# INSTITUTIONAL OWNERSHIP IN FINANCIAL SERVICES: PERFORMANCE AND RISK

James Barrese
Professor
School of Risk Management
St John's University
101 Astor Place
New York, NY 10003, USA
barresej@stjohns.edu

David Pooser
Associate Professor
School of Risk Management
St John's University
101 Astor Place
New York, NY 10003, USA
pooserd@stjohns.edu

Ping Wang*
Associate Professor
School of Risk Management
St John's University
101 Astor Place
New York, NY 10003, USA
Wangp1@stjohns.edu

Key words: institutional ownership, performance, risk

**ABSTRACT**

Institutional investor ownership has often been considered a corporate governance variable, typically used to proxy those investors' ability to influence managers and to expropriate wealth from smaller shareholders. Large institutional investors have developed common holdings across numerous firms within industries. We consider the effects of institutional investor ownership with risk on the performance of banks and insurance companies. Using a generalized autoregressive conditional heteroscedasticity model with firm- and year-fixed effects, we find strong statistical relation between performance and individual firm's ownership stakes by Blackrock and Fidelity. Moreover, we find a positive and statistically significant relation between performance and the percentage of the industry's equity owned by the four organizations together. The findings suggest that some organizations like Blackrock are successful in obtaining long-term returns by exerting influence over the management of their invested firms, which is consistent with recent statements by the Blackrock CEO.

1

**INTRODUCTION**

Recent research has examined the concentration of corporate ownership among individual as well as institutional investors. The study of wealth inequality among individuals has received a great deal of discussion in news, trade, and academic publications since the financial crisis, especially as wealth continues to accumulate to the top societal earners.[1] However, there has also been a growing body of literature on the accumulation of corporate ownership among institutional investors. Azar, Schmalz, and Tecu (2017) study the anti-competitive effects of institutional investor ownership in the airline industry and find evidence of reduced competition between when common ownership is present. Patel (2018) argues that the presence of common ownership by institutional investors is not enough to show anticompetitive behavior; common ownership may simply be a result of investment choice.

Indeed, since the shift from defined benefit to defined contribution plans, the amount of investment capital controlled by institutional investors has grown significantly.[2] These institutional investors control significant stakes of numerous corporations and may exert influence on the invested firms through proxy votes and managerial engagement. In January 2018, Larry Fink, CEO of Blackrock Capital (the largest asset manager in the world), issued a public letter that Blackrock would take a more active role in engaging with company management rather than simply using proxy votes to influence firm decisions. Fink notes in his letter a need for long-term growth and value creation by the firms in which Blackrock invests.[3]

Our study examines the trends in institutional ownership in the publicly-traded U.S. banking and insurance industries. We specifically examine the relationship between firm performance, the presence of institutional investor owners, and firm risk. We focus our sample on the banking and insurance industries partly due to their economic significance; according to the Brookings institute, finance and insurance represented seven percent of U.S. GDP in 2014.[4] Additionally, these firms operate in highly regulated arenas. Bank oversight is largely performed by the Fed and insurers by state regulators; as publicly traded entities, our sample firms also face scrutiny by the SEC. Closer monitoring of firm risk-taking – especially the limiting of downside risk in these industries – allows us to draw inferences from the variations we observe in our sample.

Our analysis first examines the relation between firm performance, which we measure as Tobin's q, and firm financial, risk, and governance variables. We then add institutional investor holdings of both the firm and industry to our model and interact firm-level institutional investor holdings with different risk metrics. We find that Blackrock Capital holdings in a firm have the most significant impact on our performance results. While Blackrock's holdings have a negative effect on firm performance, Blackrock holdings interacted with our measure of investment risk yield a positive effect.

A potential explanation for our results is that, even with a substantial investment stake in a firm, an institutional investor cannot unilaterally expropriate wealth from the remaining shareholders. However, large investors may be able to influence managers to take more risk. If risk is tied to performance, greater risk taking should *on-average* lead to increased performance in

---

[1] A recent article in the *Quarterly Journal of Economics* notes that the top 0.1% of society owned 22% of private wealth in 2012 – nearly the same levels as 1929 (Saez and Zucman, 2016).

[2] According to Willis Towers Watson (Willis, 2016), the world's 300 largest pension schemes invested $15.7 trillion in 2016. In this same period, Blackrock Capital held assets under management of more than $5 trillion.

[3] See Morrell, 2018.

[4] See Baily, 2016.

2

the invested firms. On a single firm basis, increased risk taking is associated with volatility of idiosyncratic returns. So, an investor must diversify its holdings in order to realize better aggregate portfolio performance from increased risk taking among its holdings. A large institutional investor which purchases ownership stakes across an entire industry or sector may use this diversification plus increased risk technique to improve aggregate holding performance.

## PRIOR LITERATURE AND THEORY

The role of institutional investors in the governance of firms is changing. A 2000 review of the prior 20-year period claimed "despite the substantial growth of institutional ownership of U.S. corporations ... there is little evidence that institutional investors have acquired the kind of concentrated ownership positions required to be able to play a dominant role in the corporate governance process" (Edwards & Hubbard, 2000). A more recent study observes that data on institutional ownership is consistent with a hypothesis that common ownership is used to coordinate firm behavior in some airline routes (Azar et al. 2017). Others have been more specific: "mutual funds and other institutional investors may cause softer competition among product market rivals because of their significant ownership stakes in competing firms in concentrated industries" (Posner, Morton & Weyl 2016; Freeman 2016).

Consistent with Azar et al.'s (2017) product-specific study, industry-specific studies also find a statistical correlation between ownership patterns by an institutional investor and performance (Pooser et al. 2017). Industrial Organization studies note that it is often difficult to distinguish between competition and monopolistic competition because both drive excess profit to zero. Similarly, it is difficult when examining institutional investors to distinguish between skilled stock selection and exertion of a coordinating influence because each can be a cause of good performance.

The possibility of firm coordination through common ownership has long been recognized but its researchers have opined that "significant legal obstacles discourage institutional investors both from taking large block positions and from exercising large ownership positions to control corporate managers" (Edwards & Hubbard, 2000). That observation may have been accurate in 2000 but, fewer than 20 years later, we observe that four systemically significant institutional investors own large blocks of many firms in the financial sector; in fact, we find the same block of firms involved as those mentioned by legal scholars (Baker, 2016). While one study suggests that monopoly rents were being earned (Azar *et al.* 2017), recent reconsiderations argue that evidence of such an effect is imperfect (Kennedy, et al. 2017). Yet, no one questions the logic of a possible exploitation of individual firms in an industry for the good of the industry. We are left with a choice of bad alternatives if we do not accept the Azar observation: either those with common ownership are blind to the possibility of benefit, or they are executing poorly. This study provides the support underpinning the logic of a benefit from common ownership. It then seeks evidence of such a benefit by comparing two sub-sectors of the financial services industry: Banking and Insurance. Finally, we consider the question of how an institutional investor can successfully influence a firm to behave in an industry-performance-maximization, rather than a firm-performance-maximization manner. More specifically, we suggest that firms with higher than average institutional ownership have higher than average risk levels. A relevant question, which we return to below, is how to measure risk.

As the importance of institutional investors increased,[5] agency theorists argued that

---

[5] "Over the years, the influence of institutional investors over public companies has grown dramatically, with the

external monitors counter managerial incentives to expropriate firm value for personal gain (Pound 1991; Black 1992). Empirical support for the monitoring argument is not strong; investments by large investors tend to be persistent over time, providing support for management rather than posing a threat in the face of poor performance. And corporate expenses, such as CEO compensation, tend to be higher in the presence of blockholder involvement (Mehran 1995).

Pooser, *et al.* (2017) focuses on the performance of family-owned insurers. However, the study also considers other ownership effects, including non-family insider ownership, blockholder ownership, as well as ownership by Blackrock Capital due to their large stake in a majority of U.S. public insurers. Additionally, a literature has been developing about a topic that has come to be known as common ownership. The literature focuses on ownership by institutional investors of a collection of firms that compete in the same industry. In this common ownership literature, other researchers have also identified Blackrock and a few legal journals have extended the linkage to groupings of institutional investors; specifically, BlackRock, State Street, Vanguard, and Fidelity.[6] This study considers a wider range of ownership types. Though the number of bank and insurance firms in this sample is approximately matched, the number of family-controlled insurer observations, 211, far exceeds the number of family-controlled bank observations (70).

The behavior of institutional investors gives rise to another ownership pattern that is only recently being studied. Individuals who invest with mutual funds or institutional investors are less interested in the performance of a specific firm than in the aggregate performance of a grouping of firms represented in the fund portfolio. The large concentration of wealth held in these funds gives limited opportunities for the funds to concentrate on any one firm; instead they diversify their holdings and hope that the sectors will perform well. A question raised is whether the fund managers do more than hope for sector performance. A hypothesized noncompetitive market effect associated with ownership of corporate competitors by a diversified institutional investor is found by Azar *et al.* (2017). They determined that airline ticket prices on selected routes was 10 percent higher due to common ownership by a specific institutional investor. The authors argue that this diversified institutional owner of most of the firms in an industry focuses on industry performance as opposed to firm specific performance. However, due to their ability to devote resources toward research and expertise in choosing investments, it is also possible that institutional investors may invest in firms expected to outperform others in their industry.

Freeman (2016) observes that "the increasing prevalence of institutional ownership of corporate equity creates many cases where two firms are owned by the same institutional investors. If these two firms have the ability to influence each other's profits, the presence of common owners can affect how the firms interact, since they share the goal of maximizing the wealth of the same owners." She defines common ownership as the extent to which firms are held by the same institutional investors and finds evidence that the relationship between common ownership and vertical relationship strength is causal.

A literature on Institutional owners is rapidly evolving. Existing studies note that Institutional owners affect the corporate policies of those firms in which they invest in R&D (Bushee, 1998; Aghion, Van Reenan, & Zingales, 2013), in corporate governance and payout policy (Aggarwal, Erel, Ferreira, & Matos, 2011; Appel, Gormley, & Keim, 2016; Grinstein & Michaely, 2005; Crane, Michenaud, & Weston, 2016), in corporate leverage policies (Michaely,

---

number of U.S. corporate shares managed by institutional investors ballooning to 67 percent in 2010 from a mere 5 percent in 1945, according to a study conducted by professors at the Wharton School of the University of Pennsylvania." (Financial Industry Regulatory Authority , 2015)

[6] Harvard Law Forum citation

Popadak, & Vincent, 2015), and recent studies consider the effect that institutional investors have on the interaction between companies when these investors hold equity stakes in both firms. The latter grouping includes the effect of common ownership on mergers and acquisitions (Hansen & Lott, 1996; Matvos & Ostrovsky, 2008; Harford Jenter, & Li, 2011) and on industry competition (He & Huang, 2014; Azar, Schmalz, & Tecu, 2017; Azar, Raina, & Schmalz, 2016).

Freeman (2016) states that the underlying theme of the literature is that common ownership can have negative real effects. "Matvos and Ostrovsky suggest that distorted incentives due to common ownership in targets and their acquirers could increase the frequency of bad acquisitions. Azar, Schmalz, and Tecu (2016) and Azar, Raina, and Schmalz (2016) argue that common ownership reduces competition leading to higher market prices. With these papers pointing to the "dark side" of common ownership, could there be any "bright side" to the ability of institutional owners to alter interactions between the firms jointly held in their portfolios?"

A Theory of Common Ownership

Let:

$Y_i$      a goal for optimization, such as firm profit or value;
X      a vector of production inputs;
P      a vector of input prices;
C      state of industry competition;
G      corporate governance conditions;
F      a vector of fund ownership shares;
$\lambda$      constraints; and
i      a firm in industry I; and
j      industry.

For a firm, i, in industry j, the firm's goal is to:

$$\text{Max } Y \mid X, P, C, F, G, \lambda.$$

But each institutional investor's goal is to maximize their return on investments from all firms in the industry. This strategy does not preclude betting on a single company but that implies a monopolistic industry. The following goal is consistent with the full range of competitive industry structures.

$$Inv\Pi_j = \Sigma Y_{ij} * F_{ij}$$

A question is how an investor, alone or in combination with others, can motivate managers to maximize industry rather than firm outcomes. A second question is whether it is more or less likely that investors will act in concert. That answer is easiest because the larger the institutional investor, the more likely they own diversified shares of the industry. We speculate that it is the diversification of ownership in the industry that makes each investor have an industry rather than a firm focus.

**DATA DESCRIPTION**

Our sample consists of U.S. publicly traded insurance companies and banks spanning the years 2006 through 2016. The construction of our sample builds on the study of Pooser, *et al.* (2017), which examined firm ownership structure in the insurance industry. That study considered a data set of 702 observations from 86 insurance firms drawn from the years 2006 through 2014.

The starting year was selected because the current format of reporting compensation information, required by the SEC, began in 2006. For that reason, our sample starts in 2006. However, our sample considers all firms in the NAICS Financial Services sector, banks and insurers, and extends through 2016, the latest available data year. The final sample for this study has 1,683 observations from 164 firms, including 84 banks and 82 insurers, over the eleven years (2006-2016).[7]

The insurer subsample was identified by selecting all firms in the Compustat database reporting an NAICS code of 524xx; 212 firms. From this identified set of insurance-related firms, the following groups were excluded: foreign based (ADR trading), heath care providers; low-volume traded companies; penny stocks; mortgage guarantee companies, and companies that had insufficient data in the Compustat or CRSP databases.[8] Banks were identified following the procedure in Cornett et al (2010). We identify the top 150 FDIC bank holding companies for the 2006 through 2016 period and exclude alien-owned banks, acquired banks, privately owned banks, and banks for which there was no Compustat data. The remaining 88 insurance firms and 89 banks were trimmed to the final sample of 84 insurers and 82 banks because information gathered from the DEF 14A (Proxy Statement), described below, was not available.

Our study data is from Compustat, 10-K statements, DEF 14A statements, and FactSet. We use Compustat to gather income statement and balance sheet items for the identified firms in our sample. If any of this data is not available through Compustat, we look for it in the 10-K Annual report. Data for the Focus variable, our measure of line of business concentration, was collected directly from the 10-K statements. We gathered executive compensation, family ownership, director and officer ownership, and our duality variables from the DEF 14A (Proxy) Statements. Institutional investor ownership is only reported in the DEF 14A if an institutional investor owns at least 5% of the firm's shares. To measure institutional investor ownership more granularly than this, we use FactSet ownership data which reports the share of each firm owned by institutional investors.[9]

In both our banking and insurance samples, we note that four large institutional investors frequently holding stakes in most firms: Blackrock Capital, Vanguard, Fidelity, and State Street Bank. Therefore, much of our analysis considers the ownership stakes of these largest institutional investors.

## VARIABLE SELECTION AND METHODOLOGY

This study seeks to relate the effects of institutional investor holdings with firm performance and risk. We measure firm-level performance by Tobin's q, a practice used by most other papers in the area (see Boyd and Solarino, 2016, for a survey of the corporate ownership literature). A set of factors expected to have an influence on performance are included in the

---

[7] One firm, ticker AFSI, is counted twice here because the firm includes both insurance and banking activities in its SEC filings. The firm is treated as an insurer because that is its predominant business. The reduction in insurers between 2014 and 2016 is attributable to consolidation in the industry.

[8] CRSP data is used to compute a measure of risk.

[9] For each year from 2006 through 2016, and for each insurer and bank, we obtain from the FactSet database the voting percentage of each institutional. This generated 164,902 observations and 12,349 different investors. Principal component analysis identified commonalities among these investors and the rotated factor patterns reveal a structure involving BlackRock, Vanguard, State Street, and a less strong relationship with Wells Fargo (*i.e.*, rotated factor loadings are 80, 72, 83, and 46, respectively). Arguments made in other papers lead to the consideration of a different grouping, but the overlap is substantial. A Harvard Law Review article calls attention to BlackRock, State Street, Vanguard, and Fidelity, which we use in our study.

analysis, in addition to the institutional investor ownership constructs. Our control variables include financial factors (size, leverage, liquidity, risk), governance constructs (compensation structure, board-management structure, i.e. duality, family ownership, and non-family director and officer ownership), as well as risk variables. Summary statistics for our variables are presented in Table 1.

**Table 1. Variables and Descriptive Statistics**

| Variable | Description | Mean | Std. Dev | Min. | Max. |
|---|---|---|---|---|---|
| Performance | Tobin's q | 1.044 | 0.115 | 0.533 | 1.826 |
| Size | Ln(Assets) | 9.729 | 1.970 | 2.243 | 14.761 |
| Leverage | DuPont Leverage measure | 0.081 | 0.068 | 0.000 | 1.030 |
| Liquidity | Cash and Short term investments / Assets | 0.096 | 0.098 | 0.001 | 0.839 |
| Focus | Herfindahl Index of revenue by sector | 0.609 | 0.277 | 0.010 | 1.000 |
| LnTotComp | Natural logarithm of Total Compensation | 3.538 | 0.492 | 0.000 | 4.758 |
| CompFut | Stock & option component/Total compensation | 0.389 | 0.262 | 0.000 | 1.000 |
| Duality | 1 if CEO is also Board Chair | 0.468 | 0.499 | 0.000 | 1.000 |
| Family | 1 if family ownership > 15% | 0.160 | 0.367 | 0.000 | 1.000 |
| DO_Pct | Ownership % of the Directors and Officers | 10.97 | 17.628 | 0.000 | 98.0000 |
| RiskOp | CV of quarterly cash flow over three years | 0.570 | 0.483 | 0.001 | 7.126 |
| RiskInv | CV of daily stock price over the year | 11.367 | 10.849 | 0.478 | 163.345 |
| BlackRock | Blackrock ownership % of firm $i$ | 5.632 | 2.706 | 0.000 | 15.750 |
| State Street | State Street ownership % of firm $i$ | 3.059 | 1.934 | 0.000 | 14.770 |
| Vanguard | Vanguard ownership % of firm $i$ | 3.716 | 2.561 | 0.000 | 11.280 |
| Fidelity | Fidelity ownership % of firm $i$ | 1.863 | 2.745 | 0.000 | 15.000 |

Financial Variables

Our financial control variables are standard for any firm-level empirical study. We include a measure of size (the natural logarithm of a firm's assets) because size may indicate potential economies of scope or scale, and because size is frequently linked to firm performance in empirical studies. Leverage represents the extent to which a firm utilizes debt to finance its operations. Firms with too-high values of leverage may experience difficulty repaying future obligations. Our leverage variable is the DuPont Leverage measure, which is the effective use of leverage rather than a quantity measure. DuPont Leverage is equal to the difference between ROE and ROA, which will be zero when a firm does not hold debt (Smith 1999, RMIR). We prefer the DuPont Leverage measure over other leverage values because insurers and banks almost completely finance their operations through borrowing – banks through deposits and insurers through premiums. The values of assets and liabilities are very skewed in these industries. We include a liquidity variable, which is the ratio of cash and short-term equities to total assets. When liquidity is low, a firm may have trouble financing operations and obligations if a loss event occurs. Our final financial control variable is line of business focus. We measure this variable with a Herfindahl index of reported segment revenues. Higher HHI values suggest greater focus on a specific segment (the maximum HHI, a value of 1, occurs when there is only 1 segment). While greater focus is associated with greater potential volatility in earnings, prior studies have found a negative relation between line of business diversification and firm performance.

Governance Variables

We consider the effect of CEO compensation using both total and the portion of total compensation that is sensitive to the future performance of the firm. Total compensation is scaled by firm assets to account for size differences in compensation. Future compensation is equal to the ratio of stock and option compensation to total compensation. We also consider CEO-Board Chair Duality: a binary measure identifying cases where one person is both the CEO and Board Chair. This typical governance measure yields conflicting evidence in the literature. Some argue it is a bad governance feature because the structure stifles criticism; others suggest that it speeds the ability of the firm to enjoy opportunistic gains that might be lost if more extensive board review were required. Another source of concentrated ownership, for some firms, is the family-controlled firm. We identify family-controlled firms with a binary measure when a family has at least a 15 percent interest and, typically, if a founding family member has a seat on the board. We also consider the percentage of the firm owned by non-family directors and officers. Its consideration typically considers the possibility that high D&O ownership suggests a higher likelihood that managers may expropriate firm wealth from minority shareholders.

Family control is seen in 270 firm-year observations; 70 firm-year observations are banks and 200 are insurers. Insurance family firms fell from a peak of 19 in the 2008-12 period to 16 in 2016. A CEO was simultaneously Board chairperson in almost half of the observations, 787 firm-years; surprisingly, this simultaneity is more common in banking (342 insurers and 445 banks had a dual leadership structure) despite the fact that, relative to banks, there are more than three times as many family controlled firm years associated with insurance.

Risk Variables

Descriptions of risk in the context of business are often vague about the kind of risk referred to; two of the usual alternatives are the possible operational outcomes of the firm and the alternative values one can realize from selling an ownership interest in the firm (*i.e.*, stock). Some theories attempt to link the two concepts. The efficient market hypothesis, for example, suggests that any negative or positive operational possibilities will be incorporated into the stock price of the firm.

Investor risk, which we measure as the coefficient of variation (CV) of daily stock price, represents dispersion in the market's understanding of a firm's value. For the owner of a firm, this may be the most relevant risk measure because great volatility in stock price increases the likelihood that an investor's return will be lower than anticipated. Stock price volatility will also be high in times of great growth or recession. Operational risk implies a volatility that has a potentially negative consequence for the operation of the firm. One measure used to capture this effect is the CV of quarterly operating activities net cash flow. A positive operating activity cash flow provides the revenue for the purchase of assets that generate operating profits. Negative cash flow may be a short-term mismatch between the timing of expenditures and income, but chronic mismatch can indicate poor credit management or actual losses. The CV of operating cash flow is a rough approximation of operating risk because a very "risky" firm, say a company with millions riding on the introduction of a new drug, can lose everything if it does not obtain FDA approval, yet its cash management may be excellent, and it may never have experienced a negative cash flow. We include both risk measures in our study but have little expectation that the CV of cash flows will be significant.

Institutional Ownership Variables

At the end of 2016, the combined investments of the four cited institutional investors accounts for about 20 percent of banking industry ownership and 22 percent of insurance industry ownership.[10] Table 2 presents the trend in industry-wide ownership by the four institutional investors.

**Table 2. Average ownership percentages, by year and institutional investor**

| | Insurers | | | | Banks | | | | Totals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Black Rock | State Street | Van-guard | Fidelity | Black Rock | State Street | Van-guard | Fidelity | Black Rock | State Street | Van-guard | Fidelity |
| 2006 | 3.56 | 1.93 | 0.16 | 2.27 | 4.86 | 2.26 | 0.10 | 1.35 | 4.23 | 2.10 | 0.13 | 1.79 |
| 2007 | 3.90 | 2.18 | 0.17 | 1.79 | 5.23 | 2.30 | 0.10 | 1.28 | 4.58 | 2.25 | 0.14 | 1.53 |
| 2008 | 4.45 | 2.35 | 2.43 | 1.75 | 5.78 | 3.29 | 2.97 | 1.50 | 5.12 | 2.82 | 2.70 | 1.62 |
| 2009 | 4.78 | 2.37 | 2.88 | 1.71 | 5.79 | 3.16 | 3.43 | 2.06 | 5.29 | 2.77 | 3.16 | 1.89 |
| 2010 | 4.76 | 2.43 | 3.15 | 1.75 | 5.79 | 3.38 | 3.93 | 2.25 | 5.28 | 2.90 | 3.54 | 2.00 |
| 2011 | 4.80 | 2.58 | 3.50 | 1.76 | 5.76 | 3.51 | 4.08 | 1.79 | 5.29 | 3.05 | 3.79 | 1.77 |
| 2012 | 4.90 | 2.73 | 4.04 | 1.87 | 5.85 | 3.81 | 4.71 | 2.21 | 5.38 | 3.28 | 4.38 | 2.04 |
| 2013 | 5.51 | 2.76 | 4.23 | 2.05 | 6.70 | 4.30 | 5.16 | 2.13 | 6.11 | 3.54 | 4.70 | 2.09 |
| 2014 | 5.75 | 2.83 | 4.73 | 1.75 | 6.82 | 4.43 | 5.69 | 2.19 | 6.28 | 3.63 | 5.21 | 1.97 |
| 2015 | 6.29 | 2.90 | 5.44 | 1.66 | 7.29 | 4.04 | 6.42 | 2.30 | 6.79 | 3.48 | 5.94 | 1.98 |
| 2016 | 6.90 | 3.16 | 6.32 | 1.48 | 8.18 | 4.38 | 7.55 | 2.09 | 7.53 | 3.76 | 6.92 | 1.78 |
| Total | 5.07 | 2.57 | 3.41 | 1.80 | 6.18 | 3.54 | 4.02 | 1.93 | 5.63 | 3.06 | 3.72 | 1.86 |

Of the four institutions, Fidelity is committed to steady investment in both industries in the period of observation, after a minor decrease in the first several years studied. Over the same period, State Street maintained its investment position in the banking industry but almost doubled its ownership in the insurance industry. Blackrock was the largest single investor across firms in both industries at any time; its stake in both the banking and insurance industries increased during the 11-year period. Vanguard's stake in both industries had the highest rate of investment, from less than 1 percent in 2006 to about 7 percent in 2016 in each industry. When institutional investors increase their ownerships in both industries, however, the investment in individual firms is not evenly distributed. Starting in 2015, Blackrock held a stake in every publicly traded insurance firm, at various percentages with the highest, 15.55 percent, in UIHC (United Insurance Holding Corp). A similar pattern is observed in Blackrock's banking investments.

Methodology

Our analysis consists of two primary empirical tests: a base model specification of firm performance and our primary model with institutional investor variables. All control variables are interacted with a banking dummy variable to separate potential industry effects between insurance companies and banks. We also include firm- and year- fixed effects as additional controls. The base model takes the form:

$$y_{it} = \sum_{j=1}^{J} \beta_j x_{itj} + \sum_{j=1}^{J} \beta_{j\_B}(x_{itj} * Bank) + \alpha_i Firm_i + \delta_t Year_t + \varepsilon_{it} \qquad (1)$$

while the primary model is specified as:

$$y_{it} = \sum_{j=1}^{J} \beta_j x_{itj} + \sum_{j=1}^{J} \beta_{j\_B}(x_{itj} * Bank) + \sum_{k=1}^{K} \gamma_k z_{itk} + \alpha_i Firm_i + \delta_t Year_t + \tilde{\varepsilon}_{it} \qquad (2)$$

where $\sum_{k=1}^{K} \gamma_k z_{itk}$ is our vector of institutional investor effects.

The vector of institutional investor variables is employed to capture the effects of ownership by Blackrock, Fidelity, Vanguard, and State Street on firm performance. In addition, we also include a variable in an effort to capture the effect of institutional investors' ownership of the

---

[10] The four institutions are Blackrock Capital, Fidelity, State Street Bank, and Vanguard.

industries. Specifically, Big4Ind is the sum of the four organization's ownership of insurance and banking industry, separately. For all insurers,

$$Big4Ind =$$
$$\left(\textstyle\sum_f \sum_{i=1}^4 Investor\ i's\ Ownership\%_f * MarketValue_f\right)/\sum_{f=1} MarketValue_f,$$

where the summation with respect to $f$ runs through all publicly traded insurers while the summation with respect to $i$ aggregates across the four institutional investors.

Preliminary analysis based on ordinary least square estimation method indicates strong autocorrelation among residuals of the dependent variable, Tobin's $q$. In fact, the order 1 autocorrelation coefficient of the OLS residuals from base model is 0.3547. Therefore the OLS error terms in equations (1) and (2) are not independent and the estimation results from OLS are not efficient, although unbiased. We apply generalized autoregressive conditional heteroscedasticity (GARCH) model to correct the autocorrelation and potential heteroscedasticity problem. In specific, we test the following specification of our primary model.

$$y_{it} = \sum_{j=1}^J \beta_j x_{itj} + \sum_{j=1}^J \beta_{j\_B}(x_{itj} * Bank) + \sum_{k=1}^K \gamma_k z_{itk} + \alpha_i Firm_i + \delta_t Year_t + \tilde{\varepsilon}_{it} \qquad (2)'$$

$$\tilde{\varepsilon}_{it} = v_{it} - \lambda_1 \tilde{\varepsilon}_{i,t-1} - \lambda_2 \tilde{\varepsilon}_{i,t-2}$$
$$v_{it} = \sqrt{h_{it}} e_{it}$$
$$h_{it} = \omega + \rho v_{i,t-1}^2 + \varphi h_{i,t-1}, \text{ and}$$
$$e_{it} \sim iid\ N(0,1).$$

The specification combines autoregressive with order 2 error model with GARCH(1,1) variance model. The coefficients $\lambda_1, \lambda_2, \omega, \rho, \varphi$ are estimated simultaneously with those in equations (1) or (2) together using maximum likelihood estimation method.

**RESULTS**

Base Model Results

Table 3 reports the estimates of AR(2)-GARCH(1,1) model when institutional investor ownership information is not included, referred to hereafter as the base model.

**Table 3. Base Model Results: Determinants of Firm Performance**

Dependent Variable = Tobin's q

| | Common to Insurers and banks | | | Bank Incremental | | |
|---|---|---|---|---|---|---|
| | Est | Std. | Pr.>\|t\| | Est | Std. | Pr.>\|t\| |
| Size | 0.046 | 0.009 | 0.001 | -0.113 | 0.011 | <0.001 |
| Leverage | -0.004 | 0.003 | 0.207 | 0.156 | 0.021 | <0.001 |
| Liquidity | 0.106 | 0.016 | <0.001 | -0.066 | 0.029 | 0.001 |
| Focus | -0.021 | 0.001 | 0.031 | 0.043 | 0.011 | <0.001 |
| LnTotComp | 0.018 | 0.004 | <0.001 | -0.020 | 0.005 | <0.001 |
| CompFut | 0.029 | 0.004 | <0.001 | -0.035 | 0.006 | <0.001 |
| Duality | -0.009 | 0.002 | <0.001 | -0.002 | 0.003 | 0.537 |
| Family | 0.012 | 0.006 | 0.048 | -0.011 | 0.018 | 0.531 |
| DO_Pct | 0.062 | 0.008 | <0.001 | -0.069 | 0.022 | 0.001 |
| RiskOp | -8e-6 | 5e-5 | 0.869 | 5e-4 | 0.001 | 0.688 |
| RiskInv | 3e-5 | 1e-4 | 0.792 | -6e-5 | 1e-4 | 0.633 |
| $\lambda_1$ | -0.142 | 0.023 | <0.001 | | | |
| $\lambda_2$ | -0.046 | 0.017 | 0.006 | | | |

10

| | | | |
|---|---|---|---|
| ω | 8e-5 | 2e-5 | <0.001 |
| ρ | 1.795 | 0.116 | <0.001 |
| φ | 0.047 | 0.014 | 0.001 |

*Note: Total R-square = 0.658, AIC = -6278. Firm dummies and Year dummies are included in the analysis, but the results are omitted in this table.*

First of all, the bottom section of Table 3 suggests the model specification is able to remedy the autoregressive and heteroscedasticity problem. The error term in equation (1) for base model displays autocorrelation at order 2. The none-zero values of $\rho, \varphi$ indicate un-equal variance of residuals from equation (1).

The effects of independent variables on firm performance are reported in the top section, with standard errors corrected. The top-left panel of Table 3 displays the results of firm characteristics variables, while the right panel reports the results of firm characteristics interacted with bank indicator. Those in the right thus reflect the incremental effects on banks. Firm characteristics Duality and Family, and two risk measures have the same effects on insurers as on banks since the effects of these variables interacted with Bank indicator are insignificant. Actually risk measures have no significant effects on firm performance in the base model. Duality has the same negative and significant effects on both insurers and banks. Family, on the other hand, has the same positive and significant effect on firms in either industry sampled.

Size, Liquidity, two executive compensation measures (LnTotComp and CompFut), and DO_pct all have significant and positive effects on insurers. Their effects on banks are determined by the combined effects of these variables and their interaction with Bank dummy. Take, for example, Size, the coefficient of its effects common on insurers and banks is 0.046 with standard error 0.009, and the coefficient of Size_Bank is -0.113 with standard error 0.011. The net effect of Size on banks is thus 0.046+(-0.011) = 0.035; a separate test indicates that the sum of coefficients for Size and that for Size_Bank is not zero and statistically significant at 1% level. Larger insurers were more profitable than smaller insurers, and the same notion is true for banks, with a smaller size effect for banks. The effect of Liquidity on insurers is 0.106 and significant at 1% level, but the net effect of Liquidity on banks turns out to be insignificant. The effects of two compensation measures are similar to Liquidity; that is positive and significant on insurers but insignificant on banks.

Leverage has no significant effect on insurers but positive and significant effect on banks. The effect of Focus on insurers is negative (-0.021) and significant (p-value=0.031), and positive (-0.021+0.043=0.022) and significant (p-value<0.001) on banks.

The results reinforce the appropriateness of considering separately the two financial service sectors.

<u>Firm Performance and Institutional Ownership – Omitted Variables Identified</u>

To test for the presence of omitted variables, we compute the correlation between each institutional investor's ownership stake in individual firm (as well as the percentage of each industry owned by the four institutions altogether in each year) and the residuals from the base model, $\varepsilon_{i,t}$. Table 4 presents the Pearson correlation coefficients. The results suggest that residuals

from the base model are significantly related to Blackrock's ownership at a 1% significance level (with a coefficient of 0.106 with *p*-value of less than 0.001). The residual from the base model is also significantly related to firm ownership held by Vanguard and State Street. We can also see that Blackrock ownership in insurers and banks is positively correlated with ownerships of other three organizations.

**Table 4. Pearson Correlation Coefficients**
**between Base Model Residual and Institutional Ownership Percentages**

|  | Blackrock | Fidelity | Vanguard | State Street | Big4 Own the Industry |
|---|---|---|---|---|---|
| Residual | 0.106 (0.001) | 0.023 (0.335) | 0.068 (0.006) | 0.096 (0.001) | 0.016 (0.505) |
| Blackrock | 1.000 | 0.143 (0.001) | 0.580 (0.001) | 0.508 (0.001) | 0.108 (0.001) |
| Fidelity |  | 1.000 | 0.179 (0.001) | 0.203 (0.001) | 0.004 (0.894) |
| Vanguard |  |  | 1.000 | 0.529 (0.001) | 0.481 (0.001) |
| State Street |  |  |  | 1.000 | 0.027 (0.468) |

*Note: P-values are in the parentheses.*

Primary Model Results

The results are reported in Table 5. First we note that the autoregressive structure of the residuals is valid at order one, with the coefficient of -0.27 and statistically significant at 1% level. The residual variances are also corrected with both coefficients ρ and φ non-zero and significant. The fit of the primary model has improved over that of the base model, reflected by the values of Total R-square and AIC.

The effects of the control variables identified in the base model are reported in the top section of the table. The left panel displays the effects on insurance companies and the right one are the incremental effects on banks. The net effects on banks can be obtained by combining the results in the left and the right. A summary of the net effects of control variables is presented in Table 6 for convenience. All control variables except Leverage and RiskInv have significant effects on insurance companies. Company size, diversification of business, and the management team's ownership in the company are negatively related to an insurer's performance. Liquidity, chief executive's compensation (both measures), the same individual holding both CEO and board chair, and family control are all positively associated with Tobin's q of insurance companies. The finding about family control is consistent with a recent study by Pooser et al (2017). It is worth pointing out that when institutional investors are involved, a risk measure is positively related to insurer's performance. Specifically, the volatility measure (coefficient of variation) in an insurer's daily stock price has a positive (though small) effect on the performance, and the effect is statistically significant at 1% level. The effects on banks are a different story. Most control variables have no significant effects on banks except for Size, Duality (both negative coefficients) and Leverage (positive coefficient).

The ownerships held by two institutional investors, Blackrock and Fidelity, our variables of interest, are indeed associated with individual firm's performance. When Blackrock's ownership in an insurance company or bank increases by one percentage, the firm's performance measured by Tobin's q, increases by 0.003. In the case of Fidelity, the increase in Tobin's q is 0.001 for one

12

percentage point increase in Fidelity's ownership of the firm. Vanguard and State Street are not observed to exert any direct and significant effects on performance of firms they invest in. However, and interestingly, the aggregate ownership by the Big Four in the industry is found to be positively related to individual firm's performance. When the Big Four increase their investment in insurance or banking industry by one percentage point, Tobin's q of individual insurer or bank is found to increase by 0.0032 and the effect is significant at 1% level. The real question would be how? What is the mechanism that institutional investors' investment in an industry affects the performance of individual firms?

**Table 5. Empirical Results with Institutional Investor Ownership: Determinants of Performance**

Dependent Variable = Tobin's q

| | Common to Insurers and banks | | | Bank Incremental | | |
|---|---|---|---|---|---|---|
| | Est | Std. | Pr.>\|t\| | Est | Std. | Pr.>\|t\| |
| Size | -0.043 | 0.012 | <0.001 | -0.115 | 0.014 | 0.269 |
| Leverage | -0.008 | 0.005 | 0.109 | 0.160 | 0.026 | <0.001 |
| Liquidity | 0.125 | 0.026 | <0.001 | -0.167 | 0.037 | <0.001 |
| Focus | -0.025 | 0.011 | 0.022 | 0.013 | 0.013 | 0.369 |
| LnTotComp | 0.019 | 0.005 | <0.001 | -0.021 | 0.006 | <0.001 |
| CompFut | 0.017 | 0.005 | <0.001 | -0.019 | 0.006 | 0.003 |
| Duality | 0.016 | 0.003 | <0.001 | -0.024 | 0.004 | <0.001 |
| Family | 0.016 | 0.007 | 0.033 | -0.041 | 0.030 | 0.169 |
| DO_Pct | -0.058 | 0.010 | <0.001 | 0.067 | 0.027 | 0.012 |
| RiskOp | -8e-6 | 3.6e-5 | 0.826 | -0.001 | 0.002 | 0.502 |
| RiskInv | 4e-4 | 1e-4 | 0.002 | -5e-4 | 1.6e-4 | 0.003 |
| Blackrock | 0.003 | 4.7e-4 | <0.001 | | | |
| Fidelity | 0.001 | 3.6e-4 | <0.001 | | | |
| Vanguard | -2e-4 | 6.5e-4 | 0.721 | | | |
| State Street | 5e-4 | 6.7e-7 | 0.438 | | | |
| Big4Industry | 0.003 | 6e-4 | <0.001 | | | |
| $\lambda_1$ | -0.271 | 0.027 | <0.001 | | | |
| $\lambda_2$ | 0.016 | 0.021 | 0.449 | | | |
| $\omega$ | 1e-4 | 2e-5 | <0.001 | | | |
| $\rho$ | 1.629 | 0.113 | <0.001 | | | |
| $\varphi$ | 0.070 | 0.020 | <0.001 | | | |

*Note: Total R-square = 0.700, AIC = -6289. Firm dummies and Year dummies are included in the analysis, but the results are omitted in this table.*

**Table 6. Net effects of control variables**

| | Net effect on insurers | | Net effect on banks | |
|---|---|---|---|---|
| | Coefficient | p-value | Coefficient | p-value |
| Size | -0.043 | <0.001 | -0.043 | <0.001 |
| Leverage | 0 | Insig | 0.160 | <0.001 |
| Liquidity | 0.125 | <0.001 | 0 | Insig |
| Focus | -0.025 | 0.022 | 0 | Insig |
| LnTotComp | 0.019 | <0.001 | 0 | Insig |
| CompFut | 0.017 | <0.001 | 0 | Insig |
| Duality | 0.016 | <0.001 | -0.008 | 0.003 |
| Family | 0.016 | 0.033 | 0 | Insig |
| DO_Pct | -0.058 | <0.001 | 0 | Insig |
| RiskOp | 0 | Insig | 0 | Insig |
| RiskInv | 4e-4 | 0.002 | 0 | Insig |

*Note: "Insig" is short for insignificant, meaning the p-value is greater than 10%.*

13

(I leave discussions and conclusion to you guys, David and Jim).

## CONCLUSION

Control of a stock corporation can range from wholly owned to very small stock percentages held broadly. A large part of the focus of modern financial theory is on the consequence of diverse ownership and the consequent need to align owner-manager incentives. Strains of the governance literature consider the effect on firms when identified blocks of shares are held by an individual or small group (*e.g.*, directors and officers, families, or block holders). This focus of this paper is on situations where the control of the firm may be implied from ownership blocks, either a controlling block in the hands of a family or through the coordinated ownership of a group of institutional investors. An assumption in almost all studies is that the goals of the firm include value or profit maximization. Family-control oriented studies question whether the stewardship nature of such ownership modifies the short-term profit maximization goal. The director and officer perspective questions whether value maximization is affected by managerial expropriation influences. Recent studies of institutional investors yield conflicting evidence of an empirically significant effect on industry performance, implicitly at the expense of firms in the industry though that has not been a part of any studies to-date.

We perform two major empirical analyses: a base model which regresses firm financial, risk, and governance factors on Tobin's q and our primary model which includes institutional investor ownership variables. We note that four major institutional investors consistently appear in our sample as major holders of banks and insurers: Blackrock Capital, Fidelity, State Street Bank, and Vanguard. To determine if any of these holders may influence firm performance, we correlate their ownership stake in each firm with the estimated residuals from our base model. Only Blackrock's stake is significantly correlated with the error term, so our primary empirical model includes detailed interactions between Blackrock's holdings and firm risk.

The results of our two models are consistent across our control variables. Size, leverage, and line of business focus are positively related to Tobin's q, although the effects for size and focus are lessened or negated for banks. Both total and future compensation are positively related to performance (again, future compensation's effect is negated for banks). Related to ownership and control, insurers with a dual CEO/Board Chair have higher associated Tobin's q. A greater ownership stake by non-family directors and officers is associated with a lower q for all firms. Our measure of operational risk is negatively associated with Tobin's q. However, the investor's risk measure is positively associated with q for insurers.

Our institutional holder results show that a larger holding by Blackrock is negatively associated with Tobin's q. However, when Blackrock's holding is interacted with the investor's risk variable, the net result is positive. We also include a sum of the holdings by the three other major institutional investors and interact that term with our risk variables. The results from this term are mostly insignificant, although there is some positive significance between the other institutional holdings interacted with firm operational risk.

Our findings indicate that large institutional investors are not necessarily invested in higher Tobin's q firms. However, a higher Tobin's q is associated with the coincidence of greater risk and a stake by the institutional investor. Perhaps these large investors use their influence with management or through proxy votes to support riskier firm initiatives. This would support the

classical notion of the diversified investor holding a balanced portfolio of risk-neutral firms seeking to increase risk and returns.

We believe that this paper contributes to a large and growing body of research examining the effects of common ownership. While much of the existing literature focuses on antitrust and anticompetitive behaviors, we also see a need to examine the performance outcome of these large investors.

**REFERENCES**

[1] Azar, Jose, Martin C. Schmalz, and Isabel Tecu. 2017. Anti-competitive effects of common ownership. *Journal of Finance*, forthcoming. Available at: https://dx.doi.org/10.2139/ssrn.2427345.

[2] Patel, Menesh. 2018. Common ownership, institutional investors, and antitrust. *Antitrust Law Journal*, forthcoming. Available at: https://dx.doi.org/10.2139/ssrn.2941031.

[3] Saez, Emmanuel and Gabriel Zucman. 2016. Wealth inequality in the United States since 1913: evidence from capitalized income tax data. *Quarterly Journal of Economics* 131(2): 519-578.

[4] Willis Towers Watson. 2016. Global pension assets study 2016. Available at: https://www.willistowerswatson.com/-/media/WTW/PDF/Insights/2016/02/Global-Pensions-Asset-Study-2016.pdf.

[5] Morrell, Alex. "Larry Fink, CEO of $6.3 trillion manager BlackRock, just sent a warning letter to CEO's everywhere." (January 16, 2018). *Business Insider*. Available at: http://www.businessinsider.com/blackrock-ceo-larry-fink-just-sent-a-warning-to-ceos-everywhere-2018-1.

[6] Baily, Martin N. "Stop Worrying. The Finance Sector isn't Destroying the Economy." (April 21, 2016). *The Brookings Institute*. Available at: https://www.brookings.edu/opinions/stop-worrying-the-finance-sector-isnt-destroying-the-economy/.

[7] Edwards, Franklin R., and R. Glenn Hubbard. 2000. The growth of institutional stock ownership: A promise unfulfilled. *Journal of Applied Corporate Finance* 13(3): 92-104.

[8] Posner, Eric A., Fiona M. Scott Morton, and Glen E. Weyl. 2017. A proposal to limit the anti-competitive power of institutional investors. Antitrust Law Journal, forthcoming. Available at http://dx.doi.org/10.2139/ssrn.2872754.

[9] Freeman, Kayla. 2017. The effects of common ownership on customer-supplier relationships. *Kelley School of Business Research Paper No. 16-84*. Available at: https://dx.doi.org/10.2139/ssrn.2873199.

[10] Pooser, David M., Ping Wang, and James Barrese. 2017. A governance study of corporate ownership in the insurance industry. *Journal of Insurance Issues* 40(1): 23-60.

[11] Baker, Jonathan B. 2016. Overlapping financial investor ownership, market power, and antitrust enforcement: My qualified agreement with Professor Elhauge. *Harv. L. Rev. F.* 129: 212.

16

[12] Kennedy, Pauline, Daniel P. O'Brien, Minjae Song, and Keith Waehrer. 2017. The competitive effects of common ownership: economic foundations and empirical evidence. Working paper – available at: https://ssrn.com/abstract=3008331.

[13] Pound, J. 1991. Proxy voting and the SEC: investor protection versus market efficiency. *Journal of Financial Economics* 29: 241-285.

[14] Black, B.S. 1992. Institutional investors and corporate governance: the case for institutional voice. *Journal of Applied Corporate Finance* 5: 19-32.

[15] Mehran, 1995. Executive compensation structure, ownership, and firm performance, *Journal of Finance Economics*

[16] Bushee, Brian J. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73(3): 305-333.

[17] Aghion, Philippe, John Van Reenen, and Luigi Zingales. 2013. Innovation and institutional ownership. *American Economic Review*, *103*(1), 277-304.

[18] Aggarwal, Reena, Isil Erel, Miguel Ferreira, and Pedro Matos. 2011. Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics* 100(1): 154-181.

[19] Appel, Ian, R., Todd A. Gormley, and Donald B. Klein. 2016. Passive investors, not passive owners. *Journal of Financial Economics* 121(1): 111-141.

[20] Grinstein, Yaniv and Roni Michaely. 2005. Institutional holdings and payout policy. *Journal of Finance* 60(3): 1389-1426.

[21] Crane, Alan D., Sebastien Michenaud, and James P. Weston. 2016. The effect of institutional Ownership on payout policy: evidence from index thresholds. *The Review of Financial Studies* 29(6): 1377-1408.

[22] Michaely, Roni, Jillian Popadak, and Christopher Vincent. 2015. The deleveraging of US firms and institutional investors' role. Available at: https://mpra.ub.uni-muenchen.de/66128/.

[23] Hansen, Robert G. and John R. Lott. 1996. Externalities and corporate objectives in a world with diversified shareholder/consumers. *Journal of Financial and Quantitative Analysis* 31(1): 43-68.

[24] Matvos, Gregor, and Michael Ostrovsky. 2008. Cross-ownership, returns, and voting in mergers. *Journal of Financial Economics* 89(3): 391-403.

[25] Harford, Jarrad, Dirk Jenter, and Kai Li. 2011. Institutional cross-holdings and their effect on acquisition decisions. *Journal of Financial Economics* 99(1): 37-39.

[26] He, Jie, and Jiekun Huang. 2017. Product market competition in a world of cross-ownership: evidence from institutional blockholdings. *The Review of Financial Studies* 30(8): 2674-2718.

[27] Azar, Jose, Sahil Raina, and Martin C. Schmalz. 2016. Ultimate ownership and bank competition. Working paper – available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2710252.

[28] Cornett, Marcia M., Lin Guo, Shahriar Khaksari, and Hassan Tehranian. 2010. The impact of state ownership on performance differences in privately-owned versus state-owned banks: an international comparison. *Journal of Financial Intermediation* 19(1): 74-94.

[29] Boyd, Brian K. and Angelo M. Solarino. 2016. Ownership of corporations. *Journal of Management,* 42(5): 1282-1314.

[30] Smith, Barry D. 1999. Using a modified DuPont system of analysis for understanding property-liability insurance company financial performance. *Risk Management and Insurance Review* 2(3): 141-151.

**Appendix 1**
Detail on each firm in the sample and on the variables assembled for each firm.

| # | Ticker | Firm Name | Bank | | Period | Discussion of special circumstances |
|---|--------|-----------|------|---|--------|-------------------------------------|
| 1 | AAME | Atlantic American Corporation | 0 | | 6-16 | Estate of Mack Robinson has over 60% for all years, and at least one family member on the board. |
| 2 | ACGL | Arch Capital Group Ltd. | 0 | | 6-16 | |
| 3 | AEL | American Equity Investment | 0 | | 6-16 | |
| 4 | AET | Aetna Inc | 0 | | 6-16 | |
| 5 | AFG | American Financial Group Inc | 0 | | 6-16 | Linder family has over 20% until 2012, and 10-13% afterward. Two family members on the Board throughout the period. |
| 6 | AFH | Atlas Financial Holdings Inc | 0 | | 13-16 | AFH started in 2010 as a joint venture of KFS and …. First trading day 2/2/13 |
| 7 | AFL | AFLAC Incorporated | 0 | | 6-16 | |
| 8 | AFSI | AmTrust Financial Services Inc | 1-1 | * | 6-16 | Karfunkel family has over 20% all years; AFSI has bank and insurance divisions. |
| 9 | AGII | Argo Group International | 0 | | 6-16 | |
| 10 | AHL | Aspen Insurance Holdings | 0 | | 7-16 | |
| 11 | AIG | American International Group | 0 | | 6-16 | US Treasury controlled 08-09 |
| 12 | ALL | Allstate Corp | 0 | | 6-16 | |
| 13 | ALLY | Ally Financial Inc | 1 | | 14-16 | GMAC before 2009 (no Compustat data for GMAC) … no good data until 2014 |
| 14 | AMIC | American Independence Corp. | 0 | | 9-14 | |
| 15 | AMP | Ameriprise Financial, Inc. | 0 | | 6-16 | Ameriprise Financial was spun off from American Express in 2005 (Incomplete 05 data) |
| 16 | AMSF | Amerisafe, Inc. | 0 | | 6-16 | First trading day 11/18/2005 |
| 17 | ANAT | American National Insurance | 0 | | 6-16 | Moody National Bank has over 40%. The bank is controlled by the Moody family. |
| 18 | ASB | Associated Banc-Corp | 1 | | 6-16 | |
| 19 | AWHHF | Allied World Assurance Co | 0 | | 6-16 | No SEC filing before 2007 (2006 data) |
| 20 | AXP | American Express | 1 | | 6-16 | |
| 21 | AXS | Axis Capital Holdings Limited | 0 | | 6-16 | |
| 22 | BAC | Bank of America | 1 | | 6-16 | |
| 23 | BANR | Banner Corp. | 1 | | 6-16 | |
| 24 | BK | Bank of New York Mellon | 1 | | 6-16 | |
| 25 | BKU | BankUnited Financial Corp. | 1 | | 11-16 | Firm was organized in 2009. Incomplete year for 2010 – start with 2011. |
| 26 | BOH | Bank of Hawaii Corporation | 1 | | 6-16 | |
| 27 | BOKF | BOK Financial Corp. | 1 | | 6-16 | George Kaiser has over 60% for the whole period. |
| 28 | BPOP | Popular Inc | 1 | | 6-16 | |
| 29 | BRK.B | Berkshire Hathaway Inc. | 1 | | 6-16 | Buffet family held over 15% until 2009. Through a mix of A and B shares, Warren Buffet votes 30% of the voting shares. |

19

| # | Ticker | Firm Name | Bank | | Period | Discussion of special circumstances |
|---|--------|-----------|------|---|--------|-------------------------------------|
| 30 | BWINB | Baldwin & Lyons Inc | 1 | | 6-16 | Shapiro family has between 14 and 15 percent each year, plus at least one family member on the board. |
| 31 | BXS | Bancorpsouth, Inc. | 1 | | 6-16 | |
| 32 | C | Citigroup | 1 | | 6-16 | |
| 33 | CATY | Cathay General Bancorp | 1 | | 6-16 | |
| 34 | CB | Chubb Corp | 0 | | 6-16 | |
| 35 | CBSH | Commerce Bancshares | 1 | | 6-16 | |
| 36 | CBU | Community Bank System | 1 | | 6-16 | |
| 37 | CFR | Cullen/Frost Bankers Inc. | 1 | | 7-16 | Check for availability on SEC website, not on Compustat |
| 38 | CHCO | City National Bank | 1 | | 6-16 | |
| 39 | CI | CIGNA Corporation | 0 | | 6-16 | |
| 40 | CIA | Citizens, Inc. | 0 | | 6-16 | |
| 41 | CINF | Cincinnati Financial Corp | 0 | | 6-16 | Schiff family has 8% each year – Not treated as a family. |
| 42 | CIT | CIT Group Inc | 1 | | 9-16 | Check for availability on SEC website, not on Compustat |
| 43 | CMA | Comerica | 1 | | 6-16 | |
| 44 | CNA | CNA Financial Corp | 0 | | 6-16 | Loews Corp has ~90% each year (L, in turn, is a Tisch co.) |
| 45 | CNC | Centene Corp | 0 | | 6-16 | |
| 46 | CNO | CNO Financial Group Inc | 0 | | 6-16 | |
| 47 | COF | Capital One Financial | 1 | | 6-16 | |
| 48 | CPF | Central Pacific Financial Corp. | 1 | | 6-16 | US Treasury controlled 2010 & 11 |
| 49 | CRBC | Citizens Republic Bancorp Inc. | 1 | | 11 | No earlier price data available; then acquired by HBAN (which is in the sample) |
| 50 | DFG | Delphi Financial Group Inc | 0 | | 6-10 | Ticker delisted – no complete data found |
| 51 | DFS | Discover Financial Services | 1 | | 7-16 | Discover – spun off from Morgan Stanley (first in sample in 2007) |
| 52 | DGICA | Donegal Group Inc. | 0 | * | 6-16 | Donegal Mutual has over 40% of Donegal Group shares. Not sure who votes the shares, likely DGICA management. |
| 53 | EIG | Employers Holdings, Inc. | 0 | | 7-16 | First trading day 1/31/2007 |
| 54 | EMCI | EMC Insurance Group Inc. | 0 | * | 6-16 | Employers Mutual Casualty holds more than 25% of Employers Holding stock. Cannot find EMC anywhere (internet takes you to the stock co.) |
| 55 | ENH | Endurance Specialty Holdings | 0 | | 6-16 | |
| 56 | ETFC | E-Trade Financial | 1 | | 6-16 | |
| 57 | EVER | EverBank Financial Corp. | 1 | | 12-15 | No data before 2010; limited until 2012; acquired by TIAA in 2016. |
| 58 | EWBC | East West Bancorp Inc. | 1 | | 6-16 | |
| 59 | FBC | Flagstar Bancorp Inc. | 1 | | 6-16 | Hammond family (3 members) held more than 15% until 2009, then divested. |
| 60 | FBNC | First Bancorp | 1 | | 6-16 | |
| 61 | FHN | First Horizon National Bancorp | 1 | | 6-16 | |
| 62 | FIBK | First Interstate Bank | 1 | | 6-16 | First trading day 3/24/2010 |
| 63 | FITB | Fifth Third Bancorp | 1 | | 6-16 | US Treasury controlled 2008 & 09 |
| 67 | FMBI | First Midwest Bancorp, Inc. | 1 | | 6-16 | |

Institutional Ownership in Financial Services

| # | Ticker | Firm Name | Bank | | Period | Discussion of special circumstances |
|---|--------|-----------|------|---|--------|-------------------------------------|
| 68 | FMER | Firstmerit Corp. | 1 | | 6-15 | Purchased by HBAN (in sample) |
| 69 | FNB | F.N.B. Corp | 1 | | 6-16 | |
| 70 | FNHC | Federated National Holding Co | 0 | | 6-16 | |
| 71 | FRME | First Merchants Corp | 1 | | 6-16 | |
| 72 | FULT | Fulton Financial Corp. | 1 | | 6-16 | |
| 73 | GBLI | Global Indemnity | 0 | | 8-16 | Check for availability on SEC website, not on Compustat |
| 74 | GNW | Genworth Financial Inc | 0 | | 6-16 | |
| 75 | GS | Goldman Sachs | 1 | | 6-16 | |
| 76 | HALL | Hallmark Financial Services | 0 | | 6-16 | Newcastle Partners has more than 25% per year. NewCastle seems to be a father son group (Lowden family) - http://www.newcastle-partners.com/ |
| 77 | HBAN | Huntington Bancshares | 1 | | 6-16 | |
| 78 | HBHC | Hancock Holding Company | 1 | | 6-16 | |
| 79 | HCBK | Hudson City Bancorp | 1 | | 7-13 | Merged with M&T Bank in 2014 |
| 80 | HCI | HCI Group Inc | 0 | | 8-16 | First trading day: 9/15/2008 |
| 81 | HGIC | Harleysville Group Inc. | 0 | | 6-10 | |
| 82 | HIG | Hartford Financial Services | 0 | | 6-16 | |
| 83 | HMN | Horace Mann Educators Corp | 0 | | 6-16 | |
| 84 | HRTG | Heritage Insurance Holdings Inc | 0 | | 14-16 | Do not know why data is limited. Website lists SEC filings only from 2014 First trading day 5/23/2014. |
| 85 | IBKC | Iberiabank Corp. | 1 | | 6-16 | |
| 86 | IBOC | International Bankshares Corp | 1 | | 6-16 | Antonio Sanchez has over 15% to 2011, then 12-14%. He remains Chair of the Board. |
| 87 | IHC | Independence Holding Company | 0 | | 6-16 | Over 50% Geneve Holdings; Geneve, in turn, is controlled by Edward Netter. Netter died in 2011 – unclear who votes those shares now (Geneve is private). |
| 88 | IPCC | Infinity Property and Casualty | 0 | | 6-16 | |
| 89 | ISBC | Investors Bancorp | 1 | | 6-13 | Check for availability on SEC website, not on Compustat |
| 90 | JPM | JP Morgan Chase & Co. | 1 | | 6-16 | |
| 91 | KCLI | Kansas City Life Insurance Co | 0 | | 6-14 | Check for availability on SEC website, not on Compustat |
| 92 | KEY | KeyCorp | 1 | | 6-16 | |
| 93 | KINS | Kingstone Companies Inc | 0 | | 6-16 | |
| 94 | KMPR | Kemper | 0 | | 6-16 | |
| 95 | L | Loews Corporation | 0 | | 6-16 | Tisch family has over 15% of L each year and multiple family on board. |
| 96 | LNC | Lincoln National Corporation | 0 | | 6-16 | |
| 97 | M | Macy's | 1 | | 6-16 | |
| 98 | MBFI | MB Financial, Inc. | 1 | | 6-16 | |
| 99 | MCY | Mercury General Corporation | 0 | | 6-16 | George family has over 30% of stock. |
| 100 | MET | Metlife Inc | 0 | * | 6-16 | MetLife Policyholder Trust has over 15% of voting stock. It is hard to tell who votes these shares; I thought management but cannot tell. |

Institutional Ownership in Financial Services

| # | Ticker | Firm Name | Bank | | Period | Discussion of special circumstances |
|---|--------|-----------|------|---|--------|-------------------------------------|
| 101 | MKL | Markel Corporation | 0 | | 6-16 | |
| 102 | MS | Morgan Stanley | 1 | | 6-16 | |
| 103 | MTB | M&T Bank Corp | 1 | | 6-16 | |
| 104 | NAVG | Navigators Group Inc | 0 | | 6-16 | Terrence Deeks has over 20% throughout. |
| 105 | NBTB | NBT Bancorp Inc. | 1 | | 6-16 | |
| 106 | NPBC | National Penn Bancshares Inc. | 1 | | 6-15 | Purchased by BB&T |
| 107 | NSEC | National Security Group Inc | 0 | | 6-16 | Brunson family has over 15% throughout. |
| 108 | NTRS | Northern Trust | 1 | | 6-16 | |
| 109 | NWLI | National Western Life Group Inc | 0 | | 6-16 | Robt. Moody has over 30% 2007-2015, then drops to 0 (sold out) |
| 110 | NYCB | New York Community Bancorp | 1 | | 6-16 | |
| 111 | ONB | Old National Bancorp | 1 | | 6-16 | |
| 112 | ORI | Old Republic International Corp | 0 | | 6-16 | |
| 113 | PB | Prosperity Bancshares Inc. | 1 | | 6-16 | |
| 114 | PBCT | People's United Financial Inc. | 1 | | 6-16 | |
| 115 | PFG | Principal Financial Group Inc | 0 | | 6-16 | |
| 116 | PFS | Provident Financial Services Inc. | 1 | | 6-16 | |
| 117 | PGR | Progressive Corp | 0 | | 6-16 | |
| 118 | PIH | 1347 Property Insurance Hldings | 0 | | 14-16 | Incorporated in 2012. First completed data 2014 |
| 119 | PNC | PNC Financial Services Group | 1 | | 6-16 | |
| 120 | PRA | ProAssurance Corporation | 0 | | 6-16 | |
| 121 | PRI | Primerica, Inc. | 0 | | 10-16 | Primerica spun off from Citi in 2010. |
| 122 | PRK | Park National Corp. | 1 | | 6-16 | |
| 123 | PRU | Prudential Financial Inc | 0 | | 6-16 | |
| 124 | PVTB | PrivateBancorp | 1 | | 6-16 | |
| 125 | RE | Everest Re Group Ltd | 0 | | 6-16 | |
| 126 | RF | Regions Financial | 1 | | 6-16 | US Treasury controlled 2008 |
| 127 | RGA | Reinsurance Group of America | 0 | | 6-16 | |
| 128 | RJF | Raymond James Financial Inc. | 1 | | 6-16 | James family has over 15% until 2011, then 9-10% and seat on the board (not management). |
| 129 | RLI | RLI Corp. | 0 | | 6-16 | |
| 130 | RNR | RenaissanceRe Holdings Ltd. | 0 | | 6-16 | |
| 131 | SAFT | Safety Insurance Group, Inc. | 0 | | 6-16 | |

| # | Ticker | Firm Name | Bank | | Period | Discussion of special circumstances |
|---|--------|-----------|------|---|--------|-------------------------------------|
| 132 | SCHW | Charles Schwab Corp. | 1 | | 6-16 | Charles Schwab has over 15% until 2011, then 11-15% and serves as Chair of the Board |
| 133 | SFG | StanCorp Financial Group, Inc. | 0 | | 6-14 | Purchased by Yasuda Life in 2015. Caused 2015 stock to double – not a representative year. |
| 134 | SIGI | Selective Insurance Group | 0 | | 6-16 | |
| 135 | SIVB | SVB Financial Group | 1 | | 6-16 | |
| 136 | SNV | Synovus Financial Corp. | 1 | | 6-16 | |
| 137 | STFC | State Auto Financial Corp | 0 | | 6-16 | |
| 138 | STT | State Street Corp. | 1 | | 6-16 | |
| 139 | SUSQ | Susquehanna Bancshares Inc. | 1 | | 6-14 | Purchased by BB&T in mid-2015 |
| 140 | TACI | Transatlantic Holdings, Inc. | 1 | | 6-11 | Has become a penny stock. Current price is 0.27 and volume is 100 shares. ?? No idea what happened. It seemed healthy in 2014. … Too small a group --- Keinan has over 20% until 2013, then Lucas and Griggs each have over 20%. … Not treated as family. |
| 141 | TCF | TCF Financial | 1 | | 6-16 | |
| 142 | THG | Hanover Insurance Group Inc | 0 | | 6-16 | |
| 143 | TMK | Torchmark Corporation | 0 | | 6-16 | |
| 144 | TRMK | Trustmark Corp. | 1 | | 6-16 | |
| 145 | TRV | Travelers Companies Inc | 0 | | 6-16 | |
| 146 | UBSI | United Bancshares, Inc. | 1 | | 6-16 | |
| 147 | UCBI | United Community Banks, Inc. | 1 | | 6-16 | |
| 148 | UFCS | United Fire Group, Inc. | 0 | | 6-16 | |
| 149 | UIHC | United Insurance Holdings | 0 | | 7-16 | First trading day: 11/7/2007 (incomplete 2007) |
| 150 | UMBF | UMB Financial Corp. | 1 | | 6-16 | 14-15% held by Kemper family until 2011; 9-13% thereafter with 2 family members on the 16-person board. |
| 151 | UMPQ | Umpqua Holdings Corp. | 1 | | 6-16 | |
| 152 | UNAM | Unico American Corporation | 0 | | 6-16 | Cheldin Family holds over 40%. |
| 153 | UNM | Unum Group | 0 | | 6-16 | |
| 154 | USB | U.S. Bancorp | 1 | | 6-16 | |
| 156 | UVE | Universal Insurance Holdings | 0 | | 6-16 | Bradley Meier family has over 30% until 2012; 10% in 2013 with family members on board, then negligible and no family. |
| 157 | VLY | Valley National Bank | 1 | | 6-16 | |
| 158 | VR | Validus Holdings, Ltd. | 0 | | 7-16 | Founded in 2005. First full data in 2007. |
| 159 | WAFD | Washington Federal, Inc. | 1 | | 6-16 | |
| 160 | WBS | Webster Financial Corp | 1 | | 6-16 | |
| 161 | WFC | Wells Fargo & Co | 1 | | 6-16 | |
| 162 | WRB | W. R. Berkley Corp | 0 | | 6-16 | William Berkley has over 15% and is both CEO & Chair. |
| 163 | WTFC | Wintrust Financial Corp | 1 | | 6-16 | |

Institutional Ownership in Financial Services

| # | Ticker | Firm Name | Bank | | Period | Discussion of special circumstances |
|---|--------|-----------|------|---|--------|-------------------------------------|
| 164 | WTM | White Mountains Insurance | 0 | | 6-16 | |
| 165 | WTNY | Whitney Holding Corp. | 1 | | 6-9 | Acquired by HBHC (in sample) |
| 166 | XL | XL Group | 0 | | 6-16 | |
| 167 | Y | Alleghany Corporation | 0 | | 6-16 | F.M. Kirby family held over 30% until 2012, then the ownership% fell to negligible |
| 168 | ZION | Zions Bancorp | 1 | | 6-16 | |

24