Corporate Governance and Capital Structure: Extending Agency Theory From Executives to the Board of Directors

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This study extended agency theory by assessing differences in capital structure associated with various levels of board compensation. A two-way factorial ANOVA examined differences in capital structure based on various levels of board compensation and board size for 158 publicly traded companies. The results showed there were significant differences in the mean capital structure based on different levels of board compensation, but there were no significant differences in the mean capital structure based on different levels of board size. The results also showed there was no significant interaction between board compensation and board size. These findings provide empirical evidence of agency theory among the board members used in this sample.

Keywords: agency theory, board of directors, capital structure, corporate governance, incentivizing agency behavior

INTRODUCTION

In terms of a publicly traded company, a principal-agent relationship develops whenever shareholders (principals) hire managers (agents) to manage the company on their behalf (Rashid, 2016). Corporate governance within any organization aims to protect not only the shareholders, but also other stakeholders such as customers, suppliers, employees, and society (Madhani, 2017). Due to the complexity of the principal-agent relationship, it is imperative for an organization to implement a corporate governance system that facilitates the resolution of agency problems in a manner that satisfies as many stakeholders as possible (Madhani, 2017).

Agency problems exist whenever there are conflicts of interest between shareholders and the management team. As a result, companies tend to implement corporate governance mechanisms to ensure interests between shareholders and the management team remains somewhat balanced. These mechanisms typically include sets of rules, practices, and processes designed to monitor managerial behavior and actions (Naseem et al., 2017). The corporate board of directors is seen as one of the most important internal mechanisms used by shareholders to monitor the actions and behaviors of the management team (Adams, Hermalin, & Weisbach, 2010; Dah & Frye, 2017). These board members are generally perceived as the backbone of any effective corporate governance system since they tend to mitigate agency costs to

the organization and reward the management team whenever shareholders' interests are considered (Madhani, 2017).

One of the most important tasks of a management team is deciding which type of financing to utilize within the organization. These financing decisions primarily focus on determining the optimal mix of debt and equity financing to finance current operations as well as potential growth opportunities in the future (Cole, Yan, & Hemley, 2015; Shahzad, Nazir, & Amin, 2017). Most publicly traded companies acquire debt financing through an issuance of corporate bonds, whereas these same publicly traded companies acquire equity financing through an issuance of common stock or through earnings retained from the previous period (Cole, Yan, & Hemley, 2015).

Companies choosing to utilize more debt financing than equity financing have more financial leverage, and thus, contain a higher level of risk (Shahzad et al., 2017). Gormley and Matsa (2016) noted risk-related agency problems have important implications for optimal corporate policies as well as the growth of the economic system as a whole. The most recent financial crisis in 2008 highlighted the importance of having a strong emphasis on risk management when it comes to the corporate board of directors (Armeanu et al., 2017). The key to having effective corporate governance is having an effective risk management system in place to enable companies to remain flexible when responding to unpredicted threats and when taking advantage of growth opportunities as they arise (Armeanu et al., 2017).

Over the last decade, the importance of corporate governance has come to the forefront in the field of corporate finance. This recent emergence has encouraged publicly traded companies to re-evaluate their own corporate governance mechanisms with the primary emphasis placed on the financing decisions made by the management team (Chang, Chou, & Huang, 2014; Goel & Sapra, 2015; Liao, Mukherjee, & Wang, 2016; Siromi & Chandrapala, 2017; Taga, 2017). The preponderance of previous research suggests the corporate board of directors is the preferred internal corporate governance mechanism (Adams et al., 2010; Dah & Frye, 2017; Madhani, 2017); however, there are differing viewpoints in regards to corporate governance theory and the purpose of the corporate board of directors. One point of contention is the monitoring of the relationship between the shareholders and the management team. The three primary theories explaining the purpose and role of the corporate board include – (a) agency theory, (b) stewardship theory, and (c) resource dependency theory (Madhani, 2017).

Shareholders are generally interested in knowing whether the corporate board of directors is actually monitoring managerial behavior associated with using a preferred capital structure (de Jong & Verwijmeren, 2010; Madhani, 2017; Modigliani & Miller, 1958). Due to the reliance of the corporate board of directors by shareholders, it is imperative to understand how the capital structure utilized by the management team differs based on the various types of board member compensation packages. The purpose of this quantitative research was to analyze corporate governance theory by assessing the possible differences in capital structure associated with various levels of corporate board compensation packages. The independent variables were corporate board compensation and corporate board size with corporate board compensation being the primary independent variable. The dependent variable was capital structure. The researchers utilized a two-way factorial analysis of variance (ANOVA) to assess whether there were differences when analyzing corporate board compensation and capital structure and corporate board size and capital structure. The target population was the publicly traded companies listed in the Standard and Poor 500 Index for fiscal year 2017. The sample of companies was randomly selected using a random number generator.

LITERATURE REVIEW

In the theory of a modern corporation, shareholders within a public company create a principal-agent relationship whenever they delegate the authority to other individuals to make decisions on behalf of the company (Rashid, 2016; Taga, 2017). Although individuals may act professionally and be trustworthy for most of their professional lives, it does not necessarily mean they will not act in a self-serving manner in the future (Keay, 2017). Divergent interests between shareholders and managers are bound to happen by nature when considering each participant is primarily concerned with maximizing their own utility

function (Taga, 2017). Depending on the level of information asymmetry within the organization, managers may try to use shareholder resources for their own personal interests (Goel & Sapra, 2015). As such, shareholders tend to incur agency costs in order to reduce the level of information asymmetry in the principal-agent relationship (Goel & Sapra, 2015).

Capital Structure Theory

Capital structure theory relates to a company's financing structure and all of the influencing factors involved in that structure (Shahzad et al., 2017). Modigliani and Miller (1958) first introduced capital structure theory from a more traditional perspective, which stated managers should minimize their weighted average cost of capital while subsequently maximizing the value of the company. Several years later, the tax benefits of using debt financing were factored into the traditional approach, which concluded companies should utilize as much debt as economically feasible (Modigliani & Miller, 1963). Modigliani and Miller (1958) argued the average cost of capital is not independent of a company's capital structure, but should, holding everything else equal, fall as the amount of financial leverage increases.

Corporate Risk

There is a growing concern in the literature regarding managerial short-termism (Giljie, 2016; Gonzalez & André, 2014). Short-termism refers to a short-term perspective without any regard for long-term vision or long-term wealth creation (Gonzalez & André, 2014). In fact, risk related agency conflicts have important implications for the economy as a whole (Gormley & Matsa, 2016). Some believe that an increase in managerial short-termism is what led to the most recent financial crisis in 2007. In most cases, this type of behavior results in taking on excessive risk in order to maximize short-term earnings (Gonzalez & André, 2014). In capital structure theory, companies sometimes choose to increase their financial leverage substantially so as to mitigate the agency problems associated with the principal-agent relationship. However, Shahzad et al. (2017) indicated companies becoming more leveraged have an increased likelihood of financial distress. In addition, unwarranted increases in financial leverage serve as alarm signals to creditors and future investors (Felício & Rodrigues, 2013), as debtholders can force a company into bankruptcy if they are unable to satisfy their interest payment obligations (Cornett et al., 2016). Gonzalez and André (2014) noted higher levels of information asymmetry potentially create incentives for managers to engage in short-term risk taking behavior when pursuing their own self-interests. This emphasizes the need for shareholders to monitor managerial behavior for unwarranted increases in debt financing.

Agency Theory

Jensen and Meckling (1976) first introduced agency theory by integrating property rights theory and finance theory to explain three main points – (a) managers in a company with a mixed financial structure act in ways for which the value of the company is less than if they were the sole owner, (b) issuing common stock is a viable source of obtaining capital although it does not maximize the value of the company, and (c) debt is a reliable source of obtaining capital before including the tax benefits. This theory is commonly used to analyze the agency costs associated with the use of debt and equity financing and provides a solid foundation for determining the optimal way to mitigate agency conflicts between shareholders and the management team.

Djohanputro (2015) argued management teams should incorporate agency costs whenever deciding whether to finance with debt or equity. The difficulties associated with the separation between principal owners and hired agents provide some support for the need for effective controls to monitor the behavior and actions of the management team. Morellec, Nikolov, and Schürhoff (2012) found agency costs vary from company to company, but the implementation of a mixture of internal corporate governance mechanisms bodes well for effectively monitoring managerial actions and behaviors.

Corporate Governance

Due to the agency problems presented in the separation of ownership and control, especially when it comes to determining capital structure policy, there are many different corporate governance mechanisms available for companies to monitor the actions of the management team. The quality of the corporate governance mechanisms is significant in terms of the monitoring effectiveness. Companies with stronger corporate governance are widely seen as having greater financial transparency and lower levels of information asymmetry when compared with other companies (Aldamen & Duncan, 2012).

Jiraporn et al. (2012) found corporate governance quality had a negative relationship with capital structure. This negative relationship implies companies with stronger corporate governance mechanisms tend to use less debt, on average, than those companies with weaker corporate governance mechanisms. This could also indicate companies with poor corporate governance use higher levels of debt as a substitute to monitor managerial behavior (Alves et al., 2015; Djohanputro, 2015; Morellec et al., 2012). Overall, a negative relationship could suggest shareholders trust managers more with financing decisions whenever corporate governance is strong, which may also allow for an increased use of equity financing without having to worry about creating additional agency problems (Hermassi et al., 2017; Jiraporn et al., 2012).

Optimal Capital Structure

Morellec et al. (2012) argued corporate governance quality is also important in being able to adjust toward the optimal capital structure. Chang et al. (2015) found the disciplinary cost of debt hinders the ability of a company to adjust toward an optimal capital structure, especially when considering the quality of corporate governance mechanisms. Highly leveraged companies with weak corporate governance mechanisms were not able to move toward their optimal capital structure as quickly as companies with strong corporate governance mechanisms (Chang et al., 2015; Liao et al., 2014). These findings are not necessarily dependent on the level of debt, as Chang et al. (2015) also found low leveraged companies with weak corporate governance mechanisms were also unable to move toward their optimal capital structure as quickly as low leveraged companies with strong corporate governance mechanisms. Managers may try to take advantage of shareholders in a company with poor corporate governance because they can adjust toward a capital structure that benefits them much faster than they can adjust to a capital structure benefitting shareholders (Chang et al., 2014; Liao et al., 2015; Morellec et al., 2012). Therefore, the ability of a company to adjust toward their optimal capital structure is important for shareholders because an optimal capital structure is a structure that maximizes the value of the company.

Board of Directors

The corporate board of directors is widely seen as one of the central corporate governance mechanisms used by companies today because they are seen as vital monitors of managerial behavior (Boţa-Avram, 2013; Mehrotra, 2015). Most of the functions assumed by the board can fall into two main categories – (a) evaluation and (b) monitoring. The evaluation function primarily focuses on evaluating the management team to discover their intrinsic abilities, whereas the monitoring function primarily focuses on monitoring the management team to reduce the opportunities for malfeasance and intervene when necessary (Adams et al., 2010).

If the corporate board members are not effective, then the long-term success of the company is at risk. Gonzalez and André (2014) found a negative relationship between board effectiveness and short-term risk. This indicates corporate boards with higher levels of effectiveness tend to have lower levels of short-term risk. Therefore, it is important to understand the roles board members are expected to play so the overall effectiveness of the corporate board is not negatively impacted by corporate risk.

Corporate Governance Theory

According to the agency theory perspective, the corporate board of directors serves as fiduciaries of the shareholders (Madhani, 2017) and critical monitoring devices to alleviate the agency problems presented by the principal-agent relationship (Bosse & Phillips, 2016; Ovidiu-Niculae, Lucian, &

Cristiana, 2012). A significant drawback of this perspective is the emphasis on managers acting opportunistically. Due to this, the agency theory perspective often omits the fact board members can also exhibit opportunistic behavior. Therefore, shareholders need to ensure the board members are also held accountable.

Executive Compensation

Common executive compensation components include – (a) basic salary, (b) bonuses, (c) equity-based compensation, and (d) other long-term incentive arrangements (Lin, Chou, & Wang, 2012). Much of the existing literature recognizes using debt financing as a way to encourage managers to be efficient in utilizing corporate resources (Minhat & Dzolkarnaini, 2016). However, a growing trend in the literature identifies using more equity-based compensation to encourage managers to invest in profitable projects instead of using those resources for self-interests, and thus, reducing the agency costs associated with equity (Brisker & Wang, 2017; Lin et al., 2012; Minhat & Dzolkarnaini, 2016).

Relationship With Capital Structure

A positive relationship between equity-based compensation and capital structure can be found in the literature indicating executives tend to increase financial leverage when they are offered more equity-based compensation (Huang et al., 2016; Lin et al., 2012; Sun et al., 2016). The basis of this relationship derives from the convex payoff structure of equity-based compensation due to the implication of managers exponentially increasing risk taking once they hold more ownership in the company (Lin et al., 2012). Thus, offering managers more equity-based compensation presents a "pay for performance" structure that could benefit shareholders more if the company had higher levels of financial leverage because it encourages managers to invest in more profitable projects. On the other hand, a negative relationship between equity-based compensation and capital structure can also be found in the literature indicating executives tend to decrease financial leverage when offered more equity-based compensation (Minhat & Dzolkarnaini, 2016; Shahzad et al., 2017; Shoaib & Yasushi, 2015). The basis of this relationship suggests executives become more risk averse when they hold more ownership in the company because more of their financial wealth is linked to the overall success of the company (Gormley & Matsa, 2016).

Board Size

Board size refers to the number of members who are elected to the corporate board of directors in a given year. The passage of the Sarbanes Oxley Act in 2002 created massive corporate governance reform (Lu & Wang, 2018). Germain et al. (2014) noted board sizes tended to increase after the implementation of this legislation. Larger corporate boards tend to offer more human capital (Akbar et al., 2017); however, larger corporate boards also tend to increase the cost of monitoring managerial behavior (Naseem et al., 2017). Smaller boards are viewed as more effective monitors of managerial behavior due to the fact less board members generally result in fewer communication and coordination problems (Akbar et al., 2017). Overall, there is not a universal requirement for the size of the corporate board of directors. However, there does seem to be some diversity regarding board size in the literature. These board sizes ranged from an average of 7.6 board members (Germain et al., 2014) to an average of 10.5 board members (Detthamrong et al., 2017).

Relationship With Capital Structure

A positive relationship between board size and capital structure found in the literature indicates executives tend to increase financial leverage as more board members are elected to the board (Alves et al., 2015; Germain et al., 2014; Shahzad et al., 2017). This relationship could imply larger board sizes reduce the magnitude of information asymmetries present in the principal-agent relationship (Alves et al., 2015) to a point where shareholders would feel comfortable enough to increase the amount of financial leverage used by the company. In addition, this implication could suggest larger corporate boards serve as better monitors and provided managers with opportunities to make better decisions. Several studies have

also found insignificant relationships between board size and capital structure (Akbar et al., 2017; Detthamrong et al., 2017; Siromi & Chandrapala, 2017). The insignificance of this relationship implies corporate board size does not influence capital structure decisions, so increasing the size of the board would have zero benefit to the company. In addition, the monitoring ability of the board would not improve by electing more or less board members to the board since managers would make decisions related to the capital structure regardless of the size of the board.

Board Member Compensation

An efficient level of board compensation should provide board members with an incentive to perform their primary duties of monitoring managerial behavior and advising the management team (Bugeja et al., 2016). The goal of any compensation package should be to attract and retain talented, experienced, and reputable board members to represent the shareholders in the principal-agent relationship (Bugeja et al., 2016). A recent survey conducted by the National Association of Corporate Directors reported board member compensation is on the rise with a significant portion of the increase coming in the form of equity-based compensation (Nguyen, 2014).

Nguyen (2014) found there is no objectivity to board member compensation and instead argued their compensation is predicated on whether board members are expected to monitor managerial behavior or provide advice to the management team. Chen, Lin, and Bingsheng (2015) found equity-based compensation was associated with lower monitoring problems with board members as board members seem to become more motivated to be active monitors when compensated with equity-based compensation (Nguyen, 2014). On the other hand, this dynamic might indicate board members are less likely to be active advisers when compensated with equity-based incentives (Nguyen, 2014).

METHODOLOGY

Corporate board directors generally have a fiduciary duty to protect the interests of the shareholders. As such, shareholders need assurance their elected representatives (board members) are acting in their best interest rather than pursuing potential self-interests. There is a plethora of existing research focusing on executive compensation and capital structure. However, the recent financial crises are still the forefront of people's minds. Therefore, this study extended the agency theory approach from an executive perspective to one encompassing the corporate board of directors' perspective. Looking at the problem from the corporate board of directors' perspective extend the theoretical underpinnings of agency theory, while understanding the differences in capital structure associated with various levels of compensation further explains the purpose of the corporate board from the perspective of the shareholders. This extension could also potentially benefit shareholders and other stakeholders alike by promoting more effective corporate governance practices to mitigate agency problems and reduce agency costs.

Research Questions

There are three research questions in this study. First, are there differences in the capital structure when associated with the various levels of board member compensation? Second, are there differences in the capital structure when associated with the various levels of board size? Third, is there an interaction between the various levels of board member compensation and the various levels of board size when determining capital structure?

Methodology and Design

The researchers used quantitative methodology to formulate answers to the research questions above. Quantitative methodology was ideal to use since the variables were already known because of prior research done in the area, and statistics were needed to assess the differences in capital structure based on the various levels of board member compensation (Jackson, 2012). The researchers also utilized a 3 x 2 factorial experimental design in the study. The two factors included in the study were – (a) corporate board compensation and (b) corporate board size. A factorial experimental design was ideal to use since

more than one independent variable was manipulated during the study and the effects of one variable were estimated at multiple levels of that variable (Jackson, 2012). A factorial experimental design was utilized in other studies relating to corporate governance and the board of directors (Aldamen & Duncan, 2012; Mehrotra, 2015; Naseem et al., 2017). The statistical analysis was a factorial analysis of variance (ANOVA). An ANOVA was also used in other studies relating to corporate governance and the board of directors (Aldamen & Duncan, 2012; Mehrotra, 2015; Naseem et al., 2017).

Population and Sample

The target population in this study was the publicly traded companies listed in the Standard and Poor 500 Index (S&P 500) for the fiscal year 2017. The S&P 500 Index includes 500 of the largest companies in the United States (Cornett et al., 2016). This population was used because the S&P 500 Index contains a rather diverse collection of companies representing the ten main sectors of the U.S. economy. These ten sectors include: (a) financial, (b) healthcare, (c) technology, (d) materials, (e) industrials, (f) energy, (g) consumer discretionary, (h) consumer staples, (i) utilities, and (j) telecommunications (Cornett et al., 2016; Ross et al., 2013). In addition, this population was used because it eliminated some of the confounding variables potentially explaining the differences in capital structure, especially since the companies included in the S&P 500 Index provide more stability than companies just becoming publicly traded.

G*Power analysis calculated a minimum sample size of 158 companies based on the following information: (a) medium effect size, (b) alpha of .05, (c) beta of .20, and (d) a 3 x 2 factorial design. Faul et al. (2007) noted these are the factors required to ensure a chance of rejecting the null hypothesis. Since the target population was the S&P 500 Index, a number generator assigned a random number to each of the 500 publicly traded companies listed in the index. The assigned numbers were then sorted from smallest to largest with the first 158 companies selected for the study.

Operational Definition of Variables

There were two independent variables and one dependent variable used in the study. The two independent variables included (a) board member compensation and (b) board size. The one dependent variable included the capital structure of each company used in the study. Below are the definitions of these variables:

Board Member Compensation

Board member compensation allowed for the examination of the delineation between the various ways corporate board members are compensated. There is not a universally accepted policy. This was a categorical variable with three possible values: (1) primarily cash-based compensation, (2) primarily equity-based compensation, and (3) balanced compensation. Compensation packages considered "cash-based" were those packages where most (>=55%) of the board member compensation came from a pre-determined salary or fee. Compensation packages considered "equity-based" were those packages where most (>=55%) of the board member compensation came from equity incentives, such as stock options. Compensation packages considered "balanced" were those packages where the cash and equity compensation were approximately the same (~50%). This was the primary independent variable and was gathered from the *Edgar* database.

Board Size

Board size allowed for the examination of the delineation between the different board sizes, especially since there is not a universally accepted requirement. This was also a categorical variable with three possible values: (1) small board size, (2) medium board size, and (3) large board size. Corporate boards considered "small" were those with five to seven members on the board (Coles, Daniel, & Naveen, 2008; Ning, Davidson, & Wang, 2010). Corporate boards considered "medium" were those with eight to ten members on the board (Coles et al., 2008; Ning et al., 2010). Corporate boards considered "large"

were those with greater than ten members on the board (Coles et al., 2008; Ning et al., 2010). This was the secondary independent variable and was gathered from the *Edgar* database.

Capital Structure

Capital structure allowed for the examination of the different ways a company can choose to finance their assets and future growth. A common proxy for capital structure is the market leverage ratio (Chang et al., 2014, Hermassi et al., 2017, Liao et al., 2014). This continuous variable was calculated by dividing the book value of total debt by the book value of total debt plus the market value of equity (Hermassi et al., 2017). This was the sole dependent variable and was gathered from the *Edgar* database.

RESULTS AND ANALYSIS

Validity and Reliability of the Data

Overall, an analysis of variance (ANOVA) has three primary assumptions that should be satisfied to indicate validity and reliability – (1) the distribution of the dependent variable must be normal, (2) the observations must be independent of one another, and (3) the variances in the dependent variable must be homogeneous (Field, 2013). Before the ANOVA was used to analyze the potential differences in capital structure, each of the aforementioned assumptions were tested to ensure these data satisfied the assumptions set forth.

Data Normality

The dependent variable for N = 158 companies was not normally distributed due to the presences of some outliers (See Figure 1). In the case of a non-normal distribution, Field (2013) presented two ways to rectify this issue – (1) eliminate the outliers by removing them prior to analysis or (2) eliminate the outliers by transforming the data. Since there were no errors in these data and the study needed a minimum of 158 companies, no outliers were removed from the sample. Instead, these data were transformed by taking the square root of each of the observations to bring the larger capital structure figures closer toward the center. Field (2013) noted this technique is beneficial for eliminating the positive skewness caused by larger outliers. After transforming the data, the distribution in the dependent variable was approximately normal (See Figure 2).

FIGURE 1
FREQUENCY DISTRIBUTION OF CAPITAL STRUCTURE VARIABLE INCLUDING OUTLIERS

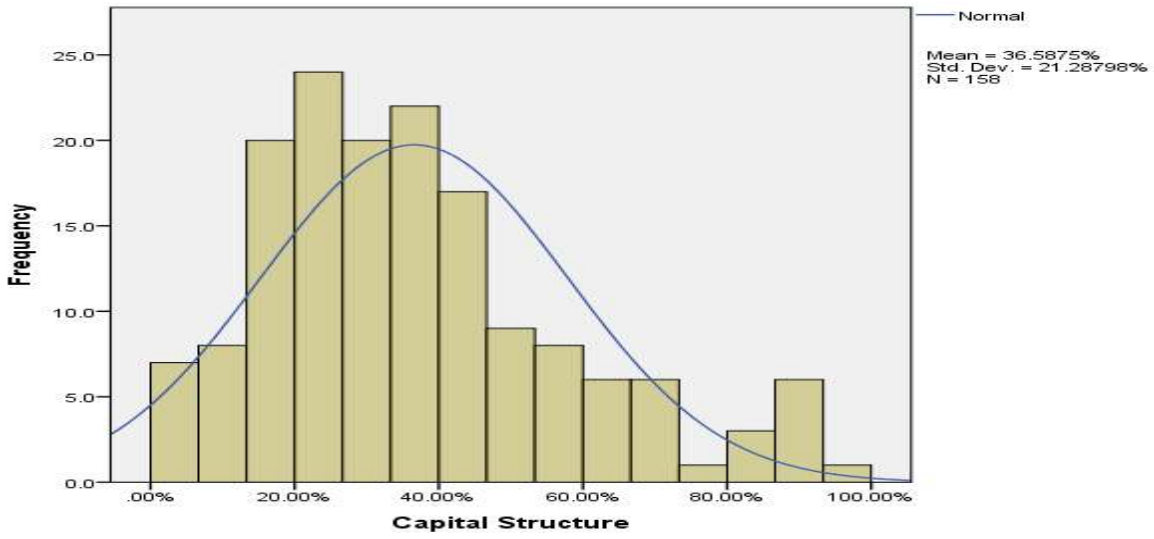
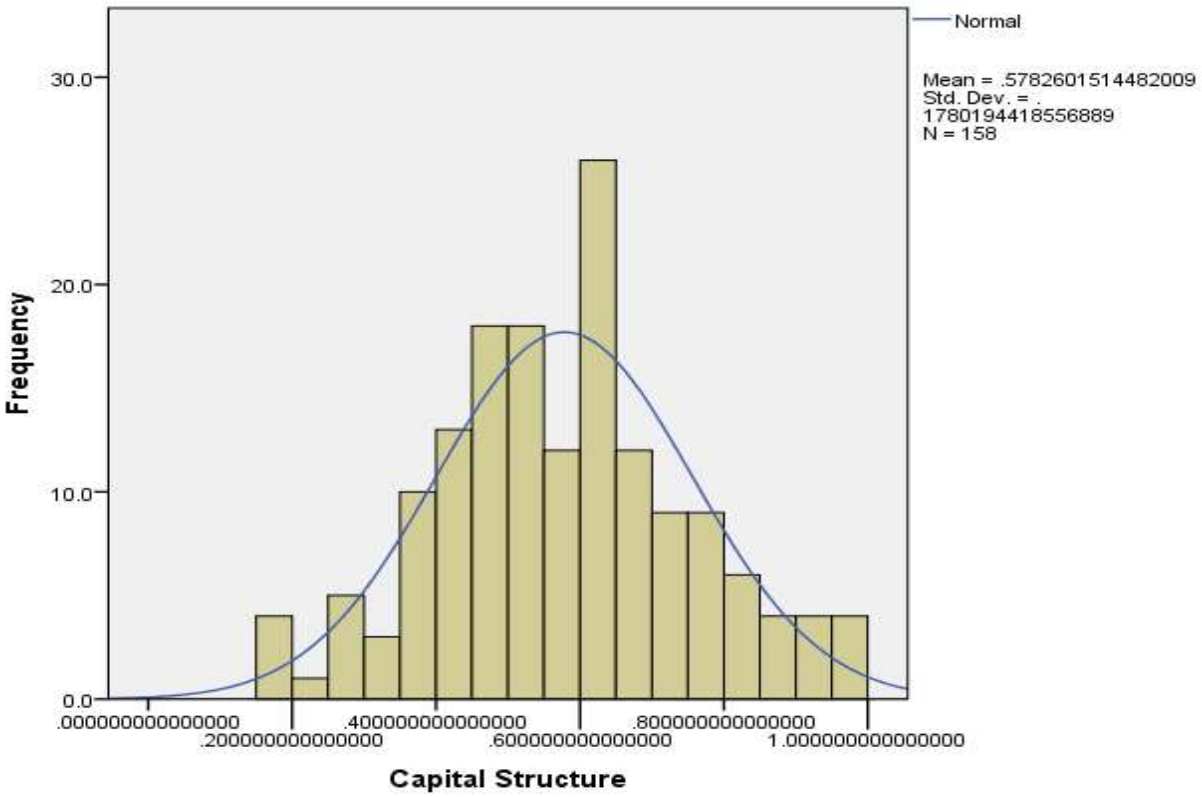


FIGURE 2
FREQUENCY DISTRIBUTION OF TRANSFORMED CAPITAL STRUCTURE VARIABLE



Data Independence

The independent variables for N = 158 companies were not collinear (See Table 1). This means these independent variables do not move in the same direction as one another. Since there is no collinearity between the board member compensation and board size variables, the assumption of data independence was satisfied (Field, 2013).

TABLE 1
CORRELATION MATRIX FOR BOARD MEMBER COMPENSATION AND BOARD SIZE VARIABLES (N = 158)

	Board Member Compensation	Board Size
Board Member Compensation	1	
Board Size	.013	1

Homogeneity of Variance

The Levene's test is commonly used to test the homogeneity of the variance across all groups in the data (Field, 2013). A p-value less than or equal to .05 indicates a violation in this assumption (Field, 2013). The Levene's test showed the variances between the different levels of board member compensation were equal F (2, 155) = .899. In addition, the Levene's test showed the variances between the different levels of board size were also equal F (2, 155) = .592. Since the variances were shown equal across both variables (See Table 2) the homogeneity of variance assumption was considered satisfied.

TABLE 2
LEVENE STATISTICS FOR BOARD MEMBER COMPENSATION AND BOARD SIZE VARIABLES (N = 158)

Variable	Levene Statistic	df1	df2	Significance
Board Member Compensation	.106	2	155	.899
Board Size	.526	2	155	.592

FINDINGS

Research Question 1

Are there differences in the capital structure when associated with the various levels of board member compensation?

$H1_0$. *There are no significant differences in the capital structure based on the various levels of board member compensation.*

$H1_a$. *There are significant differences in the capital structure based on the various levels of board member compensation.*

Board member compensation was classified into three types of categories (cash, equity, or balanced) based on how the board members were compensated during fiscal year 2017. The three groups for the first research question were (1) cash, (2) equity, and (3) balanced compensation packages. The highest mean capital structure was for corporate boards with balanced compensation packages (M = 45.81, SD = 22.56), followed by corporate boards with cash-based compensation packages (M = 38.69, SD = 23.36), and corporate boards with equity-based compensation packages (M = 31.20, SD = 18.38). The hypothesis for this research question was tested using an ANOVA to measure the potential differences in the mean capital structure between the three groups of corporate board compensation. With a $p < .05$, the null hypothesis was rejected as the difference in capital structure was significant between the board member compensation groups (See Table 3).

TABLE 3
HYPOTHESIS 1 ANOVA RESULTS: CAPITAL STRUCTURE

Source	F	Significance
Board Member Compensation	8.37	.000***

*Note: ***significant at the .001 level*

Post hoc analysis revealed the only significant difference was between the corporate boards with equity-based compensation and the corporate boards with balanced compensation (See Table 4).

TABLE 4
HYPOTHESIS 1 ANOVA POST HOC RESULTS: CAPITAL STRUCTURE

	(I) Group Code	(J) Group Code	(I – J) Mean Difference	Standard Error	Significance
Bonferroni	Cash	2	.065	.042	.367
		3	-.058	.045	.603
	Equity	1	-.065	.042	.367
		3	-.123	.030	.000***

Balanced	1	.058	.045	.603
	2	.123	.030	.000***

Note. ***The mean difference is significant at the .001 level

Research Question 2

Are there differences in the capital structure when associated with the various levels of board size?

H2$_0$. *There are no significant differences in the capital structure based on the various levels of board size.*

H2a. *There are significant differences in the capital structure based on the various levels of board size.*

Board size was classified into three types of categories (small, medium, or large) based on how many members were on the board during fiscal year 2017. The three groups for the second research question were (1) small, (2) medium, and (3) large board sizes. The highest mean capital structure was for large corporate boards (M = 41.37, SD = 22.71), followed by small corporate boards (M = 35.65, SD = 23.05), and medium corporate boards (M = 33.85, SD = 19.54). The hypothesis for this research question was tested using an ANOVA to measure the potential differences in the mean capital structure between the three groups of board size. With a $p > .05$, the null hypothesis was not rejected as the difference in capital structure was insignificant between the board size groups (See Table 5).

TABLE 5
HYPOTHESIS 2 ANOVA RESULTS: CAPITAL STRUCTURE

Source	F	Significance
Board Size	1.08	.344

Research Question 3

Is there an interaction between the various levels of board member compensation and the various levels of board size when determining capital structure?

H3$_0$. *There is no significant interaction between the various levels of board member compensation and the various levels of board size.*

H3$_a$. *There is significant interaction between the various levels of board member compensation and the various levels of board size.*

Board member compensation was classified into three types of categories (cash, equity, or balanced) based on how the board members were compensated during fiscal year 2017. The three groups for the third research questions were (1) cash, (2) equity, and (3) balanced compensation packages. Board size was classified into three types of categories (small, medium, or large) based on how many members were on the board during fiscal year 2017. The three groups for the third research questions were (1) small, (2) medium, and (3) large board sizes.

The three highest mean capital structure was for small corporate boards with balanced compensation packages (M = 57.56, SD = 18.35), followed by large corporate boards with balanced compensation packages (M = 48.58, SD = 22.24), and large corporate boards with cash-based compensation packages (M = 43.83, SD = 30.77). The three modest mean capital structure was for medium corporate boards with balanced compensation packages (M = 42.22, SD = 23.16), followed by medium corporate boards with cash-based compensation packages (M = 38.20, SD = 19.68), and large corporate boards with equity-based compensation packages (M = 36.97, SD = 20.15). The three lowest mean capital structure was for small corporate boards with equity-based compensation packages (M = 29.61, SD = 22.88), followed by

small corporate boards with cash-based compensation packages (M = 29.41, SD = 12.51), and medium corporate boards with equity-based compensation packages (M = 28.12, SD = 15.08). The hypothesis for this research question was tested using an ANOVA to measure the potential interaction effect between the three groups of board member compensation and the three groups of corporate board size. With a $p > .05$, the null hypothesis was not rejected as the interaction effect between the board member compensation groups and the board size groups was insignificant (See Table 6).

TABLE 6
HYPOTHESIS 3 ANOVA RESULTS: CAPITAL STRUCTURE

Source	F	Significance
Board Compensation*Board Size	.73	.573

IMPLICATIONS

Board Member Compensation

There were significant differences in the mean capital structure based on the different levels of board member compensation at the .05 level. More specifically, companies who compensate board members with more equity incentives had a lower capital structure than those companies who compensate board members with a balance of cash and equity incentives. This finding somewhat aligns with previous studies examining the relationship between executive compensation and capital structure (Gormley & Matsa, 2016; Minhat & Dzolkarnaini, 2016; Shahzad et al., 2017; Shoaib & Yasushi, 2015). In addition, the lower capital structure found in companies who compensate board members with more equity incentives could indicate board members also become more risk averse as they hold more ownership in the company; similar to what Gormley and Matsa (2016) found when researching executive compensation.

This finding contributes to the existing literature by extending agency theory from the managerial perspective to the board of directors' perspective. Having lower short-term risk, as indicated by a lower capital structure, corporate boards who are compensated with more equity incentives could be more effective in monitoring managerial behavior since more of their financial wealth is predicated on the overall success of the company. This could provide support for Nguyen (2014) who found board members have more motivation to become active monitors when they are compensated with more equity-based compensation.

Indirectly, this finding could provide some insight on the quality of the corporate governance systems utilized by the companies in this study. Jiraporn et al. (2012) found companies with stronger corporate governance mechanisms tended to use less debt, on average, than those companies with weaker corporate governance mechanisms. Therefore, the companies with greater financial leverage could use the higher levels of debt as a substitute to monitor managerial behavior (Alves et al., 2015; Djohanputro, 2015; Morellec et al., 2012).

Board Size

There were no significant differences in the mean capital structure based on the different levels of board size at the .05 level. This insignificant finding indicates board size does not influence capital structure decisions. This finding aligns with previous studies on the relationship between board size and capital structure (Akbar et al., 2017; Detthamrong et al., 2017; Siromi & Chandrapala, 2017).

This finding contributes to the existing literature by providing empirical support for the notion that having more or less board members does not influence capital structure. Akbar et al. (2017) found an increase in communication and coordination problems whenever the corporate board exceeded more than seven board members. This could indicate increasing or decreasing the number of board members would not improve the monitoring ability of the corporate boards used in this study. Thus, increasing the number

of corporate board members would not be in the best interest of the shareholders since the board would be less effective overall.

Interaction Effect

There was no significant interaction between the various levels of board member compensation and the various levels of board size at the .05 level. This indicates the main effect of board member compensation on capital structure does not change based on the different levels of board size. This insignificant finding indicates board member compensation has more of an influence on the capital structure decisions in this population than board size, and it does not matter whether the board is small, medium, or large, the effect remains the same.

This finding contributes to the existing literature because this is the first known study that assessed the interaction between board member compensation and board size. In fact, exploring the influence board member compensation has on capital structure overall is largely unstudied, so this component in this study was completely exploratory. As such, this insignificant finding provides a foundation for future research.

Practical Application

From a practical application perspective, the findings in this study could be beneficial to those individuals who are responsible for designing the compensation packages for board members. Board member compensation has been experiencing significant growth over the past few years with the majority of the increase coming in the form of equity-based compensation (Nguyen, 2014). A growing trend in the literature identified using more equity incentives in compensation packages. These incentives provide encouragement to ensure managers are investing in profitable projects instead of using the resources for their own self-interest (Brisker & Wang, 2017; Lin et al., 2012; Minhat & Dzolkarnaini, 2016).

From an investment perspective, the findings in this study could be beneficial to individual investors or even investment managers who are responsible for managing funds on behalf of investors. Companies compensating their board members with more equity-based incentives had reduced leverage in this sample. Thus, there could be lower short-term risk involved with these companies, and the increased incentive to be a more effective monitor of managerial behavior is a positive sign for shareholders. Additionally, these findings could indicate companies with higher levels of leverage may have weaker corporate governance systems, and use increased levels of debt as a way to monitor managerial behavior. As such, investors and investment managers could potentially use board member compensation to identify companies with lower level of short-term risk.

Theoretical Application

From a theoretical perspective, the findings in this study contribute to the existing body of knowledge. This contribution is derived from the extension of agency theory from the executive perspective to the board of directors' perspective. The primary basis of agency theory is that managers are self-serving and opportunistic, and leaving them unmonitored may encourage them to pursue actions that are detrimental to the shareholders in the form of lost wealth (Huang et al., 2016; Naseem et al., 2017; Tarus & Ayabei, 2016). The finding of significant differences in the mean capital structure based on the various levels of corporate board compensation provides support for the further application of agency theory regarding the board of directors.

Limitations and Future Research

Overall, there were several limitations regarding this study. One limitation was the use of publicly traded companies listed in the S&P 500 Index. Only using companies listed in the S&P 500 Index excludes the rest of the publicly traded companies, which could make it difficult to generalize the results amongst the other publicly traded companies in the United States. A second limitation was the measurement of capital structure. Different measurements of capital structure will undoubtedly lead to different results regarding the variations associated with board member compensation. The use of

different measurements of capital structure could provide more comprehensive results regarding relationship between capital structure and board member compensation. A third limitation was not considering the differences of the sectors in the final sample. Only using the companies listed in the S&P 500 Index could have led to disproportionate distribution amongst the sectors representing the economy; meaning one sector could have held more weight in the final sample than other sectors. Future studies could include a variable delineating the sectors from one another. A last limitation was the use of specific year, fiscal year 2017. Now that a foundation has been established, future studies could include additional years in the study period.

CONCLUSION

A potential misalignment between board member compensation and preferred capital structure could incentivize unwarranted increases in risk for shareholders. Since shareholders rely on the board of directors to monitor managerial behavior, it was imperative to understand how the capital structure chosen by the management team differed based on the various levels of board member compensation. The purpose of this quantitative research was to analyze corporate governance theory by assessing the possible differences in capital structure associated with various levels of board member compensation and board size.

There was empirical evidence to suggest companies who compensated their board members with equity incentives greater than or equal to 55% of the compensation package had a lower capital structure than those companies who compensated their board members with a balance of cash and equity incentives. In addition, there was empirical evidence to suggest that board size does not influence capital structure decisions. There is also empirical evidence to suggest the main effect of board member compensation on capital structure does not change based on the different levels of board size. Overall, the findings in this study provide support for two notions – (1) compensating board members with higher levels of equity incentives could motivate them to become better monitors of managerial behavior and (2) changing the structure of the board (i.e. board size) would likely not improve the boards monitoring ability.

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