

HEDGE FUND OWNERSHIP AND AUDITOR-CLIENT CONTRACTING IN U.S. PUBLIC FIRMS

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ABSTRACT

Hedge funds have grown rapidly in the last two decades, from managing assets worth approximately \$600 billion in 2003 to over \$3 trillion in 2017 and \$4 trillion by the end of 2024. As hedge funds themselves have grown, so too have concerns about their involvement with publicly traded companies and their effect on various stakeholders and the economy. Although Critics claim that hedge fund activism creates a short-term focus, shifting funds out of expansion and research and development and into distributions to shareholders, proponents argue that hedge fund activism helps boards overcome management incompetence and counter passive investors. Academic research is mixed on the long-term effects of hedge fund activism and few studies have examined the relationship between hedge fund ownership and the external audit process. The purpose of this study is to investigate whether hedge fund ownership affects auditor- client contracting. Specifically, the study examines the relationships between hedge fund ownership and (1) audit fees and (2) audit lag. Although Critics claim that hedge fund activism creates a short-term focus, shifting funds out of expansion and research and development and into distributions to shareholders, proponents argue that hedge fund activism helps boards overcome management incompetence and counter passive investors. Academic research is mixed on the long-term effects of hedge fund activism and few studies have examined the relationship between hedge fund ownership and the external audit process. The results show that hedge fund ownership (both the number of hedge fund owners and the percentage owned) has a highly significant, negative relationship with audit lag. This finding indicates auditors perceive clients with hedge fund owners to decrease audit risk. Results also show that hedge funds increase audit fees. In additional analysis, however, this positive association is shown to be driven by increased audit effort, not the presence of hedge funds. These results suggest that hedge fund owners decrease perceived audit risk and are willing to pay higher audit fees for higher quality audits.

Keywords: Hedge Funds, Audit fees, Audit lag, Audit risk.

INTRODUCTION

The purpose of this study is to examine whether hedge fund ownership of publicly traded companies affects auditor-client contracting. The growth of hedge funds has been rapid. Hedge funds managed approximately \$600 billion of assets in 2003 (SEC, 2003), but by 2017, hedge funds managed more than \$3 trillion in assets worldwide (Herbst-Bayliss, 2017; Williamson, 2018) and over \$4 trillion in 2024 (OFR, n.d.) . As hedge fund asset management has risen over the last twenty years (Cheffins & Armour, 2011; Gillan & Starks, 2007), so have the concerns regarding the effects of hedge funds on publicly traded companies, stakeholders, and the U. S. economy (Coffee Jr. & Palia, 2016).

The main concern expressed by critics is that hedge funds create a short-term focus. That is, they focus on shifting funds out of long-term spending (DesJardine and Durand, 2020) and into distributions to shareholders (Monga et al., 2015; Sharfman, 2015). Not everyone, however, feels that hedge fund involvement is detrimental to other stakeholders and the economy. An opinion piece in *The Harbus* contends that hedge funds play a vital role in the market. The author makes the case that activists push management and the Board of Directors (Board) into taking strategic actions in underperforming firms and counter the “apathy” of passive investors (Liou, 2018). Hedge fund interventions that incorporate Board seats can help decrease a firm’s agency problems and the rise of hedge fund activism has spurred institutions into more active roles in their investments (Christie, 2018).

Academic research also disputes the contention that hedge fund activism promotes short-term gains at the expense of long-term value. Studies by (Bebchuk, Brav & Jiang, 2015) and Goodwin, Singh, Slipetz, and Rao (2014) found no evidence that the positive returns from hedge fund activism reversed themselves in the five years after intervention. Sharfman (2015) contends that hedge funds actually create long-term value by providing Boards with an alternate point of view from management to consider when making decisions. Hedge fund intervention can also improve operating performance (Clifford, 2008) and improve debt restructuring in financially distressed firms (Lim, 2015).

One area of research, however, that has remained largely unexplored is the effect of hedge fund ownership on the audit engagement. The few studies that have examined the relationship between hedge funds and auditors have focused on the effects of auditing on the hedge funds themselves. For example, Liang (2003) found a significant, positive difference in reporting quality between audited versus non-audited hedge funds, emphasizing the importance of quality audits. Patton, Ramadorai, and Streatfield (2011) found that hedge funds that revised previously reported financial statements significantly underperformed hedge funds that never revised, suggesting that audited hedge funds are beneficial to investors. Similarly, Jylha’s (2012) study on misreporting found that hedge funds managed by a registered investment advisor and hedge funds that were members of a large group of funds (two groups more likely to be audited) were less likely to overstate their performance.

Using a sample of 30,047 firm-year observations for the years 2005-2019, I examine the association between hedge fund ownership and audit outcomes; specifically, audit lag and audit fees. The results of the study show that hedge fund ownership is significantly, negatively associated with audit lag and significantly, positively associated with audit fees. These results appear to contradict each other as the decrease in audit lag supports the viewpoint that auditors consider hedge fund ownership to decrease engagement risk, while the increase in audit fees supports the viewpoint that hedge fund ownership increases engagement risk. Taken together, hedge fund ownership is associated with a shorter audit completion time, but higher audit fees. In an additional analysis, I investigated this contradiction by testing the interaction between hedge funds and audit effort on audit fees. The results of that analysis showed that the presence of hedge funds was not responsible for the increase in audit fees, rather that it was the interaction between hedge funds and audit effort. This suggests that hedge funds are willing to pay more for audits to achieve higher audit quality. Overall, the results of these two tests indicate that auditors consider hedge fund ownership of clients decreases their perceived engagement risk.

The results of this study could have implications for multiple interested parties. Politicians,

regulators, corporate law experts, and business leaders concerned about the effects of hedge fund activism on publicly traded companies will be interested in the effects on the external audit process and, thereby, the financial reporting quality of publicly traded companies. Likewise, proponents of hedge fund involvement, the hedge fund managers themselves and other business leaders will be interested in the answer to the same question. For regulators, the U.S. Securities Exchange Commission's (SEC) recent Release (SEC, 2015) shows concerns the SEC has over the relationship between shareholders and the external auditor, so this study may address some of their concerns. Finally, there is a growing body of academic research related to shareholder activism and hedge funds in particular. This study answers Denes et al.'s (2017) call for more studies on the effects of hedge fund activism on non-financial stakeholders and will add to the academic discussion surrounding the growing the presence of activist hedge funds in the market.

LITERATURE REVIEW

Shareholder Activism

Shareholder activism in the United States can be traced back to 1942 when the SEC adopted a rule (the precursor to today's rule 14a-8) that allowed shareholders to file proposals that could be put to a vote (Gillan & Starks, 2007). Any shareholder can potentially be an activist shareholder. Activist shareholders can be defined as investors who, dissatisfied with the company's performance, seek to bring about changes in the company through multiple measures including: voting against director nominations (Del Guercio et al., 2008), influencing top management through private discussions (Becht et al., 2009; Carleton et al., 1998; Smith, 1996), and proxy filings at the company's annual shareholders meeting (Denes et al., 2017). Institutions that are known to be activist investors include: pension funds (CalPERS (Smith, 1996) and TIAA- CREF (Carleton et al., 1998)), investment managers (Hermes UKFF (Becht et al., 2009)), mutual funds, and hedge funds (Gillan & Starks, 2007).

Goals and Outcomes of Shareholder Activism

The aim of activist shareholders is to bring about substantial changes in the targeted companies (Becht et al., 2009) with an end goal of increasing shareholder value overall to make a profit (Sharfman, 2015). Such changes can include everything from encouraging management to sell underperforming assets or divisions or increase payouts to shareholders to replacing executives with others more inclined to implement the desired changes (Becht et al., 2009). Activist shareholders specifically push for CEO turnover (Benoit, 2017; Benoit & Lublin, 2014; Brav et al., 2008; Del Guercio et al., 2008), lower CEO compensation (Ertimur et al., 2011, 2014), divestiture of assets (Bethel et al., 1998; Salvaterra, 2017), separation of CEO and chair of the board of directors (Daily & Dalton, 1997), and, sometimes, sale of the company itself (Berk & Whitten, 2017).

The long-term effects of activism have yielded mixed results. Smith (1996) found positive, long-term stock returns for the targets of CalPERS' activism and Opler and Sokobin (1997) found the same results for the companies listed on the Council of Institutional Investors' Focus List. In contrast, Del Guercio and Hawkins (1999) and Prevost and Rao (2000) found no significant abnormal returns, either positive or negative, to targets of activist negotiations in the long-term (Boyson & Mooradian,

2011). In terms of effects on the firms themselves, most research on activist shareholders has found no significant relationship between activists and the operating performance of their targets (Carleton et al., 1998; Del Guercio & Hawkins, 1999; Karpoff et al., 1996; Strickland et al., 1996). An analysis of shareholder activism over a 30 year period yielded two important pieces of information: activism on the whole has been more successful at attaining desired results in recent years and the type of activist is important to attaining those results (Denes et al., 2017).

Hedge Fund Activism as a Special Case of Shareholder Activism

A hedge fund is a type of activist investor that has risen to prominence in the last two decades (Cheffins & Armour, 2011). A hedge fund is an investment fund typically characterized by higher risk and uncertain investment strategies. Because unlike mutual funds hedge funds are generally much less regulated (SEC, 2013a), only accredited investors are permitted to invest in hedge funds and they are prohibited by the SEC from advertising to the general public, although many of them are registered with the SEC, allowing them to have a lower minimum investment and an unlimited number of investors ("Hedge Fund Definition," n.d.). Mutual funds and pension funds are usually bound by their charters to not use leverage or derivative instruments. Hedge funds, in contrast, often use options and leverage to increase effective ownership in their targets (Hu & Black, 2007). Unlike mutual funds, hedge funds can also short securities (SEC, 2013a).

Hedge funds differ from mutual funds and pension funds in that they are offensive, rather than defensive (Cheffins & Armour, 2011). When pension and mutual funds engage in performance-driven activism, it occurs only when the companies in which they are already invested begin to underperform or their shares begin to drop in the market (Kahan & Rock, 2007). Hedge funds, in contrast, seek out corporations that are already underperforming and purchase a significant number of shares (around five to ten percent of shares outstanding) with the aim of improving company performance (Cheffins & Armour, 2011). To this end, hedge funds actively campaign for changes that will increase the performance of their companies and the share price (Brav et al., 2008; Clifford, 2008).

Results of Hedge Fund Activism

Although research has shown that agency problems can be mitigated through concentrated ownership by reducing information asymmetries between management and shareholders and through increasing access to insider information (Jensen & Meckling, 1976), some have expressed concerns that shareholder involvement leads to opportunism, politicking, and use of influence by activist investors for personal gain (Adegbite et al., 2012). This short-term approach, according to critics, leads companies to maximize earnings at the expense of research and development and capital investment (Lipton, 2013). As well as concerns over reductions in research and development, concerns have been voiced that hedge funds exhibit patterns of behavior that also include increased payouts to shareholders and leverage (Coffee Jr. & Palia, 2016).

Despite the concerns expressed, academic research has found little evidence that hedge fund intervention promotes short-term gains at the expense of long-term value. Kedia et. al (2021) found that hedge fund activism improves the long-term operating performance of targets and their stock performance. Target firms experience increases in payout, operating performance ("Hedge Fund

Activism and Corporate M&A Decisions,” 2022), and higher CEO turnover (Brav et al., 2008) and hedge fund intervention leads to increases in leverage and improvement in value (Carrothers, 2017). Goodwin, Singh, Slipetz, and Rao (2014) also found no evidence in their study that target firms experienced a reversal of positive results during the five-year period following intervention.

Extant studies examine the effects of increased hedge fund ownership on target firms' accounting quality. For example, Cheng, Huang, and Li (2015) found target firms exhibit increases in conditional accounting conservatism after hedge fund intervention. The increases are limited to circumstances in which hedge funds have relatively higher ownership and hold their investments for at least one year, allowing sufficient amount of time to exert their monitoring effects. Firms targeted by hedge funds earn higher excess stock returns and experience greater improvements in operating performance than firms targeted by the same hedge funds for passive purposes (Clifford, 2008). Activist hedge funds can create value by enabling a higher probability of completing prepackaged restructurings, faster restructurings, and greater debt reduction in financially distressed firms (Lim, 2015).

Hypotheses Development

The external audit process is an important part of financial reporting quality and important to outside shareholders (DeFond & Zhang, 2014). The audit process is not without risk to the external auditor. A risk faced by auditors is their own business or engagement risk, the risk that performing the audit will open the audit firm up to potential losses, either directly through litigation or indirectly through client loss from loss of reputation (DeFond et al., 2016). Even the largest accounting firms can be damaged from litigation or loss of reputation (DeFond & Zhang, 2014). In fact, the largest firms, the Big 4, may be at the highest risk for loss of reputation because they have the highest reputation, and, therefore, the most to lose (DeAngelo, 1981; Dye, 1993). Reputation is important to auditors because the loss of reputation results in the loss of clients (Barton, 2005; Chen & Jian, 2007; Jensen, 2006; J. Weber et al., 2008).

Large shareholders in general, and blockholders, defined as outside owners with five percent or more ownership (Jarrell & Poulsen, 1987), in particular, are associated with pressures to manage earnings, which increases auditor risk (Abbott et al., 2006). Hedge funds' average ownership in targeted companies is just over nine percent (Coffee Jr. & Palia, 2016), making the majority of them blockholders. Because there is an association between block ownership and earnings management, I expect block ownership by hedge funds to increase audit engagement risk. When companies are targeted by activist shareholders, the market takes notice as demonstrated by the increase in abnormal returns around the date of announcement (Becht et al., 2009; Strickland et al., 1996; Wahal, 1996). In addition, hedge fund activism is under scrutiny from U.S. senators (Brokaw Act, 2017; Michaels, 2017) and others concerned about the short-term nature of this kind of activism and the effects on the U.S. economy through publicly traded companies (Cheffins & Armour, 2011; Kahan & Rock, 2007). This increased scrutiny from analysts and regulators when hedge funds buy blocks in companies may increase audit engagement risk because the auditors want to protect their reputation.

Not all characteristics of hedge fund ownership, however, may increase auditor engagement risk. While hedge funds are known for pressuring management and the board of directors into making drastic changes to the company (Becht et al., 2009), such as divesting underperforming assets (Salvaterra, 2017) or selling the company itself (Becht et al., 2009; Berk & Whitten, 2017),

ownership of publicly traded companies by hedge funds increases conditional conservatism when hedge fund ownership is relatively high compared to the average and when the hedge funds remain owners for at least one year (Cheng et al., 2015). Audit clients associated with more conservative accounting are viewed as less risky clients by auditors (DeFond et al., 2016) as measured by lower audit fees, fewer going concern opinions, and fewer auditor resignations. If higher hedge fund ownership increases accounting conservatism, I expect auditor engagement risk to decrease in the presence of block ownership by hedge funds.

If hedge fund ownership of clients affects engagement risk, there should be an effect on the strategies auditors use to mitigate said risk. The first way that auditors may respond to engagement risk is to increase audit effort. Auditors may increase audit effort in order to reduce the likelihood of undetected errors (Hillegeist, 1999; Lobo & Zhao, 2013) and thus reduce audit engagement risk. I use audit report lag as a proxy for audit effort because prior research suggests that audit report lags are related to the amount of work performed in the audit engagement (Knechel & Payne, 2001; Knechel, Rouse, & Schelleman, 2009).

If hedge funds induce a short-term focus and higher scrutiny from regulators, politicians, and analysts which increases audit engagement risk, I expect a positive relation between audit report lag and hedge fund ownership. However, if hedge fund ownership acts to increase conservatism, ensure management integrity, and improve the financial condition of targeted firms, then I expect lower engagement risk. Thus, I would expect a negative relation between audit report lag and hedge fund ownership. Given the competing arguments presented, I present my first hypothesis in null form:

H₁ There is no association between audit report lag and hedge fund ownership.

The next strategy that auditors may use to mitigate risk is in audit pricing. The seminal work by Simunic (1980) models audit fees as a function of effort and risk. If higher audit effort does not reduce engagement risk to acceptable levels, the auditor may charge a risk premium in order to pass some of the risk on to the client (Bedard & Johnstone, 2004; Bell et al., 2001; Morgan & Stocken, 1998; Pratt & Stice, 1994). Thus, if clients with higher hedge fund ownership impose more risk, I expect hedge fund ownership to be associated with higher fees. As mentioned previously, however, hedge fund ownership may impose lower audit risk by decreasing auditor business risk through damage to reputation or litigation through increases to accounting conservatism and management integrity. Therefore, I present my second hypothesis in null form:

H₂ There is no association between audit fees paid to external auditors and hedge fund ownership.

RESEARCH DESIGN AND SAMPLE SELECTION

Empirical Model

To test my hypotheses, I estimate OLS regressions in which the main right-hand side variable of interest is hedge fund ownership of publicly traded companies at t-1 (where t is the balance sheet date). I measure the level of hedge fund ownership in targeted companies in two different ways. First, HF_OWNED is defined as the percentage of outstanding shares owned by hedge fund activists (Agrawal & Mandelker, 1990; Bushee, 1998; Farrar & Girton, 1981) at the time t-1. Second,

HF_NUM is measured as the total number of hedge funds with block ownership in the audited firm at the time t-1 (Gavin, 2012). Consistent with previous research, I have defined a block shareholder as an outside investor owning 5% or more of the company (Holderness & Sheehan, 1985; Jarrell & Poulsen, 1987; Mikkelsen & Ruback, 1985).

To test my hypotheses, I estimate the following OLS regressions:

$$\begin{aligned} \text{AUDIT_FEES}_t \text{ or } \text{LAG}_t = & \beta_0 + \beta_1(\text{HF_OWNED}_{t-1} \text{ or } \text{HF_NUM}_{t-1}) + \beta_2\text{SIZE}_{t-1} + \beta_3\text{LEVERAGE}_{t-1} \\ & + \beta_4\text{RECINV}_{t-1} + \beta_5\text{ROA}_{t-1} + \beta_6\text{LOSS}_{t-1} + \beta_7\text{GEOSEG}_{t-1} + \beta_8\text{BUSSEG}_{t-1} + \beta_9\text{CFVOL}_{t-1} + \\ & \beta_{10}\text{FOREIGN}_{t-1} + \beta_{11}\text{MERGER}_{t-1} + \beta_{12}\text{RESTRUCTURE}_{t-1} + \beta_{13}\text{DISCOPS}_{t-1} + \\ & \beta_{14}\text{EXTRA}_{t-1} + \beta_{15}\text{SPECIAL}_{t-1} + \beta_{16}\text{BIG4}_{t-1} + \beta_{17}\text{BUSY}_{t-1} + \beta_{18}\text{MATWEAK}_{t-1} + \\ & \beta_{19}\text{RESTATE}_{t-1} + \beta_{20}\text{MISTATE}_{t-1} + \beta_{21}\text{TURNOVER}_{t-1} + \text{YEAR and INDUSTRY DUMMIES} + \\ & \varepsilon_{it} \end{aligned}$$

The dependent variable in the regression equation 1 is Lag (H1) or Fees (H2). AUDIT_FEES is measured as the natural log of audit fees for the fiscal year and LAG is measured as the time elapsed between the balance sheet date and the date of the audit report per Audit Analytics (Ashton et al., 1987). A positive (negative) β_1 will indicate that hedge fund ownership is associated with higher (lower) AUDIT_FEES/LAG. To control for common time and industry variation I also include industry and year fixed effects in the regressions.

Control variables are informed from prior literature, particularly Hay et al.'s (2006) meta-analyses of audit fee literature, which includes controls for size, leverage, profitability, auditor size, and client complexity, and prior research on audit fees (Beck & Mauldin, 2014; Sharma, Tanyi, & Litt, 2017; Stewart, Kent, & Routledge, 2016). All control variables will be measured at t-1, unless stated otherwise.

I control for SIZE, measured as the natural log of the firm's total assets. Complexity is proxied in this study by GEOSEG, BUSSEG, and FOREIGN. Profitability is a measure of financial risk to auditors so I control for LEVERAGE, LOSS, SRVOL, ROA, and CFVOL. Certain accounts are considered to be inherently riskier than others and require more time to audit (RECINV, EXTRA, and SPECIAL). Changes in the client itself or its operations are also expected to increase fees and lag (MERGER, RESTRUCTURE, DISCOPS). The quality of the audit firm is expected to be associated with higher fees and members of the BIG 4 accounting firms are expected to produce the highest quality audits (DeAngelo, 1981). A change in auditors is also expected to increase fees and lag (TURNOVER) or if the audit was completed during the busy season (BUSY). Variable definitions can be found in Table 1.

<p>Table 1</p> <p>Descriptions of Control Variables</p>	
Variables	Definition
BIG4	indicator variable set to one if the auditor is a member of the Big 4 accounting firms, otherwise zero
BUSSEG	natural log of one plus the number of the firm's business segments at the end of the fiscal year
BUSY	indicator variable set to one if the firm's fiscal year ends in December, otherwise zero

CFVOL	standard deviation of operating cash flows divided by total assets from fiscal year $t-5$ to $t-1$.
DISCOPS	indicator variable set to one if the firm reported discontinued operations for the fiscal year, otherwise, zero
EXTRA	indicator variable set to one if the firm reported an extraordinary item for the fiscal year, otherwise zero
FILE404	indicator variable set to one if the firm filed a SOX report, otherwise zero
FOREIGN	indicator variable set to one if the firm has foreign operations, otherwise zero
GEOSEG	natural log of one plus the number of firm's geographic segments at the end of the fiscal year
LEVERAGE	firm's total liabilities divided by total assets
LOSS	indicator variable set to one if firm's net income for the fiscal year was negative, otherwise zero
MATWEAK	indicator variable set to one if the firm received a SOX 404 internal control weakness opinion from its auditor, otherwise zero
MERGER	indicator variable set to one if the firm had merger or acquisition activities during the fiscal year, otherwise zero
MISTATE	indicator variable set to one if the firm's current financial statement is restated in a later period, otherwise zero
RECINV	sum of firm's receivables and inventory divided by total assets at firm year end
RESTATE	indicator variable set to one if the firm announced a financial restatement during the fiscal year, otherwise zero
RESTRUCTURE	indicator variable set to one if the firm had restructuring activities during the fiscal year, otherwise zero
ROA	firm's net income divided by total assets
SIZE	natural log of firm's total assets
SPECIAL	indicator variable set to one if the firm reported a special item for the fiscal year, otherwise zero
SRVOL	volatility of daily stock returns over a one-year period

Outliers are identified using the Stata program “bacon” (Weber, 2010) and removed. Standard errors are clustered by both firm and fiscal year.

Sample Selection

Sample selection begins with all publicly traded US firms from 2005 to 2019 with data available in Compustat Capital IQ. The sample begins in 2005 because it is after SOX implementation and is the first year hedge fund information is available from Capital IQ and ends in 2019 to avoid the effects of COVID-19. I obtain information pertaining to auditors, audit opinions, and audit fees from Audit Analytics and company financial data from Compustat. I used data from Capital IQ to identify companies with hedge fund ownership.

Sample Descriptive Statistics

Table 2 reports the descriptive statistics for the dependent variables AUDIT_FEES and LAG. The average (median) amount firms paid for an audit (AUDIT_FEES) was \$899,864.97

(\$955,509.51), and the average number of days between the balance sheet date and the issuance of the audit report (LAG) was 67.

The number of hedge funds averaged 0.20 (HF_NUM) and they owned nearly two percent of outstanding shares (HF_OWNED). The Big 4 accounting firms (BIG4) audited approximately 70% of the observations. Approximately 66% of firms had a fiscal year end of December 31 (BUSY). Total assets averaged \$157,000,000 (SIZE). Nearly one-third (31%) of firms reported a loss during the fiscal year (LOSS). Firms reported average cash flow volatility over the previous five fiscal years of 0.08 (CFVOL). The average return on assets was -0.02 (ROA) while the average receivables to inventory ratio was 26% (RECINV). Total liabilities as a percentage of total assets averaged 47% (LEVERAGE).

Approximately 18% of firm years reported a merger (MERGER) and 31% underwent restructuring (RESTRUCTURE), while 18% reported discontinued operations (DISCOPS). One-half of firm years had sales outside the United States (FOREIGN) with an average of 2.32 geographic segments (GEOSEG) and 3.6 business segments (BUSSEG). Just over two-thirds (67%) of firm years reported special items (SPECIAL) and one percent reported extraordinary items (EXTRA). Eleven percent of year observations contained a misstatement (MISTATE), while 13% had financial statements restated at a later date (RESTATE).

Table 2 DESCRIPTIVE STATISTICS						
	Mean	Median	S.D.	Q1	Q3	n
Dependent Variables						
LAG	4.21	4.19	0.28	4.04	4.32	30,047
AUDIT_FEES	13.71	13.77	1.31	12.84	14.57	30,047
Test Variables						
HF_NUM	0.2	0	0.53	0	0	30,047
HF_OWNED	1.95	0	5.97	0	0	30,047
Audit Control Variables						
BIG4	0.7	1	0.46	0	1	30,047
BUSY	0.66	1	0.47	0	1	30,047
MATWEAK _{t-1}	0.05	0	0.23	0	0	30,047
Firm Control Variables						
BUSSEG	2.28	2.1	0.84	2.1	2.95	30,047
CFVOL	0.08	0.05	0.13	0.03	0.08	30,047
DISCOPS	0.18	0	0.39	0	0	30,047
EXTRA	0.01	0	0.11	0	0	30,047
FOREIGN	0.5	0	0.5	0	1	30,047
GEOSEG	1.84	1.69	0.76	1	2.39	30,047
LEVERAGE	0.47	0.47	0.22	0.29	0.63	30,047
LOSS	0.31	0	0.46	0	1	30,047
MERGER	0.18	0	0.39	0	0	30,047

MISTATE	0.11	0	0.31	0	0	30,047
RECINV	0.26	0.24	0.19	0.11	0.38	30,047
RESTATE	0.13	0	0.33	0	0	30,047
RESTRUCTURE	0.31	0	0.46	0	1	30,047
ROA	-0.02	0.04	0.25	-0.03	0.08	30,047
SIZE	6.06	6.03	2.19	4.51	7.58	30,047
SPECIAL	0.67	1	0.47	0	1	30,047

Correlations

Table 3										
CORRELATION ANALCONT' D										
VARIABLES	1	2	3	4	5	6	7	8	9	
AUDIT_FEES	1.000									
LAG	-0.476	1.000								
MATWEAK	0.093	0.208	1.000							
HF_NUM	-0.095	0.047	-0.005	1.000						
HF_OWNED	-0.106	0.060	-0.016	0.860	1.000					
BIG4	0.620	-0.365	0.032	-0.060	-0.072	1.000				
BUSSEG	0.265	-0.044	0.009	-0.094	-0.082	0.170	1.000			
GEOSEG	0.345	-0.143	0.042	-0.036	-0.056	0.158	0.085	1.000		
BUSY	0.103	-0.072	-0.013	0.006	0.003	0.064	0.024	-0.002	1.000	
CFVOL	-0.290	0.195	0.013	0.073	0.078	-0.216	-0.125	-0.097	0.048	
DISCOPS	0.174	-0.045	0.012	0.016	0.022	0.077	0.173	0.014	0.041	
EXTRA	0.071	-0.002	0.031	-0.022	-0.022	0.038	0.086	-0.003	0.010	
FOREIGN	0.451	-0.220	0.021	-0.042	-0.063	0.243	0.076	0.644	0.011	
LEVERAGE	0.310	-0.093	0.016	-0.012	-0.001	0.164	0.134	-0.083	0.113	
LOSS	-0.244	0.251	0.034	0.141	0.137	-0.177	-0.142	-0.042	0.030	
MATWEAK	0.089	0.101	0.301	-0.003	-0.009	0.029	0.032	0.036	0.002	
MERGER	0.248	-0.165	0.029	0.010	-0.006	0.114	-0.088	0.140	0.045	
MISTATE	0.066	0.117	0.199	-0.016	-0.017	0.053	0.039	0.026	-0.014	
RECINV	-0.146	0.151	-0.006	0.028	0.036	-0.173	0.043	0.119	-0.177	
RESTATE	-0.003	0.049	0.035	-0.006	-0.009	-0.001	0.042	-0.012	0.018	
RESTRUCTURE	0.362	-0.167	0.035	0.018	0.007	0.212	0.093	0.291	0.010	
ROA	0.207	-0.207	-0.017	-0.091	-0.098	0.144	0.102	0.073	-0.037	
SIZE	0.888	-0.565	0.006	-0.135	-0.139	0.587	0.243	0.195	0.105	
SPECIAL	0.342	-0.135	0.043	0.020	0.007	0.200	0.083	0.184	0.044	
VARIABLES	10	11	12	13	14	15	16	17	18	19
CFVOL	1.000									
DISCOPS	-0.064	1.000								
EXTRA	-0.023	0.066	1.000							
FOREIGN	-0.144	0.025	-0.004	1.000						
LEVERAGE	-0.102	0.154	0.051	-0.007	1.000					
LOSS	0.236	0.007	-0.006	-0.095	0.019	1.000				
MATWEAK	0.011	0.035	0.035	0.028	0.026	0.063	1.000			
MERGER	-0.093	0.011	-0.023	0.190	0.068	-0.047	-0.007	1.000		
MISTATE	0.002	0.028	0.019	0.013	0.053	0.007	0.135	0.011	1.000	

RECINV	-0.038	-0.022	-0.017	0.083	0.017	-0.058	-0.006	-0.061	-0.005	1.000
RESTATE	0.008	0.009	0.005	-0.014	0.008	0.007	0.062	-0.030	0.027	0.008
RESTRUCTURE	-0.097	0.126	0.009	0.334	0.132	0.062	0.034	0.177	0.040	0.003
ROA	-0.325	0.008	0.018	0.109	-0.050	-0.557	-0.026	0.054	-0.002	0.079
SIZE	-0.360	0.150	0.071	0.313	0.339	-0.342	0.010	0.221	0.033	-0.229
SPECIAL	-0.081	0.116	0.031	0.232	0.169	0.067	0.054	0.320	0.043	-0.070

Table 3					
CORRELATION ANALYSIS- CONT'D					
	20	21	22	23	24
RESTATE	1.000				
RESTRUCTURE	-0.009	1.000			
ROA	-0.010	-0.024	1.000		
SIZE	-0.026	0.269	0.310	1.000	
SPECIAL	-0.006	0.460	-0.035	0.282	1.000

RESULT

Results of Hypothesis 1

Table 4 reports the results of the regression model for Hypothesis 1, where the dependent variable was audit lag (LAG) and was executed as an OLS regression. Hypothesis 1 predicted that there is no association between the number of hedge or the percentage ownership of hedge funds and audit lag. The results indicate, however, that there is a negative, significant relationship between audit lag and the number of hedge fund owners (coef. -0.009; $p=0.002$) at the 1% level and the percentage of hedge fund ownership (coef. -0.000; $p=0.058$) at the 10% level. The null of Hypothesis 1 is, therefore, rejected. This finding indicates that firms with hedge funds as owners have shorter lag time between the issuance of the audit report and the balance sheet date. This suggests that auditors are more efficient in their audit and that hedge fund ownership does not appear to increase risk for auditors. This supports the viewpoint that external auditors consider hedge fund ownership of clients to decrease audit engagement risk.

Table 4							
TEST OF HYPOTHESIS 1: AUDIT LAG AND HEDGE FUND OWNERSHIP							
		LAG			LAG		
	Predicted Sign	Coef.	t-stat	p-value	Coef.	t-stat	p-value
HF_NUM	?	-0.009	-3.13	0.002 ***			
HF_OWNED	?				0	-1.9	0.058 *
SIZE	-	-0.059	-60.01	0.000 ***	-0.059	-59.89	0.000 ***
LEVERAGE	+	0	0.85	0.394	0	0.87	0.385
ΔLEVERAGE	+	0.001	2.73	0.006 ***	0.001	2.72	0.006 ***
RECINV	+	0.062	6.59	0.000 ***	0.062	6.58	0.000 ***
ROA	-	0	-2.34	0.019 **	0	-2.35	0.019 **

LOSS	+	0.061	18.26	0.000 ***	0.061	18.17	0.000 ***
GEOSEG	+	-0.001	-0.56	0.572	-0.001	-0.57	0.569
BUSSEG	+	0.006	2.64	0.008 ***	0.006	2.64	0.008 ***
CFVOL	+	0.002	1.6	0.111	0.002	1.63	0.103
FOREIGN	+	-0.01	-2.37	0.018 **	-0.009	-2.35	0.019 **
MERGER	+	0.002	0.44	0.661	0.002	0.45	0.652
RESTRUCTURE	+	-0.008	-2.14	0.033 **	-0.008	-2.17	0.030 **
DISCOPS	+	0.007	1.93	0.053 *	0.007	1.9	0.057 *
EXTRA	+	0.008	0.62	0.533	0.008	0.62	0.533
SPECIAL	+	0.021	6.15	0.000 ***	0.021	6.11	0.000 ***
BIG4	-	-0.057	-14.1	0.000 ***	-0.057	-14.16	0.000 ***
BUSY	-	-0.011	-3.33	0.001 ***	-0.011	-3.36	0.001 ***
MATWEAK	+	0.085	13.32	0.000 ***	0.085	13.3	0.000 ***
RESTATE	+	0.005	1.07	0.028 **	0.005	1.05	0.029 **
MISTATE	+	0.093	20.58	0.000 ***	0.093	20.59	0.000 ***
TURNOVER	+	0.019	3.61	0.000 ***	0.019	3.62	0.000 ***
Intercept		4.743	236.92	0.000 ***	4.742	3.62	0.000 ***
Years		Included			Included		
Indutries		Included			Included		
Observations		29,530			29,530		
Adjusted R2		0.395			0.395		
F-statistic		213 ***			212.89 ***		
*, **, *** Denote significance at the $p<0.10$, $p<0.05$, and $p<0.01$ levels, respect ively. The p-values are one-tailed for variables with a direct ional expected sign and two-tailed otherwise.							

Control variables for the LAG model are significant with the exceptions of GEOSEG ($p=0.572$ and 0.569), CFVOL ($p=0.111$ and 0.103), MERGER ($p=0.661$ and 0.652), and EXTRA ($p=0.533$ and 0.533). Directions of coefficients of control variables are consistent with prior literature in direction of association, except for GEOSEG, FOREIGN, and RESTRUCTURE.

Results of Hypothesis 2

Table 5 reports the results of the regression model for Hypothesis 2, where the dependent variable was audit fees (AUDIT_FEES) and was executed as an OLS regression.

Hypothesis 2 predicted that there is no association between the number of hedge funds or the percentage ownership of hedge funds and audit fees. The results indicate, however, that there is a positive, significant relationship between audit fees and the number of hedge fund owners (coef. 0.027 ; $p<0.001$) and the percentage of hedge fund ownership (coef. 0.002 ; $p<0.001$). The null of Hypothesis 2 is, therefore, rejected. This finding indicates that firms with hedge funds as owners incur higher audit fees. This supports the viewpoint that external auditors consider hedge fund ownership of clients to increase auditor engagement risk and that audit firms are charging a risk

premium to clients with hedge fund owners, thereby increasing the cost of the audit. Taken together with the findings from Hypothesis 1, the results suggest that hedge fund ownership increases the amount charged by auditors per audit, but decreases the length of time spent on an audit. One possibility is that audit firms are putting more and/or higher level personnel on an audit with hedge fund owners, which would increase the amount charged by increasing the number of hours spent, but could cause the audit to be finished more quickly. Another possibility is that auditors are spending more overtime on clients with hedge fund owners with the same results as above. I have conducted an additional analysis of the interaction between hedge funds, audit lag, and audit fees in the next section to investigate the potential reason for higher audit fees.

Table 5
TEST OF HYPOTHESIS 2: AUDIT FEES AND HEDGE FUND OWNERSHIP

		AUDIT_FEES			AUDIT_FEES		
	Predicted Sign	Coef.	t-stat	p-value	Coef.	t-stat	p-value
HF_NUM	?	0.027	4.69	0.000 ***			
HF_OWNED	?				0.002	4.42	0.000 ***
SIZE	+	0.45	217.04	0.000 ***	0.45	216.99	0.000 ***
LEVERAGE	+	0.001	9.12	0.000 ***	0.001	9.12	0.000 ***
ΔLEVERAGE	+	0.009	7.05	0.000 ***	0.009	7.05	0.000 ***
RECINV	+	0.295	14.95	0.000 ***	0.295	14.92	0.000 ***
ROA	-	0	1.07	0.284	0	1.07	0.286
LOSS	+	0.128	17.93	0.000 ***	0.128	17.95	0.000 ***
GEOSEG	+	0.125	22.54	0.000 ***	0.125	22.56	0.000 ***
BUSSEG	+	0.094	20.1	0.000 ***	0.094	20.06	0.000 ***
CFVOL	+	0.033	13.54	0.000 ***	0.033	13.52	0.000 ***
FOREIGN	+	0.224	26.44	0.000 ***	0.224	26.43	0.000 ***
MERGER	+	0.039	4.51	0.000 ***	0.039	4.52	0.000 ***
RESTRUCTURE	+	0.096	12.45	0.000 ***	0.096	12.46	0.000 ***
DISCOPS	+	0.114	14.47	0.000 ***	0.114	14.49	0.000 ***
EXTRA	+	0.068	2.52	0.012 **	0.068	2.53	0.011 **
SPECIAL	+	0.085	11.45	0.000 ***	0.085	11.48	0.000 ***
BIG4	+	0.337	39.42	0.000 ***	0.338	39.48	0.000 ***
BUSY	+	0.049	7.3	0.000 ***	0.049	7.32	0.000 ***
MATWEAK	+	0.338	25.13	0.000 ***	0.338	25.16	0.000 ***
RESTATE	+	0.048	5.3	0.000 ***	0.048	5.33	0.000 ***
MISTATE	+	0.073	7.65	0.000 ***	0.073	7.64	0.000 ***
TURNOVER	+	-0.023	-2.06	0.039 *	-0.023	-2.09	0.037 *
Intercept		9.588	226.62	0.000 ***	9.588	226.65	0.000 ***
Years		Included			Included		
Industries		Included			Included		

Observations		29,035			29,035		
Adjusted R2		0.864			0.864		
F-statistic		2027.16 ***			2026.96 ***		
*, **, *** Denote significance at the p<0.10, p<0.05, and p<0.01 levels, respectively. The p-values are one-tailed for variables with a directional expected sign and two-tailed otherwise							

Additional Analysis of Effort versus Risk Premium on Audit Fees

To investigate whether auditors are responding to hedge funds by instituting a risk premium or expending greater effort, I examined how hedge funds and effort interact in relation to audit fees. Because audit lag is a common proxy for audit effort, I created an interaction term between hedge fund ownership and audit lag. If the interaction term has a positive (negative) association with audit fees, then there is evidence to suggest that auditors expend more (less) effort when hedge funds are present.

The results of this additional analysis can be found in Table 6. As can be seen from the results, the interaction of hedge fund ownership and audit lag (HF_NUM*LAG and HF_OWN*LAG) is positive and significant at the 5% level. Interestingly, by adding the interaction term, the association between hedge funds and audit fees is now negative and significant at the 10% level. These results indicate having hedge funds as owners decreases the perceived risk to auditors, however, the interaction term is associated with higher audit fees suggesting that hedge funds are willing to pay higher fees for audits. This is consistent with the concept that audit fees are a function of demand and that well informed, independent governance demands higher audit quality (Hay et al., 2006).

Table 6 ADDITIONAL ANALYSIS: EFFORT VERSUS RISK PREMIUM							
		AUDIT_FEES			AUDIT_FEES		
	Predicted Sign	Coef.	t-stat	p-value	Coef.	t-stat	p-value
HF_NUM	?	-0.17	-1.8	0.071 *			
HF_OWNED	?				-0.015	-1.87	0.062 *
LAG	?	0.049	3.76	0.000 ***	0.05	3.82	0.000 ***
HF_NUM*LAG	?	0.046	2.1	0.036 **			
HF_OWN*LAG	?				0.004	2.16	0.031 **
SIZE	+	0.453	206.79	0.000 ***	0.453	206.85	0.000 ***
LEVERAGE	+	0.001	9.19	0.000 ***	0.001	9.19	0.000 ***
ΔLEVERAGE	+	0.009	6.97	0.000 ***	0.009	6.98	0.000 ***
RECINV	+	0.29	14.74	0.000 ***	0.29	14.74	0.000 ***
ROA	-	0	-1.02	0.309	0	-1.01	0.313
LOSS	+	0.128	18.02	0.000 ***	0.129	18.07	0.000 ***
GEOSEG	+	0.124	22.34	0.000 ***	0.124	22.36	0.000 ***
BUSSEG	+	0.093	19.96	0.000 ***	0.093	19.92	0.000 ***
CFVOL	+	0.033	13.5	0.000 ***	0.033	13.47	0.000 ***
FOREIGN	+	0.228	27.04	0.000 ***	0.228	27.03	0.000 ***

MERGER	+	0.033	3.85	0.000 ***	0.033	3.84	0.000 ***
RESTRUCTURE	+	0.095	12.42	0.000 ***	0.095	12.42	0.000 ***
DISCOPS	+	0.117	14.9	0.000 ***	0.117	14.91	0.000 ***
EXTRA	+	0.065	2.42	0.015 **	0.065	2.42	0.015 **
SPECIAL	+	0.086	11.63	0.000 ***	0.086	11.67	0.000 ***
BIG4	+	0.341	39.79	0.000 ***	0.341	39.85	0.000 ***
BUSY	+	0.052	7.9	0.000 ***	0.053	7.92	0.000 ***
MATWEAK	+	0.402	27.48	0.000 ***	0.404	27.57	0.000 ***
RESTATE	+	0.055	6.08	0.000 ***	0.055	6.11	0.000 ***
MISTATE	+	0.048	5.02	0.000 ***	0.048	5.01	0.000 ***
TURNOVER	+	-0.014	-1.24	0.213	-0.014	-1.27	0.206
Intercept		9.333	124.84	0.000 ***	9.333	125.55	0.000 ***
Years		Included			Included		
Industries		Included			Included		
Observations		29,035			29,035		
Adjusted R2		0.865			0.865		
F-statistic		2001.60 ***			2001.52 ***		
*, **, *** Denote significance at the $p < 0.10$, $p < 0.05$, and $p < 0.01$ levels, respectively. The p-values are one-tailed for variables with a directional expected sign and two-tailed otherwise							

CONCLUSION

In this study, I investigate the effect of hedge fund ownership on the audit engagement by examining whether hedge fund ownership of publicly traded companies affects auditor-client contracting. Performing audits creates risk for the external auditor (DeFond et al., 2016; Knechel & Vanstraelen, 2007). There is the risk of giving an incorrect audit opinion, the risk of client insolvency, and the risk of loss, both through loss of reputation and from litigation (DeFond et al., 2016). If external auditors consider hedge fund ownership to increase risk, they will take measures to decrease the risk (DeFond & Zhang, 2014).

I find no evidence consistent with this notion. However, when examining the impact of hedge fund ownership and audit lag, the results show that firms with hedge fund ownership have shorter lag time between the issuance of the audit report and the balance sheet date. This result suggests that hedge fund ownership decreases perceived audit risk.

I also find that clients with hedge fund owners pay higher audit fees. There is a positive, significant relationship between audit fees and the number of hedge fund owners and the percentage of hedge fund ownership. In an additional analysis of audit fees and hedge funds, however, I discovered that the increase in audit fees was driven not by the presence of hedge funds, but by greater auditor effort. Once effort was included, the relationship between audit fees and hedge funds became negative, indicating that hedge funds reduce perceived audit risk. These results can be interpreted as hedge funds being willing to pay more for higher quality audits.

The results of this study add to the growing academic literature on the role of hedge funds in the capital markets and their effects on nonfinancial stakeholders. In addition, the results will be of interest to politicians, regulators, and business leaders who have expressed concerns about the effects

of hedge fund involvement in publicly traded companies. Likewise, hedge fund managers, certain business leaders, and other proponents of hedge fund activism will be interested in the effect of hedge fund ownership on the external audit process and, by extension, financial reporting quality.

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