Tax Expense and Aggregate Stock Returns

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ABSTRACT

This study tests the explanatory and predictive power of aggregate financial statement tax expense for aggregate stock market returns. The purpose of this study is to better understand the broader capital market and economic welfare implications of accounting for income taxes for use in tax and financial reporting policy evaluation. We find robust evidence that aggregate tax expense changes are positively associated with contemporaneous market returns. Further, aggregate tax expense changes positively predict one quarter ahead market returns and negatively predict two-and three quarter ahead market returns. Our analyses suggest that aggregate tax expense changes contain information about market returns incremental to measures of aggregate earnings management, aggregate tax avoidance, and future aggregate performance. Exploratory analyses suggest that the aggregate discount rate implications of tax expense are due to FIN 48.

Keywords: Aggregate stock returns, tax avoidance, cash flows, discount rates

JEL classifications: G12; G14; H25; H26; M41

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1. Introduction

This study tests the explanatory and predictive power of aggregate financial statement tax expense for aggregate stock market returns. What makes financial statement tax expense unique and of particular interest among the myriad of other individual financial statement accounts is its commonality across firms, materiality to both individual firms and the economy as a whole,[1] and the fact that it reflects measurement conventions of both Generally Accepted Accounting Principles ("GAAP") and the Internal Revenue Code ("IRC") (Graham, Raedy and Shackelford, 2012). The purpose of this study is to better understand the broader capital market and economic welfare implications of accounting for income taxes.

Due to the significant complexity underlying the application of both the IRC and GAAP to compute financial statement tax expense, it is a "perpetual hot topic" among accounting regulators and practitioners (pwc, 2017). The SEC currently devotes a significant amount of attention in its review process of registrants' filings to income tax disclosures, which are one of the top cited areas in SEC comment letters (Deloitte, 2016).[2] In addition, FASB has heightened its focus on accounting for income taxes in recent years in its ongoing Disclosure Framework Project. As part of their global review of tax disclosures, FASB recently issued a new accounting standard, Accounting Standards Update No. 2016-16, to simplify a specific aspect of income tax accounting and continues to discuss proposed changes to other aspects as well.[3]

[1] For an individual firm, financial statement tax expense totals 30 percent or more of a profitable firm's pre-tax income and almost 40 percent of the market's average pre-tax earnings in our sample.
[2] Under the Sarbanes-Oxley Act of 2002, The SEC reviews registrants' financial statements at least once every three years and issues comment letters to filers requesting information to assist SEC staff to better understand or improve upon a filer's financial disclosures.
[3] See a summary of the FASB's disclosure review of income taxes here: http://www.fasb.org/jsp/FASB/FASBContent_C/ProjectUpdatePage&cid=1176164227426#objective

In addition to potential changes to GAAP rules, changes to the IRC could alter the way a firm computes financial statement tax expense. Corporate tax reform has been heavily discussed and debated in recent years as a result of increased tax avoidance, massive transfer pricing settlements with the IRS, corporate inversions, and substantial amounts of U.S. companies' cash that is "trapped" overseas. Policymakers are currently in the process of developing concrete plans for corporate tax reform, with President Trump announcing a proposal to significantly reduce the corporate tax rate in April 2017.[4]

With such intense focus currently on both GAAP and the IRC's computation of it, there is little doubt that the measurement of financial statement tax expense is subject to future change. Highly relevant to the discussions surrounding financial reporting and tax policy reform is a comprehensive understanding of the welfare implications of financial statement tax expense through its impact on the U.S. capital market. Prior studies focus on the impact of tax expense on stock returns at the individual firm level and collectively suggest that changes in a firm's tax expense, or "tax expense surprises" are positively associated with its contemporaneous and future stock returns (e.g., Hanlon, LaPlante and Shevlin, 2005; Thomas and Zhang, 2011; and Henry, 2017). The results of such firm-level analyses are useful to understand the capital market implications of tax expense, but only through an individual's use of tax expense in financial statement analysis of an individual firm. In other words, a firm-level association between tax expense and stock returns does not indicate the effect of tax expense on the welfare of the average, or well-diversified, investor (Ball and Sadka, 2015) and thus cannot inform policy debates that impact the overall population of firms and investors.

[4] See https://www.washingtonpost.com/business/economy/washington-braces-for-details-of-trumps-tax-reform-plan/2017/04/25/1fba8b30-29df-11e7-a616-d7c8a68c1a66_story.html?utm_term=.d83752f539a0

To understand the broader valuation implications of tax expense, we test the association between systematic variation in financial statement tax expense and stock market returns. Although there is a well-documented positive association between changes in tax expense and stock returns at the firm-level, the expected association in the aggregate is unclear. Financial statement tax expense conveys information about firms' future cash flows and discount rates through its ability to capture fundamental firm performance, earnings management, and tax avoidance (Thomas and Zhang, 2014; Henry, 2017). However, the association between each source of tax related information content and market returns is inconsistent.

Firm performance, as measured by aggregate earnings changes, and aggregate earnings management are negatively associated with market returns (Kothari, Lewellen, and Warner, 2006; Hirshleifer, Hou, and Teoh, 2009; Kang, Liu, and Qi, 2010) while increases in tax avoidance are positively associated with stock market returns (Shevlin, Shivakumar, and Urcan, 2016). The predictive ability of aggregate tax expense for market returns is also unclear. Aggregate earnings management is positively associated with future market returns (Kang, Liu, and Qi, 2010). However, increased tax expense is associated with a reduction in future corporate innovations (Mukherjee, Singh, and Zaldokas, 2017), suggesting a negative association between aggregate tax expense and future market returns.

We conduct three primary analyses. First, we examine the contemporaneous association between aggregate changes in tax expense and market returns and the ability of aggregate tax expense to predict market returns. We provide robust empirical evidence that aggregate tax expense changes are significantly positively associated with market returns in the quarter in which financial statements are released, suggesting positive immediate welfare effects of increases in aggregate tax expense. Changes in aggregate tax expense also positively predict one-

quarter-ahead market returns. These results exist in univariate regressions of market returns on aggregate tax expense changes, when controlling for aggregate earnings changes, and also when controlling for other known predictors of market returns including term spread, default spread, short-term interest rate, consumption-aggregate wealth ratio, and dividend yield.

Firm-level studies examining the valuation implications of tax expense only test the one-period-ahead predictive ability of tax expense changes. We follow Kothari, Lewellen and Warner (2006) and assess the predictive ability of quarterly aggregate tax expense changes for market returns one-, two- and three-quarters ahead to assess both the short- and long-term implications of changes in aggregate financial statement tax expense. We find a significant *negative* association between aggregate tax expense changes and market returns in the second and third quarter following the earnings announcement. Thus, our tests suggest that the positive impact of financial statement tax expense on a well-diversified investor's portfolio reverses in subsequent quarters. This result has two potential explanations. The first is that aggregate changes in tax expense are negatively correlated with discount rate news and the market efficiently incorporates this information into stock price. The second is that aggregate changes in tax expense are positively correlated with aggregate cash flow news and the market overreacts to this information in the earnings announcement quarter.

We fail to find consistent evidence that the return predictability of aggregate tax expense changes stems from inefficiency on the part of the average investor to impound the aggregate cash flow implications of tax expense. However, we do find robust evidence of a discount rate explanation for the association we observe between aggregate tax expense changes and market returns. Specifically, we find that the association between aggregate tax expense and two

separate measures of changes in discount rates mirrors that between aggregate tax expense changes and market returns.

Our second set of tests explores whether the correlation between aggregate changes in tax expense and market returns is due to its ability to convey information about: 1) fundamental economic performance incremental to aggregate earnings; 2) aggregate tax avoidance; or 3) aggregate earnings management. We find that the explanatory and forecasting power of aggregate tax expense changes for market returns is robust to including changes in aggregate accruals as a proxy for aggregate earnings management, aggregate changes in federal tax revenues as a percent of GDP as a proxy for aggregate earnings management, and aggregate changes in future financial statement income as a proxy for future firm performance. These results suggest that the correlation between aggregate changes in tax expense and discount rates cannot be explained by the various theories advanced in firm-level studies of the valuation implications of tax expense.

Collectively, our results suggest that increases in aggregate financial statement tax expense have a positive wealth impact on the well-diversified portfolio. Because the increases in aggregate tax expense are correlated with discount rates, they reverse in the subsequent two quarters. The impact of aggregate financial statement tax expense on investor welfare suggests that policy makers should carefully consider how future changes to the computation of it will alter its information content. To further enhance our study's ability to contribute to tax and financial reporting policy, our last analysis tests the information content of aggregate tax expense across the different computation regimes of the Tax Reform Act of 1986 (TRA 1986), the introduction of ASC 740 (formerly SFAS 109) in 1993 and the introduction of FIN 48 in 2007.

We find that the significant association between aggregate tax expense changes and both contemporaneous and future market returns is concentrated in the time period following the introduction of FIN 48 disclosures of uncertain tax positions. It is extremely interesting and perhaps surprising that ASC 740, the first and most significant change to accounting for income taxes, did not significantly increase the systematic information content of tax expense. On the other hand, it seems intuitive that increased disclosures surrounding uncertain, or risky, tax positions explain the correlation between changes in aggregate tax expense and discount rates. Our sub-period analysis must be interpreted with caution, however, because of limited sample sizes across periods. Future work will employ small sample estimation techniques to generate more efficient coefficient estimates.

Our paper makes three primary contributions. Given that the objective of financial reporting is to "provide information which is potentially useful for making economic decisions and which, if provided, will enhance the maximization of social welfare" (AICPA, 1973), our study contributes to understanding the true economic and social welfare implications of financial statements. Most studies in this area of literature focus on the association between aggregate earnings and market returns (see Ball and Sadka, 2015). Only two other studies focus on specific components of earnings: Hirshleifer, Hou and Teoh (2009) who examine the stock market implications of aggregate accruals and Kang, Liu and Qi (2010) who focus on discretionary accruals. We extend this literature by examining tax expense, an individual line item on financial statements that is both a material component of earnings and an alternative measure of it.

Our second primary contribution is to the understanding of capital market implications of accounting for income taxes. Our results provide further insight into financial reporting and tax policy debates, an area which can only partially be informed by firm-level analyses (Ball and

Sadka, 2015). We find that increases in aggregate financial statement tax expense are correlated with higher market returns and thus are good news to the diversified investor. Thus, policy makers should consider what impact future changes to the computation of financial statement tax expense under GAAP will have to market welfare. Along those same lines, tax policy makers rarely if ever consider the financial reporting effects of firms' actual tax expense (Henry and Plesko, 2011). Our analyses indicate that economic analyses of corporate tax proposals should incorporate estimates of the wealth effects associated with changes to publicly disclosed tax expense.

Along those same lines, this study is also related to those which examine the short- and long-term consequences of ASC 740 and FIN 48. Ayers (1998) examines the valuation implications of deferred tax assets and liabilities following the enactment of ASC 740. Although he finds that the increased disclosures are value relevant at the individual firm level, our findings suggest the enhanced information content of ASC 740 is idiosyncratic in nature. Robinson, Stomberg and Towery (2016) examine the consequences of FIN 48 disclosures at the individual firm level and suggest that FIN 48 reduced overall information content because it restricts the ability of tax expense to predict future cash flows. In contrast, our aggregate analysis suggests that FIN 48 enhanced the information content of tax expense because of its correlation with discount rates, a valuation channel not examined in Robinson et al. (2016).

Our third primary contribution is to the literature examining the valuation of tax expense. Our study extends this literature to the aggregate level to understand the welfare effects of tax expense while also providing an out-of-sample test of the firm-level information content of tax expense. Unlike accruals and even earnings themselves, the information content of tax expense for an individual firm is systematic in nature. Our tests extend those in Henry (2017) and confirm

that the systematic component of the information content of tax expense is due to its ability to convey information about discount rates.

2. Background and Hypothesis Development

a. Valuation of Firm-Level Tax Expense

There is considerable evidence that changes in firm-level tax expense exhibit a positive contemporaneous association with returns while holding earnings constant.[5] Financial statement tax expense possesses this ability because it is related to a firm's taxable income, which is computed under the Internal Revenue Code (IRC). The determination of firm income under a separate set of rules results in an additional summary measure of firm performance that is correlated with information used by market participants in setting expectations of a firm's future performance (Lev and Nissim, 2004; Hanlon, Laplante and Shevlin, 2005; and Thomas and Zhang, 2011).

Collectively, the literature suggests that the ability of tax expense to covey information about firm performance incremental to earnings yields a positive (negative) correlation between it and cash flow news (discount rate news). Thomas and Zhang (2014) test the cash flow implications of tax expense in price levels and return regressions and find that, under general research conditions, changes in tax expense are positively associated with returns and changes in expectations of future cash flows. Henry (2017) posits and finds that changes in firm-level tax expense are also positively associated with stock returns because of their correlation with changes in discount rates ("discount rate news"). Thus, when investors observe higher than expected tax expense, they revise the discount rate downward due to reduced uncertainty and

[5] Some specific studies which document this relation include Hanlon et al. (2005), Ayers, Jiang and Laplante (2009), Thomas and Zhang (2014) and Henry (2017). See Hanlon and Heitzman (2010) and Graham, Raedy and Shackelford (2012) for a review.

expected returns and revise discount rates upward when they observe a decrease in fundamental performance through tax expense. Henry (2017) also shows that even when they cannot capture firm performance. She finds that changes in tax expense are correlated with discount rate news because of their ability to convey information about earnings management and tax avoidance.

While several studies show that information about firm profitability conveyed via changes in tax expense are contemporaneously priced by the market, there is evidence that the market's impounding of tax information into prices at the firm level is not complete. Financial statement tax disclosures are extremely complex due to the determination of a firm's tax expense first under the Internal Revenue Code and then the subsequent layering of technical GAAP rules on to compute financial statement tax expense. Consistent with this notion, several studies predict and find that a firm's tax expense change (either the total or current portion) is related to its future abnormal returns (Lev and Nissim, 2004; Weber, 2009). More recently, Thomas and Zhang (2011) examine the forecasting ability of firm-specific, quarterly seasonal total tax expense changes and find that they are positively and significantly related to one-quarter-ahead stock returns even after controlling for changes in book income. They suggest their results are evidence of "tax expense momentum" which is separate from other firm-level financial-statement based anomalies, including the tax-based anomaly shown in Lev and Nissim (2004).

In sum, the valuation of tax literature examines the firm-specific valuation implications of tax expense and finds that changes in tax expense are positively associated with both a firm's contemporaneous and its future returns due to their correlation with both cash flow and discount rate news. These findings suggest that an individual holding shares in a particular company will experience positive wealth effects in the period in which a firm discloses an increase in tax expense and in the subsequent reporting period. However, the firm-level association between tax

expense and stock returns does not indicate the effect of tax expense on the welfare of the average, or well-diversified, investor (Ball and Sadka, 2015). Thus, we extend the understanding of the valuation implications of tax expense to the overall market level to understand the systematic information content of tax expense and its broader impact on the capital market and economic welfare.

b. Valuation of Aggregate Tax Expense

Although there is a well-documented positive association between changes in tax expense and stock returns at the firm-level, the correlation between aggregate financial statement tax expense and the overall stock market is unclear. One reason that firm-level financial statement tax expense is positively associated with cross-sectional returns is because of its correlation with a given firm's expected future cash flows, or "cash flow news." This effect, however, is unlikely to extend to the overall market level. Cash flow news is largely firm-specific, or idiosyncratic, in nature and is thus diversified away in the aggregation process (Vuolteenaho, 2002). In other words, an unexpected increase in tax expense for a particular firm may revise investor expectations for that particular firm's future cash flows upward but have very little effect on the investor's expectation of future cash flows of the aggregate economy (Yan, 2011).

The firm-level arguments provided by Henry (2017) suggest that a firm's tax expense is negatively correlated with discount rates (and thus positively associated with returns) because of its ability to convey information about: 1) future performance; 2) earnings management activities; and 3) tax avoidance. Although cash flow news is idiosyncratic and diversified away in the aggregate, discount rate news is highly correlated across firms. Thus, any firm-level discount rate effects of tax expense documented at the firm level should persist in the aggregate.

However, the relation between aggregate profitability, aggregate earnings management and aggregate tax avoidance and stock market returns is not uniformly positive.

Earnings changes are used extensively as a proxy for and predictor of fundamental performance and their positive association with contemporaneous returns in the cross-section is widely documented. However, market level studies universally document either no or a negative contemporaneous association between aggregate earnings changes and market returns.[6] The rationale for this result is that systematic increases in financial statement earnings cause investors to *increase* discount rates (Kothari, Lewellen and Warner, 2006; Patatoukas, 2014). Thus, to the extent changes in aggregate financial statement tax expense contain information similar, but incremental, to that contained in aggregate earnings we expect changes in aggregate tax expense will be negatively associated with contemporaneous market returns due to a positive association with discount rates.

Even if aggregate tax expense changes do not capture economic performance, it is possible that they will be associated with market returns if they convey aggregate trends in earnings management or tax avoidance. Strobl (2013)'s theoretical work makes the case that earnings manipulation, and hence the quality of accounting information, constitutes a systematic risk factor that is priced in large economies because managers manipulate earnings in response to economic conditions. Due to the dependence of a manager's earnings manipulation strategy on the state of the economy, earnings management can manifest itself in discount rates despite the diversification abilities of investors. Kang, Liu and Qi (2010) empirically test the association between aggregate discretionary accruals as a proxy of aggregate earnings management, and find

[6] See Ball and Sadka (2015) for a review of the aggregate earnings literature.

a significant negative association between it and contemporaneous market returns. While Kang, Liu and Qi (2010) show that aggregate discretionary accruals are positively associated with discount rates, they also document their explanatory power for market returns is incremental to several risk premium proxies. In sum, any information contained in aggregate tax expense about earnings management would yield a negative contemporaneous association with market returns.

On the other hand, any information contained in aggregate tax expense about aggregate tax avoidance would yield a *positive* contemporaneous association with market returns. Shevlin, Shivakumar and Urcan (2016) perform a cross-country analysis to assess the extent to which tax savings (i.e., low tax expense relative to pre-tax income) are associated with economic growth. They find that aggregate tax avoidance is positively associated with future economic growth and future firm-level investment which is contemporaneously impounded into stock market returns at the country level. They interpret their results as evidence that firms, as opposed to governments, make more efficient investments and thus net cash retained by firms as a result of tax planning is better for economic welfare.

Whether the firm-level information content of tax expense extends into the aggregate market setting is ultimately an empirical question. It seems reasonable to expect that an item which provides information content to market participants at the firm-level will also be informative in the aggregate, particularly if it is associated with discount rates at the firm-level. However, the underlying sources of the information content of aggregate tax expense suggest competing associations with market returns. Thus, our first hypothesis is stated in the null:

H1: *Aggregate changes in tax expense are unassociated with stock market returns.*

The firm-level valuation of tax literature also suggests that changes in a firm's tax expense positively predict its one-quarter-ahead stock returns (Thomas and Zhang, 2011). This result is generally attributed to investors' inability to fully incorporate the implications of tax expense for future performance into contemporaneous stock returns. To the extent the market's inefficiency with respect to financial statement tax expense captures a pervasive bias, it should appear in market returns. However, there is evidence that well documented firm-level anomalies, such as post-earnings announcement drift and the accrual/discretionary accrual anomalies, either don't extend to the aggregate stock market level (Kothari, Lewellen and Warner, 2006) or even reverse in the aggregate (Hirshleifer, Hou and Teoh, 2009; Kang, Liu and Qi, 2010).

If the firm-level inefficiency is diversified away in the aggregate, it is still possible that changes in aggregate tax expense will predict market returns to the extent they are driven by earnings management behavior. Changes in aggregate earnings management positively predict market returns. Kang, Liu and Qi (2010) suggest this is because managers undertake such activities in response to market conditions; when aggregate market value decreases, managers increase earnings via discretionary accruals (Kang, Liu and Qi, 2010). Changes in aggregate tax expense would thus be negatively associated with market returns. For example, an increase in aggregate tax expense would signal decreased aggregate earnings management and thus negatively predict market returns.

Further, increases in tax expense signal decreased corporate investment (Shevlin, Shivakumar, and Urcan, 2016). Increased taxes also reduce and corporate innovation, including investments in patenting, R&D and new product introductions (Mukherjee, Singh, and Zaldokas, 2017). At the aggregate level, Hsu (2009) finds that technological innovations positively predict market returns because they raise expected productivity and profitability. Further, returns from

investments in technology are more volatile than investments in physical property and thus increase expected (i.e., future) returns. To the extent increases in aggregate tax expense signal decreased aggregate investment and innovation, they will negatively predict market returns.

The discussion above presents competing arguments for the hypothesized direction of the association between aggregate changes in tax expense and market returns. If the firm-level inefficiency with respect to tax expense extends to the aggregate, aggregate changes in tax expense will positively predict market returns. If aggregate changes in tax expense signal information about future profitability, they will be unrelated to future market returns. Finally, if aggregate tax expense contains incremental information about market-wide trends in earnings management or tax avoidance (and therefore corporate investment and innovation), aggregate changes in tax expense will negatively predict market returns. Thus, we also state our second hypothesis in the null:

H2: *Aggregate changes in tax expense are unassociated with future stock market returns.*

3. Data and Empirical Methods

a. Sample and Construction of Variables

We test the welfare implications of tax expense by assessing the explanatory and predictive power of aggregate tax expense changes for contemporaneous and future quarterly market returns, holding aggregate earnings changes constant. Quarterly market returns are obtained by compounding the Center for Research in Securities Prices (CRSP) monthly returns on the value-weighted NYSE/AMEX/Nasdaq/Arca index (CRSP VWRETD). Similar to Kothari, Lewellen and Warner (2006), returns are measured over five separate quarters; two contemporaneous (k=0, 1) and three future quarters (k=2, 3, and 4). For quarter $t+0$ (i.e., k=0), returns are compounded over the earnings measurement period (e.g., for a quarter ended in

December of year *t*, the quarterly return is compounded over October, November and December of year *t*). For quarter *t+1* (i.e., k=1), returns are compounded over the earnings announcement period (e.g., for a quarter ended in December of year *t*, the quarterly return is compounded over January, February, and March of year *t+1*). Future quarterly returns periods *k*=2, *k*=3, and *k*=4 represent the three quarters following the earnings announcement quarter.

The aggregate earnings and tax expense sample begins with all firm-quarter observations available on the Compustat quarterly file from the first quarter of 1977 (1977:Q1) to the fourth quarter of 2015 (2015:Q4). Firms included in the aggregate earnings and tax expense sample are restricted to those with March, June, September or December fiscal quarter ends to ensure that fiscal and calendar quarters are aligned and that earnings are announced for all included firms in the same quarter.[7] Firms must have sufficient data to compute scaled tax expense and earnings changes. Thus, firms missing total tax expense, earnings, price and common shares outstanding in both the current quarter and four quarters prior are dropped from the sample. Finally, firms with market value of less than $10 million in quarter *t-4* are excluded in order to avoid influential observations resulting from small denominator issues.

The main variable of interest is aggregate tax expense change (ΔTAX), which is the value-weighted average of firm-level tax expense changes. Consistent with Thomas and Zhang (2011), firm-level tax expense change is a firm's seasonally differenced quarterly total tax expense, equal to total tax expense (Compustat TXTQ) in the current quarter minus the firm's total tax expense in the same quarter of the previous year, scaled by market value

[7] Firms registered with the Securities and Exchange Commission are required to provide quarterly financial reports on Form 10-Q. Historically, the Form 10-Q filing deadline was within 45 days of the end of the fiscal quarter. In September 2002, the SEC approved a new rule that changed the Form 10-K and Form 10-Q filing deadlines for those firms with a public float of $75 million or more ("accelerated filers"). Since 2002, the 10-Q filing deadline for accelerated filers is 40 days after the end of the fiscal quarter and remains at 45 days for non-accelerated filers.

(PRCCQ*CSHOQ) in the same quarter of the previous year. Aggregate earnings change ($\Delta EARN$) is similarly calculated as the value-weighted average of firm-level earnings changes. Following both Thomas and Zhang (2011) and Kothari, Lewellen and Warner (2006), firm-level earnings change is the seasonally differenced quarterly earnings before extraordinary items (Compustat IBQ) scaled by market value in quarter *t-4*.[8] Value-weights are based on beginning market value in the earnings announcement quarter.

Innovations in several other market-level macroeconomic indicators previously shown to explain and/or forecast market returns are also included in the primary analyses. These control variables include the term spread (Keim and Stambaugh, 1986 and Fama and French, 1989); the default spread (Keim and Stambaugh, 1986 and Fama and French, 1989); the short-term interest rate (Fama and Schwert, 1977); the consumption-aggregate wealth ratio (Lettau and Ludvigson, 2001); and the aggregate dividend yield (Campbell and Shiller, 1988 and Fama and French, 1988). *TERM* is the quarter *t* term spread, calculated as the difference between the yield of a 10-year Treasury bond over the yield of a three-month Treasury bill in the month of quarter end. *DEFAULT* is the quarter *t* default spread, which is equal to the difference between Baa-rated corporate bond yields over Aaa-rated corporate bond yields in the month of quarter end. *STINT* is equal to the three-month Treasury bill rate at the end of quarter *t.* Treasury bond, Treasury bill and corporate bond yields are all downloaded from the Federal Reserve Statistical Release's Data Download Program. The consumption-aggregate wealth ratio, *CAY*, for quarter *t* is downloaded from Martin Lettau's website. *DIV_YLD* is the aggregate dividend yield equal to the sum of all dividends (CRSP item DIVAMT) issued in the 12 months ended in quarter *t* divided

[8] Henry and Sansing (2017) suggest that scaling tax expense by market value is most appropriate when both loss and profitable firms are included in analyses of tax avoidance. Further, they assert that market value, as opposed to book value of assets, results in tax measures that are subject to less bias and outliers arising from small denominators.

by the aggregate price level at the end of quarter *t*. Innovations are measured as one-quarter changes in these variables.

Financial statement tax expense conveys information about firms' future cash flows and discount rates through its ability to capture fundamental firm performance, earnings management, and tax avoidance (Thomas and Zhang, 2014; Henry, 2017). Because there are several reasons why aggregate financial statement tax expense would have information content for market returns, we first test whether it is due to discount rate or cash flow news. We measure cash flow news as future aggregate earnings changes in the three quarters following the earnings announcement quarter.

We also utilize two alternative measures of cash flow news and discount rate news using the Campbell and Shiller (1988) and Campbell (1991) framework to decompose market returns into three components as follows:

$$r_t = E_{t-1}[r_t] + CFN_t - DRN_t \quad (1)$$

$E_{t-1}[r_t]$ is the expected period *t* return set in period *t-1* based on all information available at that time. Unexpected returns are represented by the remaining two terms: cash flow news (CFN_t) and expected return, or discount-rate, news (DRN_t). To implement the return decomposition, we use a first-order vector autoregressive (VAR) model which includes the excess value-weighted market return, the term spread, and the log price-earnings ratio, consistent with the variables utilized in Campbell (1991).[9]

[9] Because we cannot observe expectations or changes in expectations directly, there is no way to measure cash flow news and discount rate news without error (Easton and Monahan, 2005). Although the VAR decomposition is widely used in market level studies, it is not without criticism. To ensure the robustness of our results to the VAR decomposition, we present our results measuring both *CFN* and *DRN* directly and indirectly from the VAR system. In addition, we also include the market dividend yield in the VAR system to generate additional CFN and DRN measures and results are unchanged. We also employ aggregate earnings surprises as a separate measure of CFN. A potential alternative to *DRN* is to aggregate firm-level implied cost of capital (ICC) estimates. However, many of

Finally, we test whether the information content of aggregate changes in tax expense is due to its ability to convey information about changes in earnings management, changes in aggregate tax avoidance, or future performance. We measure changes in aggregate earnings management as the value-weighted average of seasonal differences in firm-level accruals consistent with Hirshleifer, Hou and Teoh (2009). We measure changes in aggregate tax avoidance as seasonally adjusted quarterly federal tax revenues as a percentage of GDP minus its value in the same quarter of the previous year from the Federal Reserve data.[10] We use one quarter ahead aggregate earnings changes to proxy for future performance. We attempt to isolate the source of information content by controlling for each proxy in our regressions of contemporaneous and future market returns on aggregate earnings and tax expense changes.

b. Descriptive Statistics

Table 1 reports the summary statistics for regression variables in Panel A and correlations among the variables in Panel B. The mean quarterly return is 4.02% for the CRSP value-weighted index with a standard deviation of 12.89%, which is consistent with the summary statistics in Kothari, Lewellen and Warner (2006). Earnings and tax expense are both increasing on average. Consistent with prior evidence, we find that aggregate earnings changes are highly persistent, with positive autocorrelations at all four lags. On the other hand, aggregate changes in tax expense are positively autocorrelated at one lag, consistent with their pattern at the firm-level (Thomas and Zhang, 2011), but negatively autocorrelated at two and three lags.

these estimates utilize analysts' forecasts which are known to be systematically biased with respect to tax information (Plumlee, 2003 and Weber, 2009). As a result, the use of implied cost of capital estimates based on biased analyst forecasts could produce spurious results in regressions of ICCs on tax expense surprises. Hou, van Dijk, and Zhang (2012) generate ICC estimates using accounting data instead of analyst forecasts, however their model uses annual as opposed to quarterly data.

[10] We acknowledge that our analyses are focused on domestic corporations but this measure of tax avoidance captures the ratio of federal tax revenue across all sources, including individuals. For robustness, we also measure aggregate tax avoidance using quarterly corporate taxes and corporate income from the NIPA accounts. Our results are essentially identical with either measure.

Panel B suggests that aggregate earnings changes are negatively correlated with market returns, confirming the results of prior studies (e.g., Kothari et al., 2006). Further, the simple correlations provide preliminary evidence that aggregate tax expense changes are positively correlated with market returns in the earnings announcement quarter (Pearson correlation of 0.06) and also in the following quarter (Pearson correlation of 0.06), suggesting that the relation between tax expense changes and firm-level returns is representative of systematic, as opposed to firm-specific, factors. Tax expense changes are also negatively correlated with two- and three-quarter ahead market returns (Pearson correlations of -0.07 and -0.12, respectively).

The pattern in the correlations between aggregate earnings changes and market returns mirrors the autocorrelation structure of aggregate tax expense changes, suggesting the potential for tax expense momentum in market returns. However, this pattern, paired with positive correlations between aggregate tax expense changes and changes in the default spread (Pearson correlation of 0.01) and the short term interest rate (Pearson correlation of 0.04), also suggest the possibility that tax expense changes are correlated with changes in discount rates. Further, aggregate tax expense changes are also positively correlated with changes in aggregate accruals (Pearson correlation of 0.09) and aggregate tax avoidance changes (Pearson correlation of 0.15) providing initial evidence of a relation between aggregate tax expense and aggregate earnings management and tax avoidance trends.

4. Results

a. Aggregate Tax Expense and Market Returns

Table 2 presents results from OLS regressions of market returns in the earnings generation quarter (*t+0*), the earnings announcement quarter (*t+1*) and the three quarters subsequent to the earnings announcement quarter (*t+2*, *t+3*, and *t+4)* on earnings changes (Panel

A), tax expense changes (Panel B) and both earnings and tax expense changes (Panel C). The *t*-statistics provided in Table 2 are computed using Newey-West standard errors with a lag length of four to correct for serial correlation in the error terms.[11] Panel A shows that the negative relation between aggregate earnings changes and announcement quarter returns is negative, consistent with the results in Kothari, Lewellen, and Warner (2006), although the relation is statistically insignificant in our expanded time period.

Panel B shows that aggregate tax expense changes are positively associated with market returns in the earnings announcement quarter with a coefficient estimate of 0.0077 (t = 2.64). Further, tax expense changes are a significant positive predictor of market returns in the quarter following the earnings announcement (coefficient estimate of 0.0073 and *t*-statistic of 2.01) and a significant negative predictor of market returns in the two quarters that follow (coefficient estimate of -0.0088 and *t*-statistic of -2.24 in quarter t+3 and coefficient estimate of -0.0143 and *t*-statistic of -4.22 in quarter t+4). Controlling for aggregate earnings changes in Panel C does not diminish the economic and statistical significance of the explanatory and predictive power of aggregate tax expense changes for market returns.

Table 3 presents results from multivariate regressions of contemporaneous and future market returns on changes in aggregate earnings and tax expense while controlling for innovations in known market return predictors, such as the term spread (*ΔTERM*), default spread (*ΔDEFAULT*), short-term interest rate (*ΔSTINT*), consumption-aggregate wealth ratio (*ΔCAY*), and dividend yield (*ΔDIV_YLD*). The association between aggregate changes in tax expense and market returns remains in the multivariate setting, further supporting the correlation between

[11] We also consider bootstrap standard errors. Similar to Kelly and Jiang (2014) and Bao, Hou, and Zhang (2015), we find that bootstrap standard errors are typically lower than Newey-West errors. To be conservative, we use the Newey-West standard errors to compute the *t*-statistics.

financial statement tax expense and information about market fundamentals. That controlling for known market return predictors does not change the relations between aggregate tax expense changes and contemporaneous and future quarterly market returns provides support for tax expense as a measure of fundamental economic performance above and beyond earnings. In addition, any association between tax expense and discount rates is incremental to the information about systematic risk contained in the term spread, default spread, and other known return predictors.

This set of results has several implications. The first is that aggregate increases in financial statement tax expense are correlated with positive immediate welfare effects for a well-diversified investor. Further, a well-diversified investor is able to infer their future welfare effects from a current period increase in financial statement tax expense: the positive immediate effects extend into the quarter following the earnings announcement period, but reverse in subsequent quarters. Summing the coefficients on ΔTXT across all quarters suggests that changes in financial statement tax expense yield an overall negative long-term impact on investor wealth in a market portfolio. Firm-level studies of the information content of tax expense only suggest that an investor can predict future performance of an *individual* firm, but such a result cannot be used to infer the future performance of the overall market.

The second implication of our results is that, unlike other firm-level anomalies which disappear or even switch signs in the aggregate, the firm-level tax expense momentum documented in Thomas and Zhang (2011) does. Thomas and Zhang (2011) only examine the predictive ability of tax expense for one-quarter-ahead returns. We extend their work and we find that aggregate tax expense changes are predictive of market returns two- and three-quarters

ahead.[12] This suggests that aggregate tax expense is reflective of overall market conditions and it is possible that this information is reflected in market returns with a delay. However, evidence of the reversal of tax expense momentum in the second and third quarter ahead suggests the potential for a discount rate explanation.

b. Aggregate Tax Expense, Future Cash Flows, and Discount Rates

In Table 4, we test whether the information content of tax expense is related to cash flow news (i.e., information about future profitability of the market) or discount rate news. Panel A presents the results of regressing one-, two-, and three-quarter ahead aggregate earnings changes as a proxy for future profitability of the market on aggregate earnings and tax expense changes. We find that aggregate tax expense changes are significantly positively related to both one- and two-quarter ahead earnings changes (coefficient estimates of 0.0016 and 0.0009 and *t*-statistics of 7.65 and 2.11, respectively), suggesting the potential for aggregate tax expense changes to explain and predict market returns due to its correlation with information about future aggregate cash flows.

Panel B presents the results of regressing the cash flow news component of market returns calculated directly from the VAR system (*CFN_DIR*) on aggregate earnings and tax expense changes and Panel C presents the same analysis but with the cash flow news component of market returns calculated residually from the VAR (*CFN_INDIR*).[13] In Panel B, we find a negative and significant association between aggregate tax expense changes and cash flow news in the earnings announcement quarter (coefficient estimate of -0.0042 and *t*-statistic of -4.38), which is contrary to a positive cash flow explanation. In Panel C, we find a positive and

[12] Thomas and Zhang (2011) only examine the ability of tax expense surprises to predict one quarter ahead returns.
[13] In order to guarantee that the equality in equation (1) holds, one news component in the variance decomposition framework is measured directly and the other is measured indirectly (e.g., as the difference between unexpected market returns and the directly measured component).

significant association between aggregate tax expense changes and cash flow news in the earnings announcement quarter (coefficient estimate of 0.0035 and *t*-statistic of 2.23). Although the results in Panel C support a cash flow explanation, it is also important to note that cash flow news measured indirectly could be subject to substantial measurement error. As a result, we conclude that our results do not support a robust cash flow explanation for the associations between aggregate tax expense changes and current and future market returns.

Panels D and E test the associations between aggregate tax expense and earnings changes and the discount rate news component of market returns. In Panel D we regress DRN directly measured from the VAR system (*DRN_DIR*) on aggregate tax expense and earnings changes and in Panel E we present results using DRN calculated indirectly (*DRN_INDIR*). We find support for a negative association between aggregate tax expense changes and discount rate news in the earnings announcement quarter. This suggests that as aggregate tax expense increases, future expected returns (i.e., discount rates) decrease. The association between aggregate earnings changes and discount rate news is also reliably positive in the earnings announcement quarter which confirms the results in Kothari, Lewellen, and Warner (2006) and supports the validity of *DRN* from a VAR decomposition as a measure of changes in expected returns.

c. Aggregate Tax Expense: Earnings Management, Tax Avoidance, or Performance Fundamental

Our results thus far suggest that the overall aggregate tax expense change/market return relations presented in Tables 2 and 3 are driven by a discount rate explanation. Namely, increases (decreases) in aggregate tax expense are correlated with negative (positive) movements in discount rates. In this section, we test whether the discount rate implications are due to

information about aggregate trends in earnings management, tax avoidance, or fundamental performance.

Panel A of Table 5 shows that controlling for aggregate accrual changes does not affect the positive association between market returns in the earnings announcement quarter and the subsequent quarter. Further, aggregate tax expense changes are still significantly negatively associated with market returns in the second and third quarter following the earnings announcement quarter. Thus, the information content of aggregate change in tax expense cannot be explained by its ability to convey information about aggregate earnings management. Similarly, Panel B of Table 5 shows that controlling for aggregate tax avoidance does not reduce the information content of tax expense for market returns in the earnings announcement and subsequent quarters. Panel C of Table 5 suggests that controlling for future aggregate earnings changes does not reduce the positive contemporaneous association between aggregate tax expense changes nor does it explain the ability of aggregate tax expense changes to predict market returns two and three quarters ahead. However, our results suggest that its ability to convey information about future performance does explain the positive one quarter ahead predictive ability of changes in aggregate tax expense.

In Panel D of Table 5, we control for all three potential explanations in one estimation to assess whether changes in aggregate tax expense convey information incremental to changes in aggregate accruals, changes in aggregate tax avoidance, and future aggregate earnings changes. Again, we find that aggregate changes in tax expense possess positive wealth effects in the earnings announcement quarter which reverse in the second and third quarter following the earnings announcement. These results suggest that the correlation between aggregate changes in

tax expense and discount rates cannot be explained by the various theories advanced in firm-level studies of the valuation implications of tax expense.

d. Aggregate Tax Expense Across Periods of Differing Tax and Financial Reporting Policy

Collectively, our results suggest that increases in aggregate financial statement tax expense have a positive wealth impact on the well-diversified portfolio that reverses in the second and third quarter following the earnings announcement quarter. The impact of aggregate financial statement tax expense on investor welfare suggests that policy makers should carefully consider how future changes to the computation of it will alter its information content. Thus, our last analysis tests the information content of aggregate tax expense across periods of differing tax and financial reporting policy.

Within our sample period, significant changes occurred in both corporate tax law and financial reporting rules governing accounting for income taxes. The Tax Reform Act of 1986 (TRA 86), effective for tax years 1987 to the present, was intended to simplify the income tax code and broaden the tax base in determining taxable income for corporations. TRA 86 greatly reduced the corporate statutory tax rate and made several changes to the way that firms computed their taxable income, including the uniform capitalization rules which require capitalization of certain costs associated with property constructed by or held for resale by a corporation and removing a deduction for bad debt expense (Guenther, 1994).

Although corporate tax policy remains relatively stable from 1987 through the end of our sample period, the financial reporting rules governing the computation of tax expense are not. ASC 740 was issued in 1992 to establish reporting standards for tax expense arising from both current and previous years (FASB, 1992). ASC 740 changed the focus of computing a firm's

total tax expense from an income statement-based approach to a balance sheet approach and called for the establishment of deferred tax assets and liabilities. Finally, the Financial Accounting Standards Board (FASB) began requiring firms to disclose aggregate reserves for uncertain tax positions in their financial statements in 2007 (ASC 740-10, Accounting for Uncertainty in Income Taxes, "FIN 48"). FIN 48 was issued to reduce the inconsistency of recognizing, measuring and disclosing financial reporting reserves for uncertain tax positions across firms and implemented a two-step approach to do so (Henry, Massel and Towery, 2016).

In Table 6, we test the association between aggregate changes in tax expense and market returns across the various computation and reporting regimes. We define the pre-TRA86 period as quarters ending between 1977:Q1 and 1985:Q4. We define the post-TRA 86/pre-ASC 740 period as quarters ending between 1987:Q1 through 1992:Q4 (we exclude quarters ended in 1986 because it is the transition year). The post-ASC 740/pre-FIN 48 period is defined as firm quarters ending between 1993:Q1 and 2006:Q4. Finally, the post-FIN 48 period is firm-quarters ending after 2007:Q1.

We find that the significant association between aggregate tax expense changes and both contemporaneous and future market returns is concentrated in the time period following the introduction of FIN 48 disclosures of uncertain tax positions. In other words, financial statement tax expense was uncorrelated with market returns until recently, regardless of the significant changes in its computation due to TRA 86 and ASC 740. It is extremely interesting and perhaps surprising that ASC 740, the first and most significant change to accounting for income taxes, did not significantly increase the systematic information content of tax expense. On the other hand, it seems intuitive that increased disclosures surrounding uncertain, or risky, tax positions explain the correlation between changes in aggregate tax expense and discount rates.

Our sub-period analysis must be interpreted with caution, however, because of limited sample sizes across periods. Future work will employ small sample estimation techniques to generate more efficient coefficient estimates.

5. Conclusion

While a great deal of research has focused on understanding the valuation of accounting information at the firm level, there is less evidence regarding whether and how financial statement information is used to set expectations of economy-wide activity.[14] While an emerging literature studies the association between aggregate earnings and market returns (see Ball and Sadka (2015) for a review), few studies attempt to ascertain whether and which specific accounts contribute to the overall informativeness of aggregate earnings.[15] There is also a vast literature on firm-level anomalies (see Kothari (2001) for a review). Only three studies have examined whether firm-level anomalies exist at the overall stock market level and have largely found that they either disappear (e.g., PEAD in Kothari, Lewellen, and Warner, 2006) or reverse in the aggregate (e.g., the accrual anomaly in Hirshleifer, Hou and Teoh (2009) and the discretionary accrual anomaly in Kang, Liu and Qi (2010)). Hirshleifer, Hou and Teoh (2006) call for further research examining whether other firm-level anomalies extend to the stock market level. Studying tax expense in the aggregate answers this call and further contributes to our understanding of the relation between aggregate financial statement information and macroeconomic conditions.

We find that aggregate tax expense changes are positively associated with market returns in the earnings announcement quarter and in the quarter following the earnings announcement. In

[14] For an overview of the extant literature see Ogneva (2013).
[15] Only two other studies focus on specific components of earnings: Hirshleifer, Hou and Teoh (2009) who examine the stock market implications of aggregate accruals and Kang, Liu and Qi (2010).

addition, aggregate tax expense changes negatively predict market returns in the second and third quarter following the earnings announcement quarter. These results hold when controlling for aggregate earnings changes and other known predictors of market returns. In addition, we regress discount rate news on aggregate tax expense changes and find a reliable negative association for the earnings announcement quarter and the subsequent quarter. Thus, our results suggest that aggregate tax expense changes are associated with changes in discount rates.

At the firm-level, tax expense changes are thought to vary with discount rates because they contain information about fundamental firm performance, earnings management and tax avoidance (Henry, 2017). We explore these channels at the market level and conclude that aggregate tax expense surprises contain information about macroeconomic trends and discount rates incremental to our proxies of aggregate earnings management, tax avoidance, and performance.

Finally, we provide preliminary work to understand the impact of past financial reporting and tax policy changes to the information content of financial statement tax expense to inform current discussions on corporate tax reform and changes to accounting for income taxes. Although our conclusions must come with the caveat that they are based on small sample sizes (in future work, we plan to use small sample econometric techniques to generate more stable and efficient coefficient estimates) our preliminary results have some interesting implications. We find that significant corporate tax policy reform did not materially impact wealth effects of financial statement tax expense. Further, our findings suggest the enhanced information content of ASC 740 documented in Ayers (1998) is idiosyncratic in nature. Finally, our aggregate analysis suggests that FIN 48 enhanced the information content of tax expense because of the information it provides about discount rates.

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Table 1

Descriptive Statistics for Aggregate Returns and Explanatory and Predictive Variables
For All Calendar Quarters from 1977:Q1 – 2015:Q4

Panel A: Descriptive Statistics and Autocorrelations

	Mean	Std Dev	Q1	Median	Q3	Autocorrelations			
						1	2	3	4
RET	0.0402	0.1289	-0.0107	0.0442	0.0962	0.05	0.00	-0.05	-0.03
ΔEARN	0.0007	0.0032	0.0000	0.0002	0.0005	0.44	0.38	0.41	0.03
ΔTAX	0.0002	0.0011	0.0000	0.0001	0.0002	0.35	-0.03	-0.05	0.15
ΔACC	-0.0003	0.0021	-0.0013	-0.0002	0.0007	0.40	0.00	-0.10	-0.11
ΔAVOID	0.0023	0.0070	-0.0003	0.0034	0.0060	0.80	0.66	0.47	0.23
ΔTERM	0.0000	0.0070	-0.0034	-0.0006	0.0030	0.03	-0.13	0.05	-0.06
ΔDEFAULT	0.0000	0.0026	-0.0009	-0.0001	0.0008	-0.02	-0.02	-0.08	-0.12
ΔSTINT	-0.0003	0.0090	-0.0019	0.0000	0.0027	0.10	-0.21	0.16	0.01
ΔCAY	-0.0002	0.0070	-0.0044	-0.0003	0.0035	-0.05	-0.12	0.06	0.02
ΔDIV_YLD	-0.0001	0.0025	-0.0016	-0.0002	0.0012	0.12	-0.15	-0.08	-0.04

	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}	$\Delta EARN_t$	ΔTAX_t	ΔACC_t	$\Delta AVOID_t$	$\Delta TERM_t$	$\Delta DEFAULT_t$	$\Delta STINT_t$	ΔCAY_t	ΔDIV_YLD_t
RET_{t+0}	0.03	0.03	-0.06	-0.02	0.06	0.01	0.15	0.16	-0.02	-0.22	-0.03	-0.61	-0.76
RET_{t+1}		0.02	0.01	-0.06	-0.03	0.06	-0.08	0.08	-0.05	-0.16	-0.01	-0.01	-0.05
RET_{t+2}			0.03	0.02	-0.09	0.06	-0.05	0.00	-0.06	0.05	0.01	-0.03	0.05
RET_{t+3}				0.04	0.09	-0.07	0.21	-0.04	0.00	0.12	-0.02	-0.13	0.09
RET_{t+4}					0.01	-0.12	0.17	-0.02	0.04	0.03	0.01	0.04	0.05
$\Delta EARN_t$						0.42	0.21	0.27	-0.02	-0.09	0.04	-0.03	-0.04
ΔTAX_t							0.09	0.15	-0.10	0.01	0.04	0.00	0.02
ΔACC_t								0.30	-0.08	-0.08	0.12	-0.15	-0.03
$\Delta AVOID_t$									-0.24	-0.16	0.28	-0.08	-0.04
$\Delta TERM_t$										0.19	-0.73	-0.04	0.01
$\Delta DEFAULT_t$											-0.33	0.02	0.13
$\Delta STINT_t$												0.06	0.18
ΔCAY_t													0.39

This table reports the descriptive statistics for aggregate stock returns, measures of aggregate earnings chages, aggregate tax expense changes and other variables known to explain or predict market returns. RET_{t+k} is the quarterly return on the CRSP value-weighted index for quarter $t+k$. k=0 represents the quarter over which earnings are measured, k=1 represents the quarter in which earnings are released, and k=2, 3 and 4 represent the three quarters immediately succeeding the earnings release quarter. Firm-level quarterly earnings is equal to income before extraordinary items (Compustat IBQ). Firm-level tax expense is equal to the firm's total tax expense (TXTQ). Aggregate earnings and tax expense changes are denoted as *ΔEARN* and *ΔTAX* respectively, and are calculated as the value-weighted averages of firm-level changes, which are equal to the seasonally adjusted changes in a firm's earnings or total tax expense scaled by market value of equity (PRCCQ*CSHOQ) in the same quarter of the previous year. *ΔACC* represents aggregate changes in accruals and *ΔAVOID* represents aggregate seasonal changes in tax avoidance measured by federal tax revenues as a percentage of GDP. *ΔTERM* represents the one-quarter differenced term spread, which is equal to the difference between the 10-year Treasury bond rate over the three-month Treasury bill rate at quarter end. *ΔDEFAULT* represents the one-quarter differenced default spread, which is equal to the difference between Baa-rated corporate bond yields over Aaa-rated corporate bond yields at quarter end. *ΔSTINT* represents the one-quarter differenced three-month Treasury bill rate. *ΔCAY* represents the one-quarter differenced consumption-aggregate wealth ratio. *ΔDIV_YLD* represents one-quarter differenced aggregate dividend yield, which is equal to the sum of firm-level dividends paid in the 12 months ended in each quarter divided by the aggregate price level at the end of the quarter.

Table 2

Simple Tests of the Market Return Explanatory and Predictive Power of Aggregate Tax Expense Changes

For All Calendar Quarters from 1977:Q1 – 2015:Q4

Panel A: $\boldsymbol{RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \varepsilon_{t+k}}$

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0406	0.0402	0.0407	0.0415	0.0419
t-stat	(3.92)	(3.90)	(3.89)	(4.03)	(4.08)
$\Delta EARN_t$	0.0071	-0.0035	-0.0105	0.0112	0.0008
t-stat	(1.59)	(-0.46)	(-1.75)	(1.81)	(0.11)
R^2	0.00	0.00	0.01	0.01	0.00

Panel B: $\boldsymbol{RET_{t+k} = \alpha_0 + \beta_1 \Delta TAX_t + \varepsilon_{t+k}}$

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0406	0.0405	0.0410	0.0412	0.0415
t-stat	(3.91)	(3.94)	(3.98)	(4.00)	(4.01)
ΔTAX_t	0.0011	0.0077	0.0073	-0.0088	-0.0143
t-stat	(0.21)	(2.64)	(2.01)	(-2.24)	(-4.22)
R^2	0.00	0.00	0.00	0.01	0.01

Panel C: $\boldsymbol{RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \varepsilon_{t+k}}$

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0405	0.0406	0.0411	0.0410	0.0414
t-stat	(3.92)	(3.93)	(3.93)	(4.01)	(4.03)
$\Delta EARN_t$	0.0081	-0.0082	-0.0165	0.0182	0.0083
t-stat	(1.58)	(-1.19)	(-2.23)	(2.44)	(1.00)
ΔTAX_t	-0.0024	0.0112	0.0144	-0.0165	-0.0178
t-stat	(-0.51)	(2.50)	(3.76)	(-5.01)	(-2.85)
R^2	0.00	0.01	0.02	0.02	0.02

This table presents time series regressions of contemporaneous and future market returns on aggregate earnings and tax expense changes. RET_{t+k} is the quarterly return on the CRSP value-weighted index for quarter $t+k$. k=0 represents the quarter over which earnings are measured, k=1 represents the quarter in which earnings are released, and k=2, 3 and 4 represent the three quarters immediately succeeding the earnings release quarter. $\Delta EARN_t$ and ΔTAX_t are value-weighted averages of firm-level seasonal differences in earnings and total tax expense scaled by market value of equity in quarter t-4. Independent variables are standardized to have zero mean and unit variance. The *t*-statistics are calculated using Newey-West standard errors.

Table 3

Mutivariate Tests of the Market Return Explanatory and Forecasting Power of Aggregate Tax Expense Changes

For All Calendar Quarters from 1977:Q1 – 2015:Q4

$$\boldsymbol{RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \beta_3 \Delta TERM_t + \beta_4 \Delta DEFAULT_t + \beta_5 \Delta STINT_t + \beta_6 \Delta CAY_t + \beta_7 \Delta DIV\_YLD_t + \varepsilon_{t+k}}$$

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0387	0.0405	0.0412	0.0411	0.0416
t-stat	(7.50)	(4.14)	(3.96)	(4.11)	(4.00)
$\Delta EARN_t$	0.0001	-0.0100	-0.0153	0.0208	0.0088
t-stat	(0.05)	(-1.57)	(-1.98)	(2.48)	(1.03)
ΔTAX_t	0.0034	0.0113	0.0127	-0.0189	-0.0177
t-stat	(1.64)	(2.72)	(2.69)	(-4.75)	(-2.85)
$\Delta TERM_t$	0.0135	-0.0191	-0.0133	-0.0104	0.0090
t-stat	(1.90)	(-1.29)	(-0.83)	(-0.85)	(0.81)
$\Delta DEFAULT_t$	-0.0126	-0.0258	0.0029	0.0157	0.0063
t-stat	(-1.98)	(-2.48)	(0.28)	(1.41)	(0.59)
$\Delta STINT_t$	0.0195	-0.0243	-0.0083	-0.0067	0.0097
t-stat	(3.00)	(-1.97)	(-0.56)	(-0.45)	(0.69)
ΔCAY_t	-0.0491	-0.0019	-0.0091	-0.0270	0.0040
t-stat	(-5.05)	(-0.11)	(-0.76)	(-1.70)	(0.26)
ΔDIV_YLD_t	-0.0934	0.0023	0.0116	0.0248	0.0035
t-stat	(-10.31)	(0.34)	(1.06)	(2.13)	(0.40)
R^2	0.7198	0.0488	0.0285	0.0822	0.0241

This table present results from time series regressions of contemporaneous and future market returns on aggregate earnings changes, tax expense changes, and other variables previously shown to explain or predict market returns. RET_{t+k} is the quarterly return on the CRSP value-weighted index for quarter $t+k$. k=0 represents the quarter over which earnings are measured, k=1 represents the quarter in which earnings are released, and k=2, 3 and 4 represent the three quarters immediately succeeding the earnings release quarter. $\Delta EARN_t$ and ΔTAX_t are value-weighted averages of firm-level seasonal differences in earnings and total tax expense scaled by market value of equity in quarter t-4. $\Delta TERM_t$ represents the one-quarter differenced term spread, $\Delta DEFAULT_t$ represents the one-quarter differenced default spread, $\Delta STINT_t$ represents the one-quarter differenced three-month Treasury bill rate, ΔCAY_t represents the one-quarter differenced consumption-aggregate wealth ratio, and ΔDIV_YLD_t represents one-quarter differenced aggregate dividend yield. Independent variables are standardized to have zero mean and unit variance. The *t*-statistics are calculated using Newey-West standard errors.

Table 4

Tests of the Associations between Aggregate Tax Expense Changes and Cash Flow and Discount Rate News

For All Calendar Quarters from 1977:Q1 – 2015:Q4

Panel A: $\Delta EARN_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \varepsilon_{t+k}$

	$EARN_{t+1}$	$EARN_{t+2}$	$EARN_{t+3}$	$EARN_{t+4}$
α_0	0.0007	0.0008	0.0008	0.0008
t-stat	(3.11)	(3.12)	(2.57)	(2.00)
$\Delta EARN_t$	0.0013	0.0006	0.0010	0.0002
t-stat	(4.38)	(2.23)	(1.18)	(0.66)
ΔTAX_t	0.0002	0.0016	0.0009	0.0001
t-stat	(0.75)	(7.65)	(2.11)	(0.72)
R^2	0.21	0.42	0.28	0.01

Panel B: $CFN\_DIR_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \varepsilon_{t+k}$

	CFN_{t+0}	CFN_{t+1}
α_0	0.0003	0.0002
t-stat	(0.12)	(0.08)
$\Delta EARN_t$	0.0029	0.0031
t-stat	(2.90)	(2.38)
ΔTAX_t	-0.0018	-0.0042
t-stat	(-1.66)	(-4.38)
R^2	0.01	0.02

Panel C: $CFN\_INDIR_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \varepsilon_{t+k}$

	CFN_{t+0}	CFN_{t+1}
α_0	0.0008	0.0012
t-stat	(0.23)	(0.34)
$\Delta EARN_t$	0.0052	-0.0016
t-stat	(2.45)	(-0.90)
ΔTAX_t	-0.0039	0.0035
t-stat	(-2.45)	(2.23)
R^2	0.01	0.00

Panel D: $\boldsymbol{DRN\_DIR_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \varepsilon_{t+k}}$

	DRN_{t+0}	DRN_{t+1}
α_0	-0.0010	-0.0016
t-stat	(-0.33)	(-0.56)
$\Delta EARN_t$	-0.0034	0.0030
t-stat	(-1.62)	(1.41)
ΔTAX_t	0.0053	-0.0037
t-stat	(4.58)	(-1.50)
R^2	0.02	0.01

Panel E: $\boldsymbol{DRN\_INDIR_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \varepsilon_{t+k}}$

	DRN_{t+0}	DRN_{t+1}
α_0	-0.0015	-0.0026
t-stat	(-0.19)	(-0.34)
$\Delta EARN_t$	-0.0057	0.0077
t-stat	(-1.97)	(2.16)
ΔTAX_t	0.0074	-0.0114
t-stat	(3.13)	(-2.69)
R^2	0.01	0.01

This table presents results from time series regressions of proxies for market cash flow news and discount rate news on aggregate earnings and tax expense changes. $\Delta EARN_t$ and ΔTAX_t are value-weighted averages of firm-level seasonal differences in earnings and total tax expense scaled by market value of equity in quarter *t*-4. $\Delta EARN_{t+k}$ represents aggregate earnings changes in quarters subsequent to the earnings announcement. CFN_DIR_{t+k} represents the directly measured cash flow news component of market returns and DRN_DIR_{t+k} represents the directly measured discount rate news component of market returns using the Campbell (1991) variance decomposition. CFN_INDIR_{t+k} represents the indirectly measured cash flow news component of market returns and DRN_INDIR_{t+k} represents the indirectly measured discount rate news component of market returns using the Campbell (1991) variance decomposition. k=0 represents the quarter over which earnings are measured, *k*=1 represents the quarter in which earnings are released, and *k*=2, 3 and 4 represent the three quarters immediately succeeding the earnings release quarter. Independent variables are standardized to have zero mean and unit variance. The *t*-statistics are calculated using Newey-West standard errors.

Table 5

Mutivariate Tests of the Market Return Explanatory and Forecasting Power of Aggregate Tax Expense Changes Controlling for Potential Explanations: Aggregate Earnings Management, Tax Avoidance and Future Performance

For All Calendar Quarters from 1977:Q1 – 2015:Q4

Panel A: Controlling for Aggregate Accruals Changes

$$RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \beta_3 \Delta ACC_t + \beta_4 \Delta TERM_t + \beta_5 \Delta DEFAULT_t + \beta_6 \Delta STINT_t + \beta_7 \Delta CAY_t + \beta_8 \Delta DIV\_YLD_t + \varepsilon_{t+k}$$

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0690	-0.0125	0.0193	0.1526	0.1514
t-stat	(2.70)	(-0.29)	(0.30)	(2.81)	(3.70)
$\Delta EARN_t$	-0.0012	-0.0077	-0.0144	0.0161	0.0042
t-stat	(-0.6)	(-1.04)	(-1.80)	(2.67)	(0.62)
ΔTAX_t	0.0034	0.0113	0.0127	-0.0189	-0.0177
t-stat	(1.68)	(2.61)	(2.72)	(-4.85)	(-3.30)
ΔACC_t	0.3257	-0.5699	-0.2354	1.1969	1.1796
t-stat	(1.15)	(-1.21)	(-0.34)	(1.96)	(2.57)
$\Delta TERM_t$	0.0135	-0.0191	-0.0133	-0.0104	0.0090
t-stat	(1.86)	(-1.26)	(-0.83)	(-0.94)	(0.80)
$\Delta DEFAULT_t$	-0.0124	-0.0261	0.0028	0.0163	0.0069
t-stat	(-2.03)	(-2.35)	(0.28)	(1.36)	(0.62)
$\Delta STINT_t$	0.0188	-0.0229	-0.0077	-0.0095	0.0069
t-stat	(2.91)	(-1.86)	(-0.53)	(-0.73)	(0.52)
ΔCAY_t	-0.0480	-0.0039	-0.0099	-0.0227	0.0082
t-stat	(-4.89)	(-0.22)	(-0.79)	(-1.52)	(0.54)
ΔDIV_YLD_t	-0.0935	0.0026	0.0117	0.0242	0.0029
t-stat	(-10.47)	(0.40)	(1.08)	(2.11)	(0.34)
R^2	0.72	0.06	0.03	0.12	0.06

Panel B: Controlling for Aggregate Tax Avoidance Changes

$$RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \beta_3 \Delta AVOID_t + \beta_4 \Delta TERM_t + \beta_5 \Delta DEFAULT_t + \beta_6 \Delta STINT_t + \beta_7 \Delta CAY_t + \beta_8 \Delta DIV\_YLD_t + \varepsilon_{t+k}$$

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0386	0.0404	0.0412	0.0412	0.0416
t-stat	(7.89)	(4.21)	(3.93)	(4.12)	(4.00)
$\Delta EARN_t$	-0.0020	-0.0123	-0.0158	0.0227	0.0091
t-stat	(-0.81)	(-1.52)	(-2.00)	(2.67)	(1.01)
ΔTAX_t	0.0030	0.0109	0.0126	-0.0186	-0.0176
t-stat	(1.53)	(2.77)	(2.63)	(-4.74)	(-2.85)
$\Delta AVOID_t$	0.0089	0.0100	0.0021	-0.0083	-0.0013
t-stat	(1.36)	(0.56)	(0.11)	(-0.73)	(-0.13)
$\Delta TERM_t$	0.0141	-0.0184	-0.0131	-0.0110	0.0089
t-stat	(1.95)	(-1.27)	(-0.81)	(-0.89)	(0.80)
$\Delta DEFAULT_t$	-0.0122	-0.0254	0.0030	0.0153	0.0062
t-stat	(-1.99)	(-2.46)	(0.30)	(1.41)	(0.59)
$\Delta STINT_t$	0.0174	-0.0267	-0.0088	-0.0047	0.0100
t-stat	(2.74)	(-2.07)	(-0.60)	(-0.32)	(0.73)
ΔCAY_t	-0.0484	-0.0011	-0.0089	-0.0276	0.0039
t-stat	(-4.94)	(-0.06)	(-0.71)	(-1.79)	(0.25)
ΔDIV_YLD_t	-0.0929	0.0028	0.0117	0.0244	0.0034
t-stat	(-10.43)	(0.41)	(1.10)	(2.12)	(0.40)
R^2	0.72	0.05	0.03	0.09	0.02

Panel C: Controlling for Aggregate Future Earnings Changes

$$\boldsymbol{RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \beta_3 \Delta EARN_{t+1} + \beta_4 \Delta TERM_t + \beta_5 \Delta DEFAULT_t + \beta_6 \Delta STINT_t + \beta_7 \Delta CAY_t + \beta_8 \Delta DIV\_YLD_t + \varepsilon_{t+k}}$$

	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0405	0.0411	0.0411	0.0416
t-stat	(4.15)	(4.02)	(4.23)	(4.07)
$\Delta EARN_t$	-0.0121	-0.0186	0.0155	0.0017
t-stat	(-1.42)	(-1.89)	(3.25)	(0.18)
ΔTAX_t	0.0108	0.0017	-0.0237	-0.0193
t-stat	(2.70)	(0.31)	(-8.31)	(-2.85)
$\Delta EARN_{t+1}$	0.0053	0.0196	0.0162	0.0179
t-stat	(0.75)	(2.20)	(3.88)	(2.58)
$\Delta TERM_t$	-0.0198	-0.0159	-0.0079	0.0068
t-stat	(-1.34)	(-0.97)	(-0.63)	(0.59)
$\Delta DEFAULT_t$	-0.0248	0.0045	0.0179	0.0098
t-stat	(-2.28)	(0.44)	(1.49)	(1.03)
$\Delta STINT_t$	-0.0246	-0.0106	-0.0041	0.0086
t-stat	(-2.02)	(-0.70)	(-0.27)	(0.61)
ΔCAY_t	-0.0017	-0.0078	-0.0264	0.0046
t-stat	(-0.10)	(-0.69)	(-1.66)	(0.30)
ΔDIV_YLD_t	0.0025	0.0158	0.0241	0.0042
t-stat	(0.38)	(1.33)	(2.06)	(0.47)
R^2	0.05	0.04	0.09	0.04

Panel D: Controlling for Aggregate Accruals Changes, Aggregate Tax Avoidance Changes, and Aggregate Future Earnings Changes

$$RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \beta_3 \Delta ACC_t + \beta_4 \Delta AVOID_t + \beta_5 \Delta EARN_{t+1} + \beta_6 \Delta TERM_t + \beta_7 \Delta DEFAULT_t + \beta_8 \Delta STINT_t + \beta_9 \Delta CAY_t + \beta_{10} \Delta DIV\_YLD_t + \varepsilon_{t+k}$$

	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	-0.0259	0.0089	0.1700	0.1607
t-stat	(-0.60)	(0.14)	(3.16)	(3.30)
$\Delta EARN_t$	-0.0117	-0.0186	0.0130	0.0041
t-stat	(-1.03)	(-1.90)	(3.08)	(0.63)
ΔTAX_t	0.0105	0.0009	-0.0231	-0.0182
t-stat	(2.67)	(0.15)	(-6.90)	(-3.53)
ΔACC_t	-0.7115	-0.3448	1.3835	1.2813
t-stat	(-1.56)	(-0.53)	(2.27)	(2.39)
$\Delta AVOID_t$	0.0131	0.0050	-0.0116	-0.0043
t-stat	(0.80)	(0.30)	(-1.08)	(-0.42)
$\Delta EARN_{t+1}$	0.0037	0.0206	0.0158	0.0151
t-stat	(0.60)	(2.11)	(2.98)	(2.16)
Controls	Yes	Yes	Yes	Yes
R^2	0.07	0.05	0.14	0.07

This table presents results from time series regressions of contemporaneous and future market returns on aggregate earnings changes and tax expense changes while controlling for potential sources of information content of tax expense and other variables previously shown to explain or predict market returns. Panel A controls for aggregate accruals changes as a proxy for aggregate earnings management, Panel B controls for aggregate changes in tax avoidance as a proxy for aggregate tax avoidance, Panel C controls for changes in future aggregate profitability as a proxy for future fundamental performance. RET_{t+k} is the quarterly return on the CRSP value-weighted index for quarter $t+k$. k=0 represents the quarter over which earnings are measured, k=1 represents the quarter in which earnings are released, and k=2, 3 and 4 represent the three quarters immediately succeeding the earnings release quarter. $\Delta EARN_t$, ΔTAX_t and ΔACC_t are value-weighted averages of firm-level seasonal differences in earnings, total tax expense and accruals scaled by market value of equity in quarter t-4. Accruals are calculated using the indirect balance sheet method as the change in non-cash current assets less the change in current liabilities, excluding the change in short-term debt, minus depreciation and amortization expense. $\Delta AVOID$ is the seasonal change in federal tax receipts as a percentage of GDP. $\Delta TERM_t$ represents the one-quarter differenced term spread, $\Delta DEFAULT_t$ represents the one-quarter differenced default spread, $\Delta STINT_t$ represents the one-quarter differenced three-month Treasury bill rate, ΔCAY_t represents the one-quarter differenced consumption-aggregate wealth ratio, and ΔDIV_YLD_t represents one-quarter differenced aggregate dividend yield. Independent variables are standardized to have zero mean and unit variance. The *t*-statistics are calculated using Newey-West standard errors.

Table 6

Mutivariate Tests of the Market Return Explanatory and Forecasting Power of Aggregate Tax Expense Across Periods of Differing Tax and Financial Reporting Policy

$$RET_{t+k} = \alpha_0 + \beta_1 \Delta EARN_t + \beta_2 \Delta TAX_t + \beta_3 \Delta TERM_t + \beta_4 \Delta DEFAULT_t + \beta_5 \Delta STINT_t + \beta_6 \Delta CAY_t + \beta_7 \Delta DIV\_YLD_t + \varepsilon_{t+k}$$

Panel A: Pre-TRA 86 (Calendar Quarters from 1977:Q1 – 1985:Q4)

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0374	0.0431	0.0435	0.0420	0.0426
t-stat	(13.04)	(3.61)	(3.81)	(3.86)	(4.96)
$\Delta EARN_t$	-0.0003	-0.0416	-0.0254	-0.0006	0.0282
t-stat	(-0.08)	(-1.63)	(-1.68)	(-0.03)	(1.65)
ΔTAX_t	-0.0033	0.0229	0.0069	-0.0244	-0.0348
t-stat	(-0.64)	(0.78)	(0.62)	(-1.33)	(-1.88)
Controls	Yes	Yes	Yes	Yes	Yes
N	36	36	36	36	36
R^2	0.98	0.25	0.16	0.27	0.17

Panel B: Post TRA 86 and Pre ASC 740 (Calendar Quarters from 1987:Q1 – 1992:Q4)

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0362	0.0290	0.0281	0.0272	0.0378
t-stat	(7.98)	(2.77)	(2.42)	(2.21)	(6.02)
$\Delta EARN_t$	0.0010	-0.0071	0.0463	-0.0085	0.0401
t-stat	(0.20)	(-0.46)	(2.27)	(-0.40)	(2.02)
ΔTAX_t	-0.0007	-0.0253	-0.0214	-0.0036	-0.0433
t-stat	(-0.12)	(-1.21)	(-1.42)	(-0.17)	(-3.20)
Controls	Yes	Yes	Yes	Yes	Yes
N	24	24	24	24	24
R^2	0.95	0.29	0.41	0.16	0.33

Panel C: Post ASC 740 and Pre FIN 48 (Calendar Quarters from 1993:Q1 – 2006:Q4)

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0550	0.0542	0.0559	0.0546	0.0531
t-stat	(7.11)	(2.48)	(2.94)	(2.93)	(2.55)
$\Delta EARN_t$	0.0048	0.0192	0.0093	-0.0067	-0.0014
t-stat	(0.46)	(0.90)	(0.52)	(-0.42)	(-0.07)
ΔTAX_t	-0.0269	-0.0305	-0.0293	0.0215	0.0025
t-stat	(-2.72)	(-1.77)	(-1.66)	(1.13)	(0.11)
Controls	Yes	Yes	Yes	Yes	Yes
N	56	56	56	56	56
R^2	0.85	0.07	0.11	0.21	0.05

Panel D: Post FIN 48 (Calendar Quarters from 2007:Q1 – 2015:Q4)

	RET_{t+0}	RET_{t+1}	RET_{t+2}	RET_{t+3}	RET_{t+4}
α_0	0.0242	0.0210	0.0216	0.0250	0.0294
t-stat	(3.37)	(1.43)	(0.82)	(0.90)	(1.09)
$\Delta EARN_t$	-0.0024	-0.0111	-0.0230	0.0530	0.0133
t-stat	(-0.74)	(-0.72)	(-0.80)	(2.91)	(0.53)
ΔTAX_t	0.0097	0.0105	0.0182	-0.0405	-0.0203
t-stat	(2.54)	(0.49)	(0.70)	(-3.67)	(-0.88)
Controls	Yes	Yes	Yes	Yes	Yes
N	36	36	36	36	36
R^2	0.95	0.39	0.12	0.34	0.22

This table presents results from time series regressions of contemporaneous and future market returns on aggregate earnings changes and tax expense changes across tax and financial reporting policy regimes. Panel A presents results for the pre-TRA 86 period, Panel B presents results for the Post TRA 86 and pre ASC 740 period, Panel C presents results for the post ASC 740 and pre-FIN 48 period, and Panel D presents results for the post-FIN 48 period. RET_{t+k} is the quarterly return on the CRSP value-weighted index for quarter $t+k$. k=0 represents the quarter over which earnings are measured, k=1 represents the quarter in which earnings are released, and k=2, 3 and 4 represent the three quarters immediately succeeding the earnings release quarter. $\Delta EARN$ and ΔTAX_t are value-weighted averages of firm-level seasonal differences in earnings and total tax expense scaled by market value of equity in quarter t-4. Control variables included are as follows: $\Delta TERM_t$ represents the one-quarter differenced term spread, $\Delta DEFAULT_t$ represents the one-quarter differenced default spread, $\Delta STINT_t$ represents the one-quarter differenced three-month Treasury bill rate, ΔCAY_t represents the one-quarter differenced consumption-aggregate wealth ratio, and ΔDIV_YLD_t represents one-quarter differenced aggregate dividend yield. Independent variables are standardized to have zero mean and unit variance. The *t*-statistics are calculated using Newey-West standard errors.