
International Review of Accounting, Banking and Finance
Vol 2, No. 1, Spring 2010 Page 9~22

IRABF
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Institutional Ownership, Managerial Ownership and Dividend Policy in Bank Holding Companies

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Abstract: We study the dividend policies of bank holding companies (BHCs) which have dispersed ownership in a regulated environment. The results show that dividend is a countermeasure against agency problems in the banking industry. BHCs with higher agency costs tend to have higher dividend yields. Dividend is negatively related to ownership dispersion, indicating that firms with greater ownership dispersion use dividends to reduce the agency problems caused by the lack of collective shareholder actions. Dividend is negatively related to CEO ownership, CEO incentive pay and institutional ownership, suggesting that dividends work as a substitute for these corporate governance mechanisms in counteracting agency problems.

1. Introduction

Miller and Modigliani's (1961) groundbreaking paper suggests that dividend is irrelevant for firm value. Following the paper, there have been numerous studies that try to explain corporate dividend policies. However, there is little work that examines the dividend policies of bank holding companies (BHCs). This paper intends to investigate the dividend policies of BHCs, particularly in the context of agency conflict between managers and shareholders, an increasingly important problem in corporate finance. Dividends payout has been regarded as an effective measure for reducing agency costs. Rozeff (1982) points out that payouts to shareholders reduce the resources under manager's control, thereby reducing manager's power, and making it more likely that managers will incur the monitoring of the capital markets (Rozeff, 1982; Easterbrook, 1984). Low dividends may suggest an expropriation of small shareholders by colluding large shareholders and managers. Faccio, Lang and Young (2001) find that in East Asia, the dividend payout is significantly lower for business firms controlled by large shareholders with 10% to 20% shareholdings.

The banking industry has been excluded from most of the studies on dividends in the context of agency costs on the ground that regulations on banks to a large extent serve as a substitute for shareholder monitoring. The finance literature suggests that US regulations have traditionally weakened the incentives for market-based monitoring of bank CEOs (Roth and Saporoschenko, 2001). Flannery (1998), for example, argued that the regulatory monitoring of banks, which was designed to limit taxpayers' liability, decreases the incentives of outside investors to monitor and discipline bank managers. Furthermore, there are numerous

restrictions on the BHCs' dividend policies, which we will discuss in detail at the end of this section. Within the unique context of the banking industry, a natural question arises: "Is dividend still an effective countermeasure against agency problems?" This paper studies the role of dividend in reducing agency costs by examining the relationship between dividend and percentage managerial ownership, institutional ownership, and a set of other variables that measure the level of agency costs. Thus, this study contributes to the literature by examining the role of dividend policy to shed light on the agency cost problem in the banking industry.

Empirical studies have shown evidence on the ownership diffusion of the BHCs. The ownership structures within large commercial banks are found to be highly dispersed (Mercado-Mendez and Willey, 1995). Dispersed ownership tends to give rise to weakened monitoring and increase agency costs because dispersed owners generally lack sufficient incentives to take collective actions when a bank's top managers perform poorly. Therefore, we include the dispersion of institutional investors as a measure of agency costs. We expect that firms with higher dispersion of institutional investor ownership will have higher agency costs and therefore will pay out more dividends. We measure dispersion of ownership as the number of institutional investors.

Institutional investors are playing an increasingly important role in the stock market. Gompers and Metrick (2001), for example, finds that the increased demand of institutional investors for large, liquid stock can drive up the price and return of large-company stocks and make the historical small-company stock premium disappear. Institutional ownership may serve as an alternative monitoring mechanism to dividend because institutional investors' stake and voting power in the firm gives them the incentive and the ability to influence managerial behavior (Shleifer and Vishny 1986). We examine the presence of institutional shareholders in BHCs and their relationship with dividends. We expect that institutional ownership will be negatively related to dividends as they serve as substitutes for each other in reducing agency costs.

In studying the role of dividend policy in reducing agency costs, we also include CEO ownership and CEO incentive pay as the determinants of dividend payout policy because they are proved to be effective measures for reducing agency costs. It has been widely acknowledged that insider ownership serves as an important tool for reducing agency costs. Insiders with large stake in the firm will be more aligned with outside shareholders' interests. Rozeff (1982) contends that firms that use a high percentage of insider stock ownership to reduce agency costs tend to pay small dividends, while firms with low insider stock ownership are characterized by high dividend payout ratios. "As insiders hold fewer (more) shares, the demand for dividends rises (falls) as higher (lower) dividend payouts function to lower (raise) monitoring costs" (Casey et. al, 2000).

In some papers, the relationship between insider ownership and agency costs is nonmonotonic. Morck, Shleifer and Vishny (1988) find a non-monotonic relation between ownership by the board of directors and firm value, as measured by Tobin's Q. McConnell and Servaes (1990) find a curvilinear relation between Tobin's q and insider stock ownership. Beyond the point where managerial ownership starts entrenching the managers, an increase in insider ownership may be expected to increase agency costs. In order to address this concern, we include a non-linear regression as our alternative specification.

Jensen (1986) examines the benefits of debt in reducing agency costs of free cash flow and finds that debt serves as a substitute for dividends in reducing agency problems. He argues that debt creation, without retention of the proceeds of the issue, force managers to effectively bond their promise to pay out future cash flow. "By issuing debt in exchange for stock, managers are bonding their promise to pay out future cash flow in a way that cannot be

accomplished by simple dividend increases … Thus; debt reduces the agency costs of free cash flow by reducing the cash flow available for spending at the discretion of managers." Since debt may serve as a substitute for dividend, it needs to be included as a determinant of corporate dividend policy. We measure debt as the ratio of the long-term debt to total asset.

In the finance literature, investment opportunity is an important determinant of dividend and therefore needs to be controlled for. Dividend policy is related to the transaction cost of external financing. Firms with higher growth opportunity will need to keep dividend payouts lower to avoid the costs of external financing. Smith and Watts (1992) empirically prove that growth opportunity is negatively associated with dividend payout because high growth opportunity mitigates the conflicts between shareholders and management on the cash control rights. Gugler (2003) finds that firms with low investment opportunities (no R&D spending) pay higher dividend, irrespective of who controls the corporation. So we include growth opportunity to explain dividend policy. We use market to book ratio as the proxy for investment opportunity.

In addition, the standard deviation of firm stock returns is another measure of transaction costs of external financing (Crutchley, 1987), since underwriters charge more for underwriting the issues of riskier firms. We use the standard deviation of daily stock returns as another measure of transaction cost. If transaction costs matter in BHC dividend policy, there should be a negative relation between dividend payout and standard deviation of daily stock returns.

Our empirical results show that dividend is an important countermeasure against agency costs in the banking industry. Dividend yield is negatively related to CEO ownership and CEO incentive pay, indicating that dividend and managerial ownership serve as substitutes for each other in reducing agency costs. Institutional ownership is also negatively related to dividend yield. When we break down institutional investors into five types, we find that only insurance companies (type 2), independent investment advisors (type 4) and others (type 5) are significantly related to dividends. Ownership dispersion is positively related to dividend payout, suggesting that firms with higher agency costs tend to pay higher dividends. Debt is significantly and positively related to dividend, implying that debt is a supplement instead of a substitute for dividend in addressing agency costs in the banking industry.

4.1 A further look into the effect of regulation on BHC dividend policy

For the banking industry, the determinants of dividend payout are to a large extent complicated by regulations and insurance. It is a major concern of the Federal Reserve System and other government agencies that dividend payments will reduce capital levels and capital adequacies of banking organizations. In order to ensure that dividend payments are reasonable, limitations have been put in place to monitor and control the outflow of capital. According to the Philadelphia Federal Reserve Bank, three methods are used for this purpose: the prompt corrective action (PCA) guidelines, which control capital levels from a balance sheet perspective; the section 60 dividend payment limitation, which limits the outflow of capital from the income statement perspective; and the section 56 dividend payment limitation, which establishes restrictions on dividends based on bank's undivided profits. These three methods work in tandem, each playing a key factor in monitoring banks' safety and soundness by ensuring that an adequate capital level is maintained.

Filbeck and Mullineaux (1993) investigate various regulatory constraints on bank dividend payout. They find that banks are constrained by the FED's rule concerning banks' eligibility for dividend payout. According to that rule, banks with earning weakness are not allowed to pay cash dividend that exceeds its net earnings. They further find that besides the

FED, other regulatory institutions have also erected rules on bank's dividend payout. "The National Bank Act constrains the dividend payment to the amount of retained earnings and requires the Approval of the Comptroller of the Currency for any dividend payout that exceeds the total of its net profit in a given year plus the retained earnings of the previous two years."

Considering the importance of regulations in determining BHC's dividend policy, variables that affect the dividend policies of non-bank firms may not affect banks. Therefore, whether dividend is a countermeasure against agency problems for banks remains largely an empirical issue.

The remainder of the paper is organized as the following: Section 2 introduces model specifications and hypotheses. Section 3 provides empirical results. Section 4 concludes the paper.

2. Model and Hypothesis

This section examines the role of dividend in reducing agency costs by examining the relationship between dividend and a set of variables including leverage, percentage managerial ownership, institutional ownership and ownership dispersion.

The primary specification is as follows:

$$DIVYLD_{it} = \beta_0 + \beta_1 CEOOWN_{it} + \beta_2 INCEN + \beta_3 INS + \beta_4 INSNUM + \beta_5 MKTTOBK_{it} + \beta_6 LEVERAGE_{it} + \beta_7 SIZE_{it} + \beta_8 VOL_{it} + \varepsilon_{it} \quad \textbf{(1)}$$

DIVYLD= Dividends per Share by ex-date divided by the close price for the previous fiscal year, multiplied by 100.

CEOOWN is the percentage of common shares held by CEO; CEO ownership and dividend payout serve as substitutes for each other in addressing agency problems and therefore should have a negative relationship.

INCEN is CEO incentive compensation (total compensation – salary –bonus) dividend by total CEO compensation; CEO incentive compensation is stock and option related compensation which can align the interest of the CEO with that of the shareholders and mitigate agency costs. We expect CEO incentive compensation to be negatively related to dividend yield too.

INS is the percentage of common shares held by institutional investors and INSNUM is annual average number of institutional investors. The number of institutional stockholders is included in the model to measure the level of ownership dispersion. Lower dispersion implies more concentrated ownership. It is widely acknowledged that dispersed ownership makes it less likely that stockholders effectively monitor management. However, concentrated ownership, often related to the existence of large shareholders, will make it more likely for the shareholders to monitor and influence insider behavior. Therefore, we expect that as the number of institutional investors increases, the likelihood of higher dividend yield will also increase.

MKTTOBK is the market to book ratio. The theories of capital structure generally suggest that firms with better investment opportunities tend to pay lower dividends. Market to book ratio is an indicator of investment opportunity and is expected to have a negative relationship with dividend yield.

LEVERAGE is the ratio of long-term debt to total asset. Leverage affects dividend policy in two dimensions. On the one hand, leverage serves as a substitute for dividend in

addressing agency problems and therefore should bear a negative sign. On the other hand, higher leverage means lower capital adequacy ratio. Therefore, highly leveraged banks are likely to face more intense regulatory monitoring than banks with adequate capital. Other things being equal, firms with higher leverage will choose lower dividend payout.

SIZE is the bank's market value in logarithmic form, serving as a control variable. Larger BHCs' have higher agency problems and therefore may pay higher dividends to mitigate such costs. Furthermore, larger firms have easier access to external financing and rely less on internal capital. Accordingly larger firms may be associated with higher dividend payout (Holder et al., 1998).

VOL is the volatility of stock returns over the previous 60-month period. Stock volatility is expected to be negatively related to dividend yield because riskier firms are assoicated with higher transaction costs of external financing and therefore prefer holding more internal capital and not paying dividend .

3. Data and Summary Statistics

We focus on large BHCs which had more than 500 million in total assets at the end of 1993 and we trace them forward for 15 years. We have 137 BHCs in our sample and the sample period is from 1993 to 2008. We present the summary statistics of the variables in Table 1. CEO ownership and CEO incentive pay are yearly data coming from Executive Compensation database. The institutional ownership data comes from CDA spectrum CD, which is quarterly. In order to merge institutional ownership data with Executive Compensation database, we use the annual average of quarterly data as the measures of institutional ownership. The data on dividend, fiscal year-end stock price, the number of common shares, sales, and book value of equity, long-term debt and total assets come from COMPUSTAT. The stock returns for the prior 60 months come from CRSP.

Table 1 presents the descriptive statistics for the variables. For each variable, we include its mean, median, standard deviation and maximum and minimum values. Managerial Ownership, institutional ownership and other variables are reported in Panel A, B, and C, respectively. As reported in Panel A, CEOOWN, the percentage of common shares held by CEO varies from 0 to 89.642%, with a standard deviation of 15.383% around its mean, which is 8.81%. The median CEO ownership is 2.46%. Leverage ranges from 0 to 86.9% with a mean of 6.3% and a median of 4.7%. The standard deviation of leverage is at a low 6.4%. The low variation in leverage may reflect the fact that the capital structure of banks is to a large extent influenced by capital adequacy regulations.

Panel B shows the mean, median, minimum, maximum and standard deviation of all the variables on institutional ownership. A 1978 amendment to the Securities and Exchange Act of 1934 required all institutions with greater than $100 millions of securities under discretionary management to report their holdings to SEC. Holdings are reported quarterly on the SEC's form 13F; all common-stock positions greater than 10,000 shares or $200,000 must be disclosed. In the CDA spectrum database, institutional investors are classified into bank trust departments (type 1), insurance companies (type 2), investment companies (type 3), independent investment advisors (type 4) and others (type 5). The "others" category includes pension funds and university endowments. The ownership proportions of these five types of institutions are represented by INS1, INS2, INS3, INS4, and INS5. Comparatively, the ownership proportions of bank trust departments (INS1), independent investment advisors (INS4) and other investors (INS5) are higher than those of insurance companies (INS2) and investment companies (INS3). Similarly the numbers of type 1, type4 and type5 investors are larger than those of type 2 and type 3. Adding up the means of the five types of institutional

ownership, we find that the average institutional ownership (INS) in BHCs is 29% over the sample period of 1993-2008. This proportion level is very low compared to general 13(f) institutional ownership (on average near 60%).

Table1. Descriptive Statistics of the Sample

This table reports summary statistics for our sample during 1993-2008. Panel A-C presents summary statistics on managerial ownership, institutional ownership, and other variables, respectively. CEOOWN is the percentage of common stock held by CEO. INCEN is CEO incentive ratio calculated as incentive compensation (total compensation-salary-bonus) divided by total compensation of CEO. INS is the percentage of common stock held by institutional investors. INS1, INS2, INS3, INS4, and INS5 are the percentages of common stock shares held by five types of institutional investors,. These five types of institutional investors are: bank, and bank trust departments (type 1), insurance companies (type 2), investment companies (type 3), independent investment advisors (type 4) and others (type 5). INSNUM is the annual average number of institutional investors. INSNUM1, INSNUM2, INSNUM3, INSNUM4, and INSNUM5 are the annual average numbers of the five types of institutional investors described above. DIVYLD is dividends per share by ex-date divided by the close price for the previous fiscal year and then multiplied by 100. MTB is market to book ratio which is calculated as market value of common shares over book value of equity. SALE3LS and SALE5LS are realized average growth rates of (sales) revenues over a 3-year and 5-year period, respectively. LEVERAGE is the ratio of long-term debt to total assets. Vol is the volatility of stock return over a 60-month period. MKTVAL is the market value of common shares, and the natural logarithm of the market value is used as a measure of firm size.

Variable	Mean	Median	Std Dev	Minimum	Maximum
Panel A: Managerial Ownership					
CEOOWN	0.088	0.025	0.154	0	0.896
INCEN	0.524	0.543	0.239	0	1.000
Panel B: Institutional Ownership					
INS	0.289	0.247	0.200	0	0.955
INS1	0.072	0.052	0.084	0	0.815
INS2	0.011	0.003	0.021	0	0.245
INS3	0.016	0.007	0.028	0	0.23.5
INS4	0.060	0.039	0.063	0	0.378
INS5	0.131	0.084	0.135	0	0.805
INSNUM	124.790	68.000	171.500	0	1360.500
INSNUM1	20.954	12.750	22.634	0	123.250
INSNUM2	4.521	3.250	4.463	0	32.500
INSNUM3	3.357	1.750	4.644	0	35.500
INSNUM4	18.539	9.250	27.149	0	261.000
INSNUM5	77.415	29.250	134.220	0	1056.500
Panel C: Other Variables					
DIVYIELD (%)	3.140	0.027	138.710	0	6184.900
MTB	2.094	1.957	0.874	0	7.802
SALE3LS	0.102	0.093	0.149	-0.828	1.423
SALE5LS	0.090	0.087	0.130	-0.632	0.941
LEVERAGE	0.063	0.047	0.064	0.000	0.869
VOL	0.021	0.020	0.007	0.009	0.082
MKTVAL($ Million)	5628.150	850.850	17059.95	0.080	238021

As can be seen from Panel C, the mean and median of most of the firm-specific control variables are close to each other. However, the mean market value of common stocks ($5,628 million) is much higher than median ($850.85 million), indicating that the market

capitalization variable is right-skewed. A small number of BHCs have much larger market values than other BHCs.

4. Regression Results

4.1 Linear regression results

Table 2 shows the results for the estimated coefficients from regressing dividend yield on CEO ownership, CEO incentive compensation, institutional ownership proportion and the number of institutions. The primary specification is equation (1) specified in section 2. In column (1), we only include the variables on CEO ownership as the major explanatory variables, and in column (2), we only include the variables on institutional ownership as the major explanatory variables. In column (3), CEO ownership variables and institutional ownership variables are both included in the regression. We replace the stock volatility measure (VOL) with the growth rate of revenue over the past 3 or 5 years (SALE3LS or SALE5LS) in columns (4) and (5).

Table 2. Linear Regression Model of Dividend Yield on Managerial Ownership and Institutional Ownership

This table displays the estimation results from the regression of dividend yield on managerial ownership and institutional ownership. The variables are defined in Table 1. The dependent variable is dividend yield (DIVYLD) and the major independent variables are CEO ownership (CEOOWN), CEO incentive ratio (INCEN), percentage of institutional ownership (INS) and the number of institutional investors (INSNUM). T-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dividend Yield, Managerial Ownership, and Institutional Ownership						
Variable	Sign	Dependent variable=DIVYLD				
Column		(1)	(2)	(3)	(4)	(5)
Intercept		0.046***	0.039***	0.055***	0.038***	0.039***
		(8.87)	(12.77)	(8.36)	(6.94)	(6.76)
CEOOWN	+/-	-0.024***		-0.027***	-0.023***	-0.023***
		(-7.31)		(-7.81)	(-6.68)	(-6.73)
INCEN	+/-	-0.004**		-0.005**	-0.006***	-0.006***
		(-1.98)		(-2.44)	(-2.76)	(-2.62)
INS	+/-		-0.011***	-0.015***	-0.016***	-0.016***
			(-5.18)	(-4.20)	(-4.61)	(-4.40)
INSNUM/100	+/-		0.001***	0.001***	0.001*	0.001*
			(3.22)	(2.60)	(1.89)	(1.71)
MTB	-	-0.003***	-0.001***	-0.002***	-0.002***	-0.002***
		(-6.21)	(-3.52)	(-4.30)	(-4.41)	-(4.16)
LEV	+	0.019**	0.023***	0.020***	0.021***	0.024***
	-	(2.33)	(4.63)	(2.61)	(2.67)	(3.02)
SIZE/100	-	0.015	-0.048	-0.141**	-0.032	-0.027
		(0.39)	(-1.28)	(-2.08)	(-0.48)	(-0.40)
VOL	-	-0.806***	-0.337***	-0.594***		
		(-7.01)	(-6.34)	(-4.23)		
SALES3LS	-				-0.023***	
					(-4.96)	
SALES5LS	-					-0.021***
						(-3.81)
Year Dummies		Yes	Yes	Yes	Yes	Yes
Adjusted R		0.3786	0.1705	0.4461	0.4540	0.4434

As expected, CEO ownership and CEO incentive compensation are negatively related to dividend yield. The coefficients on CEOOWN are highly significant (at the 1% level) in all

the specifications. [1] These results confirm our expectations that dividend payout and managerial ownership serve as substitutes in addressing agency costs. Holding all other variables constant, a one standard deviation (15.4%) increase in CEO ownership from the mean is associated with a decrease in dividend yield of 0.13%.[2] Leverage has a significant positive relationship with dividend yield, suggesting that highly leveraged BHCs prefer to pay out high dividends. This result may imply that in the banking industry, where capital adequacy is highly regulated, leverage is not an effective measure for reducing agency costs. If BHCs do not have much discretion in choosing their leverage level, they certainly won't be able to use leverage as an effective tool for reducing agency costs. As can be seen from the summary statistics, the standard deviation of leverage is as low as 0.064. We also find that CEO incentive compensation ratio is negatively related to dividend yield. CEOs whose compensations mainly include stocks and options may pursue high-growth strategies in order to benefit from the upside effect of stock volatility. As a result, they prefer low-dividend policies and choose to retain most of the earnings for future investment purpose.

We find that dividend yield is negatively related to institutional ownership proportion, but positively related to the number of institutional investors. The relationship is significant at 1% or 5% in all specifications. Holding other things constant, a one standard deviation (20%) increase in institutional ownership proportion from the mean is associated with a decrease in dividend yield of 0.096%. [3] Our results seems to suggest that dividend and institutional ownership work as a substitute for each other in addressing agency problems. Alternatively, with high stock holding, institutional investors have the power to influence managers on dividend policies. As large shareholders, institutional investors can enjoy the upside benefit when stock price increases without bearing the downside risk when firms go bankruptcy. Therefore, they prefer high risk. By adopting low dividend payout policy, large shareholders can expropriate wealth from small shareholders and engage in high- risk strategies.

However, the number of institutional investors (INSNUM) can serve as a measure of ownership dispersion or agency costs. The larger the number of institutional investors, the larger the agency costs and the more dividend payout will be needed to mitigate the expropriation by managers. In addition, a large number of small institutional investors may pressure managers to increase dividend payout. We find that a one standard deviation (171.5) increase in the number of institutional investors from the mean is associated with an increase in dividend yield of 5.41% in all of the specifications[4]. These results imply that as the number of shareholders increase, the agency costs increases and the demand for dividend increases accordingly. The other control variables including market to book ratio, size and the standard deviation of stock returns (VOL) all have the expected signs. Market to book ratio (MTB), stock return volatility (VOL) and sales growth rates (SALES3LS and SALE5LS) are negatively related to dividend yield, indicating that BHCs with higher growth opportunities and higher risk tend to pay out lower dividends in order to save for future investments.

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[1] Because the coefficients of number of investors (INSUM) and firm size are very small with many decimal places, we use the one hundredth of INSUM and size as the regressor.

2 A one standard deviation (15.4%) increase in CEO ownership is associated with a decrease in dividend yield of 15.4%*0.00027= 0.000042 from its mean value, which is equal to 0.000042/0.0314 = 0.13% in percentage term.

[3] A one standard deviation (20%) increase in institutional ownership proportion is associated with a decrease in dividend yield of 20%*0.00015= 0.00003 from its mean value, which is equal to 0.00003/0.0314 = 0.096% in percentage term.

[4] A one standard deviation (171.5) increase in the number of institutional investors is associated with an increase in dividend yield of 171.5*0.00001= 0.0017 from its mean value, which is equal to 0.0017/0.0314 = 5.41% in percentage term.

In conclusion, our results seem to indicate that dividend is an important countermeasure against agency costs in the banking industry. Higher managerial ownership and higher institutional ownership are associated with lower dividend yield, suggesting that dividend, managerial ownership and institutional ownership can substitute for each other in reducing agency costs. The number of institutional investors, as a measure of ownership dispersion, is positively associated with dividend yield. However, leverage is not an important tool for addressing agency costs in the banking industry. Altogether, our results seem to imply that BHCs with higher agency costs tend to have higher dividend yields.

Table 3. Non-Linear Regression Model of Dividend Yield on Managerial Ownership and Institutional Ownership

This table reports the results for the non-linear regressions of dividend yield on managerial ownership and institutional ownership. $(CEOOWN)^2$ and INS^2 are squared CEO ownership and squared institutional ownership. CEOOWN*INS are the interaction term between CEO ownership and institutional ownership. Other variables are defined in Table 1. T-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Non-Linearity of Dividend Yield, Managerial Ownership, and Institutional Ownership					
Variable	Sign	Dependent variable=DIVYLD			
Column		(1)	(2)	(3)	(4)
Intercept		0.046***	0.058***	0.055***	0.059***
		(8.89)	(8.74)	(8.26)	(8.70)
CEOOWN	+/-	-0.030***	-0.049***	-0.026***	-0.053***
		(-3.49)	(-5.72)	(-3.77)	(-4.51)
$(CEOOWN)^2$	+/-	0.010	0.036***		0.038***
		(0.79)	(2.78)		(2.83)
INCEN	+/-	-0.004**	-0.005***	-0.005***	-0.005**
		(-2.05)	(-2.62)	(-2.44)	(-2.59)
INS/100	+/-		-0.015***	-0.015***	-0.016***
			(-4.22)	(-3.86)	(-4.13)
INSNUM/100	+/-		0.001***	0.001**	0.001***
			(2.75)	(2.54)	(2.80)
CEOOWN*INS	+/-			-0.002	0.009
				(-0.16)	(0.57)
MTB	-	-0.003***	-0.002***	-0.002***	-0.002***
		(-6.14)	(-4.14)	(-4.29)	(-4.04)
LEV	-	0.019**	0.020**	0.020***	0.020**
		(2.33)	(2.55)	(2.61)	(2.55)
SIZE/100	-	0.008	-0.173**	-0.140**	-0.179**
		(0.20)	(-2.52)	(-2.04)	(-2.58)
VOL	-	-0.800***	-0.584***	-0.594***	-0.581***
		(-6.93)	(-4.20)	(-4.23)	(-4.18)
Year Dummies		Yes	Yes	Yes	Yes
Adjusted R square		0.3781	0.4552	0.4447	0.4543

4.2 On the non-linearity of managerial ownership and agency costs

To accommodate the concern that managerial ownership may have a non-linear relationship with agency costs and therefore with dividend yield, we include CEO ownership squared in the study following McConnell and Servaes (1990). In Table 3, we do find evidence of non-linearity when the nonlinear terms of CEO ownership is included. The coefficient of CEO ownership (CEOOWN) is still negative. But the coefficient of squared CEO ownership ($CEOOWN^2$) is positive and significant, indicating that a very high level of CEO ownership may serve to entrench the CEO and increase the agency costs of the firm. Furthermore, when CEO ownership increases to a high level, the CEO's personal wealth is closely bonded to the firm and he/she may prefer high dividend payout policy and low risk-

taking strategy. We also include the interaction term between CEO ownership and institutional ownership CEOOWN*INS into the regression model and find its coefficient to be insignificant, suggesting that these two factors are not affecting each other. The other control variables still keep the expected signs.

Table 4. Dividend Yield, Managerial Ownership, and Different Types of Institutional Ownership

This table shows the estimation results from the regression of dividend yield on managerial ownership and five types of institutional ownership. INS1, INS2, INS3, INS4, and INS5 are the percentages of common stock held by five different types of institutional investors multiplied by 100. The five types of institutional investors are: bank trust departments (type 1), insurance companies (type 2), investment companies (type 3), independent investment advisors (type 4) and others (type 5). INSNUM is the annual average number of institutional investors. INSNUM1, INSNUM2, INSNUM3, INSNUM4, and INSNUM5 are the annual average numbers of the five types of institutional investors described above. Other variables are as defined in Table 1. T-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dividend Yield, Managerial Ownership, and Five Types of Institutional Ownership							
Variable	Sign	Dependent variable=DIVYLD					
Column		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.061***	0.044***	0.046***	0.049***	0.048***	0.063***
		(9.97)	(8.57)	(8.80)	(9.13)	(7.23)	(8.88)
CEOOWN	+/-	-0.025***	-0.026***	-0.028***	-0.027***	-0.027***	-0.020***
		(-7.10)	(-7.36)	(-8.08)	(-7.56)	(-7.87)	(-5.86)
INCEN	+/-	-0.006***	-0.005**	-0.006***	-0.006***	-0.004**	-0.004*
		(-2.91)	(-2.64)	(-2.86)	(-2.74)	(-2.11)	(-1.88)
INS1	+/-	-0.006					-0.011
		(-0.61)					(-1.06)
INS2	+/-		-0.034**				-0.035**
			(-1.99)				(-2.11)
INS3	+/-			-0.031			-0.009
				(-1.50)			(-0.41)
INS4	+/-				-0.027***		-0.019*
					(-2.82)		(-1.85)
INS5	+/-					-0.020***	-0.024***
						(-3.77)	(-4.64)
INSNUM1/100	+/-	0.016***					0.020***
		(4.93)					(3.85)
INSNUM2/100	+/-		0.041***				0.026
			(3.23)				(1.00)
INSNUM3/100	+/-			0.022			0.004
				(1.60)			(0.19)
INSNUM4/100	+/-				0.003*		-0.005*
					(1.70)		(-1.69)
INSNUM5/100	+/-					0.001	0.0003
						(1.59)	(0.45)
MTB	-	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.002***
		(-6.24)	(-6.12)	(-6.36)	(-5.96)	(-5.00)	(-4.01)
LEV	-	0.012	0.011	0.013	0.014**	0.016**	0.018**
		(1.61)	(1.32)	(1.52)	(1.79)	(1.97)	(2.15)
SIZE/100	-	-0.289***	-0.080*	-0.046	-0.067	-0.080	-0.334***
		(-4.50)	(-1.90)	(-1.18)	(-1.48)	(-1.24)	(-4.47)
VOL	-	-0.671***	-0.501***	-0.581***	-0.526***	-0.604***	-0.589***
		(-4.85)	(-3.51)	(-4.15)	(-3.76)	(-4.26)	(-4.14)
Year Dummies		Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R square		0.4515	0.4355	0.4229	0.4310	0.4390	0.4906

4.3 Different types of institutional investors and dividend policy

Our results show that institutional ownership proportion shows a negative effect on dividend payout of the BHCs. However, the number of institutional investors is positively related to dividend payout. Institutional investors can be classified into five types: bank trust departments (type 1); insurance companies (type 2), investment companies (type 3), independent investment advisors (type 4) and others (type 5). We wonder the different effects of these five types of investors on dividend policy. We include the shareholding proportion and the number of institutions for these five types of investors and the results are reported in Table 4. In column (1) to (5), the shareholding proportion and the number for institutions of each type of institutions are included as regressors. In column (6), the proportions and the numbers of institutions for all five types are included in the same regression.

Table 5. Dividend Yield, Lagged Managerial Ownership and Institutional Ownership

This table reports the estimation results from the regression of dividend yield on one year lagged managerial ownership and institutional ownership. Other variables are as defined in Table 1. T-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Dividend Yield, Lagged Managerial Ownership, and Institutional Ownership						
Variable	Sign	Dependent variable=DIVYLD				
Column		(1)	(2)	(3)	(4)	(5)
Intercept		0.057***	0.049***	0.067***	0.054***	0.054***
		(12.11)	(15.90)	(12.77)	(12.89)	(12.57)
Lagged CEOOWN	+/-	-0.021***		-0.026***	-0.023***	-0.024***
		(-6.61)		(-7.65)	(-6.96)	(-6.86)
Lagged INCEN	+/-	-0.004**		-0.004**	-0.005**	-0.006***
		(-2.07)		(-2.13)	(-2.33)	(-2.61)
Lagged INS	+/-		-0.010***	-0.013***	-0.016***	-0.017***
			(-4.76)	(-3.91)	(-4.94)	(-5.05)
Lagged	+/-		0.001**	0.001*	0.001**	0.001*
			(2.52)	(1.93)	(1.96)	(1.94)
MTB	-	-0.003***	-0.002***	-0.003***	-0.002***	-0.002***
		(-5.93)	(-4.29)	(-4.65)	(-4.56)	(-4.22)
LEV	-	0.022***	0.023***	0.019**	0.020***	0.021***
		(2.63)	(4.48)	(2.42)	(2.62)	(2.67)
SIZE/100	-	0.021	-0.002	-0.064	-0.021	-0.003
		(0.55)	(-0.06)	(-1.20)	(-0.39)	(-0.06)
VOL	-	-0.566***	-0.328***	-0.435***		
		(-6.10)	(-5.95)	(-4.64)		
SALES3LS	-				-0.018***	
					(-4.62)	
SALES5LS	-					-0.021***
						(-4.01)
Year Dummies		Yes	Yes	Yes	Yes	Yes
Adjusted R square		0.3740	0.1741	0.4440	0.4724	0.4655

The ownership proportion of insurance companies (type 2) and investment advisors (type 4) and others (type 5) have adverse impacts on dividend payout of BHCs. According to Table 1, investment advisors and other institutions account for the majority of the share held by institutions and their negative impact on dividend payout drives the result for the aggregated proportion. For the effect of the number of institutional investors, we find that in general the numbers of investors across the five types are associated with higher dividend yields, indicating that regardless of the type of institutions, when institutional ownership is dispersed, BHCs pay out more dividends. Column 1 of Table 4 shows that the ownership proportions of the type 1 and type 3 institutional investors, which are banks and investment companies, are

negatively related to dividend yield, but the coefficients are not significant. When we combine the proportions and numbers of all five types into one regression, the results remain consistent. Other control variables have expected signs.

4.4 Alternative estimation methods and models[5]

To further check the robustness of our results. We conduct two more tests: Lagged regressions and random-effect regressions. [6]

We regress dividend yield on one year lagged values of CEO ownership, CEO incentive compensation ratio, institutional ownership proportion and the number of institutional investors. The results are reported in Table 5. The coefficients of these variables are still significant and their signs are consistent with those from the previous contemporaneous tests, indicating that previous year's managerial ownership and institutional ownership are still significantly associated with the current dividend yield.

Table 6. Random Effect Regression Models

This table reports the estimation results for the random effect regression models. Columns (1-2) and column (3-4) report the estimations for the one-way and two-way random effect models, respectively. Other variables are as defined in Table 1. T-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Random Effect Regression Models					
Variable	Sign	Dependent variable=DIVYLD			
Column		One-way random effect		Two-way random effect	
		(1)	(2)	(3)	(4)
Intercept		0.055***	0.053***	0.059***	0.048***
		(7.64)	(8.36)	(7.59)	(7.45)
CEOOWN	+/-	-0.010*	-0.011**	-0.009*	-0.009*
		(-1.75)	(-1.96)	(-1.79)	(-1.71)
INCEN	+/-	-0.004*	-0.004**	-0.004**	-0.004**
		(-1.95)	(-2.03)	(-2.15)	(-2.05)
INS	+/-	-0.002	0.001	-0.009**	-0.008**
		(-0.87)	(0.37)	(-2.27)	(-2.16)
INSNUM/100	+/-	0.002***	0.002***	0.001***	0.001***
		(4.05)	(3.31)	(3.43)	(2.81)
MTB	-	-0.003***	-0.003***	-0.001*	-0.00**
		(-4.89)	(-4.79)	(-1.91)	(-1.97)
LEV	-	0.033***	0.028***	0.031***	0.030***
		(3.08)	(2.63)	(3.31)	(3.23)
SIZE/100	-	-0.273***	-0.231***	-0.261***	-0.168*
		(-3.07)	(-2.64)	(-3.03)	(-1.97)
VOL	-	-0.012		-0.271*	
		(-0.12)		(-1.93)	
SALES3LS	-		-0.012***		-0.013***
			(-2.87)		(-2.88)
Year Dummies		Yes	Yes	Yes	Yes
Adjusted R square		0.1791	0.1956	0.0905	0.1038

In Table 6, we report the estimation results of the random effect models. Columns (1-2) and column (3-4) report the estimations for the one-way and two-way random effect models. The results are consistent with our primary findings. The coefficients of some of our major

[5] We have conducted White's test (1980) and the modified Breusch-Pagan test (1979) to address the issue of heteroscedasticity. The P-values of these tests are all insignificant, indicating homoscedasticity.
[6] Hausman's specification test (1978) shows that random effect models are appropriate for our sample.

variables are not as significant as those in the previous tests. But they are all significant and have the expected signs.

5. Conclusion

The banking industry is unique in the sense of regulations and dispersed ownership. This paper is a first attempt to investigate the impact of ownership structure on the dividend policy of large BHCs. Our empirical results suggest that dividend is an important countermeasure against agency costs in the banking industry. BHCs with higher agency costs tend to have higher dividend yields. Dividend, managerial ownership and institutional ownership can substitute for each other in reducing agency costs. Some interesting questions remain unexplored, which include the efficiency of dividend payout in reducing agency costs, the presence of controlling large shareholders, such as families and the roles played by controlling large shareholders in dividend policies. With the presence of regulation, it's possible that there are few controlling large shareholders in BHCs. But when we collect the data, we still find some BHCs have beneficial owners whose controlling right is larger than 5%. Some directors and CEOs have the same last name as the beneficial owners. So the impact of controlling large shareholders in BHCs on dividend policy is an interesting topic.

Institutional investors are not active monitors that protect shareholder interests by increasing dividend payout. Instead, institutional investors, especially investment advisors and insurance companies' ownerships are negatively associated with dividend payout. It is possible that institutional investors collude with managers of BHCs to reduce dividend payout and trade with insider information advantage. This is possible because managerial ownership and institutional ownership are both negatively related to dividend payout and it seems their interests are aligned in this aspect.

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