

TAX AGGRESSIVENESS AND SHAREHOLDER TAX RATES:

DO INSTITUTIONAL INVESTORS CARE?

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Joy Embree

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Joy Lynn Embree, Ph.D.

University of Nebraska, 2012

Advisor: Aaron D. Crabtree

This dissertation consists of three essays regarding institutional investors and taxes. The first study examines the association between tax reporting aggressiveness and corporate governance provided by institutional ownership. The results show firms with higher levels of short-term institutional owners (transient) are more likely to engage in aggressive tax planning leading to permanent and temporary differences. This result is consistent with short-term investors providing ineffective corporate governance because of activist style trading. Additionally results show firms with higher levels of long-term institutional shareholders (quasi-indexers and dedicated) are less likely to engage in aggressive tax activities. The implication is long-term institutions provide monitoring in the area of tax reporting.

The second study investigates institutional holdings around tax acts when the dividend tax penalty increases. Results show transient investors lower investment in high dividend yield stocks when dividend penalty widens, whereas quasi-indexers continue to hold and increase investment in dividend paying firms. Dedicated long-term investors with large block holdings rebalance portfolios to more tax optimal positions when capital gains taxes decrease. The implication is transient and dedicated institutional investors appear to care about shareholder-level tax rates whereas quasi-indexer institutions do not

react in tax sensitive ways. These results are consistent with an institutional tax-clientele effect.

The third study examines the impact of institutional investment on share price around modifications to shareholder-level taxes. Event study methodology is used to study stock prices for firms held by institutions around Revenue Reconciliation Act of 1993 and Taxpayer Relief Act of 1997. The results show Quasi-indexers largely responsible for mitigating negative market reaction for high dividend-yield firms when dividend tax rates increase. When capital gains rates decline the market reaction for firms held by dedicated block holders is consistent with rebalancing portfolios to more optimal tax positions. Overall the three essays provide evidence of variation in sensitivity to tax aggressiveness and shareholder tax rates, dependent on institutional portfolio diversification and investment horizon.

Dedication

This dissertation is dedicated to my husband Curtis for the many sacrifices during this program including commuting across country to work. Thank you for your unwavering faith in me.

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1: INTRODUCTION

This study consists of three papers: “The Influence of Institutional Investment on Tax Aggressiveness”, “The Tax Clientele Effect of Institutional Investment: Analysis of Institutional Holdings around Tax Act Changes”, and “Market Reaction to Tax Law Changes: Examination of Firms with Institutional Ownership”.

The motivation for the first paper stems from recent political conversation about corporate tax reform in the United States. President Obama as well as Republican presidential hopefuls conjecture the corporate tax rate is too high compared to other countries, yet many of America’s most profitable pay little or nothing in federal income taxes. This leads to the question what factors drive firms to aggressively avoid taxes?

Prior literature is mixed on whether corporate tax avoidance is a blessing or a curse to shareholders. A traditional view proposes shareholder value increases with tax avoidance activities (Graham and Tucker 2006), while an agency perspective suggests tax avoidance creates a shield for managerial diversion of rents (Desai and Dharmapala 2009). In an attempt to answer this question, studies have developed on when tax avoidance is beneficial to shareholders. Desai et al. (2009) finds tax avoidance increases shareholder value only when corporate governance is strong.

In several tax avoidance studies, institutional investors in the aggregate are treated as homogenous providers of strong corporate governance (Desai et al. 2009 and Dhaliwal et al. 2011). Institutional shareholders include mutual funds, pension funds, insurance

companies and charitable foundations play a big role in capital markets (Solnik, 2000). In the period of this study 1993 -2008, about 60% of the largest U.S. companies stock is held by institutional investors (Tonello and Rabimov 2010). Recent research documents significant variation in institutional investor monitoring styles due to investment horizon (Chen et al. 2007, Ramalingegowda and Yu 2012, Bushee 1998). This paper considers the possibility that investment horizon and portfolio diversification of institutions are partially responsible for variation in tax aggressiveness across firms.

The second paper is motivated by the recent debate in the U.S. Senate and House on whether to extend the Bush-era investment tax breaks on dividend income and capital gains. The concern is an increase in investment tax rates could have a contractionary effect on the economy (Sullivan 2012). Given a potential increase in shareholder-level taxes combined with the large investment by institutions leads to the research question “Do institutional investors care about shareholder-level tax rates?”

Prior research shows about half of the total number of institutional investors are tax sensitive (Blouin, Bushee and Sikes 2011), with mutual funds acting as individuals (Usrey, et al. 2011) and tax-sensitive institutions selling shares with embedded gains when capital gains are cut (Chyz and Li 2012). This study has two objectives: first to gain an understanding which institutions hold potentially taxable investments in the form of dividend paying stocks and appreciated property and secondly how changes in the investment tax rates impact holdings. This study aims to provide insight into how institutional investors might react to extension vs. expiration of Bush-era tax cuts.

Pundits are predicting a projected decline in the SandP 500 Price Index due to early sell-off of appreciated stock if the Bush-era tax cuts are allowed to expire (Sinai

2012). The potential price impact of tax rate changes inspires the third paper's investigation of market reaction to tax law changes for firms with institutional investors. Academics have long been intrigued by the relationship of share price and taxes and this study continues the discussion by analyzing the impact of institutional investment on share price and taxes. Given the large holdings of U.S. firms by institutions, and research showing institutional investment leads stock prices toward fundamental values, this paper treats the institutional investor as the marginal investor (Gibson and Safieddine 2003), examining market reaction to tax rate changes for firms with institutional investors. The purpose is to analyze the impact of clusters of institutional investment on cumulative abnormal returns around short-windows timeframes when shareholder-level tax rates change.

The rest of the dissertation is organized as follows: Chapters 2 through 4 cover each of three studies. Each chapter includes an introduction, a review of relevant literature, a description of the sample and research design, a summary and discussion of the results, and a reference section. Tables are grouped at the end of each chapter. Chapter 5 draws overall conclusions from the results provide current implications stemming from the findings of the three core chapters.

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2: THE INFLUENCE OF INSTITUTIONAL INVESTMENT ON TAX AGGRESSIVENESS

2.1 Introduction

Recent political conversation in the United States is focused on corporate tax reform (Shreve 2012). President Obama as well as Republican presidential hopefuls conjecture the corporate tax rate in the United States is too high compared to other countries (Toder 2011; Dixon and Younglei 2012). Consistent with this argument, the U.S. statutory federal rate of 35%, when combined with the average state tax, is the highest of the OECD countries (Shreve 2012; Toder 2011; Dixon and Younglei 2012). Given these tax rates, it is a paradox that many of America's most profitable pay little or nothing in federal income taxes while others pay taxes at high rates (McIntyre et al. 2011; Lanis and Richardson 2012). This leads to the question what factors drive firms to avoid taxes?

A traditional view of corporate tax avoidance proposes shareholder value increases with tax avoidance activities (Graham and Tucker 2006), while an agency theory perspective suggests tax avoidance can create a shield for managerial opportunism and the diversion of rents through obfuscatory activities (Desai and Dharmapala 2009). Desai and Dharmapala (2009) finds a positive relationship between tax avoidance and firm value but only for firms with strong corporate monitoring, suggesting good corporate governance reduces the likelihood of managers spending the tax savings on pet projects or perks.

Institutional investors are thought to provide good corporate governance through monitoring mechanisms that influence decisions made by managers when there is a

separation of ownership and control (Larcker et al. 2007). In recent literature testing the association between tax avoidance and corporate governance, institutional investors are treated as homogeneous providers of good corporate governance (e.g. Desai and Dharmapala 2009 ; Dhaliwal et al. 2011). In contrast, our study considers the possibility that certain types of institutions are partially responsible for variation in tax aggressiveness across firms. Our reasoning is consistent with research showing variation among monitoring styles of institutional investors. Chen et al. (2007) find institutional investors with long investment horizons have greater incentives and efficiencies to engage in effective monitoring which in turn mitigates asymmetric information and agency problems. Ramalingegowda and Yu (2012) find long-term institutional blockholders demand conservatism in firms' financial reporting. Bushee (1998) find short-term institutional investors provide little oversight or monitoring.

Our paper uses a sample of 19,215 firm-year observations of U.S. corporations over the period 1993 - 2008 and investigates the effect of institutional ownership patterns on tax avoidance. We classify institutional owners as transient, dedicated or quasi-indexer based on Bushee (1998, 2004); Bushee and Noe (2000). Transient investors have high portfolio diversification, high portfolio turnover&Display sensitivity to current earnings news. Dedicated investors have highly concentrated portfolios with low turnover&Display little sensitivity to current earnings news. Quasi-indexers have highly diversified portfolios with low turnover&Display contrarian trading strategies. Given varying investment objectives leading to differences in corporate governance styles of institutional shareholder groups, we posit that a given firm's tax avoidance will vary depending on institutional shareholder classification.

We measure tax avoidance using large book-tax differences and cash effective tax rates. We focus on various sources of tax aggressiveness through measures of book-tax differences resulting from temporary items (Hanlon 2005), and permanent discretionary items (Frank et al. 2009). While extant research documents evidence consistent with book – tax differences containing information about pre-tax earnings quality (Hanlon 2005; Lev and Nissim 2004; Weber 2009), differences between book and taxable income can also be construed as signals of corporate tax avoidance resulting in IRS audit adjustments and future tax burdens (Mills 1998; Donohoe and McGill 2011). We find transient investors influence firms to engage in aggressive tax planning activities that increase book-tax differences. In contrast, we find quasi-indexers have a moderating influence on aggressive tax planning activities. For dedicated institutional investors there is weak evidence of an impact on temporary book-tax differences.

In addition to book-tax differences we also measure tax avoidance as the five-year cash effective tax rate (Dyreng, et al. 2008). This measure allows us to examine whether there is an association between institutional investment and firms who are able to avoid paying high taxes over a long period of time. We find firms with higher levels of institutional shareholders, regardless of type, are more likely to have lower cash effective tax rates. The economic significance is highest for transient investors, followed by quasi-indexers then dedicated institutional investors.

While we determine institutional ownership has an important effect on tax reporting, it is also reasonable to expect institutional investors choose to invest in firms based on their tax reporting strategies (Desai et al. 2007; Cronqvist and Fahlenbrach 2009). To address this causality issue, we include lead-lag analysis to determine Granger

causality (Granger 1969) and changes specification and find evidence of simultaneous causality. Our strongest finding is for the short-term (i.e. transient) group.¹ We find all clusters of institutional investors are more likely to invest in firms that tilt toward low cash tax rates, however in the presence of transient institutional shareholders corporate managers appear to engage in further tax avoidance.

Our paper is closely related to contemporaneous research by Khurana and Moser (2009) (hereafter KM). Differences between our paper and KM emerge from our objectives to find what sources of tax aggressiveness are associated with institutional ownership and our way of classifying institutional investors to capture monitoring aspects building on cumulative research about transient, quasi-indexer, and dedicated institutional investors (Bushee 1998, 2001, 2004). Our study complements KM findings that short term institutional investment is associated with firms that display relatively more tax aggressiveness.

Our paper contributes to the literature in the following ways. First, it contributes to the emerging literature examining agency cost implications of corporate tax avoidance. Second, our study furthers our understanding of cross-sectional variation in tax avoidance by focusing on various sources of tax avoidance. Third, we add to the tax aggressiveness literature by focusing on variations in external monitoring provided by clusters of institutional investors. Finally we consider the causality of whether institutional investors influence tax reporting or select firms based on tax avoidance.

The organization of this paper is as follows: The next section provides a literature review on corporate governance of institutional investors and tax aggressiveness. Section

¹Recent research found institutional investment and dividend policy is endogenous with simultaneous causality (Desai and Jin 2011, 68-84).

3 describes the hypothesis development and the model. Section 4 provides a description of the sample, tests and results. Section 5 concludes.

2.2 Literature Review

2.2.1 Corporate Governance and Institutional Investors

Agency costs result from separation of corporate ownership and management. Managers as rational agents may act in ways to maximize their own utility rather than create shareholder value, activities including using free cash flows for perquisites and low return projects (Jensen 1986). Due to the complexity of U.S. tax laws, tax avoidance can be difficult to detect and may serve as a shield for managerial opportunism to misuse free cash flows from the tax avoidance activity (Desai 2007). While compensation contracting can reduce the scope of managerial opportunism, monitoring by external stakeholders is also thought to reduce agency costs. Brown et al. (2011) find firms with high agency costs can benefit because of corporate governance provided by external parties including decisions by blockholders, financial institutions and hedge funds. Specialized financial institutions that manage savings collectively on behalf of small investors and manage at least \$100 million in equity are known as institutional investors (SEC: Investment Management Division 2011).

In the global investment arena, there are a variety of institutional investors including mutual funds, pension funds, insurance companies and charitable foundations (Solnik, 2000). Institutional investors are thought to provide corporate governance through monitoring mechanisms that influence financial policy decisions made by managers when there is a separation of ownership and control (Larcker et al. 2007). For the past two decades, the Conference Board Annual Report of Institutional Investment

reports institutional ownership concentration in the top 1,000 U.S. companies. In the period of our study 1993 – 2008, about 60% of the largest U.S. companies stock is held by institutional investors.² The size of managed equity gives institutional investors the power to ensure fair treatment by capital market intermediaries and wield some control over companies in which they invest thus reducing the problem of information asymmetry (Davis and Steil, 2001).

The discipline and monitoring provided by institutional investors may help resolve the agency problem by exerting control over management. Ajinkya et al. (2005) finds that institutional investment improves the accuracy of management forecasts by reducing managerial optimism. Cronqvist and Fahlenbrach (2009) show that large shareholders have different investment and governance styles. One large shareholder group, institutional investors, has been found to have distinct clusters that differ in their objectives and information needs (Hope 2012). Bushee (1998) classifies institutions into three clusters – transient, dedicated, and quasi-indexers. Transient institutions exhibit high portfolio turnover and own small stakes in portfolio companies. They focus on short term performance and have little incentive to gather information relevant to long-term value. This group has been found to lessen the negative impact of information asymmetry on stock price by providing competition to the capital markets (Akins et al. 2012).

Dedicated investors and quasi-indexers provide stable ownership because they are geared toward longer-term dividend income or capital appreciation. Dedicated investors

² The Conference Board, a Not for Profit organization, issues the Institutional Investment Report annually. The 2010 Conference Board Annual Report of Institutional Investor is available on SSRN. See (Tonello and Rabimov 2010).

are characterized by large average investments in portfolio firms and extremely low turnover and a focus on long-term performance (Bushee 2001). Ramalingegowda and Yu (2012) find dedicated investors demand conditional conservatism in firms' financial reporting. Quasi-indexers generally follow indexing and buy-and-hold strategies, and are characterized by low turnover and high diversification. Quasi-indexers follow a passive investment strategy, however given prudent man rules this group may have legal incentives to monitor management (Horan 1998). Chen et al. (2007) find the long investment horizons of quasi – indexers and dedicated investors provide greater incentives and efficiencies to engage in effective monitoring which in turn mitigates asymmetric information and agency problems.

Transient investors have high turnover, short-term horizons, and highly diversified portfolios. Bushee (1998) finds that firms with a high level of transient institutional investors sacrifice R&D for the sake of higher current earnings. Transient institutional investors have also been the focus of research on trading. In the pre Regulation FD period, this group has been suspected of price making, buying heavily during strings of earnings increases and dumping the stock when a break in the string became imminent (Ke and Petroni, 2004). Studies have examined if institutional investors' holdings horizon change the way they act as firm owners in regard to disclosing information. Bushee (2004) finds transient institutions with short-term horizons are attracted to firms with investor relation activities geared toward providing forward-looking information. Heinle and Hofmann (2009) find transient investors prefer to keep information private to increase their total expected profits. Wang (2007) finds that transient institutional investors act on insider trading information, selling stock of

firms when insiders are net sellers shortly after earnings announcements that meet or beat analyst forecasts. D'Souza et al. (2010) find evidence showing that transient investors gravitate to stocks with faster information-dissemination consistent with transient investors exploiting their informational advantage for firms with richer information environments. Mintchik et al. (2011) find transient investors invest in companies with lower analysts forecast errors and decrease their holdings when forecast errors increase.

The trading behaviors of transient investors indicate a 'voting with their feet' activist form of corporate governance (Attari et al. 2006). Studies on institutional trading find institutional sell offs preceding disciplinary CEO turnover (Parrino et al. 2003) and takeovers (Gopalan 2008). McCahery et al. (2010) find that the form of activism that institutional investors are most willing to take is to sell their shares in the portfolio company. The institutional investors most likely to engage in activism through stock sales were pension funds and hedge funds, as well as larger investors and those with shorter horizons.

The long horizons of dedicated and quasi-indexers suggest a monitoring style of corporate governance (Chen, 2007). Additionally, other trading characteristics impact the corporate governance style of these types of institutional investors. For example, the presence of dedicated institutional investors with a highly concentrated portfolio discipline management. Admati (2009) find blockholders' *threat of exit* is in itself a strong governance mechanism that reduces agency costs. Consistent with the corporate governance provided by potential of exit by blockholders, Attig (2012) find dedicated blockholders impact management decisions due to the *potential* negative stock price impact on managers' stock-based compensation.

Quasi-indexers with highly diversified portfolios incur costs to simultaneously monitor many firms. Consistent with mitigating monitoring costs, D'Souza (2010) finds quasi-indexers are attracted to firms with high quality interim and annual reports. Additionally, quasi-indexers are associated with contrarian trading strategies (Bushee 1998). Consistent with contrarian trading strategies, Mintchik (2011) find quasi-indexers appear to reduce ownership when earnings exceed analyst forecasts and are the first group of institutional investors to sell prior market “winners”.

2.2.2 Tax aggressiveness

A potential source of differences between accounting earnings and taxable income, at least a suspected source, is “aggressive” reporting for book or tax purposes with firms reporting high income to shareholders and/or low income to taxing authorities (Hanlon and Heitzman 2010). While recent research documents evidence consistent with book – tax differences containing information about pre-tax earnings quality (Hanlon 2005; Weber 2009; Lev and Nissim 2004), differences between book and taxable income can also be construed as signals of corporate tax avoidance. Mills (1998) finds that the magnitude of IRS proposed adjustments is positively related to the excess of book income over taxable income. Donohoe and McGill (2011) find investors believe ex ante the substantial increase in book-tax difference disclosures will increase future tax burdens.

The relationship between tax planning, tax avoidance, and tax evasion has been described as a continuum beginning with simple planning and extending to complex tax planning into tax avoidance, and from there, perhaps into tax evasion (Zietlin 1982).

While tax evasion is illegal and a crime in the U.S., tax avoidance is not a criminal

violation. Aggressive tax planning stretches the law to its extreme limits and might be viewed as a planning scheme that lies in the grey area surrounding the limits of legitimate tax planning (Larin et al. 2006).

Firms can avoid taxes through tax planning activities that are never taxable resulting in permanent book-tax differences. Permanent differences include transactions generating taxable deductions with future tax exempt income (e.g. corporate owned life insurance policies), transfer pricing with profits from foreign subsidiaries designated as ‘permanently reinvested’, and non-taxable foreign credits through cross-border dividend capture (Wilson 2009). Permanent differences can be discretionary or non-discretionary. Examples of non-discretionary permanent difference include intangible assets, equity method income from investments, minority interest income, state income taxes and changes in NOL carryforward (Frank et al. 2009).

Discretionary permanent differences include off balance sheet financing vehicles which allow companies to keep securitized assets off the balance sheets and minimize taxable income while increasing book income. Timing of securitization through off balance sheet financing is a form of real earnings management. Dechow, et al. (2009) found 69% of firms initially in negative income territory report a profit after accounting for securitization transaction. Another type of discretionary tax planning results in “corporate tax shelters”. These may take several forms, some permanent (e.g. contingent – payment installment sales, transfer pricing, corporate-owned life insurance, cross-border dividend capture), some temporary (e.g. 401k deduction acceleration, contested liability acceleration strategies) and do not rely on any single Code section or regulation (Wilson 2009). Graham and Tucker (2006) find corporate tax shelters serve as a

substitute for interest deductions in determining capital structure. Another characteristic of corporate tax shelters is a reduction in taxable income with no associated reduction in book income. A large ratio of book income to taxable income may be due to tax shelter activities (Department of the Treasury, July, 1999).

Firms can delay taxes through accounting choices allowable in US GAAP that differ from US IRC. Book income reported to the capital markets almost always differs from taxable income reported to the tax authorities because of temporary (i.e. timing) differences in accounting treatments for external reporting and taxation (Blouin et al. 2010). Temporary differences from future deductible amounts result in higher taxes remitted to the government early in the transaction's life but lower taxes in future years. Future deductible amounts occur when income is recognized earlier for tax (e.g. prepaid rent) or expense is recognized later for tax (e.g., bad debt expense) than for book. The tax benefit from future deductible amounts is reported as an asset on the company's GAAP balance sheet. Temporary differences also arise from future taxable amounts resulting in lower taxes remitted to the government early in the transaction's life but higher taxes in future years. Future taxable amounts occur when expense is recognized earlier for tax (e.g. depreciation) or income is recognized later for tax (e.g. installment sales) than for book. The future tax obligation resulting from future taxable amounts is reported as a liability on the company's GAAP balance sheet (Kieso et al. 2011).

The deferred tax accounts created by temporary differences may provide insight about earnings management (Phillips et al. 2003). There is more flexibility in choosing accounting treatments for external reporting than for tax purposes (Revsine and Johnson, 1999). The IRS typically has specific rules to be utilized for revenue and expense

recognition where GAAP allows for management discretion (Crabtree and Maher, 2009). Earnings management can use this discretion in reporting book income as a signal in which reported earnings convey management's private information (Subramanyam, 1996). Badertscher, et al. (2009) examine pretax earnings management that have current taxable income consequences "conforming earnings management" compared to those that do not have current taxable consequences "nonconforming earnings management". They find firms tradeoff the net present value of tax benefits and use conforming earnings management. Conforming earnings management would reduce book-tax differences and make it more difficult for our study to find results.

While the traditional theory of corporate tax avoidance suggests shareholder value increases with tax avoidance activities (Graham and Tucker 2006), an agency theory perspective is corporate tax avoidance increases the opportunities for managerial rent extraction (Desai and Dharmapala 2009). According to this alternative view, complex tax avoidance activities can create a shield for managerial opportunism and the diversion of rents. Consistent with the agency perspective, Dhaliwal et al. (2011) find a negative relationship between tax aggressiveness and firm cash holdings but only for firms with weak corporate governance structures. Desai (2009) finds a positive relationship between tax avoidance and firm value but only for firms with strong corporate monitoring.

Jimenez-Angueira (2007) analyzes tax aggressiveness before and after SOX regulation using temporary book-tax differences. Based on Bushee (1998) findings that transient institutional investors provide low levels of monitoring, Jimenez-Angueira classifies a firm as having weak governance if it falls in the top two quintiles of transient institutional holdings. He reports firms with the most transient institutional ownership

reduced their temporary book-tax differences to less aggressive positions following SOX regulation.

A measure of persistent tax aggressiveness based on the ability to pay a low amount of cash taxes per dollar of pre-tax earnings over long time periods is the long-term cash effective tax rate (CETR) (Dyreg et al. 2008). This measure captures both permanent and temporary differences and is beneficial because it bypasses tax accrual effects present in the current tax expense (Chen et al. 2010). Further it avoids year-to-year volatility in annual effective tax rates (Hanlon and Heitzman 2010). CETR has been used to measure persistent tax aggressiveness in several contexts including tax shelters (Wilson 2009), family firms vs. non-family firms (Chen et al. 2010), and earnings quality (Ayers et al. 2009).

Closely related to our research question, Khurana and Moser (2009) find the level of short term institutional ownership predicts greater tax aggressiveness using the five year cash effective tax rate (Dyreg et al. 2008) and total permanent differences (Rego and Wilson 2008). KM classifies institutional investors into short and long term based on median portfolio turnover using churn rate.

2.3 Hypothesis and Model Development

2.3.1 Institutional Investor Impact on Tax Aggressiveness

Recent literature has examined how clusters of institutional shareholders impact management propensity to disclose information (Heinle and Hofmann 2009), to report losses in a timely manner (Ramalingegowda and Yu 2012), and to issue management forecasts (Ajinkya et al. 2005). We extend this research to include the impact of institutional shareholders on firm tax aggressiveness using a large sample of firms with

high levels of transient, dedicated, or quasi-indexer institutional shareholders relative to their industry. Our purpose is to investigate the relationship that exists between tax avoidance and institutional ownership to increase our understanding about the corporate governance benefits of different types of institutional investors. We analyze firms in the highest quintile of institutional ownership over the period 1993-2008.

We measure tax aggressiveness in three ways. First following Frank et al. (2009) we use discretionary permanent book to tax differences to look at a permanent type of tax aggressiveness. To remove underlying determinants of the book to tax difference that are driven by differences in tax and accounting rules, we regress total permanent book-tax differences with controls for nondiscretionary permanent differences coming from intangibles, accounting treatment of investments and net operating losses. Residuals from the regression become the measure for tax aggressiveness related to discretionary permanent differences. This measure of discretionary permanent differences attempts to include intentional tax avoidance such as tax shelters and off-balance sheet items and exclude timing differences (e.g. depreciation) and nondiscretionary sources of permanent differences (e.g. goodwill). Frank et al. (2009) find large discretionary permanent differences are overpriced for the most aggressive financial reporters.

Second following Hanlon (2005) we use temporary book to tax differences to capture another aspect of tax aggressiveness, one resulting from timing differences of revenue and expense recognition. We measure temporary book to tax differences as the absolute value of amounts included in the deferred tax accounts, scaled by average total assets. Holding all else constant, increases in deferred tax liabilities is consistent with current book income higher than tax income, a tax aggressive state. Timing differences

occur in large part from discretionary accruals, so large book-tax measures as reflected in the deferred tax expense account are thought to be indicative of earnings management (Phillips et al. 2003). Temporary differences can also shed light about earnings management in other pre-tax accrual accounts (Hanlon and Heitzman 2010). Hanlon (2005) finds firms in the highest quintile of large temporary differences have less persistent earnings and cash flows.

Third following Dyreng et al. (2008) we measure persistent tax aggressiveness as the five-year cash effective tax rate. This measure is based on the ratio of total cash taxes paid over a five-year period to the total pretax income over the same period, excluding special items. A benefit of this measure is it sidesteps the tax accrual effects present in the Hanlon measure.

Our expectation is tax aggressiveness will be positively related to transient investors who have been found to invest heavily during strings of earnings increases (Ke and Petroni 2004). In contrast, we make no directional prediction about the relationship of quasi-indexers and dedicated institutional shareholders. As firm monitors, it is reasonable that dedicated institutional investors influence management toward tax aggressive activities that result in a lower tax payments to increase free cash flows. This argument is consistent with recent research that finds cash holdings are higher for firms with greater institutional ownership (Karpavicius and Yu 2012). It is also plausible to expect tax aggressiveness may be negatively related to dedicated investors consistent with recent research that finds this investor group demand conditional conservatism (i.e. early loss recognition) in financial reporting (Ramalingegowda and Yu 2012). Perhaps this investor group demands conservatism in tax reporting as well.

Similarly, we make no directional prediction about the relationship of quasi-indexers with tax aggressiveness. Quasi-indexers have a passive investment strategy (Horan 1998) yet due to prudent man regulations have incentive to monitor management decisions (Chen et al. 2007). This leads to the following hypotheses about the relationship between transient, dedicated, and quasi-indexer institutional investors and tax aggressiveness:

H1(a): Stock ownership by transient institutional shareholders is associated with higher levels of tax aggressiveness.

H1(b): Stock ownership by dedicated or quasi-indexer institutional shareholders is not associated with higher levels of tax aggressiveness.

2.3.2 Tax Aggressiveness Impact on Institutional Investment

We explore the possibility institutional shareholders groups may select firms based on tax aggressiveness. This “reverse causality” explanation is reasonable as large institutions may prefer firms with more aggressive policies in place. Hanlon and Slemrod (2009) find news about tax shelter activity is viewed more favorably for firms with relatively high effective tax rates and for firms that have good governance. This leads to the following hypotheses about the relationship between transient, dedicated, and quasi-indexer institutional investors and prior tax aggressiveness:

H2: Aggressive tax positions are associated with higher levels of institutional (transient, dedicated, or quasi-indexer) stock ownership.

To test our first hypothesis, we estimate the following cross-sectional regression:

$$\begin{aligned} \text{Tax Aggressiveness}_{i,t} = & a_0 + b_1 \text{Transient}_{i,t} + b_2 \text{Dedicated}_{i,t} + b_3 \text{Quasi-indexer}_{i,t} \\ & + b_4 \text{Total Assets}_{i,t} + b_5 \text{SandP500}_{i,t} + b_6 \text{Leverage}_{i,t} + b_7 \text{Operating Cash Flows}_{i,t} \\ & + b_8 \text{Change in Sales}_{i,t} + b_9 \text{Book-to-Market}_{i,t} + b_{10} \text{Market Adjusted Returns}_{i,t} \\ & + b_{11} \text{Liquidity}_{i,t} + b_{12} \text{Beta}_{i,t} + \text{YearDummies} + \text{IndustryDummies} + e_{i,t} \quad (\text{EQ. 1}) \end{aligned}$$

For our dependent variable of interest, tax aggressiveness, we build on recent literature to measure tax aggressiveness in three ways: discretionary permanent differences (DISCR_PERM_BT D) following Frank et al. (2009), temporary book-tax differences (TEMP_BT D) following Hanlon (2005), and the five-year cash effective tax rate (5_CETR) following Dyreng et al. (2008).

We obtain institutional investors trading classification (transient, dedicated, and quasi-indexing) from Brian Bushee³. The trading classification is described in Bushee and Noe (2000), Bushee (1998, 2001). Each institutional investor cluster is calculated based on the proportion of institutional holdings divided by firm shares outstanding for the calendar quarter ended prior or on the firm fiscal year-end. This calendar quarterly measurement relates to filing requirements of Form 13F. Using the distribution of the institutional holdings, the companies are ranked into quintiles. Companies in the top quintile of institutional shareholders are included in the model for each of the three types of institutional investor. We expect firms with the highest percentage of transient

³ We thank Brian Bushee for providing access to his institutional investor database.

shareholders are more tax aggressive due to the influence of this institutional investor group. We have no directional expectations for firms in the highest quintile of dedicated and quasi-indexer institutional shareholders.

We control for firm characteristics reported in prior literature that are correlated with our tax aggressive measures (e.g. Dyreng et al. 2008; Dhaliwal et al. 2011; Chen et al. 2010; Wang 2010; and Hanlon, Laplante, and Shevlin 2005). We control for firm size measured as the natural log of total assets and membership in the SandP 500. We expect larger firms to make more investments in tax planning (e.g. Dyreng et al. 2008; Dhaliwal et al. 2011; Chen et al. 2010). We control for tax planning opportunities using two measures, leverage and operating cash flows. High leverage may limit tax planning activities due to loan covenants and monitoring by creditors. Leverage, measured as total debt scaled by total assets, has a mixed relationship with tax aggressiveness in prior literature. Dyreng et al. (2008) finds long-run tax avoiders are more highly levered and Chen et al. (2010) finds firms with non-family ownership are more tax aggressive when in need of external financing. In contrast Dhaliwal et al. (2011) finds a negative correlation between leverage and tax avoidance and Wang (2010) finds a negative association between leverage and tax aggressiveness. Accordingly, we do not make a prediction for the impact of leverage on tax avoidance activities. Our second control variable for tax planning opportunities is operating cash flows, measured as operating cash flows scaled by total assets. We expect a positive association between higher levels of operating cash flows and tax avoidance due to a greater opportunity for managerial rent extraction through tax planning activities. This expectation is consistent with

Dhaliwal et al. (2011) who find a significant positive correlation between tax aggressive measures and operating cash flows.

We control for profitability using return on assets. Dyreng et al. (2008) shows firms with the lowest cash effective tax rates have higher return on assets than firms with the highest cash effective rates. Chen et al. (2010) documents a positive relationship between tax avoidance and ROA, while Wang (2010) measures profitability as return on equity (ROE) and finds a positive relationship between ROE and tax aggressive firms. We expect a positive association between our measure of profitability, ROA and tax aggressiveness. We control for growth in two ways. Current growth is measured as changes in sales scaled by prior year sales and is included since growing firms may invest more heavily in tax-favored assets (e.g. PPE) that generate timing differences. Similar to Wang (2010), who finds three-year sales growth is positively related to tax aggressiveness, we expect a positive relationship between current sales growth and tax avoidance. Our second measure of growth captures future growth opportunities as measured by book-to-market ratio. A low book-to-market is indicative of a growth opportunity firm. We expect an inverse relation between tax aggressiveness and book to market consistent with Dyreng et al. (2008); Dhaliwal et al. (2011); and Wang (2010).

We control for three capital market factors related to tax aggressiveness, including market adjusted returns, liquidity, and beta. Market adjusted returns over the past year is used to control for recent market performance. Hanlon, Laplante, and Shevlin (2005) find tax aggressiveness is related to negative market returns for the most extreme tax planners. Accordingly, we expect a negative coefficient on market adjusted returns. Liquidity is measured as average trading volume divided by average number of shares

outstanding and used to control for abnormal trading. In a recent working paper Ayers et al. (2010) find less trading around earnings surprises for the highest and lowest quintiles of book-tax differences. Accordingly, we predict a negative sign on trading volume for tax aggressive firms. Beta is used to control for market risk. We measure beta by regressing monthly raw returns on the return to a value-weighted market portfolio over a 36-month window. We do not make a prediction due to mixed evidence on the association with tax avoidance (e.g. Hanlon (2005), Wang (2010)). Using a 36-month window, Wang (2010) finds a negative association between market risk and tax aggressiveness. Using a longer return period, 60-months, Hanlon (2005) finds beta is not significantly associated with tax aggressive firms.

To test our second hypothesis, we add a lagged-tax aggressiveness measure to our first regression model to control for tax aggressiveness that persists through time. Consistent with Chen et al. (2010), we expect to find a time invariant quality to tax aggressiveness resulting in a positive relationship between the lagged and current tax aggressive measures.

$$\text{Tax Aggressiveness}_{i,t} = a_0 + b_1 \text{Transient}_{i,t} + b_2 \text{Dedicated}_{i,t} + b_3 \text{Quasi-indexer}_{i,t} + \text{Tax Aggressiveness}_{i,t-1} + \text{Controls} + \text{YearDummies} + \text{IndustryDummies} + e_{i,t} \quad (\text{EQ. 2})$$

In estimating equations (1) and (2), we include industry and year fixed effects to control for industry characteristics and overall macroeconomic factors over time. To derive the t-statistics and p-values for the above regressions, we use robust standard

errors that are adjusted for heteroskedasticity and firm clustering (Petersen 2009; White 1980).

2.4 Sample and Empirical Results

2.4.1 Sample

The institutional shareholder data used in this study are from Thompson Financial 13F institutional investor holdings database gathered from quarterly filings with the Securities and Exchange Commission (SEC). Table 1 – Panel A provides a breakdown of the sample by Thompson Financial Type: Bank , Insurance company, Investment Companies and their managers, Investment Advisors, and Other. Financial statement and stock information come from Compustat and CRSP annual files. Table 1 – Panel B provides a sample description. The primary sample in this study consisted of 96,515 firm-year observations from 1993 – 2008 with common company identifiers in Thompson Financial 13F and Compustat. From the primary sample, we removed 45,498 firm-years with insufficient data to calculate the book-tax difference measures and ten control variables. Our long-term tax avoidance measure, five-year cash effective tax rate, requires five years of data on cash taxes paid, 27,017 firm-years were removed due to missing information. 4,040 firm-years were removed related to financial institutions and regulated industries. Further we require 10 observations in each industry for each year resulting in an additional 745 deletions. Our final sample is made up of 19,215 firm-year observations from 3,239 unique firms. All continuous variables have been trimmed at the 1st and 99th percentile.

[Insert Table 1 about here]

2.4.2 Institutional Investor Impact on Tax Aggressiveness

To capture the impact of institutional shareholders on tax avoidance, Figure 1 shows the three tax measures and univariate results by quintile of institutional investment. We can see a difference in the investment holdings patterns according to tax aggressiveness. For instance, for our measure of discretionary permanent book-tax differences (Frank et al. 2009) we find more investment occurs for the most aggressive firms than the least aggressive firms for dedicated and transient investors. The opposite holds true for the quasi-indexer group: less investment is associated with the most tax aggressive firms.

[Insert Figure 1 about here]

Summary descriptive statistics of selected variables are provided in Table 2 for 19,215 firm-year observations comprised of 3,239 unique firms. The mean (median) for the five-year cash effective tax rate (5_CETR), our long-term measure of tax aggressiveness is 31.38% (30.3%) which is consistent with the univariate results on cash effective tax rate from Dhaliwal et al. (2011). The mean (median) values of the book-tax difference measures are positive for discretionary permanent differences 0.168 (.088) suggesting a positive relationship between institutional investment and tax planning activities resulting in tax shelters and off-balance sheet activities.

The mean (median) firm in our sample has a book to market ratio of 0.625 (0.483) assets of 5.994 (5.878) and leverage of 0.199 (0.174) indicating the data is skewed toward larger, more leveraged, low-growth firms. The average firm in our sample is profitable with operating cash flows of about 9.9% (9.9%) and return on assets of about 10.2% (10.0%). The average firm in our sample has market returns of 12% (12.1%) . The mean

(median) firm in our sample has turnover of 1.48 (0.93) indicating the sample is skewed toward more liquid firms. Similarly beta is 0.829 (0.778) indicating our sample contains firms less volatile than the market at large.

[Insert Table 2 about here]

Table 3 provides correlations between the dependent and independent variables. We find transient investors are positively correlated with the other categories of institutional investors, dedicated and quasi-indexers. Further transient ownership is correlated with all the tax measures in the direction of tax aggressiveness: transient is negatively correlated with five year cash tax rate and positively correlated with discretionary permanent and temporary differences. For the control variables, we find transient investment is correlated with large firms and those with more tax planning opportunities as evidenced by negative correlation on leverage and positive correlation on operating cash flows. Transient is correlated with more profitable firms. Transient is positively correlated with liquidity and the correlation coefficient is large (coefficient = 0.63, $p < .001$) confirming the classification schema used by Bushee. Finally transient is positively correlated with low book-to-market and beta suggesting an appetite for future growth and risk.

Dedicated and Quasi-indexer investors bear similarity to the correlations for the transient group for the tax aggressive measures: both are correlated in the direction of tax aggressiveness. Considering the correlations between the control variables and dedicated and quasi-indexer investor groups, we find some differences from the transient group. Dedicated and Quasi-Indexers have a positive rather than negative correlation with leverage. In terms of magnitude of correlation, dedicated and quasi-indexer have much

smaller positive correlations with liquidity (.35 and .32 respectively compared to .63 for transient). Further, unlike transient who bear a positive association with change in sales, quasi-indexers are negatively correlated with change in sales, consistent with the notion that this long-term investor group adopts a passive investment strategy, sticking with firms in current stress (lower sales).

[Insert Table 3 about here]

The univariate results lend support to our conjecture that the investor groups differ from each other as well as in their correlation with tax aggressiveness. However further inquiry is needed on the way the various variables interact when controls for tax aggressiveness are in place. Consequently, we move on to the analysis of the results from the multiple regression tests.

Table 4 provides results of the regression of tax avoidance on the levels of transient, dedicated, and quasi-indexer institutional investors and the control variables (EQ 1). In general the results strongly support Hypothesis 1(a) in which we find transient investors influence firms to engage in aggressive tax planning activities that increase both permanent and temporary book-tax differences. For Hypothesis 1(b) we find mixed results. For dedicated institutional investors there is little evidence of an impact on book-tax differences. We interpret this as dedicated investors provide stability and monitoring for firms to report conservatively for both book and tax reporting. For firms with high quasi-indexer ownership, we find a strong negative relationship with the tax aggressive measure for permanent discretionary book-tax differences. We interpret this as quasi-indexers have a moderating influence on aggressive tax planning activities such as tax shelters.

We conclude the corporate governance provided by institutional investors is heterogeneous on tax avoidance decisions. For instance, when we use permanent discretionary differences for our proxy of tax aggressiveness, we find firms with the largest transient ownership have significantly higher discretionary permanent differences, while firms with the largest quasi-indexer ownership have significantly lower discretionary permanent differences. From a corporate governance standpoint, it appears short-term institutional investors may influence firms to engage in permanent tax planning to reduce taxes while long-term investors appear to sway firms away from such activities. These results suggest transient shareholders govern differently than quasi-indexers, influencing firms toward permanent types of tax avoidance such as tax shelters and off-balance sheet financing, while quasi-indexers guide firms away from such activities.

When we use temporary book-tax differences as our measure of tax aggressiveness, we find a positive association with transient and dedicated institutional ownership and large deferred taxes. Our temporary book-tax measure uses the absolute value of discretionary tax accruals. A positive relationship is consistent with institutions investing in firms with large tax accruals. These large tax accruals can be large income decreasing accruals as well as large income increasing accruals. Given accruals reverse, a positive result does not unequivocally support tax aggressiveness. Rather we interpret our findings for the temporary measure as firms with sophisticated dedicated and transient institutional investors engage in tax planning resulting in more tax accruals.

Finally, when we use the persistent tax avoidance measure, five-year cash effective tax rates, we find firms with higher levels of institutional shareholders,

regardless of type, are statistically more likely to have lower cash effective tax rates. Consistent with Hypothesis 1(a), the economic significance is highest for transient investors, followed by dedicated then quasi-indexers. We interpret these findings as all institutional investor groups providing incentives for firms to pay less tax per dollar of financial income, but transient provides the most influence toward persistent tax aggressiveness.

[Insert Table 4 about here]

2.4.3 Tax Aggressiveness Impact on Institutional Investment

In order to test our second hypothesis we constructed a model based on the work by Granger (1969) along with Sims (1972) that add a lagged dependent variable to determine causation. Table 5 presents the results of estimating (EQ 2) including the prior year's tax aggressiveness measure. In this specification we find aggressive tax positions influence institutional investment. We interpret these highly significant results ($p < .0001$) as institutional owners select tax aggressive firms. The impact is strongest for the discretionary permanent differences (coefficient = 0.502) and our persistent tax avoidance measure 5_CETR (coefficient = 0.704). Consistent with our earlier suspicion, the sign on prior year temporary differences is negative and significant at the 10% indicating the relationship between institutional investors and discretionary accruals is due to reversal of timing differences rather than tax aggressiveness.

When we compare the impact on tax aggressiveness by our various groups of institutional investors, we find corporate managers appear to engage in more tax avoidance in the presence of transient institutional shareholders. We interpret this as transient investors provide ineffective corporate governance through momentum trading,

short-term trading horizon and sensitivity to forward looking information. For dedicated investors, after controlling for prior tax aggressiveness, we find a weak positive association with timing differences. However due to the negative sign on lagged temporary differences, we suspect this result may be due to the reversal of accruals rather than tax avoidance. For the quasi-indexer category of investor, we find the negative association with tax avoidance found in the first test is no longer significant when prior year tax avoidance is considered. We interpret this as the ongoing firm policy of tax avoidance overrides any current influence quasi-indexers have on tax avoidance decisions.

[Insert Table 5 about here]

2.4.4 Sensitivity Analysis

Changes Analysis

We examined the effect of changes in institutional investment on change in tax aggressiveness. Table 6 shows the results for our changes analysis. The results for our changes analysis using book-tax differences measures are largely insignificant with one exception: Quasi-indexers and to a lesser extent dedicated institutional investors decrease ownership when discretionary permanent differences increase. This inverse relationship is consistent with the monitoring impact of longstanding investors restraining management from extreme tax planning activities. For our long-term tax avoidance measure we find an inverse relationship: when cash tax rates go up, all institutional investment categories decrease.

[Insert Table 6 about here]

Autocorrelation

Given multiple observations for the same firm, and persistent dependent variables for our tax avoidance measures found in the changes analysis, there can be strong autocorrelation within firms over time creating a bias in the error term. To check for autocorrelation, we rerun all regressions clustering by firm-year (Petersen 2009). Results for (H1) using firm-year clustering are shown in Table 7. These findings are fundamentally unchanged from our primary analysis when regressions are clustered by industry-year (Table 4).

[Insert Table 7 about here]

Corporate Governance Measures

To determine if institutional investor clusters provide incremental benefit to firms with weak internal corporate governance mechanisms, we control for firm-level differences in constitutional shareholder rights and takeover provisions. Specifically we rerun all regressions including the E-index (Bebchuk et al. 2009) as a control variable. The E-index includes six provisions from the Gompers, Ishii and Metrick (2003) G-index, four measures related to limitations on shareholder voting power: staggered boards, limits to shareholder amendments of the bylaws, supermajority requirements for mergers, and supermajority requirements for charter amendments, and two measures related to hostile takeover offers: poison pills and golden parachute arrangements. Recent literature finds higher E-index scores are associated with lower firm valuation, large negative abnormal returns (Bebchuk et al. 2009), lower credit ratings (Alali et al.

2012), and value-decreasing acquisitions (Harford et al. 2012). Controlling for weak governance, we find quasi-indexers sway firms toward less tax aggressiveness while transient sway firms toward more tax aggressiveness (Table 8).⁴

2.5 Summary and Conclusion

This study examines the association between tax reporting aggressiveness and the level of institutional ownership after controlling for heterogeneity in investment horizon and portfolio concentration. Our goal is to shed light on varying corporate governance styles of institutional investors due to differing investment objectives. Our main findings can be summarized as follows: First, firms with higher levels of transient institutional owners are more likely to engage in aggressive tax planning leading to permanent and temporary differences. This result for the short-term investor group is consistent with an ineffective corporate governance style hinged on trading. Transient with short investment horizons and highly diversified portfolios provide an activist sort of monitoring through buying and selling shares. This “vote with feet” type of governance provides competitive pressure and appears to influence firm management to engage in aggressive tax activities. Although we find all institutional investor clusters are associated with persistently low cash taxes, the result is the most pronounced for transient investors.

Second, we find firms with more quasi-indexer ownership are less likely to engage in tax planning leading to permanent difference, but these results are sensitive to invariant time series characteristics of the tax measures. We conjecture this external

⁴ Our results are robust to the full G-Index Measure. Results are tabulated on Table 9.

shareholder group does not influence firms toward more tax avoidance due to regulatory constraints and legal ramifications due to prudent man rules. Consistent with a non-tax aggressive stance, quasi-indexers have the least impact of the institutional investor groups on lowering cash tax payments.

Third, we find firms with more dedicated ownership have significantly lower long-term cash tax rates consistent with good corporate governance provided through blockholder monitoring. Further our results show firms with high ownership by dedicated investors are not associated with the tax avoidance such as tax shelters and off-balance sheet financing. This finding is consistent with a corporate governance style that restrains management from engaging in extreme tax planning activities. While we find a weak association with timing differences and dedicated investors, we cannot rule out the possibility this result may be due to the reversal of accruals rather than tax avoidance.

While we include fixed-year effects to hold constant the average effects of each year to control for the average differences across years, a limitation of this study is we do not directly address for the effect of a regulation change during our sample period that impacts how two of our tax avoidance measures are disclosed. Beginning in 2005, the IRS requires reconciliation of book-tax differences on form M-3. It is possible mandatory disclosure of the components of book-tax difference changes the impact of institutional investors on tax decisions.

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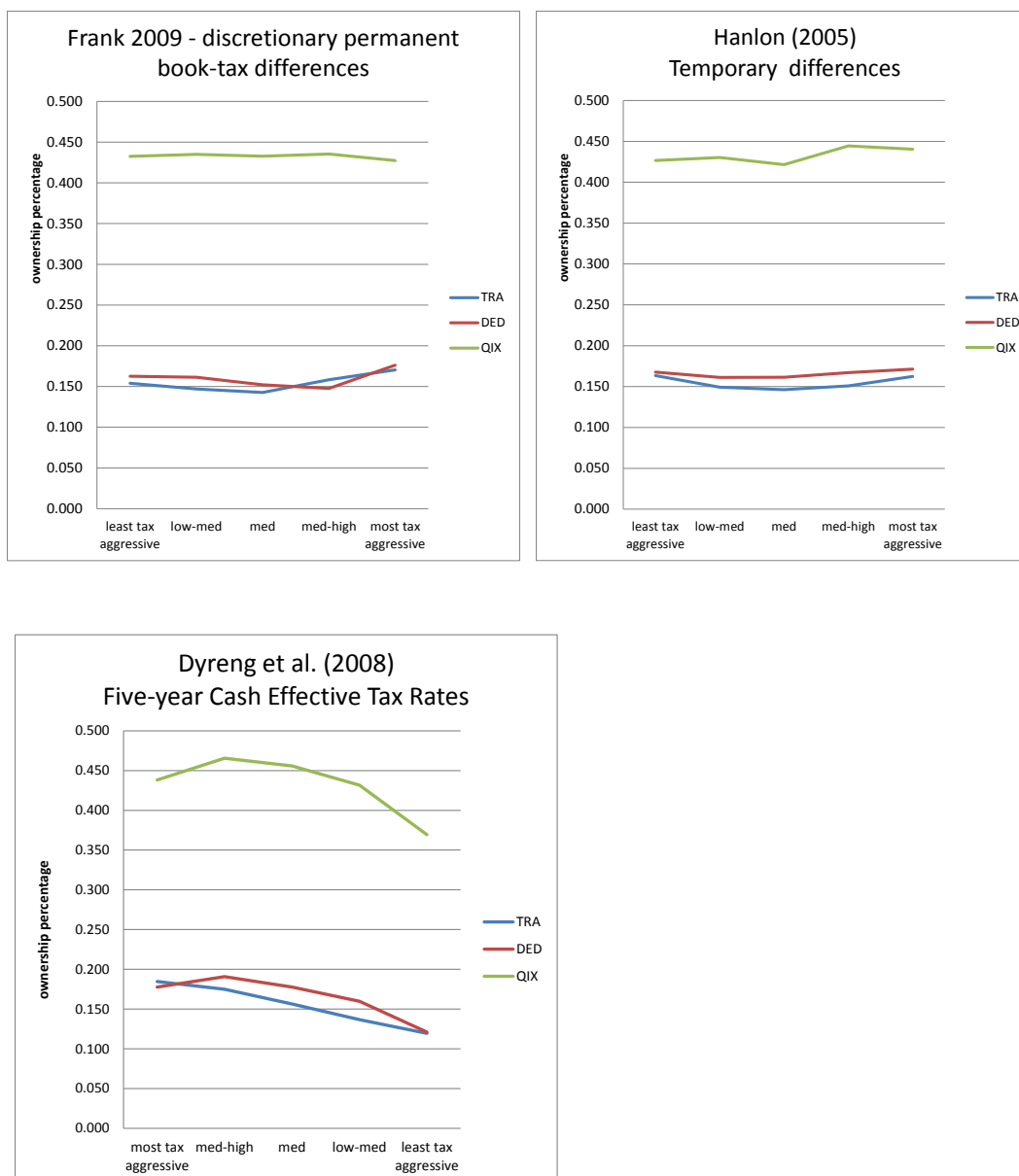
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2.7 Figures and Tables

Figure 2-1: Tax avoidance measures and institutional investor groups⁵.



⁵ The two measures in the top row (Frank 2009 and Hanlon 2005) have a positive association with tax aggressiveness. The measure in the bottom row (Dyreng 2008) has a negative association with tax aggressiveness.

Table 2-1: Sample Description

Panel A:
Institutional Investment Type

	Transient	Quasi-Indexer	Dedicated
Bank (Thompson Type 1)	0.171	0.234	0.162
Insurance Company (2)	0.083	0.118	0.079
Investment Companies (3)	0.212	0.191	0.385
Investment Advisor (4)	0.578	0.580	0.480
Other (5)	0.004	0.005	0.005

Panel B:
Sample Selection

Firm years with complete set of Compustat and Thompson Financial 13F institutional ownership variables.		96,515
Missing information to calculate BTD measures and control variables.	(45,498)	
Missing information to calculate 5 year cash effective tax rate.	(27,017)	
Remove industries SIC 4000-4999 and 6000-6999.	(4,040)	
Remove firm years with fewer than ten industry observations.	(745)	
		<u>(77,300)</u>
Final Sample - firm year observations		19,215
Final Sample - unique firms		3,239

Table 2-2

Descriptive Statistics and Variable Definitions

Panel A: Descriptive Statistics (n=19,215)

Variable	Mean	STD	5P	Q1	Median	Q3	95P
Institutional Ownership measures:							
Total_Inst	0.655	0.328	0.071	0.377	0.714	1.000	1.000
Quasi-indexer_Inst	0.433	0.264	0.036	0.229	0.408	0.629	0.948
Dedicated_Inst	0.166	0.205	0.000	0.003	0.076	0.273	0.590
Transient_Inst	0.154	0.173	0.000	0.018	0.095	0.231	0.518
Tax Aggressiveness measures:							
5_CETR	0.318	0.176	0.081	0.213	0.303	0.378	0.640
DISCR_PERM_BTD	0.168	0.232	-0.014	0.023	0.088	0.237	0.613
TEMP_BTD	0.010	0.016	0.000	0.002	0.006	0.012	0.033
Controls:							
Total Assets	5.994	1.750	3.287	4.724	5.878	7.154	9.163
SandP 500	0.211	0.408	0.000	0.000	0.000	0.000	1.000
Leverage	0.199	0.183	0.000	0.027	0.174	0.314	0.533
Cash Flows	0.099	0.091	-0.042	0.051	0.099	0.149	0.240
Return on Assets	0.102	0.096	-0.028	0.058	0.100	0.149	0.248
Change in Sales	0.023	0.221	-0.039	0.002	0.014	0.034	0.104
Book to market	0.625	0.640	0.118	0.295	0.483	0.767	1.622
Market Returns	0.120	0.501	-0.660	-0.142	0.121	0.375	0.915
Liquidity	1.481	1.861	0.142	0.443	0.932	1.909	4.489
Beta	0.829	1.058	-0.638	0.238	0.778	1.350	2.540
Variable Definitions provided in Table 2 - panel B.							

Panel B: Variable descriptions

Total_Inst	Percentage of common shares outstanding held by institutional shareholders. Institutional investment is calculated based on the proportion of institutional holdings divided by firm shares outstanding for the calendar quarter ended prior or on the firm fiscal year-end.
Quasi-indexer_Inst	Percentage of common shares outstanding held by institutional shareholders with highly diversified portfolios and low turnover.
Dedicated_Inst	Percentage of common shares outstanding held by institutional investors with highly concentrated portfolios and low turnover.
Transient_Inst	Percentage of common shares outstanding held by institutional investors with highly diversified portfolios and high turnover.
5_CETR	Ratio of total cash taxes paid 5 yrs. : pretax income 5 yrs. (Dyreng et al. 2008).
DISCR_PERM_BTD	Residuals from regressing total permanent BTD on nondiscretionary items (Frank 2009).
TEMP_BTD	Absolute value of deferred tax accounts, scaled by total assets (Hanlon 2005).
Total Assets	Natural log of total assets.
SandP 500	Indicator variable if stock is listed on the SandP 500.
Leverage	Total debt and includes long term debt and current debt, scaled by total assets.
Cash Flows	Operating cash flows from continued operations scaled by total assets.
Return on assets	Operating income scaled by total assets.
Change in sales	One year delta in sales scaled by prior year sales.
Book to market	Book market of common equity divided by the market value.
Market Return	Total monthly returns for the year.
Liquidity	Average monthly volume divided by total shares outstanding.
Beta	36 month window market model beta using value-weighted returns.

TABLE 2-3: Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Transient Inst	1	0.21	0.38	0.59	-0.19	0.12	0.07	0.28	0.10	-0.03	0.11	0.11	0.01	-0.14	0.01	0.43	0.22
		***	***	***	***	***	***	***	***	***	***	***	*	***		***	***
2 Dedicated Inst	0.39	1	0.26	0.57	-0.14	0.04	0.02	0.33	0.25	0.02	0.10	0.09	-0.01	-0.12	0.00	0.15	0.13
	***		***	***	***	***	***	***	*	***	***	***	***	***		***	***
3 Quasi-Indexer Inst	0.47	0.35	1	0.80	-0.17	0.05	-0.01	0.46	0.25	0.00	0.12	0.07	-0.03	-0.06	-0.07	0.15	0.16
	***	***		***	***	***		***	***		***	***	***	***	***	***	***
4 Total Inst	0.70	0.67	0.83	1	-0.23	0.07	0.02	0.54	0.32	-0.01	0.16	0.14	-0.02	-0.16	-0.02	0.26	0.23
	***	***	***		***	***	*	***	***		***	***	*	***	*	***	***
5 5 CETR	-0.28	-0.18	-0.18	-0.25	1	-0.06	-0.02	-0.23	-0.13	0.00	-0.17	-0.19	-0.04	0.17	-0.03	-0.15	-0.10
	***	***	***	***		***	**	***	***		***	***	***	***	***	***	***
6 DISCR PERM BTD	0.13	0.05	0.08	0.10	-0.08	1	0.02	0.13	0.02	0.18	-0.08	-0.06	0.11	-0.04	-0.06	0.05	0.01
	***	***	***	***	***		**	***	**	***	***	***	***	***	***	***	***
7 TEMP BTD	0.10	0.05	0.05	0.08	-0.11	-0.00	1	-0.04	-0.01	-0.00	0.01	-0.09	0.02	-0.02	-0.04	0.11	0.04
	***	***	***	***	***			***	***			***	*	**	***	***	***
8 Total Assets	0.45	0.46	0.49	0.55	-0.26	0.13	0.02	1	0.63	0.23	0.12	0.12	-0.00	-0.19	-0.04	0.13	0.19
	***	***	***	***	***	***	***		***	***	***	***		***	***	***	***
9 SandP 500	0.20	0.32	0.27	0.32	-0.14	0.03	0.02	0.60	1	0.03	0.14	0.14	-0.01	-0.20	0.01	0.07	0.12
	***	***	***	***	***	***	**	***		***	***	***	***	***		***	***
10 Leverage	-0.04	0.01	0.03	0.01	-0.03	0.14	-0.01	0.28	0.06	1	-0.18	-0.10	-0.00	0.03	-0.09	-0.11	-0.10
	***	*	***		***	***		***	***		***	***		***	***	***	***
11 Cash Flows	0.13	0.14	0.11	0.14	-0.13	-0.07	0.08	0.10	0.15	-0.23	1	0.60	0.03	-0.20	0.14	0.04	0.04
	***	***	***	***	***	***	***	***	***	***		***	***	***	***	***	***
12 ROA	0.16	0.16	0.04	0.10	-0.08	-0.01	0.00	0.08	0.15	-0.16	0.56	1	0.09	-0.34	0.19	0.09	0.04
	***	***	***	***	***	**		***	***	***	***		***	***	***	***	***
13 Change in Sales	0.09	0.02	-0.13	-0.05	-0.11	0.08	0.01	-0.11	-0.09	-0.06	0.05	0.32	1	-0.03	0.04	0.05	0.01
	***	**	***	***	***	***	*	***	***	***	***	***		***	***	***	***
14 Book-to-Market	-0.26	-0.24	-0.06	-0.18	0.18	-0.06	-0.05	-0.25	-0.30	0.09	-0.36	-0.56	-0.25	1	-0.27	-0.13	-0.14
	***	***	***	***	***	***	***	***	***	***	***	***	***		***	***	***
15 Market Returns	0.03	0.04	-0.06	-0.01	-0.03	-0.06	-0.01	-0.03	0.02	-0.07	0.15	0.19	0.20	-0.30	1	0.06	-0.03
	***	***	***	*	***	***		***	***	***	***	***	***	***		***	***
16 Liquidity	0.63	0.35	0.32	0.47	-0.28	0.08	0.10	0.32	0.17	-0.12	0.07	0.13	0.19	-0.30	0.03	1	0.27
	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***		***
17 Beta	0.32	0.22	0.22	0.28	-0.14	0.02	0.05	0.25	0.14	-0.11	0.05	0.05	0.06	-0.20	-0.04	0.41	1
	***	***	***	***	***	**	***	***	***	***	***	***	***	***	***	***	***

*, **, *** denotes significance at the 10%, 5%, and 1% levels, respectively. This table reports Pearson (above the diagonal) and Spearman (below the diagonal) correlation for institutional ownership, tax aggressiveness measures, and control variables. Variable definitions provided in Panel B of Table 2.

TABLE 2-4

Regression Results - Tax Aggressiveness and Levels of Institutional Investment
(n=19,215)

Tax Aggressiveness = $a_0 + \beta_1$ Transient + β_2 Dedicated + β_3 Quasi-indexer
+ β_4 Total Assets_{i,t} + β_5 SandP 500 + β_6 Leverage + β_7 Cash Flows + β_8 ROA + β_9 Change
in Sales + β_{10} Book-to-Market + β_{11} Market Adjusted Returns + β_{12} Liquidity + β_{13} Beta +
 $\sum \beta_t$ Year_t + $\sum \beta_i$ Industry_i + ε

	DISCR_PERM_BT D	TEMP_BT D	5_CETR
Transient	0.018	0.001	-0.012
<i>p-value</i>	<0.0001	0.016	0.001
Dedicated	-0.002	0.001	-0.009
<i>p-value</i>	0.498	0.013	0.001
Quasi-Indexer	-0.015	0.000	-0.006
<i>p-value</i>	<0.0001	0.178	0.027
Total Assets	0.025	-0.001	-0.019
<i>p-value</i>	<0.0001	<0.0001	<0.0001
SandP 500	0.000	0.000	0.000
<i>p-value</i>	<0.0001	0.000	<0.0001
Leverage	0.206	0.003	-0.010
<i>p-value</i>	<0.0001	0.007	0.342
Cash Flows	-0.148	0.011	-0.073
<i>p-value</i>	<0.0001	<0.0001	0.002
ROA	-0.025	-0.023	-0.244
<i>p-value</i>	0.373	<0.0001	<0.0001
Change in sales	0.115	0.001	-0.015
<i>p-value</i>	<0.0001	0.123	0.032
Book-to-Market	-0.003	-0.001	0.016
<i>p-value</i>	0.394	0.001	<0.0001
Market Returns	-0.007	-0.001	0.006
<i>p-value</i>	0.087	<0.0001	0.109
Liquidity	0.002	0.001	-0.005
<i>p-value</i>	0.085	<0.0001	<0.0001
Beta	-0.004	0.000	-0.001
<i>p-value</i>	0.018	0.035	0.581
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adj. R ²	0.4807	0.3365	0.7975

This table presents the results of multiple regression (EQ1) that examine the impact of institutional investment on tax aggressiveness. Standard errors are clustered by industry-firm (clusters = 495), p-values are based on two tail tests. Variable Definitions provided in Panel B of Table 2.

TABLE 2-5: Regression Results - Tax Aggressiveness and One-year lagged Tax Measures and Levels of Institutional Investment (n=19,215)

Tax Aggressiveness = $a_0 + \beta_1 \text{Lag Tax Measure} + \beta_2 \text{Transient} + \beta_3 \text{Dedicated} + \beta_4 \text{Quasi-indexer} + \beta_5 \text{Total Assets}_{i,t} + \beta_6 \text{SandP 500} + \beta_7 \text{Leverage} + \beta_8 \text{Cash Flows} + \beta_9 \text{ROA} + \beta_{10} \text{Change in Sales} + \beta_{11} \text{Book-to-Market} + \beta_{12} \text{Market Adjusted Returns} + \beta_{13} \text{Liquidity} + \beta_{14} \text{Beta} + \sum \beta_i \text{Year}_i + \sum \beta_i \text{Industry}_i + \varepsilon$

	DISCR_PERM_BT D	TEMP_BT D	5_CETR
Lag Tax Measure	0.502	-0.029	0.704
<i>p-value</i>	<0.0001	0.051	<0.0001
Transient	0.010	0.001	-0.007
<i>p-value</i>	0.007	0.040	0.004
Dedicated	0.002	0.001	-0.001
<i>p-value</i>	0.481	0.019	0.658
Quasi-Indexer	-0.004	0.000	-0.004
<i>p-value</i>	0.285	0.966	0.026
Total Assets	0.014	-0.001	-0.008
<i>p-value</i>	<0.0001	<0.0001	<0.0001
SandP 500	0.000	0.000	0.000
<i>p-value</i>	0.000	<0.0001	<0.0001
Leverage	0.097	0.003	0.006
<i>p-value</i>	<0.0001	0.022	0.416
Cash Flows	-0.060	0.009	-0.074
<i>p-value</i>	0.010	<0.006	<0.0001
ROA	-0.093	-0.023	-0.226
<i>p-value</i>	0.001	<0.0001	<0.0001
Change in sales	0.536	0.003	-0.234
<i>p-value</i>	<0.0001	0.5367	<0.0001
Book-to-Market	-0.005	-0.001	0.004
<i>p-value</i>	0.082	0.0002	0.135
Market Returns	0.000	-0.001	-0.010
<i>p-value</i>	0.993	0.0004	0.000
Liquidity	-0.001	0.001	0.000
<i>p-value</i>	0.185	<0.0001	0.745
Beta	-0.001	0.000	0.000
<i>p-value</i>	0.512	0.0526	0.741
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adj. R ²	0.6595	0.3608	0.9048

This table presents the results of multiple regression (EQ2) that controls for prior year tax aggressiveness while examining the impact of institutional investment on tax aggressiveness. Standard errors are clustered by industry-firm (clusters = 462), *p*-values are based on two tail tests. Lag Tax Measure is the one year lag of the tax aggressive measure. We rank transient, dedicated, and quasi-indexer by percentage of ownership and use the highest quintile of each group in the regression model. Variable definitions are provided in Panel B of Table 2.

TABLE 2-6: Regression Results - Tax Aggressiveness and Changes of Institutional Investment (n=19,214)

$$\Delta \text{Tax Aggressiveness} = a_0 + \beta_1 \Delta \text{Transient} + \beta_2 \Delta \text{Dedicated} + \beta_3 \Delta \text{Quasi-Indexer} + \beta_4 \Delta \text{Total Assets} + \beta_5 \Delta \text{Leverage} + \beta_6 \Delta \text{Cash Flows} + \beta_7 \Delta \text{ROA} + \beta_8 \Delta \text{Sales Growth} + \beta_9 \Delta \text{Book to Market} + \beta_{10} \Delta \text{Market Returns} + \beta_{11} \Delta \text{Liquidity} + \beta_{12} \Delta \text{Beta} + \sum \beta_t \text{Year}_t + \sum \beta_i \text{Industry}_i + \varepsilon$$

	$\Delta \text{DISCR_PERM_BTD}$	$\Delta \text{TEMP_BTD}$	$\Delta 5_CETR$
$\Delta \text{Transient}$	0.017%	-0.001%	-0.045%
<i>p-value</i>	0.309	0.473	0.000
$\Delta \text{Dedicated}$	-0.030%	0.000%	-0.049%
<i>p-value</i>	0.018	0.931	<0.0001
$\Delta \text{Quasi-Indexer}$	-0.055%	0.001%	-0.024%
<i>p-value</i>	<0.0001	0.305	0.009
$\Delta \text{Total Assets}$	3.665%	0.030%	-1.606%
<i>p-value</i>	<0.0001	0.195	<0.0001
$\Delta \text{Leverage}$	16.778%	-0.239%	5.062%
<i>p-value</i>	<0.0001	0.193	0.001
$\Delta \text{Cash Flows}$	-10.106%	-0.495%	-3.589%
<i>p-value</i>	<0.0001	0.078	0.061
ΔROA	-23.027%	2.036%	-35.418%
<i>p-value</i>	<0.0001	<0.0001	<0.0001
$\Delta \text{Sales Growth}$	8.484%	-0.052%	0.223%
<i>p-value</i>	<0.0001	0.456	0.714
$\Delta \text{Book to Market}$	-0.731%	0.005%	1.017%
<i>p-value</i>	0.069	0.911	0.001
$\Delta \text{Market Returns}$	-0.393%	0.080%	0.505%
<i>p-value</i>	0.219	0.006	0.048
$\Delta \text{Liquidity}$	0.164%	-0.065%	-0.244%
<i>p-value</i>	0.169	<0.0001	0.018
ΔBeta	-0.120%	-0.003%	0.073%
<i>p-value</i>	0.386	0.813	0.517
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adj. R ²	0.088	0.0162	0.087

To analyze changes, this table presents the results of sensitivity analysis using changes of the variables from multiple regression (EQ 1) to examine the effect of changes in institutional investment on change in tax aggressiveness. Standard errors are clustered by industry-firm (clusters = 495), p-values are based on two tail tests. Delta Δ is based on one year change. We rank transient, dedicated, and quasi-indexer by percentage of ownership and use the highest quintile of each group in the regression model. Variable definitions provided in Panel B of Table 2.

TABLE 2-7: Regression Results - Cluster by Firm (n=19,215)

Tax Aggressiveness = $a_0 + \beta_1$ Transient + β_2 Dedicated + β_3 Quasi-indexer + β_4 Total Assets_{i,t} + β_5 SandP 500 + β_6 Leverage + β_7 Cash Flows + β_8 ROA + β_9 Change in Sales + β_{10} Book-to-Market + β_{11} Market Adjusted Returns + β_{12} Liquidity + β_{13} Beta + $\Sigma \beta_t$ Year_t + $\Sigma \beta_i$ Industry_i + ε

	DISCR_PERM_BTD	TEMP_BTD	5_CETR
Transient	0.018	0.001	-0.012
<i>p-value</i>	0.001	0.015	0.002
Dedicated	-0.002	0.001	-0.009
<i>p-value</i>	0.635	0.005	0.015
Quasi-Indexer	-0.015	0.000	-0.006
<i>p-value</i>	<0.0025	0.208	0.092
Total Assets	0.025	-0.001	-0.020
<i>p-value</i>	<0.0001	<0.0001	<0.0001
SandP 500	-0.039	0.001	0.016
<i>p-value</i>	<0.0001	0.002	0.019
Leverage	0.206	0.003	-0.010
<i>p-value</i>	<0.0001	0.004	0.433
Cash Flows	-0.148	0.011	-0.073
<i>p-value</i>	<0.0001	<0.0001	0.001
ROA	-0.025	-0.023	-0.244
<i>p-value</i>	0.437	<0.0001	<0.0001
Change in sales	0.115	0.001	-0.015
<i>p-value</i>	<0.0001	0.088	0.021
Book-to-Market	-0.003	-0.001	0.016
<i>p-value</i>	0.388	0.000	<0.0001
Market Returns	-0.007	-0.001	0.006
<i>p-value</i>	0.048	<0.0001	0.039
Liquidity	0.002	0.001	-0.005
<i>p-value</i>	0.145	<0.0001	<0.0001
Beta	-0.004	0.000	-0.001
<i>p-value</i>	0.020	0.023	0.555
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adj. R ²	0.481	0.336	0.798

To control for autocorrelation, this table presents the results of sensitivity analysis clustering standard errors by firm (clusters = 3239) using multiple regression (EQ1) to examine the impact of institutional investment on tax aggressiveness, p-values are based on two tail tests. We rank transient, dedicated, and quasi-indexer by percentage of ownership and use the highest quintile of each group in the regression model. Variable Definitions provided in Panel B of Table 2.

TABLE 2-8: Regression Results -Tax Measures and Levels of Institutional Investment, Controlling for Entrenchment

Panel A: Tax Aggressiveness = $a_0 + \beta_1$ Transient + β_2 Dedicated + β_3 Quasi-indexer + β_4 E-Index + β_5 Controls + $\sum \beta_t$ Year_t + $\sum \beta_i$ Industry_i + ε (EQ 1)

	DISCR_PERM_BTD	TEMP_BTD	5_CETR
Transient	0.013	0.000	-0.008
<i>p-value</i>	<i>0.099</i>	<i>0.948</i>	<i>0.193</i>
Dedicated	0.006	0.000	-0.005
<i>p-value</i>	<i>0.439</i>	<i>0.869</i>	<i>0.363</i>
Quasi-Indexer	-0.023	-0.000	-0.005
<i>p-value</i>	<i>0.000</i>	<i>0.389</i>	<i>0.268</i>
E-Index	0.003	0.000	-0.001
<i>p-value</i>	<i>0.390</i>	<i>0.170</i>	<i>0.768</i>
Controls	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	8,191	8,191	8,191
Unique Firms	1,257	1,257	1,257
Adj. R ²	0.539	0.382	0.812

Panel B: Tax Aggressiveness = $a_0 + \beta_1$ Lag Tax Measure + β_2 Transient + β_3 Dedicated + β_4 Quasi-indexer + β_5 E-Index + β_6 Controls + $\sum \beta_t$ Year_t + $\sum \beta_i$ Industry_i + ε

	DISCR_PERM_BTD	TEMP_BTD	5_CETR
Lag Tax Measure	0.506	-0.025	0.761
<i>p-value</i>	<i>0.001</i>	<i>0.276</i>	<i><.0001</i>
Transient	0.008	0.000	-0.006
<i>p-value</i>	<i>0.113</i>	<i>0.916</i>	<i>0.047</i>
Dedicated	0.005	0.000	0.001
<i>p-value</i>	<i>0.289</i>	<i>0.504</i>	<i>0.758</i>
Quasi-Indexer	-0.011	0.000	-0.003
<i>p-value</i>	<i>0.009</i>	<i>0.783</i>	<i>0.189</i>
E-Index	0.003	0.000	-0.001
<i>p-value</i>	<i>0.119</i>	<i>0.351</i>	<i>0.2712</i>
Controls	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adj. R ²	0.694	0.382	0.917

This table presents the results of sensitivity analysis adding entrenchment measure, E-index to multiple regressions: Panel A shows results for EQ1, Panel B (EQ2). The purpose is to examine the impact of

institutional investment on tax aggressiveness considering corporate governance quality. Corporate governance quality is based on E-index developed by Bebchuk et al. (2009) and is the sum of entrenchment provisions limiting shareholder voting power and hostile takeovers. Errors are clustered by firm, p-values are based on two tail tests. The sample is limited to 8,191 firm-year observations and 1,275 unique firms due to availability of the E-index. The E-index takes values ranging from 0 to 6. Higher numbers indicated more managerial entrenchment, a sign of weak corporate governance. For the Institutional Investment variables, we first calculate a percentage of firm ownership calculated as shares held by permclass divided by total shares outstanding. We then rank transient, dedicated, and quasi-indexer by percentage of ownership and use the highest quintile of each group in the regression model. Variable Definitions provided in Panel B of Table 2.

TABLE 2-9
Regression Results -Tax Measures and Levels of Institutional Investment, Controlling for
Weak Shareholder Rights (n=19,215)

Panel A: Tax Aggressiveness = $a_0 + \beta_1$ Transient + β_2 Dedicated + β_3 Quasi-indexer + β_4 G-Index >9 + β_5 Transient * G-Index >9 + β_6 Dedicated * G-Index >9 + β_7 Quasi-indexer * G-Index >9 + β_i Controls + $\sum \beta_t$ Year_t + $\sum \beta_i$ Industry_i + ε (EQ 1)

	DISCR_PERM_BTD	TEMP_BTD	5_CETR
Transient	0.017	0.001	-0.011
p-value	0.0006	0.0259	0.0028
Dedicated	-0.002	0.001	-0.009
p-value	0.6922	0.0124	0.0006
Quasi-Indexer	-0.013	-0.000	-0.008
p-value	0.0011	0.1233	0.0103
G-Index >9	0.002	-0.000	-0.001
p-value	0.0994	0.8655	0.8032
Transient * G-Index >9	-0.002	-0.000	-0.001
p-value	0.8749	0.7604	0.9215
Dedicated* G-Index >9	-0.022	-0.001	0.010
p-value	0.0680	0.2425	.1942
Quasi-Indx* G-Index >9	-0.029	0.000	0.016
p-value	0.0094	0.7353	0.0228
Controls	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
N	19,215	19,215	19,215
Clusters	495	495	495
Adj. R ²	0.477	0.336	0.797

Panel B: Tax Aggressiveness = $a_0 + \beta_1 \text{Lag Tax Measure} + \beta_2 \text{Transient} + \beta_3 \text{Dedicated} + \beta_4 \text{Quasi-indexer} + \beta_5 \text{G-Index} + \beta \text{Controls} + \sum \beta_t \text{Year}_t + \sum \beta_i \text{Industry}_i + \varepsilon$ (EQ 2)

	DISCR_PERM_BTD	TEMP_BTD	5_CETR
Lag Tax Measure	0.635	0.256	0.781
p-value	<.0001	<.0001	<.0001
Transient	0.005	0.001	-0.005
p-value	0.1367	0.0488	0.0152
Dedicated	-0.001	0.001	-0.001
p-value	0.7868	0.0048	0.7126
Quasi-Indexer	-0.003	-0.000	-0.004
p-value	0.4490	0.4527	0.0437
G-Index >9	0.009	0.000	-0.001
p-value	0.2020	0.5877	0.6586
Transient * G-Index >9	0.013	0.000	-0.001
p-value	0.2123	0.7911	0.7717
Dedicated *G-Index >9	-0.006	-0.001	0.003
p-value	0.4948	0.3084	.4737
Quasi-Indexer* G-Index >9	-0.022	0.000	0.009
p-value	0.0102	0.7008	0.0456
Controls	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
N	19,215	19,215	19,215
Clusters	495	495	495
Adj. R ²	0.714	0.383	0.919

This table presents the results of sensitivity analysis adding weak corporate governance measure to multiple regressions. G-Index greater than 9 is an indicator variable showing a firm has greater than nine of the Gompers managerial protection measures, a sign of weak corporate governance (Khurana and Moser 2013). Panel A shows results for EQ1, Panel B (EQ2). The purpose is to examine the impact of institutional investment on tax aggressiveness considering corporate governance quality. Errors are clustered by industry-year, p-values are based on two tail tests.

Corporate governance quality is based on G-index developed by Gompers, Ishii and Metric (2003) and is the sum of 24 charter provisions related to Charter Provisions that Limit Shareholder-Rights especially in takeover scenarios. G-Index greater than 9 is an indicator variable showing a firm has greater than nine of the Gompers managerial protection measures, a sign of weak corporate governance.

For the Institutional Investment variables, we first calculate a percentage of firm ownership calculated as shares held by permclass divided by total shares outstanding. We then rank transient, dedicated, and quasi-indexer by percentage of ownership and use the highest quintile of each group in the regression model. See Table 2 – Panel B.

3: THE TAX CLIENTELE EFFECT OF INSTITUTIONAL INVESTMENT: ANALYSIS OF INSTITUTIONAL HOLDINGS AROUND TAX ACT CHANGES

3.1 Introduction

Recent debate in the U.S. Senate and House is on whether to extend the Bush tax cuts on dividend income and capital gains (Shreve 2012). The Jobs Growth Tax Relief Reconciliation Act of 2003 (hereafter, JGT 2003) reduced the tax rates on dividends and capital gains but this reduction is set to expire December 31, 2012⁶. The recent discussion centers on consequences of raising investment taxes when the economy is weak. The concern is an increase in the tax rates on dividend and capital gains taxes could have a contractionary effect on an already fragile American economy (Sullivan 2012). Given the investment nature of the Bush-era taxes set to expire and the substantial investment in U.S. companies by institutions, we aim to seek a more complete explanation of how institutions react to tax changes. Institutional investors are major participants in the capital markets: in the period of our study 1993 – 2002, over 50% of the largest U.S. companies stock is held by institutional investors (Tonello and Rabimov 2010). The research question we address is two-fold. First we seek to find which institutions hold potentially taxable investments in the form of dividend paying stock and appreciated property. Second we test whether tax rate changes on dividends and capital gains impact the holdings of these institutional investors. Our purpose is to shed light on which institutions display tax-sensitivity to dividend and capital gains tax rates.

Recent research considers the tax sensitivity of institutional investors. Blouin, Bushee and Sikes (2011) find about half of the total number of institutional investors are

⁶ The Bush-era tax cuts were scheduled to expire December 31, 2010. President Barack Obama signed a temporary two-year extension through 2012. See Hanlon & Hoopes (2012) for an empirical analysis of timing of dividend payouts in 2010 due to uncertainty over continuation of the tax cuts.

tax sensitive. Desai and Jin (2011) find some tax –sensitive institutions are dividend-averse. Usrey, Schnee and Taylor (2011) find mutual funds act as individuals, displaying tax sensitivity to individual taxes on investment income. Chyz and Li (2012) find tax-sensitive institutions sell shares with embedded gains when capital gains tax rates decrease. We weigh in on the subject by considering institutional investment around dividends and capital gains tax rate changes during the period 1993 – 2002. A traditional theory of investment taxes relates to the tax penalty on dividends compared with capital gains. Prior to the Bush-era tax cuts, dividends were taxed at higher rates than capital gains leading to a theoretical dividend tax clientele. Tax clientele theory predicts an inverse relationship between the tax penalty on dividends and ownership of dividend paying firms by tax-sensitive investor. When the tax penalty increases, shares of high dividend stock are sold by tax-disadvantaged investors. Because there is a buyer for every seller, tax-disadvantaged investors' supply must be offset by tax-advantaged investors' demand (Choi and Sias 2012). Consequently due to trading opportunities tax-exempt investors will increase holdings of high dividend yield stock when dividends are further penalized compared to capital gains.

In research studies of tax clienteles, aggregate institutional investment is often used as a proxy for the tax-exempt investor (e.g. Dhaliwal, et al. 1999, Blouin, Raedy and Shackelford 2011). These studies document that, as predicted, following dividend rate increases there is a statistically and economically significant increase in aggregate institutional ownership of firms that initiate or increase dividends. Although the theory of tax clienteles is generally focused on dividend policies, Dai, et al. 2010 extend the theory of tax clienteles to capital gains. Studying the tension between capital gains and

dividend taxes in the Revenue Act of 1978 and the Tax Relief Act of 1997, the Dai study finds dividend tax is dominated by the capital gains tax rate. Consistent with the dividend tax clientele research mentioned above, the Dai study uses total institutional investment as a proxy for tax-exempt investors.

While aggregate institutional investment is frequently used as a proxy for tax-exempt investors in the tax clientele literature, it is important to consider the determinants of institutional holdings before making inferences about tax effects due to heterogeneity among institutional investors (Hanlon and Heitzman 2010, Shevlin 2007). Shevlin 2007 clearly makes the point: “I think it is time to search for less coarse proxies – for example not all institutions are equal from a tax standpoint, and some institutions pay attention to the tax implications for their fund holders” (p89).⁷ Consistent with examining the tax clientele argument while acknowledging differences in institutional investors, several studies recognize the tax differences of institutional investors (e.g. Chetty and Saez 2005; Moser and Puckett 2009; Strickland 1996; Jin 2006; Usrey et al. 2007, Chyz and Li 2012). These studies employ a variety of ways to determine tax-sensitive institutional investors: Usrey et al. (2011) treats mutual funds as tax-sensitive because of the tax status of the underlying individual investor, Moser and Puckett (2009) and Chyz and Li (2012) include investment brokers, insurance companies and mutual funds in the taxable category, Jin (2006) matches institutional holdings with client profiles to determine institutions that serve mainly taxable clients.

⁷ For example, mutual funds are flow-through entities with immediate taxable income to individual participants. Pensions, while also flow-through entities provide long-term deferral of tax to retirees and their beneficiaries. Some institutional investors are tax exempt (e.g. governmental and charitable foundations). Other institutions have hybrid tax characteristics. See Desai and Jin (2011) for a detailed explanation of the types of institutional investors and their various tax treatments (page 71).

Our purpose is to examine tax clienteles using three clusters of institutional investor based on portfolio diversification and investment horizons (Bushee 1998, Bushee and Noe 2000). The first cluster, transient institutions, holds diversified portfolios and exhibit high turnover. Jin (2006) finds tax-sensitive institutions turn their portfolios more rapidly than tax-insensitive institutions. We expect and find transient institutions display sensitivity to dividend tax penalty as evidenced in reduced portfolio holdings in high-yield shares when the dividend penalty increases. The next cluster of institutional investment we consider is quasi-indexers. This group holds diversified, low-turnover portfolios and is subject to prudent-investor laws which affect asset allocation toward dividend paying firms (Del Guercio 1996). Our findings are consistent with this group picking dividend paying stocks for non-tax related reasons. The final cluster, dedicated, is characterized by large blockholdings, and long-term horizons. We find dedicated investors, although low-turnover, display sensitivity to capital gains rates: selling high-dividend yield firms and buying appreciated stock when capital gains taxes decrease. We interpret this as dedicated investors adjusting their portfolio holdings when the lock-in effect is lessened (Chyz and Li, 2012).

We analyze the impact of clusters of institutional investors on portfolio holdings in firms with high dividend yields and in firms with appreciated stock prices over the sample period 1993 – 2002 to test for tax-sensitivity. We consider two tax acts that altered either the tax rates on dividends or capital gains: dividend tax rates increased in the Revenue Reconciliation Act of 1993 (hereafter, RRA1993) capital gains tax

decreased in the Taxpayer Relief Act of 1997 (hereafter, TRA1997)⁸. Due to the variation of tax characteristics among institutional investors, we posit and find these tax rate changes have differing effects among institutional investors.

The contribution in this paper is twofold: First, we provide a more complete picture of institutional investors by testing association of investment horizon and portfolio diversification on appreciated stock and dividend paying firms. Second, we highlight existence of institutional tax clienteles by showing effect of tax law changes on investment portfolios. The organization of this paper is as follows: The next section provides a literature review on tax clienteles and institutional investors. Section 3 describes the hypothesis development and the model. Section 4 provides a description of the sample, test and results. Section 5 concludes.

3.2 Literature Review

3.2.1 Tax Clienteles

In perfect capital markets a firm's dividend policy is irrelevant to investors (Miller and Modigliani 1961). However the introduction of taxes into the model implies tax clienteles may form for different dividend policies. In general, returns to common stock investors are received and taxed as capital gains or dividends. Prior to JGT 2003 which equalized the tax rate on capital gains and dividends at 15%, there was a penalty on dividends compared to capital gains. JGT 2003 equalized the tax on dividends and capital gains taxes, removing the dividend tax penalty. Consistent with expectations under tax clientele theory, Zhang, Farrell and Brown (2008) find diminished trading of

⁸ The Jobs Growth Tax Relief Reconciliation Act of 2003 (JGT 2003) decreased tax rates on dividends (from 39% to 15%) and capital gains (from 20% to 15%). This tax act is excluded from our study because of issues around trying to disentangle the two changes.

high dividend yield stock after the dividend tax rate was lowered to the same rate as capital gains in JGT 2003.

Strengthening the argument for dividend tax clienteles is disparity in taxation of dividends for various investors: corporate investors are entitled to a lower effective tax rate than individuals due to the dividends-received deduction, while charitable foundations and governmental institutions enjoy tax-exempt status (Dhaliwal et al. 1999). Capital gains, the other form of returns to investors, stems from trades in the secondary market, share repurchases, and liquidating dividends. Capital gains are tax-irrelevant if the marginal investor is tax-exempt (Miller and Scholes, 1978) or if appreciated property is held until death, individuals gains are deferred indefinitely (Constantinides, 1983). However for many investors, capital gains in excess of capital losses trigger taxes and reduce the cash flows from returns.

3.2.2. Institutional Investors

Another line of research clusters institutional investor based on portfolio diversification and investment horizons (Bushee 1998, Bushee and Noe 2000). Transient institutions hold diversified portfolios and exhibit high turnover. Recent research shows transient institutional investors are on average more sophisticated and better informed (Lev and Nissim 2006); display sensitivity to credit spreads (Wang and Zhang 2009). Jin (2006) finds frequent portfolio turnover is a characteristic of tax-sensitive institutions. The other two clusters of institutional investors invest for the long-term. Dedicated institutions hold large long-term positions in firms. Quasi-indexers hold diversified low-turnover portfolios. Quasi-indexers are subject to prudent-investor laws which affect

asset allocation toward dividend paying firms (Del Guercio 1996), although recent research finds changes in prudent trust investment laws at the state level have resulted in lowered investment in dividend paying firms (Schanzenbach and Sitkoff 2007).

Dedicated investors are characterized by low turnover and large blockholdings.

Dedicated invest in firms for the long-term suggesting this group holds embedded gains (Chyz and Li 2012).

Research has shown certain institutions are sensitive to investment taxes on dividends. Usrey et al. (2011) shows mutual fund managers respond to changes in the dividend tax rate by altering ownership in dividend paying-firms. Desai and Jin (2011) study tax preferences of institutional investors and find results consistent with institutions self-sorting to firms with attractive dividend payout policies. Chetty and Saez (2005) study dividend initiation as well as increases in regular dividend payment following JGT 2003 and find a positive association with taxable institutions but no association with nontaxable institutions. Using a longer sample period 1987-2004, Moser and Puckett (2009) investigate institutional investors' preference for dividend-paying stocks and find tax-advantaged institutions and taxable institutions react differently to changes in the dividend tax penalty. They find an inverse relationship between the dividend tax penalty and institutions, but only for taxable institutions. Overall these studies provide strong evidence for the existence of institutional dividend tax clienteles.

There is also growing evidence supporting institutional capital gains tax clienteles. Jin (2006) shows institutions serving tax-sensitive clients are sensitive to cumulative capital gains, a pattern not observed for institutions with mostly tax-exempt clients. Chen et al. (2011) shows mutual funds consider capital gains taxes to reduce

accumulated capital gains (a.k.a. “capital gains tax overhang”) and encourage new investment. Chyz and Li (2012) show tax-sensitive institutions experience a lasting reduction to the capital gains tax overhang when capital gains taxes decline.

Recent literature examines the tax clientele effect using various ways to group institutional investment into tax-sensitive vs. tax- indifferent. Usrey et al. (2011) separate institutional investors into mutual funds and non-mutual funds. Mutual funds are considered to be tax-sensitive because of professional managers’ concern about the tax status of the underlying investors. Moser and Puckett (2009) and Chyz and Li (2012) group institutional investors into taxable and tax-advantaged by types provided on Spectrum 13F. Mutual funds, investment brokers and insurance companies are considered taxable institutions while banks, pension funds, charitable endowments, universities, and other corporations are considered tax-advantaged. Jin (2006) uses a dual data set approach, matching Spectrum 13F data with Investment Adviser Public Disclosure client profiles, to sort institutions into those that serve mainly taxable vs. tax-exempt clients.

3.3 Hypothesis and Model Development

3.3.1 Clientele Effect of Institutional Investors

Recent research considers tax clienteles using various groupings of institutional investors into taxable and tax-exempt. We group institutional investors using transient, quasi-indexeR&Dedicated clusters. We first seek to verify the link between capital gains taxes, dividend taxes and institutions. We do this by testing the association between institutional investor cluster holdings of appreciated stock and high dividend yield firms.

We analyze firms with institutional ownership over the sample period 1993 – 2002 and measure portfolio holdings two ways. First, we measure holdings in dividend paying firms as dividend yield. Dividend yield is measured as annual dividend per share divided by stock price at end of calendar year⁹. Research has studied the link between dividend yield and institutional portfolio holdings around ex-dividend days (Li 2012, Dhaliwal et al. 2006). Institutions have been found to buy significantly higher dividend yield stocks around ex-dividend days (Li 2012). Dhaliwal and Li (2006) provide evidence heterogeneity in investor tax status is associated with ex-dividend trading volume.

Our second measure is a proxy for unrealized portfolio gains. Our proxy for holdings of appreciated stock is based on change in the price of a stock over alternative periods of at least one year to capture appreciation around the holding period point investors can take advantage of preferential capital gains treatment¹⁰. Appreciation in portfolio holdings is common due to "intertemporal tax discontinuities" where losses are accelerated and netted with ordinary income thus decreasing taxable income, and gains are delayed due to favorable capital gains rates (Shackelford and Verrechia 2002). Lock-in theory predicts that the probability of holding of appreciated stock in a portfolio is increasing in the capital gains tax rates and decreasing in basis (Hanlon and Heitzman 2010, Feldstein et al. 1980). To capture accumulated unrealized capital gains, we measure appreciation using short and long-term horizons of one-year and four-year

⁹ Tax clientele studies that use dividend yield either in main tests or sensitivity analysis include Desai and Jin 2011, Usrey et al. 2011.

¹⁰ Dyl 1977 uses a similar measure and acknowledges the percentage change in the price of a stock is a crude measure for the extent to which the year-end holdings of the investor of a particular stock include unrealized capital gains and losses. However, the measure does indicate the likelihood that the investor of a given firm may possess unrealized portfolio gains and losses.

changes in stock price respectively¹¹. Using annual rather than quarterly appreciation is consistent with research showing losses suffered early in the year are often held until year-end resulting in turn-of-year trading patterns for tax sensitive investors (Poterba and Weisbenner 2001).

Our first set of hypotheses test for a clientele effect based on institutional cluster characteristics. Transient investors have high turnover, short-term horizons, highly diversified portfolios (Bushee 1998). Due to these short-term trading behaviors, we expect transient institutions to invest in growth firms which typically do not pay dividends (Fama and French 2001). Accordingly we expect transient to avoid investment in dividend paying firms and instead seek firms with appreciated market value.

Dedicated investors are characterized by large average investment in portfolio firms and extremely low turnover and a focus on long-term performance (Bushee 2001). Due to long-run focus of these investors we expect dedicated institutions to have portfolios with stock appreciation. Quasi-indexers follow a passive investment strategy and are subject to prudent man (Hankins et al. 2008). Due to prudent man standards requiring investment in dividend paying firms, we expect quasi-indexer institutions to invest in dividend paying firms. This leads to the following hypotheses about the relationship between transient, dedicated, and quasi-indexer institutional investor portfolio holdings.

H1 (a): Stock ownership by transient institutional investors is associated with higher levels of price appreciation and lower levels of high-dividend yield.

¹¹ Using two and three year stock appreciation provides similar results to those reported for four year stock appreciation.

H1 (b): Stock ownership by quasi-indexer institutional investors is associated with higher levels of dividend yield.

H1(c): Stock ownership by dedicated institutional investors is associated with higher levels of price appreciation.

3.3.2 Tax Clientele Effect of Institutional Investors

We posit taxes may matter more to certain clusters of institutional investors based on differences in investment horizons and portfolio diversification. In the second set of hypotheses we test for a tax clientele effect of institutional investors using tax rates changes on dividends. Blouin, Raedy and Shackelford (2011) examine firm level changes in investor composition following JGT 2003 to test portfolio rebalancing. In a similar vein, we consider institutional portfolio holdings in high dividend yield firms following tax law changes. If institutions are tax-sensitive to the tax penalty imposed on dividend payouts, we expect to find an inverse relationship between dividend tax rates and holdings in firms with positive dividend yield.

For the two tax acts we consider, changes in shareholder-level taxes worsened the penalty on dividends. For RRA1993, the tax rates on dividend income increased from 31% to 39% while the capital gains rate remained fixed. For TRA1997, the tax rates on capital gains decreased from 28% to 20% while dividend taxes stayed at 39%. Given the larger dividend penalty imposed by these changes, we expect less investment in high-yield stocks by transient institutions similar to the trading strategy of individuals. As taxable investors adjust their portfolios to account for after-tax cash flows, tax-advantaged institutions will also adjust their portfolios to take advantage of trading opportunities. Accordingly, we expect to find equity ownership in dividend paying firms

by quasi-indexer institutions will increase in RRA 1993 and TRA 1997. We do not make an expectation for the dedicated group as it is not clear why dividend tax penalty would change the portfolio holdings of this diverse group with long-term “relationship” style of investing. This leads to the following hypothesis about the relationship between clusters of institutional investors and portfolio holdings around tax law changes affecting the dividend tax penalty:

H2(a): Following tax rate changes from RRA 1993 and TRA 1997 we expect a negative association between transient institution and portfolio holdings in high dividend yield firms.

H2 (b): Following tax rate changes from RRA1993 and TRA 1997 we expect a positive association between quasi-indexers and portfolio holdings in high dividend yield firms.

H2(c): Following tax rate changes from RRA1993 and TRA 1997 we expect no association between dedicated institutions and portfolio holdings in high dividend yield firms.

For TRA 1997 the capital gains tax rate decreased from 28% to 20%. There are two competing theories how declines in capital gains tax rates affect holders of appreciated stock. Tax capitalization theory suggests demand will increase because of an increase in expected future after-tax cash flows (Lang and Shackelford 2000). Lock-in theory suggests a sell-off of stock because of a lessening of the tax penalty on appreciated investments (Klein 1999). We build on Jin (2006) and Chyz and Li (2012) who finds results consistent with lock-in-theory for institutional investors showing large capital

gains discourage, and large capital losses encourage, institutional selling, *ceteris paribus*. Consequently, due to a lessening of the lock-in effect for TRA97 we expect a decrease between tax sensitive institutions and levels of appreciated stock when capital gains tax rates decrease.

Specifically due to lessening of the lock-in-effect, we expect tax-sensitive institutions to sell. Consequently we expect transient to decrease portfolio holdings in appreciated stock selling shares due to lower capital gains taxes. We do not expect quasi-indexers to display any sensitivity to capital gains tax rates due to the dominance of prudent man standards over taxes. Likewise, we do not have expectations for the dedicated group. On one hand this group could display sensitivity to capital gains due to long-horizon investing leading to appreciated holdings. On the other hand this group is characterized by relationship investing, lessening the likelihood of selling shares. This leads to our third hypothesis:

H3(a): Following the capital gains cuts in TRA 1997 we expect a negative association between transient and appreciated holdings.

H3(b): Following the capital gains cuts in TRA 1997 we expect no association between quasi-indexers and appreciated holdings.

H3(c): Following the capital gains cuts in TRA 1997 we expect no association between dedicated and appreciated holdings.

Research Design

To test our first hypothesis, we estimate the following cross-sectional regression:

Dependent Variable $_{i,t}$ (DivYield or Short-Term Appreciated Stock or Long-Term Appreciated Stock) = $a_0 + b_1Tra_{i,t} + b_2Ded_{i,t} + b_3Qix_{i,t} + b_4Beta_{i,t} + b_5Debt_{i,t} + b_6SandP500_{i,t} + b_7Volat_{i,t} + b_8Size_{i,t} + b_9TO_{i,t} + b_{10}Rov_t + b_{11}Bk/Mk_{i,t} + b_{12}Divyldchg_{i,t} + b_{13}Divyld_{i,t}$ (for Appreciated_ST and LT) + Year Dummies $_t$ + Industry Dummies $_i + e_{i,t}$ (EQ. 1)

We expect the sign of Tra ($b1$) will be negative and Qix ($b3$) will be positive when the dependent variable is dividend yield. When the dependent variable is appreciated stock, we expect both Transient ($b1$) and Ded ($b2$) to be positively associated.

We control for nontax explanations of changes in institutional portfolio holdings following prior research (Usrey et al. 2011, Del Guercio, 1996, Gompers and Metrick, 2011). We control for firm risk using average monthly beta and stock price volatility. Beta is measured by regressing monthly raw returns on the return to a value-weighted market portfolio over a 36-month window. Volatility (Volat) is measured as the variance of monthly holding period returns for the quarter. We expect a negative relationship between risk and dividend yield (Usrey et al. 2011). We control for firm size using market value and SandP membership. Prior literature finds a positive relationship between firm size and institutional ownership (e.g. Gompers and Metrick 2001, Moser and Puckett 2009). We control for firm size using the log of the firm's market value of equity. Del Guercio (1996) finds institutions may prefer to invest in firms that are in the SandP 500. Accordingly, we expect a positive sign on firm size and SandP membership. We include profitability and growth measures to capture factors that may influence institutional portfolio holdings. We measure profitability as return on value (Rov) is measured as ordinary income before income taxes minus depreciation, scaled by market value. Growth is measure by the book to market ratio (Bk/Mk).

When the dependent variable is appreciated stock we control for dividend yield. We expect dividend yield to be inversely related to stock appreciation (Chyz and Li, 2012).

To test our second and third hypotheses, we add tax act variables for RRA93 and TRA97 respectively. Due to data availability of institutional investment on a quarterly basis, we identify post-tax act quarters beginning with the calendar year the tax legislation was signed. Similar to Usrey et al. (2011) we use a multi-year window ending December 31, 1996 for RRA93, December 31, 2000 for TRA97. Model 2 includes interaction variables to test each cluster of institutional investor with each tax acts.

Dependent Variable $_{i,t}$ (DivYield or Appreciated_ST or Appreciated_LT) = $a_0 + b_1Inst_{i,t} + b_2RRA93_t + b_3Tra_i * RRA93_t + b_4Ded_i * RRA93_t + b_5Qix_i * RRA93_t + b_6TRA97_t + b_7Tra_i * TRA97_t + b_8Ded_i * TRA97_t + b_9Qix_i * TRA97_t + b_{10} DivYield_{i,t}$ (for Appreciated_ST and LT) + $\sum Controls_{i,t} + \sum Year\ Dummies_t + \sum Industry\ Dummies_{i,t} + e_{i,t}$ (EQ. 2)

Following RRA93 and TRA97 when dividend tax rates increased, we expect that Quasi-indexers increased ownership and Transient decreased ownership of high-dividend yield firms. Therefore we predict the sign on the interaction terms $Tra * RRA93$ (b_3) and $Tra * TRA97$ (b_7) will be negative and $Qix * RRA93$ (b_5) and $Qix * TRA97$ (b_9) will be positive.

Following TRA97 when capital gains tax rates decreased, we expect selling by transient, consistent with individuals due to lessening of the lock-in effect¹². Quasi-indexers are bound by the of prudent man standards leading us to expect a neutral effect between appreciated stock holding and capital gains tax rate decreases. Similarly we make no directional expectations for dedicated investors due to opposing forces of long-

¹² However, transient is characterized by short-term horizon lessening the possibility of preferential capital gains treatment due to holding period requirements of at least one year.

term horizons and relationship investing. Therefore we predict the sign on the interaction terms $Tra*TRA97$ ($b7$) will be negative.

In estimating equations (1) and (2) we include industry and year fixed effects to control for industry characteristics and overall macroeconomic factors over time. To derive the t-statistics and p-values for the above regressions, we use robust standard errors clustered by firm (Petersen 2009).

3.4 Sample and Empirical Results

3.4.1 Sample

Table 1 summarizes our sample selection criteria. Sources of data include Thompson Financial 13F and Brian Bushee for institutional investment¹³, Compustat for financial statement variables and CRSP for stock prices. The primary sample in this study consisted of 14,912 firm-year observations with complete data to calculate the institutional investor holdings and clusters, financial statement variables, and stock market variables. 2,362 firm-year observations related to financials, utilities, and inadequate industry representation are removed. To remove undue influence of the corporate governance and information advantage of firms with a vast majority of institutional investors, we remove firm-years with greater than 90% ownership by any cluster and more than 99% institutional investment in the aggregate. This results in a loss of 240 firm-year observations. Our dividend sample removes low-dividend yield firms in order to provide meaningful inferences about dividend tax clienteles (Moser and Puckett, 2009). We remove 600 firms with dividend yield less than 0.5%. Our price appreciation samples do not include firms with depreciated stock: 6,187 firm-year observations are

¹³ We thank Brian Bushee for providing access to the institutional investor classifications on his website: <http://acct3.wharton.upenn.edu/faculty/bushee/>

removed from the four-year (i.e. long) appreciation sample and 7,581 from the one year (i.e. short) appreciation sample.

Insert Table 1 here.

3.4.2 Clientele Effect of Institutional Investors

Descriptive statistics are shown in Table 2: Panel A summarizes the full sample by quartile; Panel B summarizes the short and long-term appreciation samples. Panel C summarizes each cluster of institutional investment. Comparing the means of clusters of institutions we find the transient group has high investments in firms with higher stock return volatility, beta and growth. Consistent with Bushee (1998), transient is associated with higher turnover. Quasi-indexers are on average invested in low-growth firms, as evidenced by the highest book –to- market ratios of the clusters. Consistent with this group using creditors as a monitor of management, Quasi-indexers invest on average in higher leveraged firms.

Insert Table 2 here.

Table 3 show correlations between the independent variables. We find all clusters of institutional investors are positively correlated with the other clusters. Further all clusters invest in large, liquid firms. Transient has the highest correlation with growth firms, stock price volatility, beta and turnover of the three clusters. Dedicated and quasi-indexers display a negative association with volatility. Quasi-indexers are positively associated with investments in leveraged firms.

Insert Table 3 here.

Table 4 provides results of H1: the regression of portfolio holdings on the levels of transient, dedicated, and quasi-indexer institutional investors and the control variables (EQ 1). In general the results strongly support Hypothesis 1. Quasi-indexers hold high-dividend yield stock in portfolios, consistent with expectations outlined in the prudent man standards (Del Guercio 1996.) Transient avoid high-dividend yield stocks consistent with this group's preference for growth firms (Bushee 2001). Although we made no predictions for the dedicated cluster, we find a significant negative association between dividend yield and dedicated institutional investors.

Consistent with expectations, when the dependent variable is appreciated stock we find Dedicated clusters hold long-term appreciated stock. Transient hold short-term appreciated stock in line with a short investment horizon. Quasi is inversely related to short-term appreciated stock consistent with Mintchik et al. (2011) who find quasi-indexers are the first group of institutional investors to sell prior market "winners".

Insert Table 4 here.

3.4.3 Tax Clientele Effect of Institutional Investors.

Table 5 provides results of H2: the analysis of tax law changes around RRA93 and TRA97 on portfolio holdings of transient, dedicated, and quasi-indexer institutional investors and the control variables (EQ 2). We expect and find transient institutions to display sensitivity to taxes as evidenced in portfolio holdings around tax rate changes (H2a is supported). When dividend penalty rates increased under RRA93 and TRA97, we find Transient decreased ownership of high-dividend yield firms, consistent with this cluster of institutional investors displaying tax sensitivity. Consistent with our

expectations for H2(b) we find quasi-indexers increased holdings in high-dividend yield firms following RRA93 and TRA97. We conclude quasi-indexers act as tax-insensitive institutions and buys dividend paying firms in response to sell-offs from individuals and other tax-sensitive investors. We find mixed results for dividend holdings by the dedicated group H2(c). When capital gains taxes decrease, we find dedicated act as tax-sensitive and reduce portfolio holdings in high-yield stocks. Conversely when dividend taxes increase, dedicated do not appear to alter holdings. We conjecture the different treatment between the two tax acts relates to an increased willingness to sell tax-disadvantaged dividend shares when capital gains rates are more favorable.

In our third hypothesis we test for the association between more favorable capital gains tax rates and portfolio holdings of appreciated stock by institutional investor clusters (H3). We find a significant increase in portfolio holdings of appreciated stock for the transient clusters (H3a is supported). For the two clusters of long-horizon institutions we expected no association with capital gains, and while this held true for quasi-indexers (H3b is supported), we find results consistent with dedicated investors rebalancing portfolio out of high-yield stocks and into appreciated shares when the lock in effect is lessened (H3c is not supported). Transient and Dedicated appear to rebalance portfolios out of dividend yield shares into more tax-advantaged investments when the dividend penalty widens and the capital gains rates go down. Quasi-Indexers appear to be insensitive to capital gains rates except to take advantage of trading opportunities. We interpret these results to be consistent with a tax clientele among institutional investors.

Insert Table 5 here.

Expiration of the Bush-era tax cuts would increase taxes on dividends and capital gains taxes. In the period of our study, we have a dividends tax increase (RRA 1993) but no increase on capital gains taxes. Consequently our study lacks generalizability to capital gains tax increases. Additionally we do not consider holdings in capital loss investments. Capital gains are netted against capital losses and should affect the holdings of tax-sensitive institutions.

3.5 Summary and Conclusions

Using clusters of institutional investors based on portfolio diversification and investment horizon, we find results consistent with a tax clientele effect within institutional investors. We find transient and dedicated steer clear of dividend paying firms. When dividend taxes increase, transient act similar to individuals and sell high-dividend yield stocks although dedicated investors do not alter holdings. In comparison, when capital gains decrease, both transient and dedicated act similar to individuals and divest of high-yield stocks and appear to adjust portfolios to more optimal allocations.

We contribute to the tax clientele literature by showing how clusters of institutions rebalance portfolios following two different tax acts. When the dividend penalty increased in Revenue Reconciliation Act of 1993 and Taxpayer Relief Act of 1997, we find transient consistently act as tax-sensitive and decrease investment in high dividend yield. Dedicated investors, as long-term investors, appear to be willing to sell tax-disadvantaged high-yield shares when the lock-in effect is lowered. Quasi-indexers rebalance portfolios towards dividends as expected by the prudent man rules. Overall our results suggest clusters of institutional investors rebalance portfolios in different ways

following tax rate changes consistent with the literature supporting the notion of tax clienteles among institutions.

We predict the pending expiration of the Bush-era tax cuts could result in portfolio rebalancing by institutional investors. We conjecture each institutional cluster may 'redress the balance' by buying and selling shares suited to their investing strategies, rather than reducing portfolio holdings in the aggregate. Given the heterogeneity of institutional trading strategies we speculate the impact of institutional investment may steady the economy if individuals engage in a sell-off due to the sunset of the Bush-era tax cuts.

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3.7 Tables

Table 3-1
Sample Selection

	Full Sample, also Dividend Sample	Long-Term Appreciation Sample	Short-Term Appreciation Sample
Firm-year observations with complete set of Compustat, Thompson 13F, CRSP variables and control variables	14,912	14,912	14,912
Remove industries in SIC 4000-4999 and 6000-6999 and industries with fewer than ten firm-year observations	2,362	2,362	2,362
Remove firms with greater than .90 ownership by transient, dedicated, or quasi-indexer cluster	240	240	240
Remove low-dividend yield firms	600	0	0
Remove firms with depreciated stock price.	0	6,187	7,581
N - Observations	11,710	6,123	4,729
Unique firms	2,748	1,940	1,909

Table 3-2
Descriptive Statistics
Panel A: Full Sample 1993-2002

Variable	Mean	Std Dev.	5p	25p	Median	75p	95p
Divyld	0.008	0.0155	0	0	0	0.014	0.036
Appreciation_ST	-0.212	15.302	-24.375	-5.563	-0.250	5.360	23.625
Appreciation_LT	-1.552	22.965	-39.540	-12.500	-0.845	9.813	36.313
Tra	0.104	0.131	0	0.008	0.050	0.155	0.386
Ded	0.140	0.185	0	0.008	0.050	0.227	0.532
Qix	0.339	0.214	0.020	0.169	0.324	0.479	0.729
RRA93	0.368	0.482	0	0	0	1	1
TRA97	0.349	0.477	0	0	0	1	1
Beta	0.699	0.609	-0.013	0.282	0.599	0.999	1.879
Debt	1.906	7.200	0	0	0.583	1.805	7.181
SandP	0.182	0.386	0	0	0	0	1
Volat	0.025	0.082	0.002	0.007	0.014	0.027	0.074
Size	5.446	2.061	2.280	4.076	5.397	6.806	8.969
To	1.068	1.247	0.105	0.336	0.669	1.299	3.513
Rov	0.087	0.224	-0.047	0.030	0.086	0.139	0.273
Bk/Mk	0.669	0.682	0.116	0.309	0.513	0.833	1.782
Divyldchg	0.000	0.0107	-0.013	0	0	0	0.013
N	11,710						
Unique firms	2,748						

Panel B: Descriptive Statistics for Stock Price Appreciation Samples

	Short-Term			Long-Term		
	Mean	StdDev	Median	Mean	StdDev	Median
Divyld	0.008	0.012	0	0.008	0.012	0
Appreciation_ST	9.913	11.922	5.750	5.423	15.825	3.567
Appreciation_LT	6.769	22.446	5.409	12.815	19.050	9.625
Tra	0.118	0.137	0.067	0.123	0.136	0.076
Ded	0.162	0.193	0.078	0.167	0.193	0.092
Qix	0.377	0.206	0.367	0.367	0.206	0.359
RRA93	0.338	0.473	0	0.398	0.490	0
TRA97	0.362	0.481	0	0.362	0.481	0
Beta	0.707	0.560	0.612	0.771	0.605	0.666
Debt	1.196	2.452	0.479	1.053	2.083	0.411
SandP	0.233	0.423	0	0.251	0.433	0
Volat	0.022	0.114	0.012	0.021	0.100	0.012
Size	6.000	1.979	6.027	6.173	1.932	6.195
TO	1.088	1.220	0.687	1.158	1.324	0.732
Rov	0.091	0.089	0.085	0.089	0.082	0.082
Bk/Mk	0.518	0.450	0.424	0.473	0.389	0.399
Divyldchg	-0.001	0.012	0	0.000	0.009	0
N	4,729			6,123		
Unique Firms	1,909			1,940		

Panel C: Descriptive Statistics for Firms in top two quintiles of Transient (Tra) , Dedicated(Ded), Quasi-Indexer(Qix) Ownership 1993-2002

	Tra		Ded		Qix	
	Mean	Median	Mean	Median	Mean	Median
Divyld	0.008	0	0.009	0	0.011	0.005
Appreciation_ST	1.521	1.000	1.027	0.400	1.292	0.500
Appreciation_LT	3.215	3.250	2.928	2.280	2.415	2.313
Trapct	0.220	0.188	0.134	0.091	0.134	0.091
Qixpct	0.407	0.397	0.402	0.393	0.545	0.528
Dedpct	0.187	0.120	0.317	0.287	0.187	0.116
RRA93	0.368	0	0.370	0	0.377	0
TRA97	0.347	0	0.351	0	0.353	0
Beta	0.884	0.776	0.821	0.714	0.786	0.692
Debt	1.455	0.519	1.447	0.564	1.647	0.611
SandP	0.275	0	0.318	0	0.319	0
Volat	0.023	0.014	0.020	0.013	0.019	0.011
Size	6.236	6.306	6.276	6.349	6.275	6.213
TO	1.522	1.001	1.286	0.847	1.212	0.783
Rov	0.090	0.083	0.091	0.085	0.094	0.088
Bk/Mk	0.523	0.419	0.550	0.434	0.579	0.463
Divyldchg	-0.000	0	0.000	0	0.001	0
N	4,600		4,600		4,473	
Unique Firms	1,539		1,455		1,342	
This table reports descriptive statistics for the full sample (panel A), appreciation samples (panel B) and firms with high levels of institutional investors (panel C). Variable Definitions provided in Appendix 3- A.						

Table 3-3: Correlation Matrix

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Divyld	1	-0.00	0.03	-0.11	0.00	0.16	0.05	-0.04	-0.15	0.04	0.15	-0.08	0.15	-0.22	0.05	0.10	0.35
				***	***		***	***	***	***	***	***	***	***	***	***	***	***
2	Apprec_ST	0.03	1	0.48	0.07	0.07	0.07	0.07	0.01	0.00	-0.06	0.09	-0.02	0.18	0.00	-0.03	-0.15	-0.02
		**		***	***	***	***	***			***	***	*	***	***	***	***	***
3	Apprec_LT	0.11	0.43	1	0.14	0.16	0.15	0.02	0.04	0.11	-0.09	0.21	-0.04	0.37	0.08	0.00	-0.23	0.02
		***	***		***	***	***	***	***	***	***	***	***	***	***		***	*
4	Tra	-0.07	0.07	0.21	1	0.20	0.25	-0.12	0.01	0.30	-0.05	0.15	0.02	0.28	0.41	-0.00	-0.16	-0.03
		***	***	***		***	***	***		***	***	***	*	***	***		***	***
5	Ded	0.07	0.09	0.21	0.41	1	0.25	-0.02	-0.01	0.17	-0.05	0.31	-0.04	0.32	0.17	0.01	-0.14	0.02
		***	***	***	***		***	*		***	***	***	***	***	***		***	***
6	Qix	0.25	0.06	0.17	0.37	0.35	1	-0.09	-0.04	0.10	-0.02	0.31	-0.06	0.38	0.12	0.05	-0.08	0.04
		***	***	***	***	***		***	***	***	*	***	***	***	***	***	***	***
7	RRA 93	0.09	0.10	0.04	-0.13	0.02	-0.10	1	-0.56	0.11	-0.06	0.01	-0.09	-0.05	-0.09	-0.00	-0.10	0.04
		***	***	***	***	*	***		***	***	***		***	***	***		***	***
8	TRA97	-0.05	-0.02	0.03	0.04	-0.03	-0.05	-0.56	1	-0.11	-0.02	-0.03	0.03	0.01	-0.00	0.00	-0.04	-0.01
		***	***	***	***	***	***	***		***	*	***	***				***	
9	Beta	-0.14	0.02	-0.12	0.38	0.28	0.15	0.105	-0.09	1	-0.07	0.21	0.10	0.40	0.52	-0.07	-0.21	-0.03
		***		***	***	***	***	***	***		***	***	***	***	***	***	***	***
10	Debt	0.14	-0.11	-0.17	-0.11	-0.07	0.04	-0.03	-0.01	-0.18	1	-0.05	0.04	-0.15	-0.06	0.24	0.46	0.00
		***	***	***			***	***	***	***		***	***	***	***	***	***	
11	SandP	0.23	0.07	0.19	0.25	0.36	0.33	0.01	-0.03	0.23	-0.03	1	-0.06	0.56	0.09	-0.01	-0.20	0.03
		***	***	***	***	***	***		***	***	***		***	***	***		***	***
12	Volat	-0.42	-0.12	-0.17	0.12	-0.07	-0.15	-0.28	0.10	0.30	0.00	-0.19	1	-0.05	0.17	-0.07	0.05	-0.03
		***	***	***	***	***	***	***	***	***	***	***		***	***	***	***	***
13	Size	0.27	0.18	0.40	0.50	0.50	0.43	-0.05	0.01	0.46	-0.01	0.56	-0.11	1	0.17	0.03	-0.38	0.03
		***	***	***	***	***	***	***		***	***	***	***		***	***	***	***
14	To	-0.33	-0.00	0.07	0.54	0.33	0.22	-0.10	0.02	0.54	-0.23	0.17	0.45	0.29	1	-0.07	-0.17	-0.04
		***		***	***	***	***	***	*	***	***	***	***	***		***	***	***
15	Rov	0.16	-0.05	-0.03	-0.05	0.01	0.05	0.02	-0.02	-0.15	0.42	-0.06	-0.11	-0.04	-0.18	1	0.05	0.02
		***	***	***	***		***	***	***	***	***	***	***	***	***		***	***
16	Bk/Mk	0.03	-0.27	-0.36	-0.30	-0.27	-0.09	-0.05	-0.03	-0.32	0.44	-0.314	0.07	-0.55	-0.30	0.25	1	0.02
		***	***	***	***	***	***	***	***	***	***	***	***	***	***	***		***
17	Divyldchg	0.24	-0.20	-0.1	-0.01	0.02	0.05	0.01	-0.01	-0.03	0.04	0.029	-0.08	0.03	-0.05	0.07	0.07	1
		***	***	***		*	***				***	***	***	***	***	***	***	***

***, ** denotes significance at the 10%, 5%, and 1% levels, respectively. This table reports Pearson (above the diagonal) and Spearman (below the diagonal) correlation for institutional ownership, tax law change measures, and control measures. Variable Definitions provided in Appendix 3-A.

Table 3-4
Regression Results – Type of Stock Holdings and Institutional Investment

Dependent Variable i,t (DivYield or Short-Term Appreciated Stock or Long-Term Appreciated Stock)= $a_0 + b_1Tra_{i,t} + b_2Ded_{i,t} + b_3Qix_{i,t} + b_4Beta_{i,t} + b_5Debt_{i,t} + b_6SandP500_{i,t} + b_7Volat_{i,t} + b_8Size_{i,t} + b_9TO_{i,t} + b_{10}Rov_t + b_{11}Bk/Mk_{i,t} + b_{12}Divyldchg_{i,t} + b_{13}Divyld_{i,t}$ (for Appreciated_ST and LT) + Year Dummies $_t$ + Industry Dummies $_{i,t} + e_{i,t}$ (EQ. 1)					
Variable	Dividends		Stock Price Appreciation		
	Expected Sign	Dividend Yield	Expected Sign	Short (1yr)	Long (4yr)
Intercept		0.004		6.029	-22.921
Tra	-	-0.008***	+	3.204***	2.508
Ded	?	-0.004***	+	1.419	3.822**
Qix	+	0.007***	?	-2.505***	-1.443
Beta	-	-0.003***		-1.176***	-4.125***
Debt		0.000		0.027	-0.215
SandP	+	0.002***		0.399	3.137***
Volat	-	-0.002		-0.832**	-2.817
Size	+	0.001***	+	2.080***	3.246***
TO		-0.001***		0.991***	0.841***
Rov		-0.000		-6.671***	-11.222***
Bk/Mk		0.003***		-2.354***	-5.035***
Divyldchg		0.453***		61.240**	-3.631
DivYld		N/A	-	-	-18.614
Intercept		Yes		Yes	Yes
Year fixed		Yes		Yes	Yes
Industry fixed		Yes		Yes	Yes
Adj. R		0.4559		0.5465	0.4659
N		11,710		4,729	6,123
Unique firms		2,748		1,909	1,940

* , ** , *** denotes significance at the 10%, 5%, and 1% levels, respectively. This table represents the results of multiple regression (EQ1) that examines the impact of institutional investors on portfolio holdings during the sample period 1993-2002. Variable Definition provided in Appendix 3-A.

Table 3-5
Regression Results – Type of Stock Holdings and Institutional Investment around
Tax Acts

Dependent Variable i,t (DivYield or Appreciated_ST or Appreciated_LT) = $a_0 + b_1Inst_{i,t} + b_2RRA93_t + b_3Tra_i * RRA93_t + b_4Ded_i * RRA93_t + b_5Qix_i * RRA93_t + b_6TRA97_t + b_7Tra_i * TRA97_t + b_8Ded_i * TRA97_t + b_9Qix_i * TRA97_t + b_{10} DivYield_{i,t}$ (for Appreciated_ST and LT) + $\sum Controls_{i,t} + \sum Year\ Dummies_t + \sum Industry\ Dummies_{i,t} + e_{i,t}$ (EQ. 2)					
	Dividends		Stock Price Appreciation		
Variable	Expected Sign	Div. Yield	Expected Sign	Short	Long
Intercept		-0.004		2.069	-14.972
Tra		-0.000		-0.016	3.182
Ded		-0.001**		-1.998	0.664
Qix		0.002***		-4.760***	-1.930
RRA93	-	-0.001		5.983***	-9.189***
Tra _i *RRA93	-	-0.009***		1.044	-2.987
Ded _i *RRA93		0.002		7.226 ***	2.240
Qix _i *RRA93	+	0.005***		2.396	4.621
TRA97	-	-0.003	-	-1.882	-8.048***
Tra _i *TRA97	-	-0.004**	+	9.085***	1.150
Ded _i *TRA97	-	-0.003**	+	3.608	7.682**
Qix _i *TRA97	+	0.004***	?	1.613	-2.161
Beta		-0.003***		-1.847***	-4.067***
Debt		0.000		0.051	-0.238*
SandP		0.002***		0.256	2.564**
Volat		-0.002		-0.010	-2.843
Size		0.002***		2.140***	3.553***
TO		-0.001***		1.166***	0.918***
Rov		-0.000		-7.878***	-9.473***
Book/Mkt		0.003***		-2.666***	-4.209***
DivYld		N/A		-72.324 ***	-24.175
Divyldchg		0.451**		43.510**	-4.130
Year FE		Yes		Yes	Yes
Industry FE		Yes		Yes	Yes
Adj. R ²		0.4566		0.5619	0.6227
N		11,710		4,729	9,139
Unique Firms		2,748		1,910	2,318

*, **, *** denotes significance at the 10%, 5%, and 1% levels, respectively. This table represents the results of multiple regression (EQ2) that examines the impact of institutional investors on portfolio holdings around tax acts during the sample period 1993-2002. Variable Definitions provided in Appendix 3-A.

Appendix 3-A: Definition of Variables

Tra	Percentage of common shares owned by transient institutional investors.
Ded	Percentage of common shares owned by dedicated institutional investors.
Qix	Percentage of common shares owned by quasi-indexer institutional investors.
Divyld	Dividends per share – Exdate – Quarter (dvpsxq), summed for the calendar year divided by price-close calendar year (prcc_c). Low-dividend firms with dividend yield less than 0.5% are removed from the sample.
Appreciation_ST	One year delta in share price close calendar year [prcc_c – lag(prcc_c)].
Appreciation_LT	Four year delta in price close calendar year [prcc_c – lag4(prcc_c)].
RRA93	Indicator variable, taking the value of 1 for quarters beginning January 1, 1993 and ending December 31, 1996. [Dhaliwal et al. 2003 uses 1993-1996]
TRA97	Indicator variable, taking the value of 1 for quarters beginning January 1, 1997 and ending December 31, 2000. [Ayers, Lefanowicz and Robinson 2005 uses May 7, 1997 – 2000] [Dhaliwal et al. (2003) uses 1997 and 1998]
Tra*RRA93, Ded*RRA93, Qix*RRA93	Interaction of RRA93 with cluster of institutional investors.
Tra*TRA97, Ded*TRA97, Qix*TRA97	Interaction of TRA97 with cluster of institutional investors.
Beta	Beta is measured by regressing monthly raw returns on the return to a value-weighted market portfolio over a 36-month window. Beta is the average monthly beta for the quarter.
Debt	Leverage is measured as the sum of long-term debt (dlttq) and current debt (dlcq) for the quarter scaled by market value of shares outstanding (prcc_c*cshoq).
SandP	Firm is member of SandP 500 during sample period.
Volat	Variance of monthly holding period returns for the quarter.
Size	Natural log of market value of shares outstanding.
TO	Turnover is average volume [vol] divided by average shares outstanding [shrout] for the quarter.
Rov	Return on value is ordinary income before income taxes [oibdpq-dpq] divided by market value of shares outstanding for the quarter.
Bk/Mk	Book-to-market ratio.
Divyldchg	Change in dividend yield from the prior year. Dividend yield is calculated as dividends per share [sum of dvpsxq] divided by share price at close of calendar year [prcc_c].
Industry	Fama French Industry.

4: Market Reaction to Tax Law Changes: Examination of Firms with Institutional Ownership

4.1 Introduction

Tax treatment of capital gains and stock trades received recent attention as Congress considers extension of the 15% rate on capital gains and dividends (e.g. Corbin 2012, Waddell, 2012, Sinai 2012). Proponents of extending the Bush-era tax cuts warn that increasing rates would create unintended consequences, such as investors shifting assets to avoid paying more taxes (Corbin 2012) and a projected decline in the SandP 500 Price Index (Sinai, 2012). Consistent with investors selling assets to avoid paying higher capital gains rates, investment advisors are suggesting current recognition of long-term gains to take advantage of low capital gains taxes in 2012 (Kent, 2012). Market sell-offs by investors would lead to excess supply in the markets, temporarily reducing stock prices. This phenomenon includes institutions such as mutual funds who might engage in selling stocks to take advantage of tax breaks (Gibson et al., 2003).

Academics have long been intrigued by the relationship of share price and taxes. Spanning several decades research has examined the relationship between shareholder-level taxes and share prices (e.g. Miller and Modigliani, 1961, Black and Scholes 1974, Poterba and Summers 1985, Erickson and Maydew 1998, Zodrow 1999, Collins and Kemsley, 2000, Lang and Shackelford, 2000). When tax regimes alter dividend taxes or capital gains rates, the effect on share price depends on a number of things including the relative difference in the dividend and capital gains rates, dividend yield, and the tax status of the marginal investor (Ayers, Cloyd, Robinson, 2002).

In this study we consider the impact of institutional investment on share price around modifications to shareholder-level taxes. Institutional investment has been

shown to positively lead stock prices toward fundamental values (Gibson et al. 2003). Two prominent explanations for institutional investment affecting firm valuation are information advantage and momentum trading (Sias et al. 2006, Sias 2007). Information advantage stems from larger portfolio holdings by institutional investors creating economies of scales in investment research (D'Souza et al. 2010, Gibson and Safieddine, 2003). Momentum trading relates to the association of large levels of institutional holdings and share turnover (Chordia, et al. 2011) leading to rally and reversal patterns in stock returns (Sias 2007). Given the impact institutional investment in the market, we treat the institutional investor as the marginal investor in our study around tax law changes.

We use event study methodology to study returns for firms held by institutions around two tax acts that changed rates on dividends or capital gains: the Revenue Reconciliation Act of 1993 (hereafter, RRA93) increased the tax rate on dividends and the Taxpayer Relief Act of 1997 (hereafter, TRA97) decreased the tax rate on capital gains¹⁴. Both tax laws had the effect of widening the tax penalty on dividends relative to capital gains. By design, event studies require the examination of short period price movements. Accordingly, we study market reaction for the week during which the tax legislation was passed by Congress.

The likely impact of these tax changes on stock price has been explored with aggregate institutional investment used as a proxy for the marginal tax-exempt investor (e.g. Ayers, Cloyd and Robinson 2002; Cook 2006; Lang and Shackelford 2000, Dai,

¹⁴Historically capital gains rates have been lower than dividends. The rates were equalized in 2003 with the Jobs Growth Tax Relief Act of 2003. Capital gains tax rates dropped from 20% to 15% and dividend tax rates from 39% to 15%. We exclude this event from our study because of issues around trying to disentangle the two changes.

Maydew, Schackelford, Zhang 2008). We contribute to this stream of literature by disaggregating institutional investment based on differences in investment horizon and portfolio diversification. We partition institutional investment into three clusters identified by Bushee (1998), transient, dedicated and quasi-indexer. Transient institutions have short-investment horizons and highly diversified portfolios. Dedicated have long-investment horizons characterized by relationship investing in a few selected firms (D'Souza et al. 2010). Quasi-Indexers have long investment horizons in well-diversified portfolios (Bushee 2001). Our purpose is to analyze the impact of clusters of institutional investment on cumulative abnormal returns around changes to shareholder-level tax rates.

There is a widening of the gap between tax on dividends and capital gains for both tax regimes we investigate. For RRA 1993 the gap widens due to an increase in the ordinary income tax rate, for TRA97 the disparity grows due to a decrease in the capital gains rates.¹⁵ While we do not find consistent evidence on the impact of short-term institutional investors (i.e. Transient) on stock price when the dividend penalty widens, we find evidence that long-horizon investors affect share prices. For the Dedicated group, we find a positive impact on stock prices of non-dividend paying firms when the dividend penalty increases and downward price pressure for high-dividend yield firms when capital gains decrease. We conjecture this price movement is indicative of portfolio rebalancing by the dedicated institutions. A shift in portfolio composition is consistent with research that show capital gains taxes hamper optimal portfolio allocations (Chyz

¹⁵ Prior to RRA 1993 the tax rate on dividends was 31% and capital gains was 28% , a dividend penalty of 3%. RRA 1993 raised the rate on dividends to 39% and left the capital gains rate at 28% widening the gap to 11%. TRA 1997 decreased capital gains rates to 20% and left dividend tax rates unchanged at 39%, widening the gap to 19%.

and Li 2012 , Klein 1999). For the quasi-indexer group we find stock price reaction is not tied to the relative difference in the capital gains rates and dividends (i.e. the dividend tax penalty) but simply moves with rates on dividends. We find Quasi-indexers in high-dividend yield firms is associated with positive abnormal returns around RRA93. These findings are consistent with quasi-indexers sensitivity to prudent man standards requiring investment in dividend paying firms (Del Guercio 1996).

The contribution of this paper is two-fold. First, we provide a more complete picture of institutional investors' impact on stock prices related to changes in shareholder-level taxes. Second, we weigh-in on the subject of how institutional investors view components of the dividend tax penalty by testing the relative difference in market reaction to dividend rate increases compared to capital gain rate decreases.

The organization of this paper is as follows: The next section provides a literature review of market reaction to tax law changes and institutional investor trading strategies. Section 3 develops and describes the hypotheses and research design. Section 4 provides a description of the sample and results. Section 5 concludes.

4.2 Literature Review

4.2.1 Shareholder-Level Taxes

We first consider the alternative theories of how shareholder-level taxes on dividends affect market value. According to the traditional view (aka capitalization theory), dividend distributions from taxed corporate earnings result in a second level of taxation that increases the cost of capital and thus reduces investment (Zodrow, 1991, Poterba and Summers, 1985). Capitalization theory predicts stock prices will go down for dividend paying firms when dividend tax rates increase because the cost of capital

rises. Consistent with this view recent research provides evidence dividend taxes affect security returns (e.g. Ayers et al. 2002; Lang and Shackelford, 2000; Dhaliwal, Li and Trezenvant, 2003). Ayers et al. (2002) shows a negative relationship between stock prices and high dividend yield firms when dividend tax rates increase. Lang and Shackelford (2000) find the increased dividend tax penalty resulting from reduction in capital gains taxes was capitalized into the return on a firm's common stock. Dhaliwal, Li and Trezenvant (2003) sort observations from 1989 – 1998 into book-to-market portfolios and find an increasing dividend tax penalty in RRA1993 and TRA1997 and this penalty is incorporated into the return on a firm's common stock. To the extent the dividend tax penalty is capitalized into stock price, stocks with higher dividends will trade at lower price however the effect is dependent on risk tolerance of the investor (Guenther and Sansing 2010).

An alternative theory of market reaction to dividends is the 'new view'. The new view theory (aka the trapped equity model) assumes both dividend payments and new investment are financed from retained earnings. For investment financed by retained earnings the shareholder gives up dividends today in return for higher dividends in the future. The implication of the new view is dividend taxes are not linked to cost of capital or stock prices because all taxes are already impounded into price (Hanlon and Heitzman 2010). Under the new view, an increase in the level of dividend taxation paid by shareholders has no effect on the cost of capital as dividends are paid only if cash flow exceeds attractive investment opportunities (Auerbach, 1979, Bradford 1981). A criticism of the new view is that dividend policy is sticky, which is inconsistent with the new view implication that dividends are merely the residual.

Capitalization theory is applicable to both dividends and capital gains: Lang and Shackelford (2000) find a cut in capital gains taxes enhances market value for non-dividend paying stocks significantly more than for dividend paying stocks. Desai and Jin (2011) show proportion of 'dividend averse' institutional shareholders increasing around the RRA 1993 and TRA 1997 tax regimes and the market reaction to dividend tax hikes is more negative for dividend-averse institutions in high-dividend yield firms.

An alternative theory for market reaction to capital gain tax reduction is lock-in theory. Lock-in theory stems from investors' opportunity to delay capital gains taxes by not selling appreciated share and predicts that share prices will drop with decreases in capital gains taxes because shareholders become more willing to sell appreciated stock (Klein, 1999). Excess selling around tax cuts increase supply for stock and price goes down. Dai et al. (2008) analyze the market reaction to cuts in capital gains taxes for TRA 1997 and find an increase in both demand and supply resulting in ambiguous effect on stock prices.

Evidence from price changes around tax law announcements is consistent with dividend taxes being capitalized into price, and with the capitalization varying with dividend yield and ownership structure (Hanlon and Heitzman 2010). In aggregate, the presence of institutional shareholders has been found to lessen negative market reaction to increases in dividend taxes (Ayers et al. 2002), depending on the tax-sensitivity of the institution (Auerbach and Hassett 2007).

4.2.2 Institutional Investment

From a tax standpoint, institutional investors exhibit heterogeneity ranging from tax-exempt for charitable endowments and universities to tax-favored due to long-range deferral for participants in retirement plans to tax-disadvantaged due to currently taxable shareholders in mutual funds (Moser and Puckett 2009). Recent market reaction studies related to tax regimes use institutional investors to proxy for the marginal tax-exempt investor (e.g. Dhaliwal et al. 2003, Ayers et al. 2002). Dhaliwal, Li, and Trezevant (2003) document a mitigating of the return premium on high dividend stock if the marginal investor is in the “low-tax” range. Low-tax is measured as institutional and corporate investment. Including changes in tax regimes over the period 1989 – 1998, they find the relative size of the return premium is associated with the relative size of the tax penalty on dividends compared to capital gains. Similarly Ayers et al. (2002) find the increased dividend tax rate resulting from RRA 93 is capitalized into the return on a firm’s common stock and institutional holdings lessen this negative reaction. The level of institutional ownership is proxy for the likelihood that a stock’s marginal investor has a low-tax rate status.

Trading characteristics of institutional investors and the impact on share prices are the subject of recent research (e.g. Bhattacharya, 2001; Campbell et al. 2009).

Institutional traders’ information superiority has been associated with profitable trading around earnings announcements (Bhattacharya 2001) due to longer price discovery process for small traders than for large traders (Ayers, Li, and Yeung 2011). Trading behavior of institutions has been found to differ depending on investment horizon and portfolio diversification. Over short periods, institutional investors have been shown to

buy stocks that have recently done well and sell those that have done poorly. However over longer periods institutions trade in a contrarian manner, buying stocks that have done poorly over the past few months (Campbell et al., 2009. Shanthikumar 2003).

Jin (2006) finds both dividend and capital gain taxes influence trading patterns of institutional investors. Specifically tax sensitive institutions hold lower dividend-yield stock, and in the presence of capital gains tax overhang, tax-sensitive institutions trade less frequently. Cook (2006) employs event-study methodology during the TRA97 event week announcing capital gain cuts and finds firms with institutional marginal investors experienced higher returns than firms with individual marginal investors. The role of institutional holdings around capital gains tax cuts is dependent on dividend yield. Dhaliwal et al. (2003) reports negative and significant estimated coefficients on the interaction term between dividend yield and the level of institutional and corporate ownership for stock return observations that fall in the TRA97 tax regime. When capital gains rates decrease, Chyz and Li (2012) find results consistent with increased selling for the dedicated institutional group.

4.3 Hypothesis and Model Development

Recent research analyzes the market reaction of tax regime changes to shareholder – level taxes using institutional investment as a proxy for tax exempt or tax preferred status. Our empirical analysis is based on the observation that institutions are heterogeneous from a tax standpoint (Shevlin 2007) and a trading stand point (Campbell et al. 2009, Jin Li 2006, Chyz and Li 2012). Using clusters of institutional investment

based on portfolio diversification and investment horizon (Bushee 1998), we expect trading around tax law changes to result in different market reaction for clusters.

Consistent with the traditional view, when dividend penalty increased in RRA93 and TRA97, we expect stock prices for high-dividend yield firms to decline. When we consider institutional impact on high-dividend yield shares, we expect transient with short-term horizons and small stakes in many firms to act in a contrarian manner to take advantage of temporary shifts in the market resulting in positive cumulative abnormal returns. We expect long-horizon clusters Quasi-indexers and Dedicated to exhibit diverse trading patterns following changes in the dividend penalty. Given requirements of “safe” investments (Del Guercio, 1996) we expect quasi-indexers to buy more stock in dividend paying firms resulting in positive cumulative abnormal returns. We expect dedicated, as blockholders with highly concentrated portfolios to divest of high-dividend yield stocks consistent with Dhaliwal et al. (2003) who find institutional holdings in high-dividend firms is associated with negative returns around TRA97 and Chyz and Li (2012) who find tax sensitive institutions holding less portfolio value in dividend paying stock and stock with higher dividend yields (p. 608). Block sales have been found to temporarily depress stock prices (Holthausen, et al. 1987, Campbell, et al. 2009). As such we expect negative cumulative abnormal returns for high-dividend yield stocks held by dedicated institutions.

H1a: For Transient investment in high-dividend yield firms we expect a positive market reaction to RRA93 and TRA97 as this group takes advantages of temporary bargains in the market

H1b: For Quasi-Indexer investment in high-dividend firms we expect a positive market reaction for RRA93 and TRA97 as this group buys attractive dividend paying “safe” stocks in consideration of prudent man rules.

H1c: For Dedicated investment in high-dividend yield firms we expect a negative market reaction for RRA93 and TRA97 as this group rebalances portfolios due to the widening dividend penalty.

Research design:

To test our hypotheses, we estimate the following cross-sectional regression:

$$CAR_{it} = b_0 + b_1 Div_i + b_2 Event_t + b_3 Inst_{it} + b_4 (Div_i * Event_t) + b_5 (Div_i * Inst_{it}) + b_6 (*Event_t * Inst_{it}) + b_7 (Div_i * Event_t * Inst_{it}) + b_8 Profit_{it} + b_9 Debt_{it} + b_{10} Bk/Mkt_{it} + b_{11} Size_{it} + b_{12} Beta_{it} + Industry Dummies_{i,t} + e_{it} \quad (EQ1)$$

Where :

CAR is the sum of each sample firm’s daily market model abnormal returns estimated by regressing firm daily returns on the CRSP value weighed market index.

DIV is an indicator variable equal to 1 for high-yield for the fiscal year ending prior to January 1993 for RRA93 event and January 1997 for TRA97 event, and 0 for non-dividend paying firms. High-yield is determined as the top three deciles of dividend yield (Ayers et al. 2003).

Event is an indicator variable equal to 1 for the RRA93 event for the week of August 3-9, 1993 and 0 for the control window. The control window for RRA93 is the five week period prior to August 3, 1993. The Indicator variable is equal to 1 for the TRA97 event for the week of April 29 – May 5, 1997 and 0 for the control window. The control window for TRA97 is the five week period prior to April 29, 1997.

Inst is the percentage of common stock held by aggregate institutional investors at December 31, 1992 for the RRA event and December 31, 1996 for the TRA event. In the

second model specification, Inst. is the percentage of common stock held by total institutional investors. In the third model specification, institutional investment is clustered into the percentage of common stock at December 31, 1992 (RRA93) and December 31, 1996 (TRA96) held by Transient, Dedicated and Quasi-indexers (Quasi) based on Bushee classifications.

Div * Event is the interaction of high-dividend yield firms during the event window. For both tax regimes the dividend penalty is larger. We expect negative coefficients on this interaction term.

Div * Inst is the interaction of high-dividend yield firms with institutional investment.

Event * Inst is the interaction of institutional holdings around the event window for non-dividend paying firms.

Div * Event * Inst is the three-way interaction of high-dividend yield firms during the event window with institutional investment. In total institutions have been shown to mitigate the negative impact of dividend tax increases (Ayers, et al. 2002). Accordingly For RRA93, we expect this to be positive.

Control variables for profitability, leverage, growth, size, and volatility are calculated using variables for the fiscal year-ended prior to January 1993 for RRA1993 event and January 1997 for TRA 1997 event and scaled by firm market value ($prcc_c * csho$) at December 31, 1992 (RRA93) and December 31, 1996 (TRA97).

Profit is Income before extraordinary items (Compustat variable: IB) scaled by market value.

Debt is Total liabilities (LT) scaled by market value.

Growth is Book to market value

Size is Natural log of market value.

Beta is 36 month window market model beta using value-weighted returns.

Industry is indicator variables based on classifications developed by Fama and French (1997).

We use event study methodology to investigate whether the increasing dividend tax penalty associated with RRA93 and TRA97 affected share prices. We estimate abnormal returns for each sample firm using daily-price level data from CRSP, a standard

market-model and CRSP value-weighted index (Cowan 2007). Next we cumulate daily returns using a one-week event window beginning three days prior to the event date and ending three days after the event date. To be included in the sample, the firm must have complete price information on the CRSP database to calculate returns during the market model estimation period of 255 days, ending 46 trading days before the event date.

For RRA93 the event period is August 3, 1993 through August 9, 1993.¹⁶ The event period includes approval in both the House and Senate. For TRA97 we use the one-week event April 29 – May 5, 1997 which includes the May 2 announcement of an agreement between President Clinton and Congressional leaders to reduce the capital gains tax rates.¹⁷ We control for the relationship between institutional investment and stock returns outside the event window by cumulating abnormal returns over five weekly control periods before the event period. Our regression includes six cumulative abnormal return estimates for each sample firm, with five control observations preceding the tax-event observation.

Insert Table 1 here.

Following Erickson and Maydew (1988) and Ayers, Cloyd and Robinson (2002), we restrict our sample to high-dividend yield common stock because such stock should bear the most implicit tax and be the most impacted by the proposed change in the dividend tax penalty. This restriction may make it more difficult for us to find results as the safe harbor for prudence is the payment of regular dividends, not their magnitude (Hankins, et al. 2008). We aim to test for the tax impact of institutional investment on

¹⁶ Ayers, et al. (2002) use the same event period for RRA 1993.

¹⁷ Lang & Shackford (2002) and Cook (2006) use the same event period for TRA 1997.

changes to the dividend penalty; accordingly we remove the low-dividend firms. Specifically we remove dividend-paying firms not ranked in the top three deciles of dividend yield (consistent with Ayers, Cloyd, Richardson, 2002).

Our institutional investment measure is a continuous variable capturing the percentage of a firm's common shares outstanding owned by institutional investors. We obtain institutional investor information from Thompson Financial 13F database and common shares outstanding from Compustat. To sort institutions into portfolio diversity and trading horizons, we use classifications provided by Brian Bushee, and described by Bushee and Noe (2000) and Bushee (1998, 2001).

We control for firm characteristics that may be associated with stock returns during the sample period. Our controls for profitability, growth, size, debt have been used in prior event studies (e.g. Ayers et al. 2002, Lang and Shackelford 2000, Cook 2006). All our controls are measured as of the prior fiscal year-end and deflated by firm market value at the calendar year-end prior to the tax act, unless otherwise noted. We describe firm profitability (Profit) as the firm's return on value, defined as the firm's net income before extraordinary items. We require firms to have positive profits and total assets greater than total liabilities to remove distressed firms. Distressed firms present ambiguity in interpreting results due to the possibility distressed firms have high dividend yields due to low share price (Erickson and Maydew 1998).

We represent firm growth as book-to-market ratios (Bk/Mkt) to control for differences in expected growth and risk across firms. We control for differences in firm size (Size) using the log of market value. We represent firm leverage (Debt) as firm's total liabilities. Firms with total liabilities greater than total assets are eliminated due to

complications in analyzing the impact of negative book equity on share prices. In addition we control for volatility using rolling beta (Beta). Volatility is included to address concerns highlighted by Chetty, Rosenberg and Saez (2007) who caution the effects of large tax reforms are difficult to detect given the aggregate volatility of returns (p2). We control for variations in stock returns due to industry fixed effects using the Fama-French industry classifications, removing financials and utilities.

4.4 Sample and Empirical Results

4.4.1 Sample

We begin with a sample from Thompson Financial 13F database of institutional investor holdings for the period of the event to compute institutional ownership variables. The primary sample in this study consisted of 5,443 unique firms for RRA93 and 6,160 for TRA97. Combining institutional investor information with Bushee classification reduced the sample to 2,617 for RRA93 and 3,361 for TRA97. Combining clusters of institutional data with common identifiers in Compustat to compute common shares outstanding, profit, book value, debt, dividend yield and CRSP to compute market value, beta the sample is 1,654 for RRA93 and 1,534 for TRA97. The final sample is about six observations per firm, including the event and control period, totaling to 9,887 and 9,145 firm—week observations for RRA93 and TRA97 respectively.

Insert Table 2 here

We provide descriptive statistics and correlation matrix by tax law in Table 3. Comparing institutional ownership over time we see an increase from 1993 to 1997 percentages consistent with the Conference Board Annual Report (Tonello and Rabimov

2010)¹⁸. We see a significant negative correlation between cumulative abnormal returns and dividend yield consistent with the market capitalizing the dividend penalty into asset prices. We find all clusters of institutional investors are positively correlated with the other clusters¹⁹.

Insert Table 3 here

4.4.2 Dividend Tax Rate Increase

Table 4 provides results of H1: the regression of dividend yield and institutional investment on cumulative abnormal returns for the dividend increase in RRA 1993. Consistent with the traditional view, when dividend penalty increased in RRA 1993 we find stock prices for high-dividend yield firms decline (the coefficient on the interaction term $Div * Event$ is negative). Individuals sell high dividend yield stocks resulting in negative returns for high dividend yield firms around passage of tax acts. We find Quasi-indexers are associated with positive cumulative abnormal returns around RRA 1993 in high dividend yield firms (the coefficient on the interaction term $Div * Event * Quasi$ is positive), consistent with our expectations that prudent man standards encourage investment in dividend paying firms (H1b is supported). Contrary to our expectations, Transient and Dedicated are not associated with share prices in high dividend yield firms (H1a and H1c are not supported). However, we find Dedicated Investors are associated

¹⁸ The Conference Board, A Not for Profit Organization, issues the Institutional Investment Report annually. The 2010 Conference Board Annual Report of Institutional Investors is available on SSRN : Abstract = 1707512.

¹⁹ To detect collinearity in a multivariate context we analyze VIF (variance inflation factors). Values are in the range from 1.5 to 7 with two slightly higher values: the two-way interaction of $Quasi * RRA93$ event has a VIF score of 8.04 and the three-way interaction $Quasi * TRA97 * Div$ has a VIF score of 7.22. Although on the high side, these values are below the “harmful collinearity” value of 10 suggested by Kennedy (2003) causing us to conclude collinearity is not a serious problem in our study.

with positive cumulative abnormal returns for non-dividend paying firms (coefficient on interaction of *Event * Dedicated* is positive). This significant result for dedicated investors supports capitalization of the dividend tax penalty when dividend taxes increase.

Insert Table 4 here

4.4.3 Capital Gains Tax Rate Decrease

Table 5 provides results of H1 testing the impact on cumulative abnormal returns for the capital gains tax decrease in TRA 1997. Analyzing market reaction to passage of tax cuts in TRA1997, we find results consistent with the market interpreting capital gains tax cuts as positive news: the average firm in our sample experienced positive cumulative abnormal returns during the event week (the coefficient on *Event* is positive). Non-dividend paying firms outperformed high-dividend firms (the interaction term *Div*Event* is negative) consistent with prior literature (Lang and Shackelford 2000, Cook 2006).

For institutional clusters, we find similar results to RRA93; Non-dividend paying firms with dedicated institutional investors experienced a more-favorable stock price reaction (interaction of *event*dedicated* is positive) during the event week. This result holds to a lesser extent for transient institutions (interaction of *event * transient* is positive).

For high-dividend yield firms, dedicated institutions are associated with negative share returns(coefficient on *Div*Event*Dedicated* is negative), consistent with selling. Considering this negative result occurred only for TRA97 when capital gains taxes

decreased, we conjecture dedicated investors sold stock due to a lessening of the lock-in effect (Chyz and Li 2012).

Insert Table 5 here

We cannot observe the exact makeup of investors around the event week due to data limitations. Data for institutional investment is available on a quarterly basis due to 13-F filing requirements. It is plausible our lack of results for the short-horizon investor group transient relates to this data limitation.

4.5 Conclusion

In this study we consider the impact of institutional investment on share price around modifications to shareholder-level taxes. This study is important considering the approaching sunset of the Bush-era tax cuts and the effect this could have on the stock market for firms held by institutional investors. We draw upon finance literature that proposes shareholder-level taxes on dividends and capital gains impact market value. We use event study methodology to study stock prices for firms held by institutions around the Revenue Reconciliation Act of 1993 and the Taxpayer Relief Act of 1997.

Disaggregating institutions into clusters based on investment horizon and portfolio diversification we find quasi-indexers with long investment horizons and highly diversified portfolios are largely responsible for mitigating negative market reaction for high-dividend yield firms in 1993 when the dividend penalty increases. When the dividend penalty widens further in 1997 we find dedicated blockholders intensify negative market reaction for high-dividend yield firms and strengthen positive market

reaction for non-dividend paying firms. We conclude our results are consistent with dedicated institutions rebalancing investment portfolios to more optimal tax positions due to lessening of the lock-in effect similar to the tax-motivated trading behavior of individuals.

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4.7 Tables and Appendices

Table 4-1: Key Event Dates for Tax Policy Changes

Tax Act	Event Date	Event Window	Control Window
RRA 93	8/6/1993	8/3 – 8/9	6/29 – 8/2
TRA 97	5/2/1997	4/29 – 5/5	3/25 - 4/28

Table 4-2: Sample Selection

	RRA 1993	TRA 1997
Unique firms in Thompson 13F for event.	5,443	6,160
Remove firms due to lack of Bushee classification as Transient, Dedicated or Quasi-Indexer	(2,826)	(2,799)
Remove firms lacking a complete set of controls (including Compustat, CRSP, or in financial or utility industries).	(963)	(1,827)
Unique Firms	1,654	1,534
Firm-week observations (including event period and pre-event control period).	9,887	9,145

Table 4-3: Panel A: Descriptive Statistics and Correlation Matrix

Variable	RRA 1993		TRA 1997	
	Mean	Median	Mean	Median
Totpct	0.472	0.445	0.611	0.666
Trapct	0.075	0.025	0.142	0.048
Dedpct	0.120	0.043	0.173	0.045
Qixpct	0.299	0.262	0.411	0.410
Divyld	0.029	0	0.040	0
Profit	0.058	0.050	0.060	0.052
Debt	0.688	0.382	0.616	0.342
BK/MKT	0.536	0.443	0.508	0.420
Size	5.241	5.074	5.392	5.161
Beta	0.767	0.706	0.575	0.501
N	9,887		9,145	
Variable Definitions provided in Appendix 3-A.				

Panel B: Correlation Matrix

RRA 1993	CAR (-3. +3)	Divyld	Totpct	Trapct	Dedpct	Qixpct
CAR (-3. +3)	1					
Divyld	-0.03***	1				
Totpct	0.03 ***	-0.18***	1			
Trapct	0.01	-0.03***	0.65***	1		
Dedpct	0.02***	-0.10***	0.69***	0.48***	1	
Qixpct	0.03***	-0.27***	0.86***	0.42***	0.38***	1

TRA 1997	CAR (-3. +3)	Divyld	Totpct	Trapct	Dedpct	Qixpct
CAR (-3.+3)	1					
Divyld	-0.07***	1				
Totpct	0.02 **	-0.17*	1			
Trapct	0.02*	+0.07***	0.66***	1		
Dedpct	0.04***	-0.06***	0.71***	0.49***	1	
Qixpct	0.03***	-0.09***	0.83***	0.39***	0.37***	1

*, **, *** denotes significance at the 10%, 5%, and 1% levels, respectively. This table reports Spearman correlations. Variable Definition provided in Appendix 4-A .

Table 4-4: Revenue Reconciliation Act of 1993 (RRA 1993) – Regression Results

Pooled, Cross Sectional OLS Regression of CARS (-3, 3) on Dividends and Institutional Investment.

$CAR_{it} = b_0 + b_1 Div_{it} + b_2 Event_{it} + b_3 Inst_{it} + b_4 (Div_{it} * Event_{it}) + b_5 (Div_{it} * Inst_{it}) + b_6 (Event_{it} * Inst_{it}) + b_7 (Div_{it} * Event_{it} * Inst_{it}) + b_8 Profit_{it} + b_9 Debt_{it} + b_{10} Bk/Mkt_{it} + b_{11} Size_{it} + b_{12} Beta_{it} + Industry Dummies_{it} + e_{it} \text{ (EQ1)}$				
Variables		Basic Model	Inst: Total	Inst: Clusters
Intercept	b_0	-0.010	-0.013 *	-0.012 *
Div	b_1	0.004 *	0.013 ***	0.011 ***
Event	b_2	0.009 ***	0.010	0.009 *
Inst	b_3		0.011 **	
Transient				0.010
Dedicated				0.011
Quasi				0.007
Div * Event	b_4	-0.011 ***	-0.017 **	-0.019 ***
Div * Inst	b_5		-0.018 ***	
Div * Transient				0.004
Div * Dedicated				-0.011
Div * Quasi				-0.017 **
Event * Inst	b_6		-0.001	
Event * Transient				-0.004
Event * Dedicated				0.026 *
Event * Quasi				-0.011
Div * Event * Inst	b_7		0.011	
Div * Event * Transient				-0.004
Div * Event * Dedicated				-0.022
Div * Event * Quasi				0.032 *
Profit		-0.023 ***	-0.023 ***	-0.023 ***
Debt		0.002 ***	0.002 ***	0.002 ***
BK/MKT		-0.001	-0.002	-0.002
Size		0.000	0.000	0.000
Beta		-0.002	-0.003	-0.003
Industry Fixed Effects		Yes	Yes	Yes
Adjusted R ²		0.01036	0.01187	0.01224
Observations		9886	9886	9886
Unique Firms		1654	1654	1654

*, **, *** denotes significance at the 10%, 5%, and 1% levels, respectively. This table presents the results of multiple regression (EQ1) that examines the impact of dividends and institutional investment on cumulative daily abnormal returns (CAR) around the passage of the Revenue Reconciliation Act of 1993. Standard errors are clustered by firm, p-values are based on two-tail tests. Variable Definitions are provided in Appendix 4-A.

Table 4-5: Taxpayer Relief Act of 1997 (TRA97) Regression Results

Pooled, Cross Sectional OLS Regression of CARS (-3, 3) on Dividends and Institutional Investment.

$CAR_{it} = b_0 + b_1 Div_i + b_2 Event_t + b_3 Inst_{it} + b_4 (Div_i * Event_t) + b_5 (Div_i * Inst_{it}) + b_6 (*Event_t * Inst_{it}) + b_7 (Div_i * Event_t * Inst_{it}) + b_8 Profit_{it} + b_9 Debt_{it} + b_{10} Bk/Mkt_{it} + b_{11} Size_{it} + b_{12} Beta_{it} + Industry Dummies_i + e_{it} \text{ (EQ1)}$				
Variables		Basic Model	Inst: Total	Inst: Clusters
Intercept	b_0	-0.041 ***	-0.038 ***	-0.039 ***
Div	b_1	0.009 ***	0.005	0.005
Event	b_2	0.035 ***	0.018 **	0.024 ***
Inst	b_3		-0.007 *	
Transient				-0.004
Dedicated				-0.010
Quasi				-0.002
Div * Event	b_4	-0.020 ***	-0.007	-0.016 *
Div * Inst	b_5		0.005	
Div * Transient				-0.013
Div * Dedicated				0.006
Div * Quasi				0.007
Event * Inst	b_6		0.027 ***	
Event * Transient				0.027*
Event * Dedicated				0.028 **
Event * Quasi				0.004
Div * Event * Inst	b_7		-0.021 *	
Div * Event * Transient				-0.019
Div * Event * Dedicated				-0.033 *
Div * Event * Quasi				0.010
Profit	b_8	-0.011	-0.011	-0.010
Debt	b_9	-0.001	-0.001	-0.001
BK/MKT	b_{10}	0.014 ***	0.014 ***	0.014 ***
Size	b_{11}	0.002 ***	0.003 ***	0.003 ***
Beta	b_{12}	0.008 ***	0.008 ***	0.008 ***
Industry Fixed Effects		Yes	Yes	Yes
Adjusted R ²		0.03243	0.03383	0.03459
Observations		9,145	9,145	9,145
Unique Firms		1,534	1,534	1,534
<p>*, **, *** denotes significance at the 10%, 5%, and 1% levels, respectively. This table presents the results of multiple regression (EQ1) that examines the impact of dividends and institutional investment on cumulative daily abnormal returns (CAR) around the passage of the Taxpayer Relief Act of 1997. Variable Definitions provided in Appendix 4- A.</p>				

Appendix 4-A: Definition of Variables

CAR	Sum of each sample firm's daily market model abnormal returns estimated by regressing firm daily returns on the CRSP value weighed market index.
DIV	Indicator variable equal to 1 for high-yield for the fiscal year ending prior to January 1993 for RRA93 event and January 1997 for TRA97 event, and 0 for non-dividend paying firms. High-yield is determined as the top three deciles of dividend yield (Ayers et al. 2003).
Event	Indicator variable equal to 1 for the RRA93 event for the week of August 3-9, 1993 and 0 for the control window. The control window for RRA93 is the five week period prior to August 3, 1993. The Indicator variable is equal to 1 for the TRA97 event for the week of April 29 – May 5, 1997 and 0 for the control window. The control window for TRA97 is the five week period prior to April 29, 1997.
Inst	Percentage of common stock held by aggregate institutional investors at December 31, 1992 for the RRA event and December 31, 1996 for the TRA event. In the second model specification, Inst. is the percentage of common stock held by total institutional investors. In the third model specification, institutional investment is clustered into the percentage of common stock at December 31, 1992 (RRA93) and December 31, 1996 (TRA96) held by Transient (Tra), Dedicated (Ded0 and Quasi-indexers (Quasi) based on Bushee classifications.
Div * Event	Interaction of high-dividend yield firms during the event window. For both tax regimes the dividend penalty is larger. We expect negative coefficients on this interaction term.
Div * Inst	Interaction of high-dividend yield firms with institutional investment.
Event * Inst	Interaction of institutional holdings around the event window for non-dividend paying firms.
Div * Event * Inst	Three-way interaction of high-dividend yield firms during the event window with institutional investment.
Control variables ²⁰	
Profit	Income before extraordinary items (Compustat variable: IB) scaled by market value.
Debt	Total liabilities (LT) scaled by market value.
Growth	Book-to-market value
Size	Natural log of market value
Beta	36 month window market model beta using value-weighted returns.
Industry	Indicator variables based on classifications developed by Fama and French (1997).

²⁰ Control variables for profitability, leverage, growth, size, and volatility are calculated using variables for the fiscal year-ended prior to January 1993 for RRA1993 event and January 1997 for TRA 1997 event and scaled by firm market value ($prcc_c * csho$) at December 31, 1992 (RRA93) and December 31, 1996 (TRA97).

5. Conclusions

5.1 Summary and Conclusions

This dissertation investigates the association between taxes and institutional investors. Institutional ownership is classified as transient, dedicated or quasi-indexer based on portfolio diversification and investment horizon. Transient investors have high portfolio diversification, high portfolio turnover&Display sensitivity to current earnings news. Dedicated investors have highly concentrated portfolios with low turnover&Display little sensitivity to current earnings news. Quasi-indexers have highly diversified portfolios with low turnover&Display contrarian trading strategies.

The first study (Chapter 2) titled “The Influence of Institutional Investment on Tax Aggressiveness” investigates the association between tax reporting aggressiveness and types of institutional ownership. The purpose is to broaden understanding of varying corporate governance styles of institutional investors around the issue of tax aggressiveness. Tax aggressiveness has been shown to increase shareholder value, but only when corporate governance is strong. The study uses discretionary permanent book-to-tax differences, temporary differences, and cash effective tax rates as proxies for tax aggressiveness.

Results of the first study show that firms with higher levels of transient institutional owners are more likely to engage in aggressive tax planning leading to permanent and temporary differences. These results are consistent with an ineffective corporate governance style hinged on trading for this short-term investor group. Results show firms with more quasi-indexer institutional ownership are less likely to engage in tax planning leading to permanent differences, but these results are sensitive to invariate time series

characteristics of the tax measures. These results are consistent with an effective governance style mandated by prudent man rules. Results show firms with high ownership by dedicated investors are not associated with the permanent tax aggressive measure that seeks to capture off-balance sheet financing and tax shelters. This finding is consistent with a corporate governance style that restrains management from engaging in extreme tax planning.

We conclude corporate governance styles differ among institutional investors as it relates to tax aggressiveness with dedicated and quasi-indexers investors providing the effective governance attributed to all institutional investors in prior studies. On the other hand, the short-term group, transient investors provide ineffective corporate governance leading firms to more tax shelters and off-balance sheet financing activities, a result that holds after controlling for prior year tax positions.

The second study (Chapter 3) titled “ The Tax Clientele Effect of Institutional Investment” empirically tests the impact of dividend and capital gains taxes on portfolio holdings of institutional investors. Portfolios with high-dividend yield stocks and appreciated share price are used to measure sensitivity to shareholder-level taxes. The sample is broken into time periods around Revenue Reconciliation Act of 1993 and Taxpayer Relief Act of 1997, legislation altering tax rates on dividend income or capital gains. Results show transient investors act similar to individuals when dividend taxes increase and lower investment in high dividend yield stocks. When capital gains decrease, both transient and dedicated institutions act similar to individuals and divest of high-yield stocks. Quasi-indexers do not display tax-sensitivity rather increase holdings of high-dividend stocks when the tax penalty on dividends worsens. These findings show

clusters of institutional investors rebalance portfolios in different ways following tax rate changes supports the notion of tax clienteles among institutional investors.

Drawing on finance literature that proposes shareholder-level taxes on dividends and capital gains impact market value, the third study (Chapter 4) titled “Market Reaction to Tax Law Changes: Examination of Firms with Institutional Ownership” considers the effect of institutional investment on share price around modifications to shareholder-level taxes. Using a short-window event study around the 1993 and 1997 Tax Acts, findings suggest institutional investors impact market returns. Quasi-indexers lessened negative market reaction to dividend tax rate hikes in 1993. For capital gains cut in 1997, dedicated investors intensify negative market reaction for high-dividend yield firms and strengthen positive market reaction for non-dividend paying firms. These results are consistent with the lock-in argument, with dedicated institutions rebalancing investment portfolios to more optimal tax positions when capital gain taxes decrease. These studies highlight the importance of considering differences among institutional investors when considering the issue of taxes.

5.2 Suggestions for Future Research

Given the results of the first study, future research should examine the impact of new disclosure requirements regarding book-to-tax differences on the corporate tax return and institutional investment. It could also be beneficial to use details of the book-to-tax difference to determine if the negative effect associated with transient investors is consistent with off-balance sheet financing and tax shelters or if there is alternative explanations.

The results of the second and third studies indicate changes in dividend and capital gains tax rates result in portfolio rebalancing for the dedicated and transient groups. Given the pending expiration of the Bush-era tax cuts, it would be interesting to extend the analysis through 2012, when the issue is resolved and the data becomes available.

6. Vita

Joy Lynn Embree (nee Krohn) was born February 1, 1960 at Wood County Hospital in Bowling Green, Ohio. She grew up near Neapolis, Ohio and graduated from Otsego High School in 1978 and from Oral Roberts University in 1982. She worked several years as a certified public accountant in both industry and public accounting. She received a Master's of Business Administration from University of Akron in 2004 and after a stint teaching at the university level began doctoral studies at University of Nebraska - Lincoln in fall 2008.