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Corporate Payout Policy and CEO Compensation Structure

Lee-Hsien Pan (Corresponding author)

School of Business, State University of New York at Geneseo, USA

E-mail: pan@geneseo.edu

Thomas Barkley

School of Management, Syracuse University, New York, USA

Shaio-Yan Huang

Department of Accounting and Information Technology

National Chung Cheng University, Chiayi, Taiwan

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Abstract

This paper examines how corporate payout policy is affected by CEO compensation structure using data from more than 1,600 firms during 1992-2006. Specifically, it studies the effects of CEO compensation structure, firm characteristics, and dividend payout policies on dividend type and relative dividend size.

It finds CEO salary is positively associated with cash dividends, share repurchases, and relative dividend size whereas CEO salary (compared to bonus) as a percentage of total compensation has negative effects on cash dividends and share repurchases. It also discovers CEO stock awards as a percentage of total compensation are positively associated with share repurchases and CEO option awards are negatively related to cash dividends.

In addition, this paper shows larger firms and firms with more free cash flow distribute more cash dividends and share repurchases. On the other hand, firms with higher leverage ratio and more investment opportunities prefer to save earnings for future re-investment projects.

Finally, it show dividend payout policy (either cash dividends or share repurchases) increases relative dividend size. The results of this study suggest that CEO compensation components affect CEOs' dividend payout decisions: when CEOs' stock award increases, they prefer to use share repurchases; when CEOs' option award increases, they prefer not to use cash dividends.

Keywords: Corporate payout policy, CEO compensation, Share repurchase, Cash dividend

1. Introduction

Since Lintner (1956) presents a paper about distribution of incomes of corporations among dividends, retained earnings, and taxes, literature discussing corporate payout policy has been prolific. Despite decades of study, agreement has not been established when it comes to dividend policies. Bhattacharyya (2007) reviews principal dividend policy theories and finds empirical evidence is diverse. A consensus on corporate policy has not been reached, and research on new explanations for dividend policy continues. Of the papers discussing corporate payout policies, some try to find whether dividend payout policy has an effect on a company's value (Miller and Modigliani, 1961; DeAngelo and DeAngelo, 2006; Bhattacharyya, 2007). Others look at the tax effect, or signal/information asymmetry effect, or clientele effect on dividend policy (Litzenberger and Ramaswamy, 1982; Poterba, 2004; Watts, 1973; Baker and Powell, 1999; Nissim and Ziv, 2001; Grullon and Michaely, 2004; Allen *et al.*, 2000). Still others explore the relationship between corporate payouts and other firm characteristics such as the agency hypothesis, management incentives, company size, etc. (La Porta *et al.*, 2000; Borokhovich *et al*., 2005; Belden *et al*, 2005). While some papers examine the relationship between stock options and dividend payouts (Fenn and Liang, 2001; Cuny *et al.*, 2009; Bartov et al., 1998; Dittmar, 2000), little research focuses on the relationship between CEO compensations (salary, bonus, stock awards and option awards) and the impacts on dividend payout decisions. In addition, papers examining the relationship between the components of CEO compensation in size and percentage and dividend payout decisions are rare.

This study focuses on the impacts of CEO compensation in size and percentage on dividend payout decisions since the major components of total CEO compensation are salary, bonus, stock awards, and option awards. Each component of CEO compensation represents roughly 25% of total CEO pay (Murphy, 1999). When companies repurchase shares, the stock price tends to go up. On the other hand, when companies use cash dividends, the stock price is likely to go down because of earnings dilution effects. If there is a link between CEO compensation and stock price and a link between dividend policy (either cash dividends or share repurchases) and stock price, we can find a relationship between CEO compensation components and dividend payout decisions. The examination of the relationship between CEO compensation and dividend payout decisions can help researchers, investors, and practitioners better understand a company's dividend payout decisions from the perspective of CEO compensation.

Besides, it focuses on corporate payout policy and CEO compensation structure since CEOs are primary decision makers in deciding which dividend policy to adopt in corporations.

Understanding the relationship between dividend policies and CEO compensation structure helps the board of directors set up a proper compensation package for motivating CEOs. It mitigates agency costs, and motivates CEOs to increase company value, which in turn benefits shareholders. This argument is similar to that of Baker and Powell (1999), who explore the views of corporate managers about the relationship between dividend policy and company value. Furthermore, shareholders use information from dividend payout policy to estimate future company performance. This argument is supported by Nissim and Ziv (2001) who find the information content hypothesis is substantiated. If the information content hypothesis is supported, it would be interesting to see how CEO salary, bonus, stock awards and options awards affect dividend policy.

Besides CEO compensation structure, we consider the effects of firm characteristics on corporate payout policies. Baker and Hall (2004) develop a model to clarify how to measure CEO incentive strength in large and small firms. Fenn and Liang (2001) show that management ownership is associated with higher payouts by firms with potentially the greatest agency problems. Borokhovich *et al*. (2005) explore that dividends reduce agency costs after controlling for firm size, leverage, ownership, growth options, and change in dividend yield.

To find out how corporate payout policy is affected by CEO compensation structure, we use data during 1992-2006 to examine the relationship between payout policy and CEO salary, bonus, stock awards, option awards, and firm characteristics after controlling for industry dummies. Our research questions are as follows: Do CEO salary and bonus have any effects on cash dividends or share repurchases? Are stock awards and option awards positively associated with share repurchases? What are the impacts of company characteristics (firm size, free cash flow, growth opportunity) on dividend payout policy?

The results show that CEO salary is positively related to cash dividends whereas CEO option awards are negatively related to cash dividends. In addition, we find that larger firms with higher free cash flow and less investment opportunities tend to distribute cash dividends rather than repurchase shares. Finally, we show that dividend payout policy increases relative dividend size.

To the best of our knowledge, we are the first to examine the relationship between corporate payout policy and CEO compensation structure, CEO characteristics, and firm characteristics. Our paper contributes to the literature in that we consider compensation components and how they affect CEOs' decisions about payout policy and the associated amount of dividend payout and we show the percentage of each component is important in affecting CEOs' dividend payout decisions: whether to make a payment, which payment form, and what size of any such disbursement.

The rest of the paper is organized as follows. A brief literature review is presented in Section 2. The development of hypotheses is presented in Section 3. The description of the sample, data and methodology is given in Section 4. Empirical results and analysis are shown in Section 5. The extensions, limitations, future research possibilities, and the conclusion are given in Section 6.

2. Literature Review

Stock Options and Dividend Policy

Fenn and Liang (2001) examine how corporate payout policy is affected by managerial stock incentives. They use shares held by executive officers as management shares and shares underlying options held by executive officers as management options. In this analysis, we only consider CEO stock and option awards rather than other's stock and option awards because CEOs are primary decision makers with power to affect board decisions including compensation packages. This argument is supported by researchers such as Hallock (1997), Core *et al.* (1999), and Grinstein and Hribar (2004).

Lambert *et al.* (1989) examine the relationship between the initial adoption of stock options for senior level executives and subsequent changes in corporate dividend policy and found that executive stock options are an incentive for executives to reduce cash dividends. Cuny *et al.* (2009) study how stock option use affects total payout and examine the influence of stock option use on total payout using a proxy for the EPS dilution effect. They find that if options are not dividend protected, cash dividends will reduce the value of the options. Bartov *et al.* (1998) compare 130 companies announcing the start of share repurchase programs with firms from the same industries announcing only cash dividends and find that firms use share repurchases as a way to distribute earnings when: 1) equity is undervalued, 2) institutional investors prefer share repurchases, and 3) option grants are given to the management. Dittmar (2000) tests six hypotheses related to firms' share repurchase decisions and find the management incentive hypothesis is supported.

Growth Opportunity and Dividend Policy

Literature about dividend policy and growth opportunity tends to agree that companies with potential positive NPV projects may save funds for future investment and prefers not to pay out dividends. Smith and Watts (1992) explain corporate financing, dividend policy and compensation policy choices and find that firms with more positive NPV projects have lower dividend yields. Bagwell and Shoven (1988) show that repurchases are positively associated with operating income but negatively related to price-to-book ratios. Dittmar (2000) finds that market-to-book ratios are negatively associated with share repurchases, suggesting that firms with growth opportunity prefer not to use share repurchases as a way to distribute earnings.

Financial Flexibility and Dividend Policy

Jagannathan *et al.* (2000) measure the ways in which stock repurchases and cash dividends are used by companies. They find when firms have permanent operating-related cash flows, firms prefer cash dividends, whereas when firms have temporary nonoperating related cash flows, firms prefer share repurchases. Similarly, Dittmar (2000) shows that firms may repurchase shares as a way to achieve a target leverage ratio and that higher leverage is negatively associated with share repurchases. Similar results are found by Bagwell and Shoven (1988), and Hovakimian *et al*. (2001), who state that firms may repurchase stock to increase their leverage ratio.

Dividend Policy Decisions

Literature about dividend policy tends to agree the preference of companies for share repurchases over cash dividends is the trend for the foreseeable future. Brav *et al*. (2005) survey financial executives to decide the factors that drive dividend and share repurchase decisions. The results show that managers favour repurchases because they view them as being more flexible than dividends. Allen and Michaely (2003) state that cash dividends have been the principal form of payout historically and share repurchases were unimportant until the mid-1980s, suggesting that stock incentives are becoming more and more important for corporations since the 1980s.

Corporate Governance and CEO Compensation

Chhaochharia and Grinstein (2006) examine the effect of board oversight on executive compensation and show that board oversight is a significant determinant of the size and structure of executive compensation. Bebchuk and Fried (2003) argue that powerful CEOs are likely to manipulate their compensation schemes in ways that minimize transparency and will cause little concern to shareholders. Bergstresser and Philippon (2006) provide evidence that CEOs exercise unusually large numbers of options, and CEOs and other insiders sell large quantities of shares during years of high use of discretionary accruals to manipulate reported earnings. Cole and Mehran (2007) examine the determinants of CEO compensation and find that executive pay is related to CEO age, education and gender.

3. Development of Hypotheses

Our first hypothesis is that CEO salary and CEO bonus are not associated with cash dividends, share repurchases, or relative dividend size. Typically, CEO salary and bonus are not directly linked to stock price, which is associated with either cash dividends or share repurchases. When a company repurchases shares, the stock price of that company is likely to increase, which in turn will increase the value of a CEO's stock or options, but not necessarily their salary or bonus. Therefore, CEO salary and CEO bonus may be irrelevant to dividend payout policy and relative dividend size (Jensen and Murphy, 1990).

The second hypothesis is that CEOs with stock or option awards would prefer to repurchase shares rather than distribute cash dividends to shareholders. Therefore, CEO stock/option awards should be positively associated with share repurchases and relative dividend size. Our reasoning is that share repurchases would increase share price, which in turn will increase the value of stock or option awards. An increase in stock/options will increase share repurchases, which in turn will increase relative dividend size. This argument complements the findings by Fenn and Liang (2001), Bartov *et al.* (1998), and Dittmar (2000). For firm characteristics, our hypotheses are that larger firms, firms with higher free cash flow, and firms with less growth opportunities would distribute more cash dividends to shareholders, which will increase the relative dividend size of the company. This is so because larger companies would keep earnings for positive NPV projects when there are investment opportunities. This line of reasoning is consistent with studies by Jensen and Meckling (1976), Fenn and Liang (2001), Smith and Watts (1992), and Bagwell and Shoven (1988).

4. Sample, Data Description and Methodology

The data sources are from Standard & Poor's Compustat and ExecuComp databases, which include all active and inactive firms of the entire databases during 1992-2006. Incorporating all of the firms in the analysis allows us to examine the characteristics of the firms that distribute cash dividends only, share repurchases only, both cash dividends and share repurchases, and nothing at all, respectively. It also helps understand the corporate payout decisions of the firms that adopt different payout policies. We use salary, bonus, stock awards, and option awards as CEO compensation. In addition, we use market capitalization, debt-to-equity ratio, book-to-market ratio, and free cash flow as firm characteristics. To analyze the industry effects on corporate payout policies, we use Kenneth French's 17 industry portfolios, as given on his website, and as described in Table A1 of the Appendix.

4.1 Sample Selection

To construct the sample, we select assets, long-term debt, preferred stock, operating income before depreciation, common dividends, close price, common shares outstanding, deferred taxes and investment tax credit, preferred stock redemption value, convertible debt, buy of common and preferred stock, capital expenditures, liabilities, fiscal year closing price, and stockholder's equity from Compustat's Industrial Annual variables. Then, we select salary, bonus, stock awards, and option awards, from the Executive compensation variables. We then merge these two sets of data. Because of the limitation of the data, we find that information on stock awards and options awards is available only for 2006, not for data between 1992 and 2005. We then build two separate regression analyses based on the information of 1992-2006 and on the information of 2006, respectively. The first regression analysis uses information that does not include stock awards and option awards between 1992 and 2006. The second regression analysis uses information that includes stock awards and option awards in 2006.

Table 1 and Figure 1 report the number of issues on dividends or repurchases during 1992-2006. Since 1998, the number of issues on repurchases exceeded that on dividends, suggesting that companies started to view share repurchases as a more important way of distributing earnings in the last 10 years.

Table 1. Distribution of Cash Dividends and Share Repurchases by Year

Annual distribution of the number of issues for cash dividends and share repurchases during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

	Number of Issues	
Year	Dividend	Repurchase
1992	228	134
1993	560	349
1994	670	455
1995	693	521
1996	689	596
1997	671	658
1998	651	789
1999	619	794
2000	583	790
2001	530	649
2002	504	634
2003	531	636
2004	597	642
2005	607	729
2006	467	588
Total	8600	8964

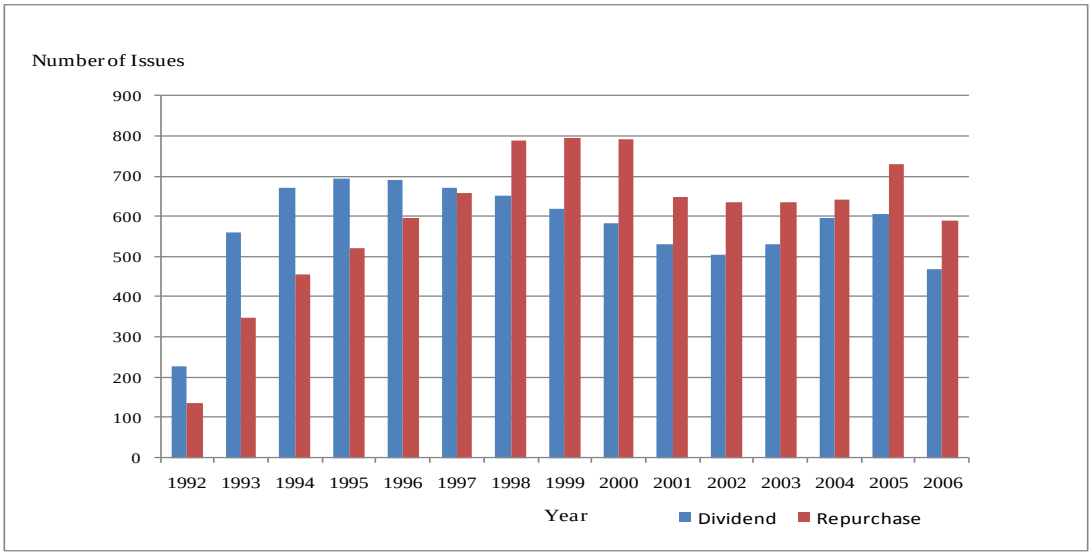

Figure 1. Distribution of Cash Dividends and Share Repurchases by Year

Annual distribution plot of the number of issues for cash dividends and share repurchases during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

Table 2 and Figure 2 present the size of issues on dividends or repurchases during 1992-2006. The size of issues on repurchases has become larger than that on dividends, and the difference in the size of issues between repurchases and dividends increased after 1996. This shows that companies prefer to use share repurchases as a way of distributing earnings since 1996 (Brav *et al.*, 2005; Allen and Michaely, 2003).

Table 2. Size of Issues of Cash Dividends and Share Repurchases by Year

Annual distribution of the dollar value for cash dividends and share repurchasesb during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

	Size of Issues ($million)	
Year	Dividend	Repurchase
1992	140.528	68.576
1993	61.406	32.235
1994	47.968	29.24
1995	50.116	43.485
1996	56.077	60.536
1997	55.222	83.085
1998	54.121	99.277
1999	52.139	91.426
2000	50.978	90.444
2001	55.136	81.775
2002	53.156	74.195
2003	54.109	79.407
2004	67.871	119.052
2005	71.461	177.564
2006	107.127	275.21
Total	977.415	1405.507

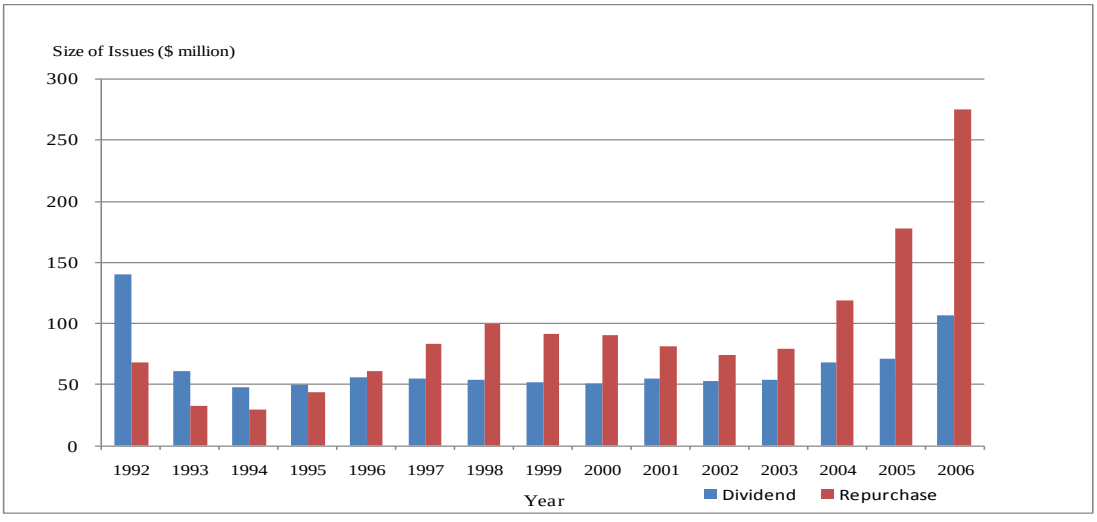

Figure 2. Size of Issues of Cash Dividends and Share Repurchases by Year

Annual distribution plot of the dollar value of issues for cash dividends and share repurchases during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

Table 3 and Figure 3 show the number of issues for dividends and repurchases by industry during 1992-2006.

Table 3. Distribution of Cash Dividends and Share Repurchases by Industry

Total distribution of the number of issues on cash dividends and share repurchases by industry during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

	NUMBER OF ISSUES	
	DIVIDEND	REPURCHASE
Food	574	492
Mining and Minerals	194	78
Oil and Petroleum Products	487	392
Textiles Apparel and Foot Ware	292	284
Consumer Durables	333	276
Chemicals	458	342
Drugs Soap Perfumes and Tobacco	446	437
Construction and Construction Materials	479	431
Steel Works etc.	297	206
Fabricated Products	129	118
Machinery and Business Equipment	1093	1343
Automobiles	318	221
Transportation	564	447
Retail Stores	678	906

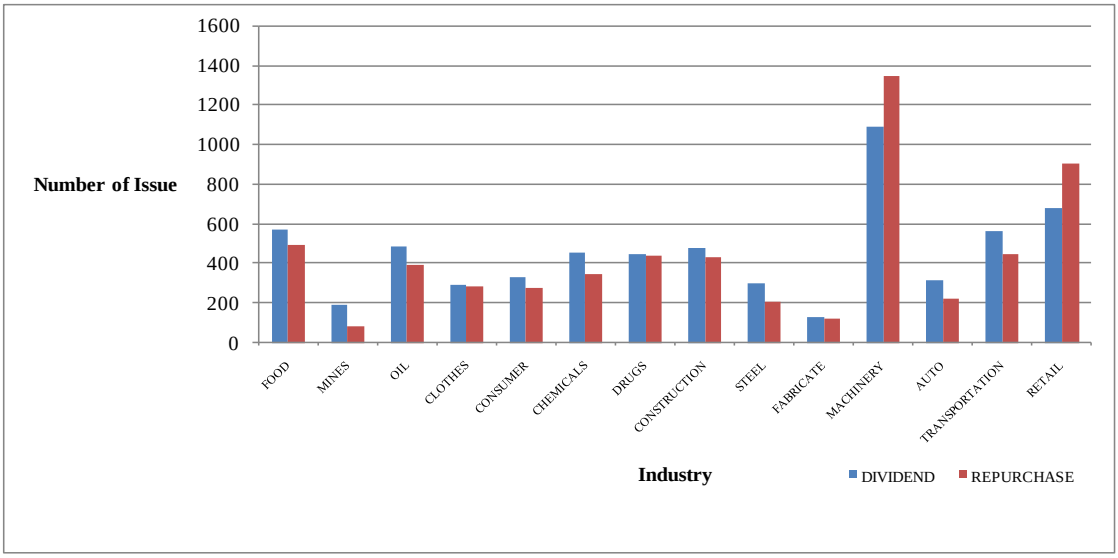

Figure 3. Distribution of Cash Dividends and Share Repurchases by Industry

Distribution plot of the number of issues for cash dividends and share repurchases by industry during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

Table 4 and Figure 4 display the dollar size of issues for dividends and repurchases by industry during 1992-2006. The Drugs, Soap, Perfumes, and Tobacco industry has the largest value of issues, followed by the Food industry and the Oil and Petroleum Products industry. The Mining and Minerals industry has the smallest dollar issuance.

Table 4. Size of Issues of Cash Dividends and Share Repurchases by Industry

Total distribution of the dollar value of issues for cash dividends and share repurchases by industry during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

	SIZE OF ISSUES ($ million)	
	DIVIDEND	REPURCHASE
Food	149.716	178.020
Mining and Minerals	25.699	22.022
Oil and Petroleum Products	142.436	109.031
Textiles Apparel and Foot Ware	14.375	36.286
Consumer Durables	44.445	45.179
Chemicals	103.116	81.192
Drugs Soap Perfumes and Tobacco	282.523	260.320
Construction and Construction Materials	36.828	57.146
Steel Works etc.	33.515	34.361
Fabricated Products	32.033	39.226
Machinery and Business Equipment	30.341	79.949
Automobiles	101.923	91.977
Transportation	72.162	110.929
Retail Stores	33.771	91.623

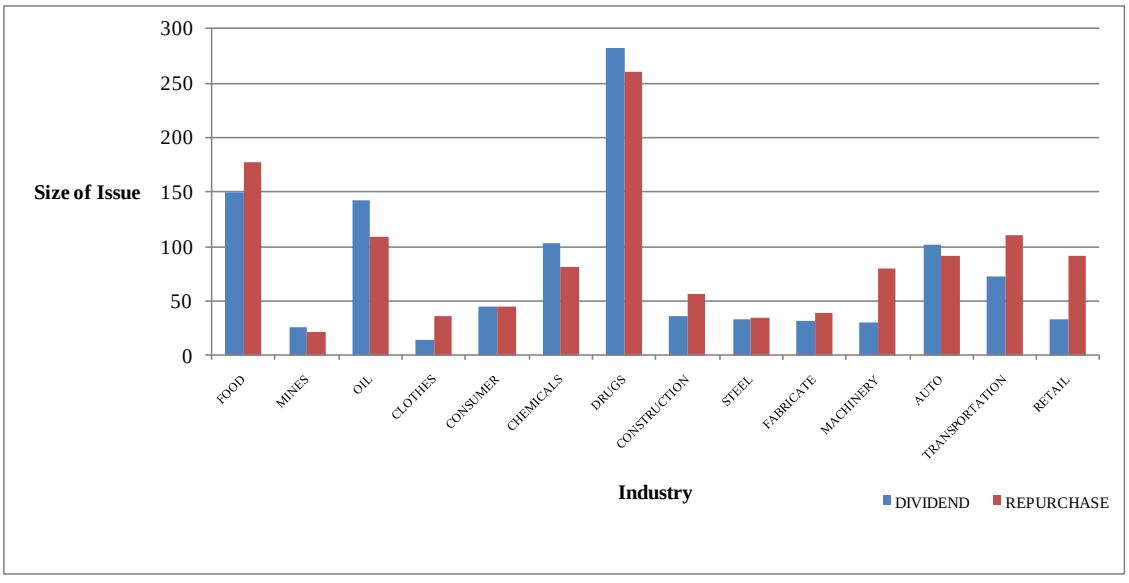

Figure 4. Size of Issues of Cash Dividends and Repurchases by Industry

Distribution plot of the dollar value of issues for cash dividends and share repurchases by industry during 1992-2006. Data for cash dividends and share repurchases is obtained from Compustat, provided by Wharton Research Data Services (WRDS).

Table 5 provides definitions of the variables used in the regression analysis. Variables are classified into five categories: dividend payout policies, dividend types, CEO compensation structure, CEO characteristics, and firm characteristics.

Table 5. Summary of Variable Definitions

Our sample comprises data from 1992 to 2006. Variables are classified into five categories: 1) dividend payout policies, 2) dividend types, 3) CEO compensation structure, 4) CEO characteristics, and 5) firm characteristics. Dividend payout policies, dividend types, and firm characteristics data was obtained from Compustat during 1992-2006. CEO compensation structure and CEO characteristics data was obtained from ExecuComp during 1992-2006.

Variable	Definition
Dividend Payout Policies	
Dummy Dividend	Dummy dividend equals one when companies distribute cash dividend and zero otherwise
Dummy Repurchase	Dummy repurchase equals one when companies repurchase shares and zero otherwise
Dividend Types	
Cash Dividends	This is the cash dividends on common stock, which is data item 21 in Compustat
Share Repurchases	This is the open market repurchases of common stock, which is data item 115 in Compustat
Dividend Size	The sum of cash dividend and stock repurchase
Relative Dividend Size	This is dividend size divided by market capitalization
CEO Compensation Structure	
Salary	This is CEO's salary
Bonus	This is CEO's bonus
Salary_pct	Salary percentage is calculated as salary divided by total compensation, where total compensation is the sum of salary, bonus, stock awards, and option awards
Bonus_pct	Bonus percentage is calculated as bonus divided by total compensation, where total compensation is the sum of salary, bonus, stock awards, and option awards
Stock Awards	The value of stock awards given to CEO
Option Awards	The value of option awards given to CEO
Stock_award_pct	Stock awards percentage is calculated as stock awards divided by total compensation, where total compensation is the sum of salary, bonus, stock awards, and option awards
Option_award_pct	Option awards percentage is calculated as option awards divided by total compensation, where total compensation is the sum of salary, bonus, stock awards, and option awards
CEO Characteristics	
Age	This is CEO's age as of 2006.
Dummy Gender	Dummy gender equals one when gender type is male and zero otherwise
Firm Characteristics	
Market Capitalization	This is the calendar year price (data item 24 in Compustat) times common shares outstanding (data item 25 in Compustat)
Debt-to-Equity Ratio	This is long-term debt (data item 9 in Compustat) divided by equity (data item 25 times data item 199 in Compustat)
Book-to-Market Ratio	This is total assets divided by the measure of market, where measure of market is total assets minus book equity plus market equity
Free Cash Flow	This is the operating income (data item 13 in Compustat) minus capital expenditure (data item 128 in Compustat), the outcome of which is divided by total assets (data item 6 in Compustat)

Summary statistics of dividend payout policies, dividend types, CEO compensation structure, CEO characteristics, and firm characteristics during 1992-2006 are shown in Table 6. Panel A in Table 6 shows the statistics of the entire sample.

Table 6. Summary Statistics

The sample has 16,466 observations that come from the merger of Compustat and ExecuComp datasets during 1992-2006. Panel A shows the 25th percentile, mean, median, 75th percentile, and standard deviation for different dividend payout policies, dividend types, CEO compensation structures, CEO characteristics, and firm characteristics. Panels B, C, D, and E display mean values of the same variables after splitting the sample into four subsamples: (i) when no dividends are announced (Nothing); (ii) when only cash dividends are announced (Cash Dividends Only); (iii) when only share repurchases are announced (Share Repurchases Only); and (iv) when both cash dividends and share repurchases are announced (Both).

Panel A - Entire Sample (N=16,466)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	0.000	0.522	1.000	1.000	0.500
DUMMY_REP	0.000	0.544	1.000	1.000	0.498
DIVIDEND TYPES					
DIVIDEND	0.000	60.194	1.543	26.096	195.468
REPURCHASE	0.000	93.477	0.634	36.376	303.507
DIV_SIZE	0.000	161.003	13.610	84.000	489.130
DIV_SIZE_MKT_CAP	0.000	0.028	0.015	0.039	0.039
CEO COMPENSATION STRUCTURE					
SALARY	381.923	607.261	550.000	784.856	312.881
BONUS	29.400	585.205	307.248	728.000	884.208
CEO CHARACTERISTICS					
AGE	50.000	55.570	56.000	61.000	7.846
DUMMY_GENDER	1.000	0.985	1.000	1.000	0.123
FIRM CHARACTERISTICS					
MKT_CAP	432.360	5136.820	1143.750	3519.000	13185.960
DEBT_EQUITY	0.017	0.355	0.140	0.375	0.693
BOOK_MARKET	0.429	0.642	0.631	0.834	0.284
F_CASHFLOW	0.036	0.074	0.083	0.131	0.118

Panel B - Subsample: No dividends are announced (Nothing, N=4,389)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
CEO COMPENSATION STRUCTURE					
SALARY	310.000	481.299	430.769	600.000	252.716
BONUS	0.000	362.903	161.924	457.500	602.105
CEO CHARACTERISTICS					
AGE	48.000	53.770	54.000	59.000	8.107
DUMMY_GENDER	1.000	0.987	1.000	1.000	0.115
FIRM CHARACTERISTICS					
MKT_CAP	229.974	2108.040	604.260	1572.350	7026.791
DEBT_EQUITY	0.004	0.470	0.124	0.433	0.952
BOOK_MARKET	0.384	0.646	0.629	0.866	0.322
F_CASHFLOW	-0.012	0.028	0.055	0.102	0.138

Panel C - Subsample: Only cash dividends are announced

(Cash Dividends Only, N=3,113)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	1.000	1.000	1.000	1.000	0.000
DUMMY_REP	0.000	0.000	0.000	0.000	0.000
DIVIDEND TYPES					
DIVIDEND	5.817	61.684	16.026	53.400	150.588
REPURCHASE	0.000	0.000	0.000	0.000	0.000
DIV_SIZE	5.817	63.504	16.026	53.400	172.435
DIV_SIZE_MKT_CAP	0.007	0.019	0.015	0.025	0.021
CEO COMPENSATION STRUCTURE					
SALARY	403.000	624.978	590.000	800.000	290.991
BONUS	72.000	563.189	320.000	723.000	794.471
CEO CHARACTERISTICS					
AGE	52.000	56.930	57.000	62.000	7.735
DUMMY_GENDER	1.000	0.987	1.000	1.000	0.113
FIRM CHARACTERISTICS					
MKT_CAP	500.657	3841.260	1207.400	3363.740	8188.632
DEBT_EQUITY	0.083	0.432	0.242	0.504	0.639
BOOK_MARKET	0.527	0.706	0.714	0.881	0.251
F_CASHFLOW	0.039	0.071	0.076	0.113	0.092

Panel D - Subsample: Only share repurchases are announced

(Share Repurchases Only, N=3.477)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	0.000	0.000	0.000	0.000	0.000
DUMMY_REP	1.000	1.000	1.000	1.000	0.000
DIVIDEND TYPES					
DIVIDEND	0.000	0.000	0.000	0.000	0.000
REPURCHASE	3.430	104.999	17.112	67.500	290.336
DIV_SIZE	3.430	114.241	17.112	67.500	367.256
DIV_SIZE_MKT_CAP	0.005	0.037	0.020	0.049	0.047
CEO COMPENSATION STRUCTURE					
SALARY	364.800	558.467	500.000	700.027	284.492
BONUS	0.000	530.394	275.000	637.404	859.834
CEO CHARACTERISTICS					
AGE	48.000	53.880	54.000	59.000	7.693
DUMMY_GENDER	1.000	0.980	1.000	1.000	0.141
FIRM CHARACTERISTICS					
MKT_CAP	393.109	3795.860	950.989	2624.930	10896.266
DEBT_EQUITY	0.000	0.304	0.079	0.317	0.676
BOOK_MARKET	0.390	0.630	0.601	0.839	0.308
F_CASHFLOW	0.034	0.082	0.085	0.136	0.119

Panel E - Subsample: Both cash dividends and share repurchases are announced

(Both, N=5,487)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	1.000	1.000	1.000	1.000	0.000
DUMMY_REP	1.000	1.000	1.000	1.000	0.000
DIVIDEND TYPES					
DIVIDEND	10.064	145.642	30.300	120.000	298.846
REPURCHASE	7.351	213.980	40.524	176.649	443.283
DIV_SIZE	25.328	374.735	90.907	329.047	736.557
DIV_SIZE_MKT_CAP	0.022	0.049	0.038	0.062	0.042
CEO COMPENSATION STRUCTURE					
SALARY	491.606	728.883	690.000	925.000	337.987
BONUS	150.000	810.246	483.600	1042.400	1066.604
CEO CHARACTERISTICS					
AGE	53.000	57.333	57.000	62.000	7.222
DUMMY_GENDER	1.000	0.985	1.000	1.000	0.123
FIRM CHARACTERISTICS					
MKT_CAP	785.220	9144.268	2325.690	7790.830	18535.873
DEBT_EQUITY	0.039	0.253	0.136	0.309	0.410
BOOK_MARKET	0.430	0.611	0.601	0.774	0.244
F_CASHFLOW	0.066	0.108	0.106	0.153	0.100

Panels B, C, D, and E in Table 6 show the statistics of the subsample when no dividends are announced (Nothing), only cash dividends are announced (Cash Dividends Only), only share repurchases are announced (Share Repurchases Only) and when both cash dividends and share repurchases are announced (Both), during the sample period 1992-2006. Corresponding summary statistics with stock award and option award information in 2006 are shown in Table 7. Panel A in Table 7 displays the statistics of the entire sample. Panels B, C, D, and E in Table 7 display the statistics of the subsample when no dividends are announced (Nothing), only cash dividends are announced (Cash Dividends Only), only share repurchases are announced (Share Repurchases Only) and when both cash dividends and share repurchases are announced (Both) in 2006.

Table 7. Summary Statistics with Stock Awards and Option Awards

The sample has 848 observations that come from the merger of Compustat and ExecuComp datasets in 2006. Panel A shows the 25th percentile, mean, median, 75th percentile, and standard deviation for different dividend payout policies, dividend types, CEO compensation structures, CEO characteristics, and firm characteristics. Panels B, C, D, and E display mean values of the same variables after splitting the sample into four subsamples: (i) when no dividends are announced (Nothing); (ii) when only cash dividends are announced (Cash Dividends Only); (iii) when only share repurchases are announced (Share Repurchases Only); and (iv) when both cash dividends and share repurchases are announced (Both).

Panel A - Entire Sample (N=848)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	0.000	0.513	1.000	1.000	0.500
DUMMY_REP	0.000	0.657	1.000	1.000	0.475
DIVIDEND TYPES					
DIVIDEND	0.000	108.526	2.886	48.349	369.281
REPURCHASE	0.000	295.914	18.700	189.750	844.711
DIV_SIZE	2.103	410.055	50.019	251.300	1142.355
DIV_SIZE_MKT_CAP	0.002	0.038	0.026	0.057	0.045
CEO COMPENSATION STRUCTURE					
SALARY	518.676	777.007	737.740	988.763	353.567
BONUS	0.000	216.193	0.000	5.874	740.356
STOCK_AWARDS	11.555	1510.478	503.625	1924.580	2398.998
OPTION_AWARDS	109.852	1516.739	648.304	1868.490	2155.156
CEO CHARACTERISTICS					
AGE	51.000	55.711	56.000	60.000	7.260
DUMMY_GENDER	1.000	0.973	1.000	1.000	0.163
FIRM CHARACTERISTICS					
MKT_CAP	884.473	8644.743	2164.820	6698.120	20994.089
DEBT_EQUITY	0.017	0.238	0.109	0.292	0.400
BOOK_MARKET	0.428	0.600	0.582	0.752	0.234
F_CASHFLOW	0.051	0.092	0.087	0.134	0.094

Panel B - Subsample: No dividends are announced (Nothing, N=178)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
CEO COMPENSATION STRUCTURE					
SALARY	450.000	625.946	576.907	750.000	259.158
BONUS	0.000	182.726	0.000	108.378	488.343
STOCK_AWARDS	0.000	790.122	310.247	949.729	1440.658
OPTION_AWARDS	60.175	1028.069	366.919	1237.160	1783.155
CEO CHARACTERISTICS					
AGE	50.000	55.094	55.000	60.000	7.339
DUMMY_GENDER	1.000	0.966	1.000	1.000	0.181
FIRM CHARACTERISTICS					
MKT_CAP	564.001	3118.505	1246.450	2240.500	12234.842
DEBT_EQUITY	0.003	0.330	0.149	0.386	0.525
BOOK_MARKET	0.457	0.649	0.630	0.828	0.251
F_CASHFLOW	0.005	0.050	0.059	0.094	0.101

Panel C - Subsample: Only cash dividends are announced

(Cash Dividends Only, N=113)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	1.000	1.000	1.000	1.000	0.000
DUMMY_REP	0.000	0.000	0.000	0.000	0.000
DIVIDEND TYPES					
DIVIDEND	8.600	58.649	18.800	60.733	108.183
REPURCHASE	0.000	0.000	0.000	0.000	0.000
DIV_SIZE	8.600	58.649	18.800	60.733	108.183
DIV_SIZE_MKT_CAP	0.007	0.023	0.015	0.025	0.035
CEO COMPENSATION STRUCTURE					
SALARY	558.000	757.210	726.050	941.346	296.249
BONUS	0.000	130.950	0.000	68.000	308.709
STOCK_AWARDS	65.108	1094.172	381.488	1233.420	1819.596
OPTION_AWARDS	76.104	1040.020	364.673	1567.000	1483.371
CEO CHARACTERISTICS					
AGE	51.500	55.889	56.000	61.000	6.639
DUMMY_GENDER	1.000	0.982	1.000	1.000	0.132
FIRM CHARACTERISTICS					
MKT_CAP	644.127	3759.451	1320.770	3667.340	5969.008
DEBT_EQUITY	0.078	0.345	0.227	0.444	0.443
BOOK_MARKET	0.543	0.687	0.681	0.833	0.202
F_CASHFLOW	0.049	0.082	0.081	0.115	0.068

Panel D - Subsample: Only share repurchases are announced

(Share Repurchases Only, N=235)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	0.000	0.000	0.000	0.000	0.000
DUMMY_REP	1.000	1.000	1.000	1.000	0.000
DIVIDEND TYPES					
DIVIDEND	0.000	0.000	0.000	0.000	0.000
REPURCHASE	11.075	239.990	63.296	200.796	513.215
DIV_SIZE	11.075	239.990	63.296	200.796	513.215
DIV_SIZE_MKT_CAP	0.012	0.048	0.037	0.069	0.048
CEO COMPENSATION STRUCTURE					
SALARY	461.510	681.713	645.000	850.000	315.682
BONUS	0.000	162.534	0.000	1.000	648.863
STOCK_AWARDS	0.000	1029.299	284.721	1291.070	1791.885
OPTION_AWARDS	147.244	1560.917	637.181	1846.710	2262.057
CEO CHARACTERISTICS					
AGE	49.000	54.505	54.000	59.000	7.882
DUMMY_GENDER	1.000	0.974	1.000	1.000	0.158
FIRM CHARACTERISTICS					
MKT_CAP	841.681	5143.397	1864.490	4318.060	11045.306
DEBT_EQUITY	0.000	0.154	0.065	0.170	0.299
BOOK_MARKET	0.376	0.548	0.514	0.681	0.231
F_CASHFLOW	0.053	0.094	0.091	0.137	0.093

Panel E - Subsample: Both cash dividends and share repurchases are announced

(Both, N=322)

VARIABLE	P25	MEAN	MEDIAN	P75	STD
DIVIDEND PAYOUT POLICIES					
DUMMY_DIV	1.000	1.000	1.000	1.000	0.000
DUMMY_REP	1.000	1.000	1.000	1.000	0.000
DIVIDEND TYPES					
DIVIDEND	19.913	265.227	57.304	212.914	561.321
REPURCHASE	36.540	604.154	165.153	621.527	1230.356
DIV_SIZE	71.936	884.166	235.202	856.777	1692.304
DIV_SIZE_MKT_CAP	0.029	0.058	0.048	0.073	0.043
CEO COMPENSATION STRUCTURE					
SALARY	702.000	937.008	900.000	1100.000	380.042
BONUS	0.000	303.769	0.000	0.000	980.644
STOCK_AWARDS	193.174	2405.954	1458.000	3263.080	3036.925
OPTION_AWARDS	247.533	1921.928	938.854	2635.200	2371.923
CEO CHARACTERISTICS					
AGE	53.000	56.908	57.000	61.000	6.772
DUMMY_GENDER	1.000	0.972	1.000	1.000	0.165
FIRM CHARACTERISTICS					
MKT_CAP	2015.680	15969.355	4824.350	15072.210	29848.741
DEBT_EQUITY	0.047	0.212	0.119	0.249	0.350
BOOK_MARKET	0.419	0.581	0.563	0.726	0.224
F_CASHFLOW	0.067	0.117	0.109	0.153	0.091

4.2 Data Description

Dependent Variables. To analyze dividend payout policy, we consider dividend type and relative dividend size. Dividend type includes cash dividends and share repurchases. Relative dividend size is dividend size (the sum of cash dividends and share repurchases) divided by market capitalization.

We build dividend types as dummy variables representing cash dividends or share repurchases. DUMMY_DIV equals one when cash dividends are distributed, and zero otherwise. Similarly, DUMMY_REP equals one when a company repurchases shares, and zero otherwise. Dividend size divided by market capitalization measures the dividend size scaled by a company's size. The use of this variable is to exclude the company's size effect on dividend size.

CEO Compensation Structure. The measures of CEO compensation are salary and bonus for the dataset during 1992-2006. We use the sum of salary and bonus as a proxy for total compensation for the 1992-2006 period because there is no information on stock awards and option awards between 1992 and 2005 in ExecuComp's dataset. Then, we calculate salary percentage and bonus percentage as salary divided by total compensation and bonus divided by total compensation, respectively. We use salary percentage and bonus percentage to measure the effects of the change in CEO compensation on dividend type and relative dividend size.

For the dataset of 2006, the measures of CEO compensation are salary, bonus, stock awards,

and option awards because the information on stock awards and option awards is available for 2006 in ExecuComp's dataset. We use the sum of salary, bonus, stock awards, and option awards as a proxy for total compensation for 2006. We then calculate salary percentage, bonus percentage, stock awards percentage, and option awards percentage as salary, bonus, stock awards, and option awards divided by total compensation, respectively. We use salary percentage, bonus percentage, stock awards percentage, and option awards percentage to measure the effects of the change in CEO compensation on dividend type and relative dividend size.

Firm Characteristics. For firm characteristics, we use market capitalization to measure the size of the company. We use long-term debt divided by equity to measure a company's leverage ratio. To measure investment opportunity, we use the book-to-market ratio. We also consider free cash flow in the firm characteristics.

Market capitalization. We use calendar year price (data item 24 in Compustat) times common shares outstanding (data item 25 in Compustat) to calculate market capitalization, which is the measure of a company's size (Baker and Hall, 2004).

Debt-to-equity ratio. The measure of debt is long-term debt, which is data item 9 in Compustat. We use common shares outstanding (data item 25 in Compustat) times fiscal year closing price (data item 199 in Compustat) to calculate equity. The debt-to-equity ratio is the measure of leverage (Dittmar, 2000).

Book-to-market ratio. We use book-to-market ratio to measure a company's investment opportunities, which is consistent with past literature (Grullon and Michaely, 2004; Fenn and Liang, 2001; Smith and Watts, 1992). The measure of book value is total assets, which is data item 6 in Compustat. The measure of market value is total assets minus book equity plus market equity, where book equity is calculated as total assets (data item 6) minus total liabilities (data item 181) minus preferred stock (data item 10) plus deferred taxes (data item 35) plus convertible debt (data item 79). The measure of market equity is common shares outstanding (data item 25) times price (data item 199).

Free cash flow. In much of the corporate finance literature free cash flow is used as a proxy for firms that have excess cash after funding all positive net present value projects (Jensen, 1986; Fenn and Liang, 2001). Free cash flow is calculated as operating income (data item 13 in Compustat) minus capital expenditure (data item 128 in Compustat) divided by total assets (data item 6 in Compustat).

Dividend Payout Policy. The measures of dividend payout are cash dividends and share repurchases. Cash dividends are the cash dividends on common stock (data item 21 in Compustat). For repurchases, we use open market repurchases of common stock (data item 115 in Compustat).

Dummy dividend as independent variable. We use DUMMY_DIV to examine the effect of cash dividends on dividend size, and relative dividend size. When DUMMY_DIV equals one, this means CEOs choose to distribute cash dividends.

Dummy repurchase as independent variable. We use DUMMY_REP to examine the effect of share repurchases on dividend size and relative dividend size. When DUMMY_REP equals one, this means CEOs choose to repurchase shares.

Industry Dummies. Dempsey *et al.* (1993) found that industry has an impact on the dividend decision. To control for industry effects, we use Kenneth French's classification of 17 industries, which is the data from U.S. Research Returns. The industry classifications are described in Appendix A1. As suggested by Fenn and Liang (2001), we exclude utilities, banks, insurance, financial, and telephone companies in the analysis because these firms belong to regulated industries where dividend payouts are not a good representation of normal industries.

4.3 Methodology

Logit Regression. We intend to find the relationship between CEO compensation structure and dividend payout policy for U.S. firms during 1992 and 2006. To test our hypotheses, we use a logit regression to represent the firms' dividend payout decisions: whether firms distribute cash dividends or use share repurchases. Company characteristics that affect firms' dividend payout decisions are also considered. The method used to examine the relationship between the size of CEO compensation and dividend payout decisions is as follows:

$$\text{Dividend Type} = \alpha + \beta_1 X_{Salary} + \beta_2 X_{Bonus} + \beta_3 X_{Stock\_awards} + \beta_4 X_{Option\_awards} + \beta_5 X_{Mkt\_cap} + \beta_6 X_{Debt\_equity} + \beta_7 X_{Book\_market} + \beta_8 X_{F\_cashflow} + \varepsilon_i \quad (1)$$

where Dividend Type is the dependent variable that equals one when cash dividends or share repurchases are represented and zero when no cash dividends or share repurchases are distributed. X_{Salary}, X_{Bonus}, X_{Stock_awards}, and X_{Option_awards} are CEO compensation coming from salary, bonus, stock awards, and option awards, and ε_i are error terms associated with unobservable factors that may affect firms' dividend payout policy decisions.

The method used to examine the relationship between the percentage of CEO compensation and dividend payout decisions is as follows:

$$\text{Dividend Type} = \alpha + \beta_1 X_{Salary\_pct} + \beta_2 X_{Bonus\_pct} + \beta_3 X_{Stock\_awards\_pct} + \beta_4 X_{Option\_awards\_pct} + \beta_5 X_{Mkt\_cap} + \beta_6 X_{Debt\_equity} + \beta_7 X_{Book\_market} + \beta_8 X_{F\_cashflow} + \varepsilon_i \quad (2)$$

where Dividend Type is the dependent variable that equals one when cash dividends or share repurchases are represented and zero when no cash dividends or share repurchases are distributed. X_{Salary_pct}, X_{Bonus_pct}, $X_{Stock\_awards\_pct}$, and $X_{Option\_awards\_pct}$ are salary, bonus, stock awards, and option awards as percentages of total CEO compensation, respectively, and ε_i are error terms associated with unobservable factors that may affect firms' dividend payout policy decisions.

OLS Regression. To find the effects of the size and percentage of CEO compensation

components and their impacts on firms' relative dividend size, this paper employs OLS regression. The method used to examine the relationship between the sizes of CEO compensation and relative dividend size is as follows:

$$\text{Relative Dividend Size} = \alpha + \beta_1 X_{Salary} + \beta_2 X_{Bonus} + \beta_3 X_{Stock\_awards} + \beta_4 X_{Option\_awards} + \beta_5 X_{Mkt\_cap} + \beta_6 X_{Debt\_equity} + \beta_7 X_{Book\_market} + \beta_8 X_{F\_cashflow} + \beta_9 X_{Dummy\_div} + \beta_{10} X_{Dummy\_rep} + \varepsilon_i \quad (3)$$

where Relative Dividend Size is the dependent variable that measures the net effects of dividend size after considering company size. X_{Salary}, X_{Bonus}, X_{Stock_awards}, and X_{Option_awards} are CEO compensation coming from salary, bonus, stock awards, and option awards. X_{Mkt_cap}, X_{Debt_equity}, X_{Book_market}, and $X_{F\_cashflow}$ are company characteristic variables that represent the size, leverage, investment opportunity and free cash flow of the firm. The independent variables X_{Dummy_div} and X_{Dummy_rep} examine the effects of the decisions to pay cash dividends or share repurchases on relative dividend size. Finally, ε_i are error terms associated with unobservable factors that may affect firms' dividend payout policy decisions.

The method used to examine the relationship between the percentages of CEO compensation and relative dividend size is as follows:

$$\text{Relative Dividend Size} = \alpha + \beta_1 X_{Salary\_pct} + \beta_2 X_{Bonus\_pct} + \beta_3 X_{Stock\_awards\_pct} + \beta_4 X_{Option\_awards\_pct} + \beta_5 X_{Mkt\_cap} + \beta_6 X_{Debt\_equity} + \beta_7 X_{Book\_market} + \beta_8 X_{F\_cashflow} + \beta_9 X_{Dummy\_div} + \beta_{10} X_{Dummy\_rep} + \varepsilon_i \quad (4)$$

where Relative Dividend Size is the dependent variable that measures the net effects of dividend size after considering company size. X_{Salary_pct}, X_{Bonus_pct}, $X_{Stock\_awards\_pct}$, and X_{Option_awards} are the percentages of total CEO compensation coming from salary, bonus, stock awards, and option awards. X_{Mkt_cap}, X_{Debt_equity}, X_{Book_market}, and $X_{F\_cashflow}$ are company characteristic variables that represent the size, leverage, investment opportunity and free cash flow of the firms. The independent variables X_{Dummy_div} and X_{Dummy_rep} examine the effects of cash dividends and share repurchases on relative dividend size. Finally, ε_i are error terms associated with unobservable factors that may affect firms' dividend payout policy decisions.

5. Empirical Results

5.1 Regression Models for Dividend Type and Relative Dividend Size Using 1992-2006 Data

To examine the effects of CEO compensation structure, CEO characteristics, firm characteristics, and dividend policy on dividend type and relative dividend size over a longer period of time, this paper estimates four separate regression models for dividend type and relative dividend size, respectively, using 1992-2006 data. Because of the limitation of the data, it does not include stock and option award variables in the analysis. Table 8 shows the

relationship between dividend type, CEO compensation, and firm characteristics. The relationship between DUMMY_DIV and salary, market capitalization, book-to-market ratio, and free cash flow is positive, whereas the relationship between DUMMY_DIV and bonus, salary percentage, and debt-to-equity is negative (Regressions 1 and 2).

Table 8. Logit Estimates of Dividend Type

The sample has 16,466 observations that come from the merger of Compustat and ExecuComp datasets during 1992-2006. Dividend types include DUMMY_DIV and DUMMY_REP. The former equals one when companies distribute cash dividends, and zero when companies do not do so. The latter variable equals one when companies repurchase shares, and zero when companies do not do so. SALARY_PCT is calculated as salary divided by market capitalization. Similarly, BONUS_PCT is calculated as bonus divided by market capitalization. MKT_CAP is the market capitalization of the company. DEBT_EQUITY is long-term debt divided by equity. BOOK_MARKET is book-to-market ratio. F_CASHFLOW is free cash flow. ***, **, *, denote significance levels of 1%, 5%, and 10%, respectively. *p*-values are presented in parentheses.

Variable	Dividend Type			
	DUMMY_DIV (1)	DUMMY_DIV (2)	DUMMY_REP (3)	DUMMY_REP (4)
Intercept	-0.420 ***	-0.503 ***	0.103 ***	0.053 *
	(0.000)	(0.000)	(0.000)	(0.067)
SALARY	0.254 ***		0.143 ***	
	(0.000)		(0.000)	
BONUS	-0.010 **		0.009 *	
	(0.032)		(0.068)	
SALARY_PCT		-0.046 ***		-0.042 **
		(0.004)		(0.012)
BONUS_PCT				
LN_MKTCAP	0.776 ***	0.107 ***	0.036 ***	0.055 ***
	(0.000)	(0.000)	(0.000)	(0.000)
DEBT_EQUITY	-0.043 ***	-0.029 ***	-0.083 ***	-0.076 ***
	(0.000)	(0.000)	(0.000)	(0.000)
BOOK_MARKET	0.324 ***	0.395 ***	0.106 ***	0.149 ***
	(0.000)	(0.000)	(0.000)	(0.000)
F_CASHFLOW	0.620 ***	0.644 ***	0.730 ***	0.740 ***
	(0.000)	(0.000)	(0.000)	(0.000)
Max-rescaled R-Square	0.178	0.167	0.113	0.108

The relationship between DUMMY_REP and salary, bonus, market capitalization, book-to-market ratio, and free cash flow is positive, whereas the relationship between DUMMY_REP and salary percentage and debt-to-equity ratio is negative (Regressions 3 and 4).

The estimate of relative dividend size is presented in Table 9. The relationship between relative dividend size and salary, market capitalization, book-to-market ratio, free cash flow, DUMMY_DIV, and DUMMY_REP is positive, whereas the relationship between relative dividend size and bonus is negative (Regressions 5, 6, 7, and 8). Combining the results of Table 8 and Table 9, the findings are interesting from the perspectives of CEO compensation structure, CEO characteristics, firm characteristics, and dividend payout policies.

First, when CEOs are given higher salary, they prefer both cash dividends and share repurchases, and increases in CEO salary are correlated with increases in relative dividend size. However, when salary percentage increases, CEOs are less likely to distribute cash dividends or carry out share repurchases. In addition, CEO bonus is negatively associated with cash dividends but is positively associated with share repurchases. This finding is contrary to our hypothesis that CEO salary and bonus have no impact on dividend payout policy. One possible explanation is that when a CEO has a higher salary or bonus, he/she may have a comparable compensation package coming from stock or option awards. As suggested by Murphy (1999), salary corresponds approximately to 20-30% of total CEO pay, bonus represents another 20% of total CEO pay, and options and other CEO pay represent approximately 50% of total CEO pay, during the 1992-1996 period. When CEOs' salary or bonus percentage increases, their stock or option percentage will decrease. Therefore, CEO salary percentage has a negative impact on cash dividends.

Table 9. OLS Estimates of Relative Dividend Size

The sample has 16,466 observations that come from the merger of Compustat and ExecuComp datasets during 1992-2006. Dividend size is the sum of cash dividends and share repurchases. Relative dividend size is the sum of cash dividends and share repurchases divided by market capitalization. SALARY_PCT is calculated as salary divided by market capitalization. Similarly, BONUS_PCT is calculated as bonus divided by market capitalization. MKT_CAP is market capitalization of the company. DEBT_EQUITY is long-term debt divided by equity. BOOK_MARKET is book-to-market ratio. F_CASHFLOW is free cash flow. DUMMY_DIV equals one when companies distribute cash dividends, and zero when companies do not do so. DUMMY_REP equals one when companies repurchase shares, and zero when companies do not do so. ***, **, *, denote significance levels of 1%, 5%, and 10%, respectively. *p*-values are presented in parentheses.

Variable	Relative Dividend Size			
	(Div+Rep) / MktCap (5)	(Div+Rep) / MktCap (6)	(Div+Rep) / MktCap (7)	(Div+Rep) / MktCap (8)
Intercept	-0.006 ***	-0.016 ***	-0.003	-0.010 ***
	(0.006)	(0.000)	(0.139)	(0.000)
SALARY	0.019 ***		0.010 ***	
	(0.000)		(0.000)	
BONUS	-0.002 ***		-0.002 ***	
	(0.000)		(0.000)	
SALARY_PCT		0.002 *		0.004 ***
		(0.085)		(0.000)
BONUS_PCT				
LN_MKTCAP	0.0005 *	0.003 ***	-0.002 ***	-0.001 ***
	(0.069)	(0.000)	(0.000)	(0.000)
DEBT_EQUITY	-0.002 ***	-0.001	0.002 ***	0.002 ***
	(0.000)	(0.111)	(0.000)	(0.000)
BOOK_MARKET	0.025 ***	0.030 ***	0.016 ***	0.019 ***
	(0.000)	(0.000)	(0.000)	(0.000)
F_CASHFLOW	0.057 ***	0.059 ***	0.023 ***	0.025 ***
	(0.000)	(0.000)	(0.000)	(0.000)
DUMMY_DIV			0.015 ***	0.016 ***
			(0.000)	(0.000)
DUMMY_REP			0.033 ***	0.033 ***
			(0.000)	(0.000)
Adj R-Square	0.093	0.082	0.297	0.294

Second, firms of larger size and higher free cash flow tend to distribute dividends through both cash dividends and share repurchases, which in turn increase relative dividend size. This

finding is consistent with the fact that larger firms may mitigate agency problems by distributing dividends (Jensen and Meckling, 1976; Fenn and Liang, 2001). The negative relationship between DUMMY_DIV and debt-to-equity ratio and between DUMMY_REP and debt-to-equity ratio show that companies with higher leverage prefer not to distribute either cash dividends or carry out share repurchases (Regressions 1, 2, 3, and 4). If a company has high leverage, it is not likely to have extra cash for dividend distribution (Dittmar, 2000; Jagannathan *et al*., 2000).

Finally, this paper finds dividend payout policy increases relative dividend size (Regressions 7 and 8). The coefficient of share repurchase is larger than that of cash dividend, suggesting that share repurchases contribute more to relative dividend size. The finding is in accord with the literature that share repurchases have become a more important way of distributing dividends to shareholders (Brav *et al.*, 2005; Allen and Michaely, 2003).

5.2 Regression Models for Dividend Type and Relative Dividend Size Using 2006 Data With Stock and Option Award Information

We estimate four separate regression models for dividend type and relative dividend size, respectively using 2006 data including stock and option award information in ExecuComp's dataset. Table 10 shows the relationship between dividend type and CEO compensation, CEO characteristics, and firm characteristics.

In Table 10, the relationship between DUMMY_DIV and salary, salary percentage, market capitalization, book-to-market ratio, and free cash flow is positive, whereas the relationship between DUMMY_DIV and option awards is negative (Regressions 9 and 10). The relationship between DUMMY_REP and stock awards percentage, market capitalization and free cash flow is positive, whereas the relationship between DUMMY_REP and debt-to-equity ratio is negative (Regressions 11 and 12).

Table 10. Logit Estimates of Dividend Type (With Stock and Option Awards)

The sample has 848 observations that come from the merger of Compustat and ExecuComp datasets in 2006. Dividend types include DUMMY_DIV and DUMMY_REP. DUMMY_DIV equals one when companies distribute cash dividends, and zero when companies do not do so. DUMMY_REP equals one when companies repurchase shares, and zero when companies do not do so. The sum of salary, bonus, stock awards, and option awards is total compensation. SALARY_PCT is calculated as salary divided by total compensation. Similarly, BONUS_PCT is calculated as bonus divided by total compensation. STOCK_AWARDS_PCT is calculated as stock awards divided by total compensation. OPTION_AWARDS_PCT is calculated as option awards divided by total compensation. MKT_CAP is market capitalization of the company. DEBT_EQUITY is long-term debt divided by equity. BOOK_MARKET is book-to-market ratio. F_CASHFLOW is free cash flow. ***, **, *, denote significance levels of 1%, 5%, and 10%, respectively. *p*-values are presented in parentheses.

	Dividend Type			
Variable	DUMMY_DIV (9)	DUMMY_DIV (10)	DUMMY_REP (11)	DUMMY_REP (12)
Intercept	-0.607 ***	-0.830 ***	0.104	-0.142
	(0.000)	(0.000)	(0.390)	(0.390)
SALARY	0.268 ***		0.054	
	(0.000)		(0.392)	
BONUS	-0.021		0.056	
	(0.347)		(0.792)	
SALARY_PCT		0.256 *		0.184
		(0.063)		(0.166)
BONUS_PCT				
STOCK_AWARDS	0.008		0.010	
	(0.355)		(0.240)	
OPTION_AWARDS	-0.038 ***		-0.004	
	(0.000)		(0.666)	
STOCK_AWARDS_PCT		0.211		0.253 **
		(0.106)		(0.044)
OPTION_AWARDS_PCT		-0.076		0.191
		(0.557)		(0.126)
LN_MKTCAP	0.088 **	0.117 ***	0.068 ***	0.078 ***
	(0.000)	(0.000)	(0.000)	(0.000)
DEBT_EQUITY	-0.014	0.0002	-0.143 ***	-0.139 ***
	(0.758)	(0.997)	(0.001)	(0.001)
BOOK_MARKET	0.332 ***	0.356 ***	-0.083	-0.051
	(0.000)	(0.000)	(0.326)	(0.544)
F_CASHFLOW	0.851 ***	0.969 ***	0.589 ***	0.596 ***
	(0.000)	(0.000)	(0.002)	(0.002)
Max-rescaled R-Square	0.168	0.159	0.131	0.133

The estimates of relative dividend size are presented in Table 11. The relationship between relative dividend size and salary, stock awards percentage, option awards percentage, debt-to-equity ratio, book-to-market ratio, free cash flow, DUMMY_DIV and DUMMY_REP is positive (Regressions 13, 14, 15, and 16). Combining the results of Table 10 and Table 11, it shows the relationships between dependent variables and CEO compensation structure (coming from salary and bonus), firm characteristics, and dividend payout policies are similar to those found in Table 8 and Table 9: CEO salary is positively related to cash dividends and relative dividend size; bonus is negatively associated with cash dividends but is positively related to share repurchases; larger firms with higher free cash flow distribute dividends through cash dividends and share repurchases; dividend payouts increase relative dividend size; and repurchases appear to have become a more important way of distributing dividends to shareholders.

When CEO salary, bonus, stock awards, and option awards are considered as total CEO compensation, the impacts of compensation structure variables on dividend type and relative dividend size are as follows:

First, CEO stock awards are positively associated with share repurchases and relative dividend size, which supports the hypothesis. The finding complements the paper by Fenn and Liang (2001). In addition, the relationship between CEO stock awards percentage and share repurchases is positive. This suggests that when stock awards represent a larger percentage of total compensation, CEOs prefer to repurchase shares because their stock award is linked with stock price.

Second, CEO option awards are negatively associated with cash dividends. Brav *et al*. (2005) suggest that repurchases have become a more flexible method than dividends when a firm distributes earnings. They argued that cash dividends are not important to stock price. Therefore, CEOs with option awards prefer not to have cash dividends. Consistent with the finding by Lambert *et al.* (1989), the hypothesis that CEOs with option awards prefer to repurchase shares rather than distribute cash dividends is supported

Furthermore, this study finds a positive relationship between CEO option awards percentage and share repurchases. This implies that when option awards as a percentage of total compensation are higher, CEOs tend to choose share repurchases rather than cash dividends because share repurchases increase stock price, which increases the value of their options. Finally, the finding supports the hypothesis that stock awards percentage and option awards percentage increase relative dividend size. Murphy (1999) suggests that stock and option awards together represent approximately 50% of a CEO's total compensation. Therefore, little doubt remains regarding the importance of CEO stock and option awards on dividend payout policy.

Table 11. OLS Estimates of Relative Dividend Size (With Stock and Option Awards)

The sample has 848 observations that come from the merge of Compustat and ExecuComp datasets in 2006. Relative dividend size is the sum of cash dividends and share repurchases divided by market capitalization. The sum of salary, bonus, stock awards, and option awards is total compensation. Salary_pct is calculated as salary divided by total compensation. Similarly, bonus_pct is calculated as bonus divided by total compensation. Stock_award_pct is calculated as stock awards divided by total compensation. Option_award_pct is calculated as option awards divided by total compensation. Dummy gender equals one when gender type is male, whereas dummy gender equals zero when gender type is female. Mkt_cap is market capitalization of the company. Debt/Equity is long-term debt divided by equity. BOOK_MARKET is book-to-market ratio. F_CASHFLOW is free cash flow. Dummy dividend equals one when companies distribute cash dividends, whereas dummy dividend equals zero when companies do not distribute cash dividends. Dummy repurchase equals one when companies repurchase shares, whereas dummy repurchase equals zero when companies do not repurchase shares. ***, **, *, denote significance levels of 1%, 5%, and 10% respectively. P value is presented in the parenthesis.

Variable	Relative Dividend Size			
	(Div+Rep) / MktCap (13)	(Div+Rep) / MktCap (14)	(Div+Rep) / MktCap (15)	(Div+Rep) / MktCap (16)
Intercept	-0.0006	-0.030 *	0.003	-0.012
	(0.963)	(0.067)	(0.773)	(0.425)
SALARY	0.015 **		0.009 *	
	(0.015)		(0.098)	
BONUS	-0.001		-0.011	
	(0.583)		(0.546)	
SALARY_PCT		0.016		0.004
		(0.233)		(0.736)
BONUS_PCT				
STOCK_AWARDS	-0.0004		-0.001	
	(0.659)		(0.215)	
OPTION_AWARDS	0.001		0.002 *	
	(0.228)		(0.025)	
STOCK_AWARDS_PCT		0.021 *		0.006
		(0.097)		(0.551)
OPTION_AWARDS_PCT		0.033 ***		0.026 **
		(0.006)		(0.015)
LN_MKTCAP	0.002	0.004 ***	-0.002 *	-0.001
	(0.240)	(0.003)	(0.097)	(0.215)
DEBT_EQUITY	0.004	0.005	0.010 ***	0.011 ***
	(0.336)	(0.201)	(0.005)	(0.002)
BOOK_MARKET	0.008	0.015 *	0.007	0.012
	(0.366)	(0.068)	(0.369)	(0.103)
F_CASHFLOW	0.073 ***	0.080 ***	0.036 **	0.040 **
	(0.000)	(0.000)	(0.031)	(0.017)
DUMMY_DIV			0.013 ***	0.015 ***
			(0.000)	(0.000)
DUMMY_REP			0.043 ***	0.043 ***
			(0.000)	(0.000)
Adj R-Square	0.055	0.058	0.267	0.273

6. Conclusion

This paper examines how corporate payout policy is affected by CEO compensation structure using data from more than 1,600 firms during 1992-2006. We estimate the effect of CEO compensation structure, firm characteristics, and dividend payout policy on dividend type and relative dividend size. It shows CEO salary has a positive effect on cash dividends and share repurchases. In addition, stock awards or option awards as a percentage of total compensation increase share repurchases, and dividend payout policy (either cash dividends or share repurchases) increases relative dividend size. These results help explain the relationship between corporate payout policy and CEO compensation structure, CEO characteristics, and firm characteristics after controlling industry dummies.

The contribution of this paper is that it is the first (to the best of our knowledge) to examine the relationship between corporate payout policy and CEO compensation structure controlling firm characteristics. Besides, this paper categorizes dividend payout policy by dividend type and relative dividend size. This allows us to analyze the effects of CEO compensation structure on various aspects of dividend policy. Furthermore, it examines not only the amount but also the percentage change of CEO compensation structure to see the effects on dividend type and relative dividend size. The analysis of salary, bonus, stock awards, and option awards as a percentage of total compensation helps us better understand CEOs' dividend payout policy decisions.

The limitation of this paper is that data from stock awards and option awards are available only for 2006 in ExecuComp's dataset. As a result, we are not able to include these variables in the analysis during 1992-2005. Researchers can continue to conduct further research in this area when more awards data are available in the future. Further analysis can be done regarding the relationship between dividend payout policy and CEO compensation structure for: 1) firms that distribute cash dividends only, 2) firms that carry out share repurchases only, 3) firms that pay out nothing, and 4) firms that use both cash dividends and share repurchases.

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Appendix

Table A1: Industry Classifications

Industry classifications obtained from Kenneth French's website

(http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/).

Industry	Description	SIC Codes
1	Food	0100-0199 0200-0299 0700-0799 0900-0999 2000-2048 2050-2068 2070-2087 2090-2092 2095-2099 5140-5159 5180-5182 5191-5191
2	Mining and Minerals	1000-1049 1060-1069 1080-1099 1200-1299 1400-1499 5050-5052
3	Oil and Petroleum Products	1300-1300 1310-1329 1380-1382 1389-1389 2900-2912 5170-5172
4	Textiles Apparel and Foot Ware	2200-2284 2290-2399 3020-3021 3100-3111 3130-3131 3140-3151 3963-3965 5130-5139
5	Consumer Durables	2510-2519 2590-2599 3060-3099 3630-3639 3650-3652 3860-3861 3870-3873 3910-3911 3914-3915 3930-3931 3940-3949 3960-3962 5020-5023 5064-5064 5094-5094 5099-5099
6	Chemicals	2800-2829 2860-2879 2890-2899 5160-5169
7	Drugs Soap Perfumes and Tobacco	2100-2199 2830-2834 2850-2844 5120-5122 5194-5194
8	Construction and Construction Materials	0800-0899 1500-1511 1520-1549 1600-1799 2400-2459 2490-2499 2850-2859 2950-2952 3200-3200 3210-3211 3240-3241 3250-3259 3261-3261 3264-3264 3270-3275 3280-3281 3290-3293 3420-3433 3440-3442 3446-3446 3448-3452 5030-5039 5070-5078 5198-5198 5210-5211 5230-5231 5250-5251
9	Steel Works etc.	3300-3300 3310-3317 3320-3325 3330-3341 3350-3357 3360-3369 3390-3399
10	Fabricated Products	3410-3412 3443-3444 3460-3499
11	Machinery and Business Equipment	3510-3536 3540-3586 3589-3600 3610-3613 3620-3629 3670-3695 3699-3699 3810-3812 3820-3827 3829-3839 3950-3955 5060-5060 5063-5063 5065-5065 5080-5081
12	Automobiles	3710-3711 3714-3714 3716-3716 3750-3751 3792-3792 5010-5015 5510-5521 5530-5531 5560-5561 5570-5571 5590-5599
13	Transportation	3713-3713 3715-3715 3720-3721 3724-3725 3728-3728 3730-3732 3740-3743 3760-3769 3790-3790 3795-3795 3799-3799 4000-4013 4100-4100 4110-4119 4120-4121 4130-4131 4140-4142 4150-4151 4170-4173 4190-4199 4200-4200 4210-4231 4400-4700 4710-4712 4720-4742 4780-4780 4783-4783 4785-4785 4789-4789
14	Utilities	4900-4900 4910-4911 4020-4925 4930-4932 4939-4042
15	Retail Stores	5260-5261 5270-5271 5300-5300 5310-5311 5320-5320 5330-5331 5334-5334 5390-5399 5400-5400 5410-5412 5420-5421 5430-5431 5440-5441 5450-5451 5460-5461 5490-5499 5541-5541 5550-5551 5600-5699 5700-5700 5710-5722 5730-5734 5735-5736 5750-5750 5800-5813 5890-5890 5900-5900 5910-5912 5920-5921 5930-5932 5940-5949 5960-5963 5980-5990 5992-5995 5999-5999
16	Banks Insurance Companies and Other Financials	6010-6023 6025-6026 6028-6036 6040-6062 6080-6082 6090-6100 6110-6112 6120-6129 6140-6163 6172-6172 6199-6300 6310-6312 6320-6324 6330-6331 6350-6351 6360-6361 6370-6371 6390-6411 6500-6500 6510-6510 6512-6515 6517-6519 6530-6532 6540-6541 6550-6553 6611-6611 6700-6700 6710-6726 6730-6733 6790-6792 6794-6795 6798-6799
17	Others	2520-2549 2600-2659 2661-2661 2670-2761 2770-2771 2780-2799 2835-3836 3990-3000 3010-3011 3041-3041 3050-3053 3160-3161 3170-3172 3190-3199 3220-3221 3229-3231 3260-3260 3262-3263 3269-3269 3295-3299 3537-3537 3640-3649 3660-3666 3669-3669 3840-3851 3991-3991 3993-3993 3995-3996 4810-4813 4820-4822 4830-4841 4890-4892 4899-4899 4950-4961 4970-4971 4991-4991 5040-5049 5082-5088 5090-5093 5100-5100 5110-5113 5199-5199 7000-7000 7010-7011 7020-7021 7030-7033 7040-7041 7200-7200 7210-7213 7215-7221 7230-7231 7240-7241 7250-7251 7260-7269 7290-7291 7299-7300 7310-7323 2330-2338 7340-7342 7349-7353 7259-7385 7389-7395 7397-7397 7399-7399 7500-7500 7510-7523 7530-7549 7600-7600 7620-7620 7622-7623 7629-7631 7640-7641 7690-7699 7800-7829 7830-7833 7840-7841 7900-7900 7910-7911 7920-7929 7930-7933 7940-7949 7980-7980 7990-8499 8600-8700 8710-8713 8720-8721 8730-8734 8740-8748 8800-8911 8920-8999