

Bank Ownership, Free Cash Flow, and Agency Behavior

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We examine whether there are agency cost differences between public and private banks. Using financial report data, we provide evidence consistent with higher perquisite consumption and risk aversion among managers at public banks. We find weak evidence of greater value-destroying acquisitions by public bank managers. We provide strong evidence that managers of banks—both public and private—with large free cash flows make loans of average risk for below-market interest rates and experience higher loan losses. Our findings indicate that ownership structure—public versus private—is an important determinant of the magnitude of agency costs.

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1. Introduction

With the possible exception of sole proprietorships, agency problems exist at all levels of all organizations (Jensen and Meckling, 1976). Existing studies of agency problems focus on public firms, for which information is more readily available. Public firms are arguably more prone to manager-shareholder conflicts because of their relatively more diffuse ownership structure relative to private firms. Concern about agency conflicts in diffusely owned firms dates back to at least Berle and Means (1932) and is echoed in recent literature as well (e.g., Bebchuk and Fried, 2004). However, Fama (1980) argues that the separation of management and risk bearing found in public firms is an efficient organizational structure.

Private firms have more concentrated ownership, often including a controlling shareholder. In this situation, there can be conflict between the controlling shareholder and minority shareholders, e.g., the controlling shareholder may engage in rent extraction (Bebchuk, Kraakman, and Triantis, 2000). An opposing view is that a majority shareholder can act as an effective monitor of management, thereby benefiting all shareholders (Shleifer and Vishny, 1986).

In this paper, we examine whether there are agency cost differences between public and private firms, using bank holding companies (hereafter, “banks”) as our laboratory. In the United States, banks are required to file reports of their financial condition with the Federal Reserve on a quarterly basis, regardless of their public or private ownership status. Using widely accepted financial variables, we examine perquisite consumption and slacking, value-destroying acquisitions, and risk aversion in both public and private banks. The next section describes our testable hypotheses and their relation to agency costs.

The contribution of our paper is the empirical assessment of how public versus private ownership influences the degree of agency costs in organizations. To our knowledge, ours is the first paper to make this comparison. Given the importance of the financial sector in the U.S. economy, a greater understanding of the extent of agency costs differences in financial institutions is of value to directors on bank boards, investors, regulators, and public policy makers.

We provide evidence consistent with higher perquisite consumption and risk aversion among managers at public banks and weak evidence of greater value-destroying acquisitions by public bank managers. We also provide strong evidence that managers of banks with large free cash flows make loans of average risk for below-market interest rates and experience higher loan losses, consistent with managerial slacking through lack of proper risk assessment and loan monitoring.

The remainder of the paper is organized as follows: Section 2 describes our hypotheses. Section 3 describes the sample data and the methods used in the study. Section 4 reviews the results and provides robustness tests. Section 5 examines implications and alternative explanations.

2. Hypotheses

Jensen and Meckling (1976) provide a theoretical basis for the study of perquisite consumption (including slacking) by managers who own less than 100% of their firms' equity. Studies have previously documented perquisite consumption, including slacking, at financial institutions. Arnould (1985) shows that managers of banks located in concentrated markets whose directors own less than 30 percent of outstanding common stock receive significantly higher compensation than other bankers, a result consistent with agency explanations. DeYoung et al. (2001) examine the relationship between managerial shareholdings and financial performance at 266 state-chartered commercial banks. The authors find that low levels of managerial ownership are negatively related to financial performance, consistent with equity ownership helping to align managers' interests with shareholders' interests, in support of the predictions of Jensen and Meckling (1976).

Yet none of these studies compare public and private banks. Based on the assumption that monitoring is more effective in private firms than in public firms, we refer to our first hypothesis as the "perquisite" hypothesis:

H1: Public banks will display more evidence of perquisite consumption and slacking than private banks.

Jensen (1986) theorizes that managers will, given the opportunity, engage in empire building that destroys shareholder value. Many studies of financial institutions provide evidence consistent with this theory. Allen and Cebenoyan (1991) find positive bidder returns only for banks with high levels of insider shareholdings and shareholder concentration, consistent with the role that these mechanisms are theorized to play in controlling agency costs. Rose (1992) shows that a reduction in the legal entry barriers to the banking industry led to greater dividend payouts to shareholders (and thus fewer opportunities for value-destroying acquisition), consistent with managers seeking to maximize their own utility through empire building at the expense of corporate shareholders in the absence of strong competitors.

Although these studies establish the existence of agency conflicts in financial institutions, none examine differences between public and private banks. Our second hypothesis, the "value-destruction" hypothesis, is thus:

H2: Greater management ownership and additional monitoring by non-diffuse shareholders at private banks will prevent or reduce value-destroying acquisitions, leading to greater evidence of such acquisitions among public banks than private banks.

Amihud and Lev (1981) lay the theoretical groundwork for studies into the interaction of the agency relationship and managerial risk aversion. They posit that managers will seek to reduce the riskiness of their firms' projects in order to reduce the risk of their personal portfolios, which include their undiversifiable human capital. Jeitschko and Jeung (2005) develop a theory of bank risk-taking based on the incentives of three parties: the deposit insurer, the shareholder, and the manager. They show that managers who stand to lose private benefits of control in the event of bank insolvency are generally more risk-averse than shareholders, and that a bank's risk can be either positively or negatively related to its capital ratio, depending on the relative strength of the incentives provided to the three parties.

The predictions of these theories have not been examined in the context of financial institutions. Further, we posit differences between public and private banks because public bank managers are less likely to be monitored by large shareholders than the managers of private banks (the "risk reduction" hypothesis):

H3: Managers of public banks will take fewer risks than managers of private banks.

3. Data and Methods

We use data provided by Highline Banking Data Services to identify public bank holding companies and verify their status as publicly traded companies using data from the Center for Research in Security Prices (CRSP). We pull all data necessary for the calculations in this study from the “Consolidated Financial Statements for Bank Holding Companies – FR Y-9C”, which all Federal Reserve member bank holding companies are required to file once per quarter. We use the last quarter report because the data fields in question are reported on a calendar-year-to-date basis. Utilizing the final quarter’s data provides annual data for our examination. We obtain the December 31, 2003 FR Y-9C reports for bank holding companies from the Federal Reserve Bank of Chicago website. This dataset contains 5,764 observations in total, but only 2,185 observations with data for the items of interest. We delete all observations with missing values for these items.

Matching the remaining observations to the Highline data provides 682 observations that are candidates for identification as public banks. We remove seven observations with discrepancies between the bank name in the Highline data and the bank name in the FR Y-9C report data, leaving a total of 675 banks identified as public using the Highline data. We check the remaining banks in the dataset against CRSP, Yahoo! Finance, and the SNL Bank Pink Component Companies¹ to identify public banks not identified by the process of matching with the Highline data. The final dataset consists of 788 public banks and 1,390 private banks.

Perquisite consumption

The first item we examine is “Salaries and Employee Benefits” (BHCK4135), hereafter referred to as SALARY. CEOs of public banks are likely to receive higher compensation than CEOs of private banks due to the lower levels of monitoring in public banks. Therefore, we expect to find that this expense amount is larger for public banks than for private banks, *ceteris paribus*. SALARY is normalized by “Total Assets” (BHCK2170) and winsorized at the 1st and 99th percentile to eliminate the influence of outliers.

The second item we examine is “Expenses of premises and fixed assets” (BHCK4217), hereafter referred to as PREMISES. Jensen and Meckling (1976) posit that managers of public firms might expend more on “physical appointments of the office, ... , a larger than optimal computer to play with,” Expenses such as these would show up in this second category. Therefore, we expect to find that this expense amount is larger for public banks than for private banks, *ceteris paribus*. PREMISES is normalized by “Total Assets” (BHCK2170) and winsorized at the 1st and 99th percentile to eliminate the influence of outliers.

Value-destroying acquisitions

The third item we examine is the sum of “Goodwill impairment losses” (BHCKC216) and “Amortization expense and impairment losses for other intangible assets” (BHCKC232). Both of these accounts contain expenses generated when managers pay more than market value for assets. We refer to this sum as GOODWILL. If managers of public banks undertake value-destroying acquisitions consistent with Jensen (1986), GOODWILL will be higher for public banks than for private banks. GOODWILL is normalized by “Total Assets” (BHCK2170) and winsorized at the 1st and 99th percentile to eliminate the influence of outliers.

Jensen (1986) predicts that value-destroying acquisitions will be positively related to the free cash flow of the firm. Therefore, in our multivariate examination, we follow Lehn and Poulsen (1989) and control for undistributed cash flow and growth opportunities. We construct the undistributed cashflow variable as “Net income” (BHCK4340) plus the “Provision for loan and lease losses” (BHCK4230) and “Expenses of premises and fixed assets” (BHCK4217), minus “Cash dividends declared on preferred stock” (BHCK4598), and “Cash dividends declared on common stock”

¹<http://www.snl.com/Interactive/IR/index.asp?IID=1032889&KeyIndex=151>

(BHCK4460). "Expenses of premises and fixed assets" is added back because of the large proportion of depreciation expense in this variable, which does not represent a cash outflow.

Undistributed cash flow, referred to hereafter as CASHFLOW, is normalized by "Total equity capital" (BHCK3210), following Lehn and Poulsen (1989), and winsorized at the 1st and 99th percentile to eliminate the influence of outliers. We use the change in "Total Assets" (BHCK2170) over the prior twelve months, which we refer to as DELASSETS, as our proxy for growth opportunities. DELASSETS is normalized by "Total Assets" (BHCK2170) and winsorized at the 1st and 99th percentile to eliminate the influence of outliers.

Risk-reduction

Previous studies have used the volatility of a firm's stock returns as a proxy for firm riskiness. However, such a measure is unavailable for private firms. Cebenoyan and Strahan (2004) develop risk proxies using time-series standard deviations of ratios calculated using data from the Federal Reserve BHC FR Y-9C reports. The first ratio is return on assets (ROA), which we calculate as "Net Income" (BHCK4340) divided by "Total Assets" (BHCK2170). The second ratio is return on equity (ROE), which we calculate as "Net Income" (BHCK4340) divided by "Total Equity Capital" (BHCK3210). We calculate the standard deviations of these ratios using five years of quarterly data, and only consider standard deviations calculated using five or more observations.

We also develop other measures of risk using contemporaneous FR Y-9C report data. Presumably, rational bankers will demand a premium for accepting additional risk, which will result in higher interest rates for riskier projects. Therefore, we use the average interest rate charged by a bank on its loans (net of the risk-free rate) as a proxy for the riskiness of the bank's assets. To calculate the gross interest rate, we divide "Total interest income" (BHCK4107) by "Total - Loans and lease financing receivables" (BHCK2122). We obtain the average three-month T-bill rate from the St. Louis Federal Reserve Bank website for this period and subtract it from each bank's gross interest rate to arrive at the excess interest rate charged on loans, which we call XSINRATE. Our second contemporaneous proxy for risk is the ratio of "Provision for loan and lease losses" (BHCK4230) to "Total - Loans and lease financing receivables" (BHCK2122), which we refer to as LOANLOSS. Riskier loans and leases should lead to larger proportional losses.

Amihud and Lev (1981) predict that non-owner managers will seek lower risk projects to reduce the risk associated with their undiversifiable human capital. Therefore, we expect the volatility (standard deviation) of ROA and ROE to be lower for public banks than for private banks. We also expect XSINRATE and LOANLOSS to be lower for public banks.

Univariate analysis

We first use univariate techniques to examine differences between the characteristics of private banks and public banks in our sample. We use a difference in means test to determine the significance of the differences in characteristics between sample private banks and sample public banks. For this analysis, we generate *t*-values using Satterthwaite's method for comparing means of groups with unequal variances.

Multivariate regressions

We control for several variables that might be related to agency problems in banks or might be correlated to our variables of interest due to mechanisms not associated with agency problems. For example, economies of scale might cause differences in expenses that would not be eliminated through normalization of expense by assets. Additionally, larger firms are more visible, might have greater analyst coverage, and might display greater transparency. Therefore, we control for differences due to bank size using log(SIZE), where SIZE is the total assets of the bank.

Private banks and public banks might have different loan portfolio compositions. Following Beatty et al. (2002), we control for the composition of each bank's loan portfolio using the following amounts normalized by "Total - Loans and lease financing receivables" (BHCK2122): "Loans to

depository institutions and acceptances of other banks" (BHCK1292 + BHCK1296), "Loans to finance agricultural production and other loans to farmers" (BHCK1590), "Commercial and industrial loans" (BHCK1763 + BHCK1764), "Loans to individuals for household, family, and other personal expenditures" (BHCKB538 + BHCKB539 + BHCK2011), and "Loans to foreign governments and official institutions" (BHCK2081). We omit "Loans secured by real estate" (BHCK1410) from all regressions, as this item can be nominally calculated as one minus the sum of the other loan-type ratios. We refer to these ratios as LOANDEP, LOANAG, LOANCI, LOANIND, LOANFG, and LOANRE respectively.

Just as private banks and public banks might differ in the composition of their assets, they also might differ in the composition of their liabilities. We control for this difference by including PCTDEP in our regressions. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices (BHDM6631 + BHDM6636 + BHFN6631 + BHFN6636) divided by SIZE.

Finally, we control for differences in regional economies and potential differential regulatory treatment between Federal Reserve Districts by creating an indicator for each District. We utilize the district number provided in field RSSD9032 of the *Consolidated Financial Statements for Bank Holding Companies – FR Y-9C* to create these indicators.

4. Discussion of Results

Univariate results

Table 1 presents descriptive statistics for the sample banks. Public banks are, on average, five times larger than private banks, with public banks having mean SIZE of \$3,905,333,640 and private banks having a mean SIZE of \$794,598,490, a difference which is economically and statistically significant ($t = 7.05$). Given the size differences, the possibility for shirking seems higher in the public banks, as these firms are less likely to have a controlling shareholder.

Private and public banks are similarly capitalized, with a mean CAPRATIO of 0.09078 for private banks and 0.09000 for public banks. The similarity is not surprising, given the highly regulated nature of the banking industry. With a mean value of 81.35 percent, PCTDEP is 4.45 percent higher for private banks than public banks ($t = 11.19$), which fund an average of 76.91 percent of their assets using deposits.

SALARY is similar between private banks and public banks, with private banks having a mean normalized salary expense of 0.01655 versus 0.01660 for public banks. PREMISES is also similar, with private banks having a mean normalized premises expense of 0.00420 versus 0.00423 for public banks. Contrary to H1, these results are not suggestive of greater perquisite consumption and slacking at public banks, but multivariate analysis is required to determine robustness of these results to the inclusion of other relevant variables. Public banks have mean GOODWILL of 0.00022 versus 0.00013 for private banks, a difference of 0.00009 that is statistically significant ($t = 6.11$), consistent with greater value-destroying acquisitions at public banks (H2).

Both time-series measures of risk are significantly different between public banks and private banks, with private banks being riskier, consistent with managers at public banks reducing the risk of bank assets to protect their undiversifiable human capital. For ROAVOL, the difference in means is 21.68 percent as a proportion of the entire sample value. The difference in means is significant at conventional levels with a t -value of 2.48. For ROEVOL, the difference in means is 21.68 percent as a proportion of the entire sample value. The difference in means is significant at conventional levels with a t -value of 3.03.

Only one of the two contemporaneous risk variables is statistically significantly different between public and private banks in the univariate analysis. Mean XSINRATE is 0.38 percent higher for private banks ($t = 5.01$), which is consistent with risk aversion among managers at public banks (H3), because riskier loans should require higher interest rates. LOANLOSS displays no significant difference in mean between public banks and private banks in the univariate analysis.

Table 1

<i>Sample and subsample means</i>					
	n	All banks	Public	Private	Difference
SALARY	2135	0.01657	0.01660	0.01655	0.00006
PREMISES	2134	0.00422	0.00423	0.00420	0.00003
GOODWILL	2131	0.00016	0.00022	0.00013	0.00009***
ROAVOL	1680	0.00392	0.00340	0.00425	-0.00085**
ROEVOL	1680	0.04501	0.03913	0.04889	-0.00976***
LOSSVOL	1680	0.00361	0.00305	0.00398	-0.00093***
NONPERVOL	1680	0.00433	0.00379	0.00468	-0.00089***
XSINRATE	2134	0.07169	0.06927	0.07307	-0.00380***
LOANLOSS	2132	0.00363	0.00370	0.00359	0.00011
CAPRATIO	2135	0.09049	0.09000	0.09078	-0.00078
SIZE	2136	1910152.39	3905333.6400	794598.49	3,110,735.15***
PCTDEP	2134	0.79748	0.76907	0.81354	-0.04447***
LOANRE	2133	0.70238	0.72421	0.69004	0.03417***
LOANDEP	2155	0.00040	0.00053	0.00033	0.00020*
LOANCI	2133	0.15867	0.15714	0.15953	-0.00239
LOANIND	2134	0.07892	0.07576	0.08071	-0.00495
LOANFG	2154	0.00000	0.00001	0.00000	0.00000
LOANAG	2155	0.02789	0.01230	0.03685	-0.02456***
CASHFLOW	2136	0.15916	0.15757	0.16008	-0.00251
DELASSETS	1919	0.08924	0.10101	0.08215	0.01886***

Notes: Means for bank characteristics and expenses. SALARY is the normalized value of Salaries and employee benefits. PREMISES is the normalized value of Expenses of premises and fixed assets. GOODWILL is the normalized sum of Goodwill impairment losses and Amortization expense and impairment losses for other intangible assets. SALARY, PREMISES, and GOODWILL are normalized by SIZE, which represents Total Assets. SIZE is presented in thousands of dollars. ROAVOL, ROEVOL, LOSSVOL, and NONPERVOL are the standard deviations of return on assets, return on equity, loan losses, and non-performing loans, respectively, calculated using quarterly Federal Reserve FR Y-9C report data over a five year period. XSINRATE is the ratio of Total interest income to Total – Loans and lease financing receivables, net of the risk-free rate. We obtain the three-month T-bill rate from the St. Louis Federal Reserve Bank website and average it over the preceding twelve-month period to obtain the risk-free rate. LOANLOSS is the ratio of Provision for loan and lease losses to Total – Loans and lease financing receivables. CAPRATIO is the value of Total Equity Capital divided by Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANRE, LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of real estate loans, loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies – FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. Data for computing DELASSETS come from the December 31, 2002 *Consolidated Financial Statements for Bank Holding Companies – FR Y-9C*. *t*-statistics are approximated using Satterthwaite's method for comparing groups with unequal variances. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

CASHFLOW, our measure of the undistributed cash flows available to managers, is not significantly different between public banks and private banks in either mean or median. Although

CASHFLOW is a standardized measure, the lack of significant difference is not suggestive of a greater potential for value-destroying acquisitions by public banks. DELASSETS, however, is significantly different between public and private banks, with public banks experiencing mean asset growth of 10.10 percent versus 8.22 percent for private banks. The difference is statistically significant ($t = 3.93$), consistent with more growth opportunities for public banks.

Multivariate results

Tables 2 through 8 present the results of ordinary least squares (OLS) regressions. We calculate t -values using heteroskedasticity-robust standard errors. In our discussion, when we refer to the effect of increasing a variable from the first quartile value to the third quartile value, we hold all other independent variables in the regression constant. We normalize these effects by the mean value of the dependent variable for the entire sample to produce a percentage increase or decrease relative to the sample mean.

Table 2 presents regression results using SALARY as the dependent variable. The estimated coefficient on the indicator for publicly traded banks, PUBLIC, is not significant in either regression (1) or (2). However, once we control for regional differences, the estimated coefficient on PUBLIC is positive and significant, consistent with greater salary expenditures at public banks, as predicted by agency theory and thus supportive of H1, the perquisite hypothesis. Using the estimated coefficient from regression (4), managers at public firms receive 3.80 percent higher pay than managers at otherwise identical private firms ($t = 2.30$). The magnitude and significance of this estimated coefficient in regression (3) are similar. Regression (4) adds controls for undistributed cashflow (CASHFLOW) and the change in assets over the prior 12-month period (DELASSETS).

The estimated coefficient on PCTDEP is positive and significant in all specifications, consistent with banks that are more dependent on deposits having more personnel (tellers) to accept deposits. The sign of the estimated coefficient on CASHFLOW is positive and the sign on DELASSETS is negative, which indicates that managers in banks with positive undistributed cashflow and few investment opportunities receive higher salaries. Jensen (1986) predicts that firms with these characteristics are susceptible to agency problems. Increasing CASHFLOW from the first quartile value to the third quartile value results in an increase in SALARY of 7.98 percent ($t = 6.97$). Here again, the findings are consistent with H1.

Table 3 presents regression results using PREMISES as the dependent variable. The estimated coefficient on PUBLIC is of the sign expected from agency theory (greater perquisite consumption by managers with less monitoring), but is not significant in any of the regressions. In regressions (2), (3), and (4), the estimated coefficient on PCTDEP is positive and significant. This result is not unexpected, as banks that are more dependent on deposits must have physical facilities in which to receive deposits (in the absence of an Internet or similar banking arrangement).

Consistent with agency theory and H1 in particular, the sign on the estimated coefficient of CASHFLOW is positive and significant, and the sign on the estimated coefficient of DELASSETS is negative and significant. Using regression (4) estimated coefficients, increasing CASHFLOW from the first quartile value to the third quartile value results in an increase in PREMISES of 15.34 percent ($t = 13.32$).

Table 4 presents results for regressions with GOODWILL as the dependent variable. The estimated coefficient on the PUBLIC indicator is positive and significant in regressions (1) and (2), consistent with greater value-destroying acquisitions at public banks (H2). Using the estimated coefficient from regression (2), public banks have 25 percent more GOODWILL expense than private banks after controlling for size and balance sheet composition ($t = 2.41$). However, the estimated coefficient on PUBLIC loses its significance once we control for regional differences among banks.

Table 2

<i>Salaries and Ownership</i>				
	(1)	(2)	(3)	(4)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	0.01801	0.00890***	0.01456***	0.01570***
PUBLIC	0.00019	0.00013	0.00064**	0.00063**
log(SIZE)	-0.00012	0.00000	-0.00011	-0.00020
PCTDEP		0.00817***	0.00606***	0.00458**
LOANDEP		0.00827	-0.01089	0.02477
LOANCI		0.00369***	0.00170	0.00073
LOANIND		0.00712***	0.00860***	0.00716***
LOANFG		-0.17446	1.30126	2.42237
LOANAG		-0.00384**	-0.00835***	-0.00915***
FRD1			-0.00208***	-0.00204***
FRD2			-0.00415***	-0.00444***
FRD3			-0.00454***	-0.00423***
FRD4			-0.00454***	-0.00483***
FRD5			-0.00323***	-0.00280***
FRD6			-0.00200***	-0.00195***
FRD7			-0.00278***	-0.00301***
FRD8			-0.00332***	-0.00342***
FRD9			-0.00104	-0.00135*
FRD10			-0.00048	-0.00078
FRD11			-0.00103	-0.00143**
CASHFLOW				0.01640***
DELASSETS				-0.01029***
N	2,096	1,962	1,962	1,721
R ²	0.0006	0.0307	0.0960	0.1644
Adjusted R ²	0.0003	0.0267	0.0871	0.1540

Notes: Multivariate analysis for bank characteristics and salary expense. SALARY is Salaries and employee benefits normalized by Total Assets. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies - FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 3

<i>Cost of Premises and Ownership</i>				
	(1)	(2)	(3)	(3)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	0.00410***	0.00108	0.00236***	0.00246***
PUBLIC	0.00003	0.00002	0.00009	0.00009
log(SIZE)	0.00001	0.00006	0.00003	-0.00002
PCTDEP		0.00273***	0.00215***	0.00159***
LOANDEP		-0.02047	-0.02329*	-0.00808
LOANCI		0.00084**	0.00055	0.00012
LOANIND		0.00133***	0.00129**	0.00113**
LOANFG		0.37896	0.50493	0.84301***
LOANAG		-0.00243***	-0.00257***	-0.00245***
FRD1			-0.00047**	-0.00024
FRD2			-0.00030	-0.00021
FRD3			-0.00078***	-0.00048**
FRD4			-0.00089***	-0.00070***
FRD5			-0.00061***	-0.00037**
FRD6			-0.00006	-0.00001
FRD7			-0.00074***	-0.00070***
FRD8			-0.00066***	-0.00057***
FRD9			-0.00038**	-0.00048**
FRD10			-0.00010	-0.00013
FRD11			0.00012	0.00011
CASHFLOW				0.00803***
DELASSETS				-0.00293***
N	2,095	1,962	1,962	1,716
R ²	0.0002	0.0329	0.0808	0.2094
Adjusted R ²	-0.0008	0.0290	0.0718	0.1736

Notes: Multivariate analysis for bank characteristics and premises expense. PREMISES is Expenses of premises and fixed assets normalized by Total Assets. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies - FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 4

<i>Amortization/Impairment of Goodwill/Intangibles and Ownership</i>				
	(1)	(2)	(3)	(4)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	-0.00064***	-0.00093***	-0.00094***	-0.00098***
PUBLIC	0.00003**	0.00004**	0.00003	0.00003
log(SIZE)	0.00006***	0.00007***	0.00007***	0.00008***
PCTDEP		0.00012	0.00011	0.00017
LOANDEP		-0.00111	-0.00094	-0.00153
LOANCI		-0.00010	-0.00010	-0.00008
LOANIND		0.00026**	0.00023*	0.00021
LOANFG		0.57239*	0.57740*	0.59363*
LOANAG		0.00052***	0.00060***	0.00057***
FRD1			-0.00001	0.00000
FRD2			0.00002	0.00003
FRD3			-0.00001	-0.00001
FRD4			0.00004	0.00004
FRD5			0.00006	0.00007
FRD6			0.00001	0.00002
FRD7			-0.00001	0.00000
FRD8			-0.00001	-0.00002
FRD9			0.00000	0.00001
FRD10			-0.00003	-0.00003
FRD11			0.00001	0.00002
CASHFLOW				-0.00025**
DELASSETS				-0.00018**
N	2,092	1,951	1,951	1,704
R ²	0.0530	0.0735	0.0776	0.0827
Adjusted R ²	0.0521	0.0697	0.0685	0.0712

Notes: Multivariate analysis for bank characteristics and expenses related to value-destroying acquisitions. GOODWILL is the sum of Goodwill impairment losses and Amortization expense and impairment losses for other intangible assets normalized by Total Assets. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies - FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 5

<i>Standard Deviation of ROA and Ownership</i>				
	(1)	(2)	(3)	(4)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	-0.00116	0.00666***	0.00973***	0.00911***
PUBLIC	-0.00135***	-0.00059***	-0.00071***	-0.00067***
log(SIZE)	0.00042**	-0.00003	-0.00009	-0.00002
PCTDEP		-0.00330**	-0.00434***	-0.00422***
LOANDEP		-0.01465	-0.02124	-0.03087
LOANCI		0.00109	0.00052	0.00074
LOANIND		-0.00266**	-0.00267*	-0.00274**
LOANFG		-0.63671	-0.24698	-0.34339
LOANAG		0.00353	0.00274	0.00330
FRD1			-0.00201***	-0.00195***
FRD2			-0.00107	-0.00089
FRD3			-0.00232***	-0.00225***
FRD4			-0.00123**	-0.00132**
FRD5			-0.00097	-0.00086
FRD6			-0.00123**	-0.00119**
FRD7			-0.00165***	-0.00179***
FRD8			-0.00177***	-0.00166***
FRD9			-0.00162***	-0.00163***
FRD10			-0.00074	-0.00065
FRD11			-0.00120**	-0.00112*
CASHFLOW				-0.00218
DELASSETS				-0.00160
N	1,648	1,537	1,537	1,490
R ²	0.0070	0.0134	0.0302	0.0340
Adjusted R ²	0.0058	0.0083	0.0180	0.0202

Notes: Multivariate analysis for bank characteristics and ROA volatility. ROAVOL is the standard deviation of return on assets calculated using quarterly Federal Reserve FR Y-9C report data over a five year period. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies - FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 6

<i>Standard Deviation of ROE and Ownership</i>				
	(1)	(2)	(3)	(4)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	-0.01159	0.03137	0.05942*	0.05562*
PUBLIC	-0.01577***	-0.00911***	-0.00944***	-0.00721***
log(SIZE)	0.00468***	0.00180	0.00127	0.00063
PCTDEP		-0.01227	-0.02260	-0.03238*
LOANDEP		-0.54409*	-0.65235**	-0.63899**
LOANCI		0.01493	0.00785	0.00987
LOANIND		-0.05241***	-0.05691***	-0.05111***
LOANFG		-11.69247	-6.50959	-3.53535
LOANAG		0.05698	0.04509	0.06094
FRD1			-0.02055**	-0.01396*
FRD2			-0.01183	-0.00734
FRD3			-0.02387***	-0.01855***
FRD4			-0.00840	-0.00503
FRD5			-0.00656	-0.00123
FRD6			-0.00948	-0.00711
FRD7			-0.01462**	-0.01395**
FRD8			-0.01539**	-0.01127
FRD9			-0.01431**	-0.01434**
FRD10			-0.00021	0.00239
FRD11			-0.00964	-0.00770
CASHFLOW				0.10585***
DELASSETS				-0.03181*
N	1,648	1,537	1,537	1,490
R ²	0.0118	0.0144	0.0262	0.0397
Adjusted R ²	0.0106	0.0092	0.0140	0.0260

Notes: Multivariate analysis for bank characteristics and ROE volatility. ROEVOL is the standard deviation of return on equity calculated using quarterly Federal Reserve FR Y-9C report data over a five year period. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies - FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

Table 7

<i>Loan Excess Interest Rate and Ownership</i>				
	(1)	(2)	(3)	(4)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	0.09086***	0.12057***	0.12846***	0.13514***
PUBLIC	-0.00258***	-0.00201**	-0.00187**	-0.00194**
log(SIZE)	-0.00140***	-0.00253***	-0.00286***	-0.00237***
PCTDEP		-0.02105***	-0.02359***	-0.02380***
LOANDEP		-0.32982***	-0.31399**	-0.39448***
LOANCI		-0.02732***	-0.02964***	-0.02637***
LOANIND		0.06949***	0.06598***	0.04888***
LOANFG		-3.84896	-4.05119	-2.06059
LOANAG		0.01459**	0.01403**	0.00667
FRD1			-0.00234	-0.00616***
FRD2			0.00427**	0.00307
FRD3			0.00567***	0.00360
FRD4			-0.00098	-0.00481***
FRD5			-0.00577***	-0.00651***
FRD6			-0.00170	-0.00300**
FRD7			-0.00364***	-0.00623***
FRD8			-0.00270*	-0.00501***
FRD9			-0.00075	-0.00258*
FRD10			-0.00058	-0.00243
FRD11			0.00789	0.00770***
CASHFLOW				-0.04248***
DELASSETS				-0.03408***
N	2,097	1,965	1,965	1,725
R ²	0.0185	0.1344	0.1756	0.2349
Adjusted R ²	0.0175	0.1308	0.1676	0.2254

Notes: Multivariate analysis for bank characteristics and loan excess interest rate. XSINRATE is the ratio of Total interest income to Total - Loans and lease financing receivables, net of the risk-free rate. We obtain the three-month T-bill rate from the St. Louis Federal Reserve Bank website and average it over the preceding twelve-month period to obtain the risk-free rate. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies - FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 8

<i>Loan Losses and Ownership</i>				
	(1)	(2)	(3)	(4)
	Coeff.	Coeff.	Coeff.	Coeff.
Intercept	0.00015	0.00070	0.00069	-0.00036
PUBLIC	-0.00020	0.00003	0.00023	0.00026
log(SIZE)	0.00027***	0.00012*	0.00014*	0.00008
PCTDEP		-0.00025	-0.00093	-0.00213**
LOANDEP		0.01610	0.01336	0.04139
LOANCI		0.00483***	0.00468***	0.00368***
LOANIND		0.00734***	0.00616***	0.00718***
LOANFG		1.28219	0.90025	1.12395***
LOANAG		0.00030	0.00080	0.00312**
FRD1			-0.00131***	-0.00062**
FRD2			-0.00001	0.00051
FRD3			-0.00025	0.00051
FRD4			0.00057	0.00125***
FRD5			0.00021	0.00072**
FRD6			0.00113***	0.00115***
FRD7			0.00031	0.00060*
FRD8			0.00109***	0.00145***
FRD9			-0.00001	-0.00026
FRD10			0.00040	0.00044
FRD11			0.00067*	0.00075**
CASHFLOW				0.01708***
DELASSETS				-0.00357***
N	2,092	1,957	1,957	1,712
R ²	0.0065	0.0438	0.0716	0.1852
Adjusted R ²	0.0056	0.0399	0.0625	0.1751

Notes: Multivariate analysis for bank characteristics and loan losses. LOANLOSS is the ratio of Provision for loan and lease losses to Total – Loans and lease financing receivables. PUBLIC is an indicator set to one for public banks and zero for private banks. log(SIZE) is the natural logarithm of Total Assets. PCTDEP is the sum of all interest and non-interest bearing deposits in domestic and foreign offices. LOANDEP, LOANCI, LOANFG, and LOANAG represent the proportion of the bank's portfolio composed of loans to other depository institutions, commercial and industrial loans, loans to foreign governments, and agricultural loans. FRD1 through FRD11 are indicator variables for Federal Reserve districts. CASHFLOW is calculated as the sum of Net Income, Provision for loan and lease losses, and Expenses of premises and fixed assets, less the sum of Cash dividends declared on preferred stock and Cash dividends declared on common stock. DELASSETS is the change in Total Assets over the previous 12 months, normalized by the contemporaneous value of Total Assets. Contemporaneous data come from the December 31, 2003 *Consolidated Financial Statements for Bank Holding Companies – FR Y-9C*. All contemporaneous variables are winsorized at the 1st and 99th percentiles to eliminate outliers. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 5 presents results for regressions with ROAVOL as the dependent variable. The estimated coefficient on PUBLIC is negative and significant in all regressions, consistent with greater risk aversion among managers at public banks (H3). Using the estimated coefficient on PUBLIC from regression (4), the ROAVOL for public banks is 17.09 percent lower than the ROAVOL for private banks ($t = 3.26$). The estimated coefficient on PCTDEP is also negative and significant in all specifications. Using the estimated coefficient on PCTDEP from regression (4), an increase in PCTDEP from the first quartile value to the third quartile value corresponds to an 11.07 percent decrease in ROAVOL ($t = 2.83$). The result is consistent with Diamond and Rajan (2001), who theorize that banks with more fragile capital structures are more risk-averse.

Table 6 presents results for regressions with ROEVOL as the dependent variable. The estimated coefficient on PUBLIC is negative and significant in all regressions, consistent with greater risk aversion among managers at public banks, again supportive of H3. Using the estimated coefficient on PUBLIC from regression (4), the ROEVOL for public banks is 16.02 percent lower than the ROEVOL for private banks ($t = 2.67$). Unlike the regressions for ROAVOL, in the regressions for ROEVOL, the estimated coefficient on PCTDEP is only significant in regression (4), and then only marginally so. Also, unlike the regressions for ROAVOL, the estimated coefficient on CASHFLOW is positive and significant and the estimated coefficient on DELASSETS is negative and significant, indicating that banks with more undistributed cash flows and fewer growth opportunities have higher values of ROEVOL, indicating riskier behavior at banks with more free cash flow.

Table 7 presents results for regressions with XSINRATE as the dependent variable. The estimated coefficient on PUBLIC is negative and significant in all regressions, consistent with greater risk aversion among managers at public banks (H3), because loans of lower risk require less return. Using the estimated coefficient on PUBLIC from regression (4), the loan interest rate charged by public banks in excess of the risk-free rate is 2.71 percent lower than the same rate charged by private banks ($t = 2.16$).

The estimated coefficient on PCTDEP is also negative and significant in all specifications. Using the estimated coefficient on PCTDEP from regression (4), an increase in PCTDEP from the first quartile value to the third quartile value corresponds to a 3.41 percent decrease in the loan excess interest rate ($t = 8.83$).

The estimated coefficients on CASHFLOW and DELASSETS are both negative and significant. Using regression (4) estimated coefficients, an increase in CASHFLOW from the first quartile value to the third quartile value results in a decrease in XSINRATE of 4.78 percent ($t = 6.39$). If we look ahead at the results presented in Table 8, we see that CASHFLOW is strongly, positively related to LOANLOSS. Taken together, these CASHFLOW results are consistent with high undistributed cash flows leading bankers to make riskier loans without charging the appropriate risk premium, or making safer loans but failing to monitor properly. These findings are supportive of agency costs in general and excessive perquisite consumption in particular (H1).

Table 8 presents results for regressions with LOANLOSS as the dependent variable. The estimated coefficient on PUBLIC is not significantly different from zero in any of the four specifications, providing no support for the prediction that risk-averse managers of public banks make safer loans that lead to lower loan losses. However, it is also possible that managers of public banks make safer loans than managers of private banks, but fail to monitor them properly, leading to similar loan losses between the two types of banks.

The estimated coefficient on CASHFLOW is positive and significant, and the sign on DELASSETS is negative and significant. An increase in CASHFLOW from the first quartile value to the third quartile value for this variable corresponds to a 37.94 percent increase in loan losses ($t = 13.10$). A decrease in DELASSETS from its third quartile value to its first quartile value corresponds to an increase in loan losses of 10 percent ($t = 4.10$).

Together with the negative and significant relation between CASHFLOW and loan excess interest rate, these results are consistent with high undistributed cash flows leading bankers to make loss-incurring loans without charging the appropriate risk premium. The regressions for our time-series

risk proxies support this interpretation, as the estimated coefficient on CASHFLOW is not significant for one of the proxies, and is positive and significant for the other. Therefore, the evidence is consistent with managers with undistributed cash flows making loans of average or greater than average risk, charging less than the average interest rate, and incurring greater than average loan losses.

5. Discussion and Implications

We provide evidence consistent with higher perquisite consumption and risk aversion among managers at public banks. We find weak evidence of greater value-destroying acquisitions by public bank managers. Managers of banks with large free cash flows make loans of average risk for below-market interest rates and experience higher loan losses. Overall, our results provide support for the concept that agency cost differences exist between public and private banks.

Our results have several implications for both public and private banks. Boards of directors of public banks might want to provide executive stock options to managers as a balance to the risk aversion caused by the managers' undiversifiable human capital. At the same time, salaries of public bank managers could be reduced to the level of their counterparts at private banks to help defray the expense of the options and to make the managers more dependent on increases in stock price for their compensation.

For boards of directors of both private and public banks, the message regarding free cash flow is clear. Banks with high income and low growth prospects must disgorge cash to the equity holders or face perquisite consumption and slacking by managers. Loan losses are especially high in banks with undistributed cash flows, consistent with managers using free cash flows to "finance" slacking instead of appropriately monitoring loans.

Investors can benefit from our findings, as greater levels of agency costs in public banks will be impounded in their stock prices in an efficient market. Activism that decreases the level of agency costs will be value enhancing. Similarly, regulators and public policy makers should consider ways in which agency costs can be limited, thereby lowering the probability of insolvency and, consequently, systemic risk.

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