, most estimated fair value of compensation came from stocks and options. Stock Appreciation Rights (SARs) averaged just above \$1.4 million with actual stock just above \$2.2 million. The new disclosure requirements specifically targeted pensions and

**Table 1. Sample summary statistics**

Variable	N	Average	Median	Min	Max
Rollup	852	0	0	0	1
Growth Capital	852	0	0	0	1
Internet	852	0	0	0	1
Dual-Class	852	0	0	0	1
Year	852	2010	2011	2006	2014
Chairman	852	0	0	0	1
President	852	1	1	0	1
Salary	852	401,893	350,000	0	2,250,000
Bonus	354	498,712	187,836	0	10,230,514
Other Annual Compensation	10	990,216	150,480	4438	6,500,000
Restricted Stock Awards	3	3,446,621	1,519,862	0	8,820,000
Options/Stock Appreciation Rights (SARS)	359	1,434,859	414,465	0	25,126,637
Stock Awards	156	2,280,388	877,168	0	35,008,520
Securities Underlying Options/SARS	12	1,688,361	274,000	8825	7,201,460
Long-Term Incentive Plan Payouts	3	3,067,109	384,000	16,680	8,800,646
Non-stock Incentive Plan Compensation	380	528,364	230,912	0	9,050,000
Change in Pension Value and Nonqualified Deferred Compensation Earnings	41	487,707	41,613	-272,894	9,250,610
Nonqualified Deferred Compensation Earnings	8	120,175	35,863	797	547,069
All Other Compensation	613	259,651	22,500	0	25,010,638
Total Compensation	847	2,128,654	859,163	1	57,768,057
ROA % Net	631	-31	-2	-1464	457
ROE % Net	524	-194	0	-32,696	1923
ROI % Operating	489	-35	5	-5320	469
EBITDA Margin %	652	-1242	6	-314,325	1689
Calculated Tax Rate	320	5234	32	-4013	493,592
Revenue per Employee	574	455,511	221,508	0	13,662,744
Quick Ratio	611	2	1	0	99
Current Ratio	708	35	1	-1	22,313
Net Current Assets % Total Assets	704	2	12	-3984	97
Long Term Debt to Equity	398	4	1	0	702
Total Debt to Equity	456	5	1	0	702
Interest Coverage	312	35	2	0	4592
Total Asset Turnover	589	1	1	0	12
Receivables Turnover	505	27	7	0	4513
Inventory Turnover	260	25	7	0	1909
Accounts Payable Turnover	542	31	15	0	2650
Accrued Expenses Turnover	523	22	12	0	537
Property Plant & Equipment Turnover	572	20	9	0	477
Cash & Cash Equivalents Turnover	579	75	5	0	24,939
Cash Flow per Share	684	322	0	-948,420	816,902
Book Value per Share	683	-59,793	3		
-44,318,000	5,001,000				



retirement plans, specifically, non-stock compensation. Non-stock incentive plan compensation averaged just above \$0.5 million, with changes to retirement averaging just below \$0.5 million. Total compensation for the average CEO in the sample period was about \$2.1 million. Note that despite the SEC regulation change with the Pension Protection Act of 2006, the majority of IPO prospectuses failed to report or have columns in the summary compensation table concerning changes in pension value or deferred compensation. This underreporting may be a cause for future research for academics and further investigation and litigation by the SEC in the future.

With respect to the average company, the first four profitability ratios are all negative, suggesting in the year of the IPO, the company used the funds acquired to either enhance expansion at the opportunity cost of profits or used the funds to pay off preexisting shareholders and capitalists, two of the main reasons for going public. Over half of the sample failed to have earnings adequate to be taxed; thus, no data is reported for them to have a tax rate. In this sample, the average revenue per employee is just over \$450,000. With respect to liquidity, the ratios suggest most firms reporting are able to cover their short-term obligations if a credit event occurs. The average of Long Term Debt to Equity of four is just slightly below the average of Total Debt to Equity at five, suggesting most debt held is long term in nature (over one year). However, the average Interest Coverage is 35, suggesting companies are able to cover their debt obligations with respect to interest from year to year. Only one-third of the sample have inventory; however, of the companies that do, their average is relatively high at 25. The other turnover ratios are satisfactory (on average).

The average Cash Flow per Share is \$322, while the average Book Value per Share is (\$59,793) with a median of \$3, suggesting a large range in book valuations of IPOs in the sample.

Table 2 represents compensation averages across the sample's time series. Peak years occurred in 2006, 2012, and 2013. Average salary peaked in 2010 at just over \$440,000. Two thousand seven saw the peak average bonus of over \$1 million before the global financial crisis. Other compensation went unreported after the financial crisis but had an average value just over \$1 million in 2007 and 2013. The largest average expected value from options was just over \$3 million in 2014. The highest average stock awards occurred in 2010 with just over \$5 million. Two thousand eleven saw the highest value come from securities underlying options just over \$7 million. Non-stock incentive plans had the highest average amount of just over \$700,000 in 2013. The largest average positive changes to pension value was just over \$1.1 million in 2010. Two thousand twelve saw the largest average nonqualified deferred compensation at just over \$400,000. All other compensation peaked in 2010 with a value just over \$670,000. Average total compensation peaked in 2010 around \$3.5 million with the average low in 2007 at just under \$1.1 million. As the figures show, compensation has trended up since 2006 to 2014, but the financial crisis affected compensation figures, especially due to media scrutiny. In addition, various components of compensation have increased or decreased over time, causing subtle changes. The general trend in the sample has demonstrated inflation has led to increases in total compensation for CEOs over time.

Table 3 demonstrates averages of some of the compensation components in the sample by industry. Almost one-third of the total sample had IPOs originating from business services or chemicals and allied products. Miscellaneous retail IPOs provided the highest average bonuses for executives around \$3 million. Stock awards averaged \$16 million in the industrial and commercial equipment industry. Compensation with respect to changes in pension and retirement values fell by almost \$100,000 on average in the wholesale trade-non-durable goods industry, while the healthcare industry saw an average increase of just under \$10 million. As we are able to in the empirical analysis, we will control for year and industry effects due to their wide ranging compensation values over the time series and per trade, respectively.



**Table 2. Sample time series of compensation variables**

Year	N	Salary	Bonus	Other	Restricted Stock	Options/SARS	Stock awards	Securities Underlying Options	LTIP Payouts
2006	142	336,628	409,403	1,376,321	3,446,621	309,291	1,217,001	1,063,562	4,592,323
2007	26	386,874	1,503,613			85,251	378,589		
2008	44	424,797	356,341			842,844	990,765		
2009	91	367,723	290,031			1,137,757	1,391,183	2,423,252	
2010	88	442,873	823,888			2,619,607	5,037,068		
2011	93	391,524	515,502			1,591,044	2,521,560	7,201,460	
2012	113	436,170	340,825	226,323		1,926,529	1,883,082		16,680
2013	224	424,788	587,940	1,294,504		1,772,807	2,958,272		
2014	31	405,642	234,928	102,614		3,393,000	2,055,221		
Year	Non-Stock Incentive Plan				Change in Pension Value		Nonqualified Deferred	All Other	Total
2006		281,832				138,552		208,792	1,376,117
2007		161,052				20,925		137,559	1,094,121
2008		637,095				51,571		301,301	1,933,452
2009		389,144				58,652	27,272	102,678	1,447,324
2010		664,143				1,165,231		674,853	3,475,826
2011		466,204				46,192	797	110,584	1,791,207
2012		641,882				376,059	409,256	336,317	2,310,619
2013		703,908				666,345	29,183	230,188	2,420,368
2014		266,275						34,789	3,177,436

**Table 3. Average compensation components by industry**

Industry	N	Salary	Bonus	Options	Stock Awards	Non-Stock	Change in Value	Total
Agricultural Production Crops	1	386,538	94,000	802,000				1,295,757
Amusement And Recreation Services	4	455,563	203,730	15,146,254	1,094,639	718,607		5,168,006
Apparel And Accessory Stores	10	595,554	136,168	924,103	3,407,240	1,768,176		3,152,243
Automotive Dealers And Gasoline Service Stations	2	293,274		0		0		775,683
Automotive Repair, Services, And Parking	2	200,000		647,016	10,000	360,160		1,032,096
Building Construction Contractors And Builders	5	543,333	615,000		707,667	1,500,000	8256	1,729,698
Building Materials And Mobile Home Dealers	2	442,949	171,233	174,609		283,500		924,766
Business Services	164	351,954	554,651	1,537,790	3,057,956	325,716	143,103	2,138,731
Chemicals And Allied Products	146	359,345	170,518	1,117,456	871,101	261,523	1643	1,380,025
Coal Mining	4	383,972	364,099	55,078	93,021	441,165		982,919
Communications	10	469,994	92,099	499,874	3,326,887	712,582		1,793,431
Construction Special Trade Contractors	4	249,020		1,934,893		100,000		1,732,903
Depository Institutions	39	490,345	398,690	1,715,830	1,250,454	276,712	44,036	1,497,686
Eating And Drinking Places	13	605,475	1,070,247	5,071,532	5,160,987	434,167	144	3,027,386
Educational Services	7	372,796	289,335	708,122	150,929	553,883		1,251,822
Electric, Gas, And Sanitary Services	13	344,873	982,081	185,279	2,727,493	433,385	813,000	1,798,610
Electronic And Other Electrical Equipment	55	285,516	181,661	660,861	2,434,957	490,754	15,027	1,256,744
Engineering, Management, And Related Services	12	536,479	1,385,589	1,391,603	2,300,139	1,231,188	67,525	3,531,836
Fabricated Metal Products	3	355,305	1,227,000	2,505,883		168,995		4,800,230

(Continued)

**Table 3. (Continued)**

Industry	N	Salary	Bonus	Options	Stock Awards	Non-Stock	Change in Value	Total
Food And Kindred Products	6	708,979	630,900	568,674	434,507	1,015,000	34,141	953,059
Food Stores	7	565,752	267,230	1,446,824	2,350,004	1,177,487		2,306,654
Furniture And Fixtures	1	395,000				102,168		511,417
General Merchandise Stores	3	913,401	1,612,500	2,711,385	1,103,306	1,966,215		5,715,887
Health Services	18	507,743	488,067	139,994	620,839	467,421	9,250,610	3,027,218
Heavy Construction	1	400,000			49,987			449,987
Holding And Other Investment Offices	14	422,150	623,529	985,059	1,568,280	909,513		2,855,902
Home Furniture, Furnishings, And Equipment Stores	3	629,118		18,494		835,539		1,611,657
Hotels And Other Lodging Places	6	719,432	445,000	2,569,125	4,472,085	922,464		4,385,620
Industrial And Commercial Equipment	20	324,483	219,843	679,505	15,754,658	342,256	736	2,697,627
Insurance Agents, Brokers, And Service	2	389,808	76,346			230,000		585,490
Insurance Carriers	14	416,788	457,499	1,357,006	1,283,003	840,092	75,996	2,037,721
Leather And Leather Products	2	611,116				378,434		1,006,386
Lumber And Wood Products	2	580,000	234,600	80,000	1,050,000	693,000		1,624,168
Measurement Instruments	42	343,170	178,218	272,773	545,246	202,801	1,712,250	876,146
Metal Mining	2	387,501	248,077	241,000				660,606
Mining And Quarrying Of Nonmetallic Minerals	3	372,389	459,219	1,259,489		173,490		1,686,039
Miscellaneous Manufacturing Industries	1	7384						38,784
Miscellaneous Retail	10	411,819	3,043,704	3,137,345	4,614,844	251,748		3,970,540
Motion Pictures	5	735,374	633,402	415,761		874,198	7387	1,769,246

(Continued)

**Table 3. (Continued)**

Industry	N	Salary	Bonus	Options	Stock Awards	Non-Stock	Change in Value	Total
Motor Freight Transportation And Warehousing	1	490,385						500,641
Non-Depository Credit Institutions	11	535,379	892,274	1,076,905	6,366,435	1,103,038	296,462	3,587,824
Oil And Gas Extraction	31	354,108	442,140	2,322,996	1,454,341	1,819,849	0	2,478,124
Paper And Allied Products	2	441,667		66,355	403,009	320,620		1,034,975
Personal Services	2	244,584		4,016,571				4,259,525
Petroleum Refining And Related Industries	6	383,716	1,492,430	621,284	2,188,644	487,500	44,877	3,607,217
Primary Metal Industries	8	374,710	588,842	212,480		1,061,413	89,190	3,744,375
Printing, Publishing, And Allied Industries	1	750,000		10,205,262		900,000		11,922,671
Public Finance, Taxation, And Monetary Policy	1	666,401	1,280,000		1,271,465			3,336,702
Railroad Transportation	1	300,000	483,533		890,717			1,674,250
Real Estate	5	555,000	976,888		120,000	2,000,000	1,356,747	3,013,993
Rubber And Miscellaneous Plastics Products	4	628,945	776,687		385,200	414,000		1,971,690
Security And Commodity Services	18	477,926	2,421,971	1,694,057	5,836,582	440,300		4,676,018
Social Services	1	342,118	205,271	4,529,409		205,271		5,295,831
Transportation By Air	5	442,648	192,244	76,166		1,118,216		1,062,948
Transportation Equipment	10	595,438	900,000	23,893,283	6,052,369	1,756,861	524,426	5,956,543
Transportation Services	3	286,219	215,078	63,236	1,391,598	195,062		1,023,623
Water Transportation	1	1,113,423			589,335	2,078,237		4,358,384
Wholesale Trade-Durable Goods	10	432,718	345,782	3,514,910	712,915	289,397		1,556,454
Wholesale Trade-Non-Durable Goods	9	431,410	624,766	5,039,781		354,343	-95,473	1,329,080

#### 4. Empirical results

We begin by analyzing significant correlations among the data. Table 4 provides significant correlations found. For example, Salary and Chairman have a significant positive relation at the 0.01 significance level. Their correlation is 0.151, which is relatively low, but a significant positive relation still exists and should be accounted for when modeling compensation figures. Given the data and these correlations, we now discuss how we created predicted values for highly correlated variables, which lead to a final empirical model for total compensation.

We first set aside variables we know will ultimately belong in the Total Compensation equation since they are its components, are highly correlated with, or have been shown to cause variation. The data demonstrate Total Compensation is composed of Salary, Bonus, Other Annual Compensation, Restricted Stock Awards, Options from SARS, Stock Awards, Securities Underlying Options from SARS, LTIP Payouts, Long-Term Compensation, Non-Stock Incentive Plan Compensation, Change in Pension Plan and Nonqualified Deferred Compensation Earnings, Nonqualified Deferred Compensation Earnings, and All Other Compensation. According to Table 4, Total Compensation is also correlated with the CEO being a Chairman or President, Revenue per Employee, and ROA % Net. Interestingly, being a Chairman increases compensation, but being a President and CEO actually reduces Total Compensation. Higher company revenues and higher company returns generally mean higher bonuses and perquisites for CEOs. Lastly, Tables 2 and 3 demonstrated a differentiation in compensation due to time and industry. Thus, the year and industry (i.e. SIC code) should be included in the model too.

Now we look at variables who are correlated with others in our sample, including those mentioned above, that should be instrumented and estimated in our main model to have as much information as possible. Since Chairman and President are binary variables, we will not instrument these but will include them in the model. We expect some but few multicollinearity issues since all significant correlated are well below 50%, so this is not a current concern. Salary is positively correlated with Chairman, Options from SARS, Nonstock Compensation, Revenue per Employee, Bonus, All Other Compensation, ROA, Other Annual Compensation, Stock Awards, and Nonqualified Compensation. The regression is as follows:

$$\begin{aligned} \text{Predicted Salary} = & \text{Intercept} + B_0 \cdot \text{Chairman} + B_1 \cdot \text{Options} + B_2 \cdot \text{Nonstock} \\ & + B_3 \cdot \text{Revenue} + B_4 \cdot \text{Bonus} + B_5 \cdot \text{All Other Compensation} \\ & + B_6 \cdot \text{Other Annual Compensation} + B_7 \cdot \text{Stock Awards} \\ & + B_8 \cdot \text{Nonqualified} \end{aligned} \quad (1)$$

Bonus is positively correlated with Options from SARS, Nonstock Compensation, Long Term Incentive Payouts, Return on Assets, Other Annual Compensation, and Stock Awards. Bonus is negatively correlated with Cash Flow and Book Value. The model is as follows:

$$\begin{aligned} \text{Predicted Bonus} = & \text{Intercept} + B_0 \cdot \text{Options} + B_1 \cdot \text{Nonstock} + B_2 \cdot \text{LTIP} \\ & + B_3 \cdot \text{ROA} + B_4 \cdot \text{Other Annual Compensation} \\ & + B_5 \cdot \text{Stock Awards} - B_6 \cdot \text{Cash Flow} - B_7 \cdot \text{Book Value} \end{aligned} \quad (2)$$

Other Annual Compensation is positively correlated with Securities Underlying Options from SARS, Accounts Receivable, and Cash and Cash Equivalents. The model is as follows:

$$\begin{aligned} \text{Predicted Other Annual Compensation} = & \text{Intercept} + B_0 \cdot \text{Securities} + B_1 \cdot \text{Receivables} \\ & + B_2 \cdot \text{Cash} \end{aligned} \quad (3)$$

Options from SARS is positively correlated with Nonstock Compensation, Revenue per Employee, All Other Compensation, and Stock Awards. The model is as follows:

**Table 4. Significant correlations**

	Chairman	President	Salary	Bonus	Other An	Option	Stock Awards	Securities	LTIP	Nonstock
Salary	0.151***									
	0.000									
Options SARS	0.209***	-0.122**	0.239***	0.222***						
	0.000	0.021	0.000	0.001						
Nonstock	0.129**		0.658***	0.263**		0.185**	0.463***	1.000***		
	0.012		0.000	0.018		0.011	0.000	0.000		
Total Comp	0.122***	-0.076**	0.402***	0.444***		0.852***	0.891***		1.000**	0.464***
	0.000	0.028	0.000	0.000		0.000	0.000		0.015	0.000
Revenue	0.073*		0.107**			0.137**				
	0.080		0.011			0.033				
Accounts	-0.081*	-0.074*								
	0.058	0.085								
Cash Flow	-0.064*			-0.112*					1.000**	
	0.096			0.063					0.002	
Bonus		-0.139**	0.367***							
		0.009	0.000							
LTIP		-0.999**		1.000***						
		0.024		0.000						
All Other		-0.089**	0.167***			0.222***		0.935**	1.000***	0.142**
		0.028	0.000			0.000		0.006	0.000	0.017
ROA		-0.093**	0.140***	0.143**						0.146**
		0.019	0.000	0.024						0.013
Property		-0.088**								
		0.036								

(Continued)

**Table 4. (Continued)**

	Chairman	President	Salary	Bonus	Other An	Option	Stock Awards	Securities	LTIP	Nonstock
Salary	Change	Nonquid	All Other	Total	ROA	Revenue	Net Current	Inventory	Account	Accrued
Options SARS										
Nonstock										
Total Comp	0.780***	0.875**	0.461***							
	0.000	0.004	0.000							
Revenue				0.104**	0.111**					
				0.013	0.010					
Accounts								0.368***		
								0.000		
Cash Flow			0.354***							
			0.000							
Bonus										
LTIP										
All Other	0.913***									
	0.000									
ROA				0.0895**			0.488***			
				0.025			0.000			
Property		0.953**				0.196***				0.151***
		0.012				0.000				0.001
Other Annual	Chairman	President	Salary	Bonus	Other An	Option	Stock Awards	Securities	LTIP	Nonstock
			0.857**	0.989***						
			0.002	0.000						
Stock Awards			0.257**	0.420***		0.567***				

(Continued)



**Table 4. (Continued)**

	Chairman	President	Salary	Bonus	Other An	Option	Stock Awards	Securities	LTIP	Nonstock
Nonqualified			0.001	0.001		0.000				0.857**
Book Value			0.755**							0.029
			0.030	-0.110*					1.000***	
Book Value				0.068					0.000	
Securities					1.000***					
					0.000					
Receivables					1.000**					
					0.018					
Cash					0.938*					
					0.062					
Interest							0.466***			
							0.000			
Inventory										
Accrued										0.140**
										0.023
Restrict								1.000***		
								0.000		
	Change	Nonqua	All Other	Total	ROA	Revenue	Net Current	Inventory	Account	Accrued
Other Annual										
Stock Awards										
Nonqualified										
Book Value			-0.149***							
			0.001							

(Continued)

**Table 4. (Continued)**

	Chairman	President	Salary	Bonus	Other An	Option	Stock Awards	Securities	LTIP	Nonstock
Securities										
Receivables		0.997*								
		0.052								
Cash	0.407**									
	0.032									
Interest										
Inventory		1.000***								
		0.000								
Accrued					0.141**	0.231			0.088**	
					0.002	0.000			0.049	
Restrict										

$$\begin{aligned} \text{Predicted Options from SARS} = & \text{Intercept} + B_0 * \text{Nonstock} + B_1 * \text{Revenue} \\ & + B_2 * \text{All Other Compensation} + B_3 * \text{Stock Awards} \end{aligned} \quad (4)$$

Stock Awards is positively correlated with Nonstock Compensation and Interest Coverage. The model is as follows:

$$\text{Predicted Stock Awards} = \text{Intercept} + B_0 * \text{Nonstock} + B_1 * \text{Interest Coverage} \quad (5)$$

Securities Underlying Options from SARS is positively correlated with Nonstock Compensation, All Other Compensation, and Restricted Stock. The model is as follows:

$$\begin{aligned} \text{Predicted Securities} = & \text{Intercept} + B_0 * \text{Nonstock} + B_1 * \text{All Other Compensation} \\ & + B_2 * \text{Restricted Stock} \end{aligned} \quad (6)$$

Long-term Incentive Pay is positively correlated with Cash Flow, All Other Compensation, and Book Value. The significant positive correlation between LTIP and Cash Flow supports Hypothesis 1 since higher cash flow generally means a firm has lower risk through a lower probability of default. The model is as follows:

$$\text{Predicted LTIP} = \text{Intercept} + B_0 * \text{Cash Flow} + B_1 * \text{All Other Compensation} + B_2 * \text{Book Value} \quad (7)$$

Nonstock Compensation is positively correlated with All Other Compensation, ROA, Nonqualified Compensation, and Accrued Expenses. Hypothesis 1 is further supported through positive associations of nonstock compensation with ROA and accrued expenses turnover since both are linked to lower risk when both are higher. The model is as follows:

$$\begin{aligned} \text{Predicted Nonstock Compensation} = & \text{Intercept} + B_0 * \text{All Other Compensation} \\ & + B_1 * \text{ROA} + B_2 * \text{Nonqualified Compensation} \\ & + B_3 * \text{Accrued Expenses} \end{aligned} \quad (8)$$

Change in Pension Value and Deferred Compensation is positive correlated with All Other Compensation and Cash and Cash Equivalents. The association between inside debt and cash holdings has been previously confirmed (Liu et al., 2014). The regression is as follows:

$$\begin{aligned} \text{Predicted Change in Pension Value and Deferred Compensation} = & \text{Intercept} + B_0 * \text{All Other} \\ & + B_1 * \text{Cash} \end{aligned} \quad (9)$$

Nonqualified Deferred Compensation is positively correlated with Property, Plant, & Equipment, Receivables, and Inventory. Positive correlation with higher turnover for asset management reduces firm risk (Hypothesis 1). The model is as follows:

$$\begin{aligned} \text{Predicted Nonqualified} = & \text{Intercept} + B_0 * \text{PPE} + B_1 * \text{Receivables Turnover} \\ & + B_2 * \text{Inventory Turnover} \end{aligned} \quad (10)$$

All Other Compensation is positively correlated with Cash Flow and negatively correlated with Book Value. The model is as follows:

$$\text{Predicted All Other Compensation} = \text{Intercept} + B_0 * \text{Cash Flow} - B_1 * \text{Book Value} \quad (11)$$

ROA is positively correlated with Revenue per Employee, Accrued Expenses, and Net Current Assets. The model is as follows:

$$\text{Predicted ROA} = \text{Intercept} + B_0 * \text{Revenue} + B_1 * \text{Accrued Expenses} + B_2 * \text{Net Current Assets} \quad (12)$$

Revenue per Employee is positively correlated with Plant, Property, and Equipment, and Accrued Expenses. The model is as follows:

$$\text{Predicted Revenue} = \text{Intercept} + B0^* \text{PP\&E} + B1^* \text{Accrued Expenses} \quad (13)$$

Inventory Turnover is positively correlated with Accounts Payable Turnover. The model is as follows:

$$\text{Predicted Inventory Turnover} = \text{Intercept} + B0^* \text{Accounts Payable Turnover} \quad (14)$$

Accounts Payable is positively correlated with Accrued Expenses. Accrued Expenses is positively correlated with PP&E. The models are:

$$\text{Predicted A/P} = \text{Intercept} + B0^* \text{Accrued Expenses} \quad (15)$$

$$\text{Predicted Accrued Expenses} = \text{Intercept} + B0^* \text{PP\&E} \quad (16)$$

The final step is placing all models into our final prediction equation for Total Compensation. Without replacement, the starting regression is:

$$\begin{aligned} \text{Total Compensation} = & \text{Intercept} + B0^* \text{Salary} + B1^* \text{Bonus} + B2^* \text{Other Annual Compensation} \\ & + B3^* \text{Restricted Stock Awards} + B4^* \text{Options from SARS} \\ & + B5^* \text{Stock Awards} + B6^* \text{Securities Underlying Options from SARS} \\ & + B7^* \text{LTIP Payouts} + B8^* \text{Long - Term Compensation} + B9^* \text{Non} \\ & - \text{Stock Incentive Plan Compensation} \\ & + B10^* \text{Change in Pension Plan and Nonqualified Deferred Compensation} \\ & \text{Earnings} + B11^* \text{Nonqualified Deferred Compensation Earnings} \\ & + B12^* \text{All Other Compensation} + B13^* \text{Revenue per Employee} \\ & + B14^* \text{ROA \% Net} + B15^* \text{Chairman} + B16^* \text{President} + B17^* \text{Year} \\ & + B18^* \text{Industry} \end{aligned} \quad (17)$$

Starting with Equation (17) and working back up, we substitute equations into the model until all predicted information is captured to generate the theoretical regression. Since neither Equation (16) nor (17) need to appear in Equation (18), we substitute Equation (17) into Equation (16) to yield:

$$\text{Predicted A/P} = \text{Intercept} + B0^* \text{Predicted Accrued Expenses OR} \quad (18)$$

$$\text{Predicted A/P} = \text{Intercept} + B0^*(\text{Intercept} + B0^* \text{PP\&E})$$

Equation (15) is not needed in the Total Compensation equation but does call for Accounts Payable, so Equation (19) is now substituted in Equation (15) to yield:

$$\text{Predicted Inventory Turnover} = \text{Intercept} + B0^* \text{Predicted A/P OR} \quad (19)$$

$$\text{Predicted IT} = \text{Intercept} + B0^*(\text{Intercept} + B0^*(\text{Intercept} + B0^* \text{PP\&E}))$$

Inventory Turnover is a required component of Nonqualified Deferred Compensation. Thus, substituting Equation (19) into Equation (10) yields:

$$\begin{aligned} \text{Predicted Nonqualified} = & \text{Intercept} + B0^* \text{PP\&E} + B1^* \text{Receivables Turnover} \\ & + B2^* \text{Predicted Inventory Turnover} \end{aligned} \quad (20)$$

Substituting the remaining predicted components from Equations (1) through (9), (11) through (13), and (20) into Equation (17) yield the final theoretical model:

$$\begin{aligned} \text{Total Compensation} = & \text{Intercept} + B0^* \text{Predicted Salary} + B1^* \text{Predicted Bonus} \\ & + B2^* \text{Predicted Other Annual Compensation} + B3^* \text{Restricted Stock Awards} \\ & + B4^* \text{Predicted Options from SARS} + B5^* \text{Predicted Stock Awards} \\ & + B6^* \text{Predicted Securities Underlying Options from SARS} \\ & + B7^* \text{Predicted LTIP Payouts} + B8^* \text{Predicted Non} \\ & \text{Stock Incentive Plan Compensation} \\ & + B9^* \text{Predicted Change in Pension Plan and Nonqualified Deferred} \\ & \text{Compensation Earnings} + B10^* \text{Predicted All Other Compensation} \\ & + B11^* \text{Predicted Revenue per Employee} + B12^* \text{Predicted ROA \% Net} \\ & + (1) B13^* \text{Chairman} + B14^* \text{President} + B15^* \text{Year} + B16^* \text{Industry} \end{aligned} \quad (21)$$

Using the dataset as a test, we run the theoretical model from Equation (21) and display results in Table 5. Positive statistical significance at the 0.001 level occurs between Total Compensation and the following: Salary, Bonus, Options, LTIP, Nonstock, and All Other Compensation. Negative statistical significance at the 0.001 level occurs between Total Compensation and Change in Pension Value and Chairman. Positive statistical significance at the 0.01 level occurs between Total Compensation and Restricted Stock and Year. Negative statistical significance at the 0.01 level occurs between Total Compensation and Securities Underlying Options from SARS. Positive statistical significance at the 0.1 level occurs between Total Compensation and SIC Codes (industry). The  $R^2$  of 79.48% suggests a good majority of my model explains the variation in Total Compensation, but more work in this arena can occur to explain more if executive compensation disclosure requirements become more stringent in the future. We also computed the difference between actual Total Compensation and predicted Total Compensation. The mean was \$0.001, but the standard deviation was \$1,784,084 with a minimum of \$7,097,408 and a maximum of \$21,300,000.

The next set of tests are concerned with the financial variables of the firm in the year of the IPO and how CEO power and compensation play a role. Table 6 provides significant two sample T-test with unequal variance results of differences in means based on groups of indicator variables if the observation is positive or negative (observations of zero are classified in the negative group). Results are only reported if groups contain at least thirty observations to achieve some attempt at the normality assumption of the test.

The first financial variable of interest is ROA. If the CEO is not President, ROA averages to be -13.563%, whereas ROA is -27.75% if the CEO is President. This difference is significant at the 0.01 level with a T-Stat of 2.823. This suggests the means of ROA are difference based on grouping the observations separately dependent upon if the CEO is President or not. ROA also has a significantly lower mean if the CEO is paid with Options. ROA is higher if the CEO is paid with Nonstock compensation, Pension value increases, or All Other Compensation. This disagrees with Wei and Yermack's findings (2011) with respect to IPOs and the ROA measure in the current year. The results also apply to other profitability ratios. ROE is higher if the CEO is paid with stock or pensions, and ROI is higher if the CEO is paid with a bonus or pensions. EBITDA is lower if the CEO has more power as President, but EBITDA is higher if the CEO is paid with stock, nonstock, or pensions. Taxes are lower if the CEO is paid with pensions. Revenues per Employee are lower for companies who pay the CEO with options, but the All Other Compensation group has a higher Revenue per Employee mean.

Turning to liquidity and debt management, Net Current Assets as a percentage of total assets is higher if the CEO is paid with nonstock compensation. Long Term Debt to Equity and Interest Coverage are higher with All Other Compensation. A dual CEO-President has a lower average Total Debt to Equity ratio.

**Table 5. IPO CEO compensation model**

	<b>Total Compensation</b>
Salary	16.644***
	0.968
Bonus	5.075***
	0.985
Other Annual	18.072
	53.068
Restricted Stock	32.559**
	11.333
Options	3.037***
	0.251
Stock	-0.543
	0.888
Securities	-116.365**
	41.732
LTIP	1762.824***
	395.029
Nonstock	1.551***
	0.272
Change in Pension Value	-16.793***
	4.339
All Other	4.504***
	1.077
Revenue per Share	-0.544
	0.392
ROA	-4127.24
	5436.404
Chairman	-760,008.3***
	156,788.3
President	-168,583
	132,524.1
Year	76,032.76**
	28,346.15
Industry	46.975*
	26.005
Constant	-177,000,000**
	57,300,000
N	852
R-squared	0.795

Asset management ratios demonstrate CEOs paid with options have lower inventory, accrued expenses, and PP&E. A dual CEO-President has lower Total Asset Turnover. A dual CEO-Chairman has lower accounts payable turnover. CEOs paid with stock have lower Total Asset Turnover ratios and PP&E Turnover. Higher pensions are associated with lower accounts payable. A dual CEO-Chairman is expected to have a substantially negative cash flow per share versus a positive cash flow per share for just a CEO.

**Table 6. Significant indicator T-test results**

Financial Variable	Group Variable	Mean (<0)	Mean (>0)	T-stat
ROA	President	-13.563	-27.75	2.823**
	Options	-12.424	-37.238	3.957***
	Nonstock	-28.682	-15.507	-2.490**
	Change in Pension Value	-23.966	1.709	-8.050***
	All Other	-31.718	-19.332	-1.983*
ROE	Stock	-146.153	1.482	-2.264*
	Change in Pension Value	-125.576	11.386	-2.486*
ROI	Bonus	-31.61	-4.067	-2.172*
	Change in Pension Value	-22.105	17.022	-3.640***
EBITDA Margin	President	-156.522	-1373.39	1.687*
	Stock	-1136.921	-106.262	-1.794*
	Nonstock	-1571.557	-175.697	-1.654*
	Change in Pension Value	-995.51	10.784	-2.055*
Calculated Tax Rate	Change in Pension Value	2057.029	14.731	2.144*
Revenue per Employee	Options	345,852.5	252,847.4	1.656*
	All Other	235,462	334,889.9	-2.034*
Net Current Assets	Nonstock	-7.215	12.76	-1.998*
Long Term Debt to Equity	All Other	0.533	2.52	-1.657*
Total Debt to Equity	President	5.725	1.101	1.658*
Interest Coverage	All Other	2.657	16.622	-1.748*
Total Asset Turnover	President	0.848	0.677	2.035*
	Stock	0.774	0.567	2.723**
Inventory Turnover	Options	10.473	3.619	1.701*
Accounts Payable Turnover	Chairman	25.271	13.801	1.752*
	Change in Pension Value	19.997	9.967	2.673**
Accrued Expenses Turnover	Options	15.31	11.108	1.753*
PP&E Turnover	Options	14.98	11.609	1.648*
	Stock	14.388	9.851	2.091*
Cash Flow per Share	Chairman	2792.318	-2287.822	1.670*

These univariate tests demonstrate there are differences in financial ratios as a result of CEO power and compensation. From a financial health viewpoint, one would recommend the CEO to have no power as President since this leads to worse profitability. Concerns over debt structure could incentivize a board to nominate the CEO as President in times of struggle since debt ratios tend to decline, but this is the only significant benefit since asset management also suffers. Chairmanship does not have the same power as being President, although it is not recommend from a cash flow perspective and lower Accounts Payable Turnover. A potentially optimal compensation package for a CEO from a firm's financial bottom line would include Nonstock, Pensions, Stock, and All Other Compensation, which supports Hypotheses 1 and 2. The only downsides to this would be lower accounts payable associated with pensions, more long term debt associated with all other compensation, and lower asset and PP&E turnovers associated with stock. We do not recommend Options. They are associated with lower ROA, lower Revenue per Employee, and worse asset management according to inventory, accrued expenses, and PP&E turnovers.



## 5. Conclusion

Executive compensation in the form of inside debt plays a role in firm decisions at the beginning of the life of a firm. We further examine this impact when the firm decides to go public in the form of an IPO. We first developed a theoretical model using the components of total compensation and utilizing known significant correlations with other financial and CEO power variables as well as controls for time series effects and industry. The empirical model accounted for 79% of the variation in Total Compensation, but future research could delve into other reasons to explain the remaining variation. We then turned to testing groups of means split by indicators of CEO power and whether or not the compensation form was used with concern for financial variables. Generally, more CEO power through Chairmanship or President yielded lower average results for firms in the sample. Certain types of compensation were positively associated with firm financials, including Stock, Nonstock, Pensions, and All Other Compensation. Options were vastly detrimental to various aspects of the firm's financials, especially profitability and asset management. Given our findings, there is some credence to the idea that a CEO paid with inside debt is a positive signal to the market in the early stages of the public life of the firm, which is in direct dispute to the findings of Wei and Yermack (2011).

It is worthy to note many firms either underreported or had no forms of certain types of compensation, especially changes in pension value and deferred compensation. Future policy decisions by the SEC should investigate if underreporting is occurring or if it is indeed true companies are not using these compensation mechanisms. It is especially suspect that the former may be true since no observations had this information beginning in 2013. In addition, this paper did not utilize information outside of the Summary Compensation Table in the prospectus, so future research may investigate this further to see what companies are reporting outside of this required documentation.

Further research can analyze CEO LTIP in IPOs from the start of when company filings are available in the EDGAR database in 1994 to 2005, a year before the data was collected for this paper. This will allow further analysis of the structural break caused by the natural experiment from the Sarbanes-Oxley (SOX) Act of 2002.

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<b>Appendix A Variable Definitions</b>	
<b>Variable</b>	<b>Definition</b>
IPO Classification	
Rollup	Indicator variable = 1 if the IPO combines multiple companies
Growth capital	Dummy variable for companies buying other companies or tangible assets
Internet	Indicator variable = 1 if the IPO is for an online company
Dual-class	Indicator variable = 1 if multiple share classes are involved in the IPO
CEO Duality	
Chairman	Indicator variable = 1 if the CEO is also the leader of the board of directors
President	Indicator variable = 1 if the CEO was also the President of the company
Compensation	
Salary	Pay in the form of periodic cash
Other Annual Compensation	Pay in various forms; no longer collected after 2006 rule disclosure changes
Restricted Stock Awards	Pay in stock that could not be sold unless certain obligations or time limits were fulfilled; no longer collected after 2006 rule disclosure changes
Long-term incentive plan payouts	Pay in stock over a period of three to five years; no longer collected after 2006 rule disclosure changes
Options	Compensation in the form of options to buy more stock
Stock Awards	Compensation in the form of company stock
Stock Appreciation Rights (SARs) from options	Additional compensation paid in stock if the stock price rose
Non-stock incentive plan compensation	Compensation towards pension and/or retirement
Nonqualified deferred compensation	Employee income paid out later that is tax-deferred but does not follow the Employee Retirement Income Security Act (ERISA)
All other compensation	Examples of this include life insurance premiums, dividends, perquisites, etc.
Financial Ratios	
ROA % Net	Net income/average total assets (current and prior years)
ROE % Net	Net income/average stockholders' equity (current and prior years)
ROI % Operating	Net income/average invested capital (current and prior years)
EBITDA Margin %	Earnings before interest, taxes, depreciation, and amortization/total sales revenue
Calculated Tax Rate %	Tax/earnings before tax
Revenue per Employee	Annual sales revenue/number of employees
Quick Ratio	(Current assets–inventories)/current liabilities
Current Ratio	Current assets/current liabilities
Net Current Assets % Total Assets	(current assets–current liabilities)/total assets
Long Term Debt to Equity	Long-term debt/shareholders' equity
Total Debt to Equity	(Short-term debt + long-term debt)/shareholders' equity
Interest Coverage	Interest expense/operating income
Total Asset Turnover	Annual sales revenue/average total assets (current and prior years)
Receivables Turnover	Annual sales revenue/average receivables (current and prior years)
Inventory Turnover	Annual cost of sales/average inventory (current and prior years)
Accounts Payable Turnover	Annual sales revenue/average accounts payable (current and prior years)

(Continued)

Appendix A (Continued)	
Variable	Definition
Accrued Expenses Turnover	Annual sales revenue/average accrued expenses (current and prior years)
Property, Plant & Equipment Turnover	Annual sales revenue/(property, plant, and equipment-accumulated depreciation)
Cash & Cash Equivalents Turnover	Annual sales revenue/average cash and cash equivalents (current and prior years)
Book value per share	Total assets/basic weighted average common shares (current and prior years)
Cash Flow per Share	Operations cash flow/basic weighted average common shares (current and prior years)



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