Ding, J Tourism Res Hospitality 2018, 7:1
DOI: 10.4172/2324-8807.1000182

Journal of Tourism Research & Hospitality

Case Report

A SCITECHNOL JOURNAL

Stock Liquidity and CEO Compensation in the US Hospitality Industry

Li Ding*

Abstract

This paper examines the effect of stock liquidity on CEO compensation in the US hospitality industry. By using a panel data sample of 50 US publicly traded hospitality companies from 1993 to 2014, the study finds that US hospitality companies with a high stock liquidity tend to have a higher proportion of equity-based CEO compensation schemes and a lower proportion of cash-based compensation. This study provides the board of directors with useful insights to alleviate agency problem and improve corporate governance efficiency.

Keywords

Stock liquidity; Stock turnover; CEO compensation; Hospitality; Agency theory; Corporate governance; Equity-based compensation

Introduction

The average compensation among CEOs at the largest 350 publicly traded US companies was as high as $16.3 million in 2014, and the top CEOs earned over 300 times more than typical workers [1]. Moreover, their pay growth was apparently faster than the companies' stock gains growth [1]. Stakeholders have been concerned about CEO compensation and the compensation structure for decades, especially when companies with poor performance still overpay their CEOs. Such examples exist in the hospitality industry. In 2002, the CEO of Denny's Restaurant was paid a $1.3 million bonus even though the company lost $88.5 million [2]. The problem is mainly attributed to the agency problem between the CEO and shareholders [3]. To align CEOs' self-interests and shareholders' interests and reduce the agency costs, the equity-based compensation has been increasingly used to reward CEOs in recent decades [4]. Ideally, the CEO compensation is designed to reflect the company's short-term and long-term performance. For example, on the 2015 DEF 14A proxy statement, YUM stated its executives' compensation philosophy as rewarding performance and emphasizing long-term value creation. However, previous evidence showed that only a small portion of the CEO compensation variations had been explained by companies' financial performance [5]. The intuition behind this fact is that the hospitality industry demonstrates extreme sensitivity toward the prevailing macroeconomic condition [6]. During a weak economy, people spend less on hospitality-related products and services, such as traveling, staying in hotels and dining out in restaurants. This slackened demand may directly cause hospitality companies' poor performance, which is not attributable to the CEO's guidance [6]. Therefore, hospitality companies tend to reprice their stock options during periods of market slumps to realign CEO incentives to the company's value [6]. It makes CEO compensation in the hospitality industry more ambiguously explained by a company's performance.

In recent years, CEO compensation has tended to rely more on the performance of the company's stock, while the importance of cash-based compensation is diminishing [7]. This trend generates the need to explore how company performance in the stock market is associated with CEO compensation. Stock price and trading volume are two basic elements and are tied together in financial markets [8,9]. The relationship between the stock price and CEO compensation has received considerable attention [10-12]. However, the relation between trading volume and CEO compensation has not been discussed as much as the stock price. Given the characteristics of tightness, depth, resiliency, and immediacy [13], an important role in the stock market is played by stock liquidity, "the ability to trade the stock rapidly with little price impacts" [14]. It can be measured by the proxy of stock turnover ratio, which discusses the stock trading volume [15,16]. Following the agency theory, optimal contracting theory and signalling theory, empirical evidence has shown that high stock liquidity is associated with higher equity-based CEO compensation [17,18]. However, the studies on stock liquidity influencing CEO compensation in the hospitality industry are limited. This study aims to investigate a relationship in the hospitality sample. The result may point out that stock liquidity is an efficient indicator of CEO compensation in the hospitality industry and help the board of directors to construct more efficient corporate governance policies.

Literature Review

Agency theory and CEO compensation

Agency theory addresses the "causes and consequences of goal divergence between the two parties" [19]. In order to manage a company successfully and efficiently, shareholders (principle) have to transfer a part of the decision-making authority to the managers (agent) with contracts [20]. Working as the agent, the CEO may have goal conflicts and different contractual arrangements with the shareholders [21]. Typically, they are more likely to maximize their self-wealth rather than the shareholders' wealth [19]. Along with such goal conflicts and misaligned interests between CEO and shareholders, the principal always encounters difficulties to monitor and verify the agent's behaviours and outcomes [22]. It may increase the agency costs [20]. Positive agency theory suggests that agency costs can be reduced by establishing an outcome-based contract (e.g., stock options) because it can alleviate agent opportunism by aligning the preferences of both the CEO and shareholders [22]. The principal-agent theory argues that the efficiencies of outcome-based contracts and behaviour-based contracts rely on other factors such as outcome uncertainty, risk aversion, and information systems as well [22].

The agency costs motivate the shareholders to use compensation rewards based on the performance [23]. CEO compensation refers to "all company benefits paid to executives, including basic salary, short-term and long-term incentives, bonus, share options, and other

***Corresponding author:** Li Ding, School of Hospitality and Tourism Management, College of Human Sciences, Oklahoma State University, USA, Tel: 1-405-762-3037; E-mail: lidi@okstate.edu

Received: December 04, 2017 **Accepted:** January 05, 2018 **Published:** January 11, 2018

forms of compensation" [20]. It is an efficient approach to reduce agency costs. It is determined by the CEOs' labour market supply and demand, and the CEOs' managing efforts toward the companies [24]. Cash-based and equity-based compensation are two commonly used CEO compensation formats [25]. The cash-based compensation consists of the CEO salary and bonus. Determined by the CEOs' labour market supply and demand, the CEO salary is behaviour-based compensation, and may not vary with the goal performance. It serves as a signal of the CEOs' observed past performance [26]. A bonus is a short-term outcome-based compensation [27]. It signals the CEOs' observed current performance after the fixed salary has been settled [26]. The cash-based compensation structure may minimize CEOs' adverse selection and moral hazard [26]. The equity-based compensation mainly includes stock options and restricted stocks [28]. Stock options are "contracts which give the recipient the right to buy a share of stock at a pre-specified exercise price for a pre-specified term" [29]. The CEO enjoys a gain if the company's stock price is higher than the exercise price when the CEO exercised the granted stock options. In order to diversify the risk, CEOs may sell restricted stocks once they can be vested [30]. The equity-based compensation structure can align the CEO's self-wealth with the company's long-term performance and drive the CEO's preferences and efforts to benefit the shareholders [22,28,31]. Equity-based compensation has been taken up a significant portion of total CEOs compensation and growing fast [32]. However, the growing equity-based CEOs compensation also causes several negative concerns. Significantly rewarded by equity-based compensation, the CEOs have attempt to influence companies' earnings management and stock price [33]. Because of their personal wealth closely tied with companies' equity, they may be not willing to suffer the risks from the investment projects [34]. A risk-averse CEO preferred cash-based compensation to the equity-based compensation [35].

Stock liquidity and CEO compensation

Because it is multi-dimensional, stock liquidity is measured in a variety of ways in the literature, such as through stock turnover [36], bid-ask spread [37], and the Amihud illiquidity ratio [38]. Stock turnover measures the standardized stock trading volume and takes the number of shares outstanding into account [15,39-41]. Such a trading frequency-based measure is used as the proxy of stock liquidity in the literature [15,39-41].

The influence of stock liquidity on CEO compensation is documented by the literature. For example, Jayaraman and Milbourn (2012) investigated the relationship between stock liquidity and CEO compensation and found that higher stock liquidity led to higher equity-based CEO compensation [17]. Lin et al. also consistently found that the high stock liquidity drove up equity-based compensation [18]. The rationale is closely associated with the agency, optimal contracting and signalling theories. It is unrealistic that stock prices perfectly reflect the information due to the information acquisition costs [42]. Therefore, informed and uninformed trading coexist in the market. When the uninformed trading introduces the randomness to the stock prices, the stocks become more liquid [43]. As the liquidity increases, stock trading costs decrease, which makes less costly for the executives to sell their equity holdings [44]. Along with their frequent trading, the company's stock prices impound more information about the executives' actions [45,46]. Informed trading increases as the information acquisition costs decrease [42,47]. At equilibrium, informed trading increases to dominate uninformed trading [43]. With the valuation of greater stock liquidity and impounded information about executives' actions, CEOs tend to hold more equity-based compensation than cash-based compensation [46]. Moreover, risk-averse CEOs prefer holding equity-based compensation to cash-based compensation in companies with high stock liquidity [17]. Therefore, this study establishes the hypotheses as below.

Hypothesis 1. The stock liquidity positively associates with equity-based CEOs' compensation proportion in hospitality sample.

Hypothesis 2. The stock liquidity negatively associates with cash-based CEOs' compensation proportion in hospitality sample.

Method

Sample and data collection

This study aims to examine the impact of stock liquidity on CEO compensation in the hospitality industry. CEO compensation data were extracted from the ExecuComp database. The data were merged with financial data from COMPUSTAT Fundamentals Annual databases under the hospitality settings (NAICS 2-digit Sector Code 72 accommodation and food services). After removing the outliers and winsorizing at 1% and 99% on ratio variables [48], the sample consisted of 571 company-year observations across 50 US publicly traded hospitality companies for the period of 1993-2014.

Variables and measures

This study employs Model (1)-(2) to reach our research purposes. The dependent variables are cash-based compensation proportion and equity-based compensation proportion. While the cash-based compensation consists of a CEO salary and bonus, the equity-based compensation includes a CEO restricted stocks and stock options [49]. The cash-based compensation proportion divides cash-based compensation by the total compensation. Similarly, equity-based compensation proportion divides equity-based compensation by total compensation. This study uses a lagged independent variable, the stock turnover (*stockturnovert*-1) to measure the stock liquidity and account for the effect on compensation over time and to avoid potential problems of simultaneity. It is calculated by using common shares traded annually, divided by the average number of annual common shares outstanding [50]. Control variables include firm size, debt leverage, market-to-book ratio, profitability, Tobin's Q, and the CEO's characteristic variables (i.e., age, gender, and tenure) at time *t*-1. The logarithms of net sales at the fiscal year end are used to measure firm size [20]. The leverage is computed using total debt divided by the sum of total debt and the market value of equity [49]. The market-to-book ratio is computed using the market capitalization divided by the book value of equity [49]. The profitability is measured by the operating income before depreciation divided by the total assets [51]. Tobin's Q is calculated from Equation (1) [52]. The error terms account for other unexplained variances. The proposed models are presented below.

$$cash\,compensation\,percent_{it} = \beta_0 + \beta_1\,stock\,turnover_{it-1} + \beta_2 controls_{it-1} + \zeta_{it} \quad Model(1)$$

$$equity compensation\,percent_{it} = \theta_0 + \theta_1 stock\,turnover_{it-1} + \theta_2 controls_{it-1} + \sigma_{it} \quad Model(2)$$

$$Tobin's\,q = \frac{(Total\,Assets + Market\,value\,of\,Equity - Book\,Value\,of\,Equity)}{Total\,Assets} \quad Equation(1)$$

Findings

Descriptive statistics

Table 1 presents a descriptive statistics summary of the dependent and independent variables in the sample. We find that most CEOs are male and the average age is around 56 years old. On average, they had

worked as the CEO for 6.68 years in the company. The cash-based CEO compensation mean is 1.34 million (*S.D.*=1.19) while the equity-based compensation mean is 4.70 (*S.D.*=11.64). The cash-based compensation has the higher percentage (*Mean*=0.54, *S.D.*=0.35) than the equity-based compensation percentage (*Mean*=0.41, *S.D.*=0.37). The average stock turnover ratio is 2.45 (*S.D.*=1.95).

Fixed effects model estimations

The fixed effects model and random effects model are commonly used in panel data analysis. The fixed effects model controls the effects from time-invariant characteristics, while the random effects model copes with the degree of significance loss in fixed effects model [53]. The Hausman test is employed to specify the appropriate model [54]. The null hypothesis of Hausman test indicates the existence of random effects. The Model (1) rejects the null hypothesis (*P value*=0.0021) and the Model (2) rejects the null hypothesis (*P value*=0.0000) at the significant level of 0.05. It means that using fixed effects estimation method is appropriate to both models.

Table 2 presents the regression results. We included two models that respectively employed cash-based CEO compensation percentage and equity-based CEO compensation percentage as dependent variables. We used White robust estimator to remedy the possible heteroscedasticity issue [55]. The results show that Model (1) and Model (2) are significant (p<0.05). The stock turnover ratio significantly and negatively relates to the cash-based CEO compensation percentage (*Coefficient*=-0.024, p=0.027), while significantly and positively relating to the equity-based CEO compensation percentage (*Coefficient*=0.032, p=0.019). Hypotheses 1 and 2 are supported by the results. The control variables, such as firm size, leverage, profitability, and Tobin's Q do not present a significant relationship with cash-based CEO compensation percentage or equity-based CEO compensation percentage. The male-dominated CEOs tend to hold more cash-based compensation in our hospitality sample.

Table 1: Descriptive Statistics Summary.

	Mean	SD
Cash-based compensation (Millions)	1.34	1.19
Equity-based compensation (Millions)	4.70	11.64
Cash-based compensation percentage	0.54	0.35
Equity-based compensation percentage	0.41	0.37
Stock turnover	2.45	1.95
Firm size	7.27	1.22
Leverage	0.24	0.20
Market-to-book ratio	4.02	6.10
Profitability	0.17	0.07
Tobin's Q	1.96	1.07
CEO age	55.84	7.73
CEO gender	0.97	0.17
CEO tenure	6.68	6.62

Table 2: Fixed-effect hypothesis tests.

Dependent variable	Cash-based CEO compensation percentage *t*			Equity-based CEO compensation percentage *t*		
	Coefficient	S.E.	P-value	Coefficient	S.E.	P-value
Stock turnover *t-1*	-0.024	0.010	0.027*	0.032	0.013	0.019*
Firm size at *t-1*	-0.212	0.058	0.001*	0.211	0.060	0.001*
Leverage *t-1*	-0.017	0.155	0.916	0.070	0.186	0.709
Market-to-book ratio *t-1*	-0.002	0.005	0.676	-0.010	0.003	0.000*
Profitability *t-1*	-0.687	0.413	0.104	0.521	0.503	0.306
Tobin's q *t-1*	-0.007	0.041	0.865	0.032	0.044	0.470
Ln[CEO age *t-1*]	-0.369	0.264	0.168	0.451	0.304	0.146
CEO gender *t*	0.337	0.052	0.000*	-0.399	0.090	0.000*
Ln[CEO tenure *t-1*]	-0.018	0.029	0.545	0.021	0.030	0.490
Constant	3.392	1.063	0.003	-2.754	1.171	0.023
F statistics	20.13*			13.02*		
Overall R-Square	0.2261			0.2461		

Note: *p<0.05; **p<0.1

Conclusions and Discussions

The estimation results in the hospitality sample show that an increase in stock liquidity is likely to decrease cash-based compensation proportion and increase equity-based compensation proportion in the CEO compensation package in the subsequent period. The results confirmed the findings of other related studies [17,18]. The increased stock liquidity may reduce trading costs and make the stock price impound more information about the company's executives' actions [17]. Risk-averse CEOs have a strong preference for stock liquidity since greater stock liquidity tends to reduce the bid-ask spread and the costs of selling their positions. Consequently, the CEOs would like to hold more equity-based compensation, compared to the cash-based compensation during the compensation contracting process [17]. The results suggest that the hospitality companies with higher stock liquidity use more equity-based compensation as part of total compensation to reward their CEOs. This paper empirically contributes to corporate governance practices in the hospitality industry. By exploring the relationship between stock liquidity and hospitality firms' CEO compensation, it offers the board of directors an insight of CEO compensation structure determinants and points out the equity-based compensation as an important component of the CEO incentive package.

References

1. Mishel L, Davis A (2015) Top CEOs Make 300 Times More Than Typical Workers. Economic Policy Institute Issue Brief 399: 1-14.
2. Perlik A (2002) Pay Check. Restaurants & Institutions 112: 55-58.
3. Bebchuk LA, Fried JM (2003) Executive Compensation as an Agency Problem. J Economic Perspectives 17: 71-92.
4. Gormley TA, Matsa DA, Milbourn T (2013) CEO Compensation and Corporate Risk: Evidence from a Natural Experiment. J Accounting and Economics 56: 79-101.
5. Kroll M, Simmons SA, Wright P (1990) Determinants of Chief Executive Officer Compensation Following Major Acquisitions. J Business Res 20: 349-366.
6. Denizci B (2007) Is The Hospitality Industry More Likely To Reprice Stock Options? J Hospitality Financial Management 15: 1-13.
7. Bushman RM, Smith AJ (2001) Financial Accounting Information and Corporate Governance. J Accounting and Economics 32: 237-333.
8. Rogalski RJ (1978) The Dependence of Prices and Volume. The Review of Economics and Statistics 60: 268-274.
9. Smirlock M, Starks L (1988) An Empirical Analysis of the Stock Price-Volume Relationship. J Banking & Finance 12: 31-41.
10. Boschen JF, Duru A, Gordon LA, Smith KJ (2003) Accounting and Stock Price Performance in Dynamic CEO Compensation Arrangements. The Accounting Review 78: 143-168.
11. Heron RA, Lie E (2007) Does Backdating Explain The Stock Price Pattern Around Executive Stock Option Grants? J Financial Economics 83: 271-295.
12. Keller GF (2014) Examining If There Is a Relationship Between CEO Compensation and The Stock Price and Net Income of Publically Traded

Corporations in The State of Wisconsin, USA. GSTF Journal On Business Review (GBR) 2: 1-5.

13. Kyle AS (1985) Continuous Auctions and Insider Trading. Econometrica: J Econometric Society 53: 1315-1335.
14. Nguyen ND (2010) Post Earnings Announcement Drift and Stock Liquidity in The US, The UK and French Equity Markets. Brunel University.
15. Datar VT, Naik NY, Radcliffe R (1998) Liquidity and Stock Returns: An Alternative Test. J Financial Markets 1: 203-219.
16. Lee CMC, Swaminathan B (2000) Price Momentum and Trading Volume. J Finance 55: 2017-2069.
17. Jayaraman S, Milbourn TT (2012) The Role of Stock Liquidity in Executive Compensation. The Accounting Review 87: 537-563.
18. Lin J, Pan H, Wu Y (2013) Liquidity Commonality and CEO Compensation. Louisiana State University working paper.
19. Boyd BK (1994) Board Control and CEO Compensation. Strategic Management J 15: 335-344.
20. Guillet BD, Kucukusta D, Xiao Q (2012) An Examination of Executive Compensation in The Restaurant Industry. Int J Hospitality Management 31: 86-95.
21. Jensen MC (1986) Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. The American Economic Review 76: 323-329.
22. Eisenhardt KM (1989) Agency Theory: An Assessment and Review. Academy of Management Review 14: 57-74.
23. Jensen MC, Murphy KJ (1990) Performance Pay and Top-Management Incentives. J Political Economy 98: 225-264.
24. Grinstein Y, Hribar P (2004) CEO Compensation and Incentives: Evidence from M&A Bonuses. J Financial Economics 73: 119-143.
25. Leone AJ, Wu JS, Zimmerman JL (2006) Asymmetric Sensitivity of CEO Cash Compensation to Stock Returns. J Accounting and Economics 42: 167-192.
26. Banker RD, Darrough MN, Huang R, Plehn-Dujowich JM (2013) The Relation Between CEO Compensation and Past Performance. The Accounting Review 88: 1-30.
27. Hou W, Priem RL, Goranova M (2017) Does One Size Fit All? Investigating Pay-Future Performance Relationships Over The "Seasons" Of CEO Tenure. J Management 43: 864-891.
28. Nyberg AJ, Fulmer IS, Gerhart B, Carpenter MA (2010) Agency Theory Revisited: CEO Return and Shareholder Interest Alignment. Academy of Management J 53: 1029-1049.
29. Faria P, Martins FV, Brandão E (2013) Executive Compensation: Pay-for-Performance in High- Technology Firms. China-USA Business Review 12: 1073-1084.
30. Ofek E, Yermack D (2000) Taking Stock: Equity-Based Compensation and The Evolution of Managerial Ownership. J Finance 55: 1367-1384.
31. Jensen MC, Meckling WH (1976) Theory of The Firm: Managerial Behavior, Agency Costs and Ownership Structure. J Financial Economics 3: 305-360.
32. Bergstresser D, Philippon T (2006) CEO Incentives and Earnings Management. J Financial Economics 80: 511-529.
33. Bartov E, Mohanram P (2004) Private Information, Earnings Manipulations, and Executive Stock-Option Exercises. The Accounting Review 79: 889-920.
34. Coles JL, Daniel ND, Naveen L (2006) Managerial Incentives and Risk-Taking. J Financial Economics 79: 431-468.
35. Harris M, Raviv A (1979) Optimal Incentive Contracts with Imperfect Information. J Economic Theory 20: 231-259.
36. Rouwenhorst KG (1999) Local Return Factors and Turnover in Emerging Stock Markets. J Finance 54: 1439-1464.
37. Amihud Y, Mendelson H (1986) Asset Pricing and The Bid-Ask Spread. J Financial Economics 17: 223-249.
38. Amihud Y (2002) Illiquidity and Stock Returns: Cross-Section and Time-Series Effects. J Financial Markets 5: 31-56.
39. Chordia T, Subrahmanyam A, Anshuman VR (2001) Trading Activity and Expected Stock Returns. J Financial Economics 59: 3-32.
40. Gregoriou A (2008) The Asymmetry of the Price Impact of Block Trades and The Bid-Ask Spread: Evidence from The London Stock Exchange. J Economic Studies 35: 191-199.
41. Hegde SP, Mcdermott JB (2004) The Market Liquidity of DIAMONDS, Q's, And Their Underlying Stocks. J Banking & Finance 28: 1043-1067.
42. Grossman SJ, Stiglitz JE (1980) On the Impossibility of Informationally Efficient Markets. The American Economic Review 70: 393-408.
43. Holmström B, Tirole J (1993) Market Liquidity and Performance Monitoring. J Political Economy 101: 678-709.
44. Garvey GT (1997) Marketable Incentive Contracts and Capital Structure Relevance. J Finance 52: 353-378.
45. Banker RD, Datar SM (1989) Sensitivity, Precision, And Linear Aggregation of Signals for Performance Evaluation. J Accounting Res 27: 21-39.
46. Chordia T, Roll R, Subrahmanyam A (2008) Liquidity and Market Efficiency. J Financial Economics 87: 249-268.
47. Durnev A, Morck R, Yeung B (2004) Value-Enhancing Capital Budgeting and Firm-Specific Stock Return Variation. J Finance 59: 65-105.
48. Frank MZ, Goyal VK (2009) Capital Structure Decisions: Which Factors Are Reliably Important? Financial Management 38: 1-37.
49. Chemmanur TJ, Cheng Y, Zhang T (2013) Human Capital, Capital Structure, and Employee Pay: An Empirical Analysis. J Financial Economics 110: 478-502.
50. Chai D, Faff R, Gharghori P (2010) New Evidence on the Relation between Stock Liquidity and Measures of Trading Activity. Int Review of Financial Analysis 19: 181-192.
51. Andres C, Cumming D, Karabiber T, Schweizer D (2014) Do Markets Anticipate Capital Structure Decisions? Feedback Effects in Equity Liquidity. J Corporate Finance 27: 133-156.
52. Porta R, Lopez-De-Silanes F, Shleifer A, Vishny R (2002) Investor Protection and Corporate Valuation. J Finance 57: 1147-1170.
53. Greene WH (2003) Econometric Analysis: Pearson Education India.
54. Hausman JA, Taylor WE (1981) Panel Data and Unobservable Individual Effects. Econometrica: J Econometric Society 49: 1377-1398.
55. White H (1980) A Heteroskedasticity-Consistent Covariance Matrix Estimator and A Direct Test for Heteroskedasticity. Econometrica: J Econometric Society 48: 817-838.

Author Affiliation

Top

School of Hospitality and Tourism Management, College of Human Sciences, Oklahoma State University, USA