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Do Firms Incur Costs to Avoid Reducing Pre-Tax Earnings? Evidence from the Accounting for Low-Income Housing Tax Credits

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ABSTRACT: Examining corporate investment in low-income housing tax credits reveals that firms are willing to incur costs in order to manage the income statement classification of an expense. Accounting rules allow investors who purchase a tax benefit guarantee to amortize their equity in a real estate partnership as a tax expense, rather than as an operating expense, thus avoiding a reduction in pre-tax earnings. Using confidential data from tax credit syndicators, I model the market price of a tax credit as a function of the existence of the guarantee, controlling for foreclosure risk on the underlying real estate. The results are consistent with the hypothesis that an economically significant amount of the guarantee fee is paid by corporate investors for the right to use an accounting method that avoids reductions in pre-tax earnings.

Keywords: *expense classification; pre-tax earnings; tax credit; earnings management.*

Data Availability: *The data used in this study include private survey data (redacted) from Ernst & Young LLP Tax Credit Investment Advisory Services, private (redacted) data from tax credit syndicators, as well as publicly available data from the Department of Housing and Urban Development and the U.S. Census Bureau. A detailed data appendix is available from the author upon request.*

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I. INTRODUCTION

Expense classification on the income statement is a subtle method by which firms can shape perceptions of their financial performance. Yet, its use can exact a price. This study examines investments in low-income housing tax credits (LIHTCs) to reveal the extent to which firms are willing to incur costs in order to report higher pre-tax earnings. When I model the market price of an LIHTC as a function of the preferred accounting treatment and the actual risk associated with the underlying real estate, I find that some investors are willing to pay a premium for the right to use an accounting method that classifies the expense in such a way as to protect pre-tax earnings. This study quantifies the amount these firms pay and finds it to be economically significant. The notion that firms would sacrifice real economic earnings to influence others' perceptions of their financial performance should be of broad interest to accountants, economists, and standard-setters. These actions destroy shareholder value. From a tax policy perspective, this study shows that financial reporting outcomes must be considered when designing tax incentives.

Low-income housing tax credits provide an effective way to investigate expense classification. Investors are widespread across many industries, the investments can be recorded using two very different methods of accounting, and investors' preference for the method that protects pre-tax earnings is revealed via a market price. In 2003, investors committed $6.6 billion in equity to developers of qualified housing projects in exchange for $7.9 billion in LIHTCs, suggesting an average market price of 83.5¢ per $1 of tax credit.[1] While primarily concentrated in two industries, financial services and insurance, LIHTC investors also include firms in the utilities, mining, food, textile, chemical, extractive, durables, computers, telecommunications, transportation, retail, and services industries.[2]

From a policy standpoint, LIHTCs act as a catalyst to attract private investment into the historically underserved affordable housing market, with the federal government currently granting each state $2.00 worth of LIHTCs per capita. Developers of qualified projects typically sell their government-awarded LIHTCs to a syndicator in a ''wholesale'' market, who then resells (''syndicates'') the credits to investors in a ''retail market'' (see Figure 1). Only the owners of a qualified housing project can use LIHTCs to offset federal income tax liabilities, so investors purchase equity in a limited partnership that owns such a project. These investors forgo traditional real estate claims to cash flow (e.g., rent) and appreciation (e.g., capital gains). The economic return on *and of* the investment is derived *solely* from a structured stream of known cash inflows, in the form of reduced income taxes over a ten-year period. Total tax savings include both the purchased LIHTCs and tax deductions from the loss of the equity investment in the partnership; investors do not receive a return of their capital contribution.[3]

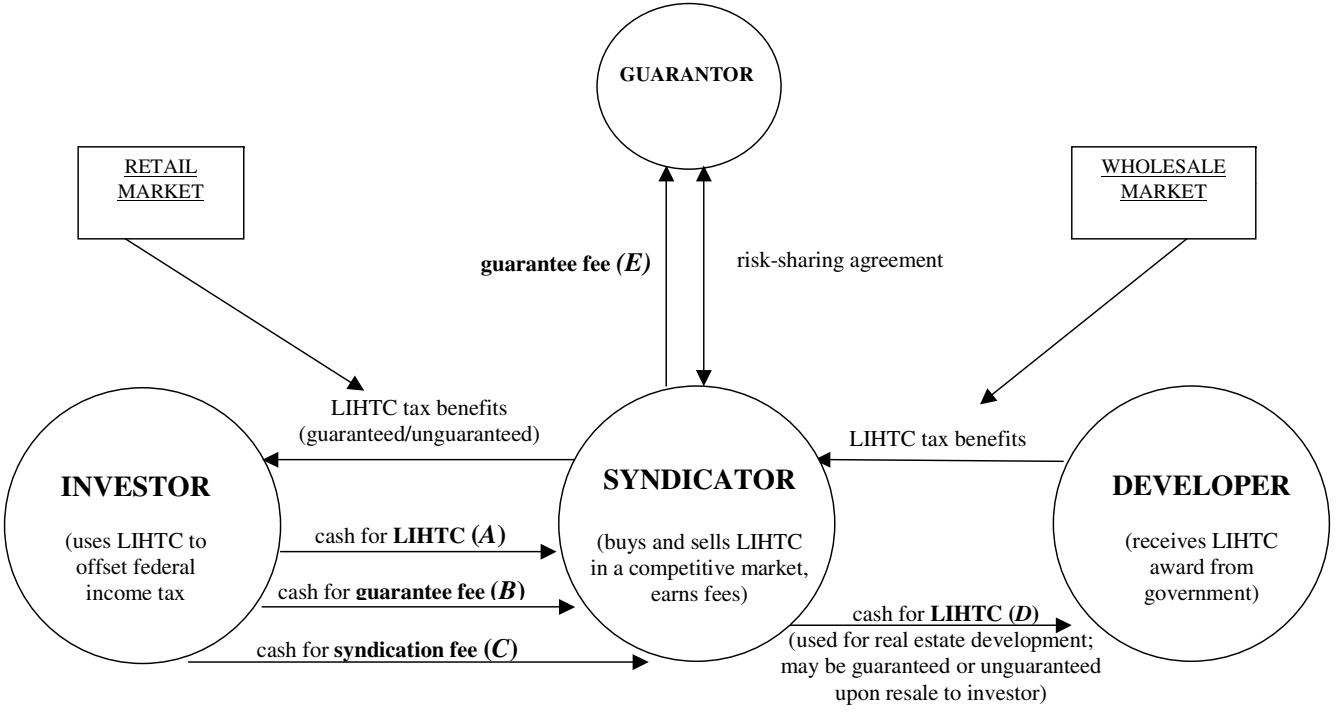
The federal LIHTC program imposes responsibilities on the investor and exacts penalties. LIHTC recapture refers to the loss of expected tax credits and the obligation to

[1] The standard definition in the industry of ''LIHTC price'' is the investor's equity capital divided by the number of LIHTCs purchased. For example, $6.6 billion/$7.9 billion, or 83.5¢ per $1 tax credit. For a published national listing of participants in the market for LIHTCs, such as lenders, investors, and developers, see: http://www.housingfinance.com/. Two excellent general resources are: http://www.novoco.com/ and http://www.danter.com/.

[2] I determined industry representation by (1) searching annual reports for ''low-income housing tax credit,'' (2) reviewing the confidential membership list of the Low Income Housing Investors Council (http://www.ahic.com), and (3) reviewing Table 21 of the SOI Corporation Complete Report (http://www.irs.gov).

[3] See Wolfson (1985) on the benefits of limited partnership arrangements in oil- and gas-related tax-advantaged investments. Tax-advantaged investments are made to access tax benefits generated from assets with favorable tax treatment such as thoroughbreds, oil wells, wind farms, and solar panels. The partnership form of these arrangements differs from the economic substance.

FIGURE 1
LIHTC Market Structure



LIHTC price in wholesale market data (observed) = D.
LIHTC price in retail market data (observed) = (A + B + C) or (A + C); observe total price for guaranteed and unguaranteed LIHTC, not each component.
Syndication fee (estimated) = D − A (estimate using unguaranteed LIHTC).
Guarantee fee (estimated) = D − (A + C) (estimate using guaranteed LIHTC).
D will be larger if guaranteed upon resale to investor if B > E. If B = E, then the syndicator could not pay a higher D. B > E implies that B − E is a lower bound on the amount of cash attributable to the preferred accounting treatment.

partially repay credits already received, plus interest. To avoid LIHTC recapture, the underlying real estate must meet annual compliance requirements (per Section 42 of the Internal Revenue Code) over 15 years and not enter into foreclosure. Investors can protect themselves from LIHTC recapture by purchasing a tax benefit guarantee. If investors purchase a guarantee, then the syndicator ''remits'' a guarantee fee to a third-party guarantor (see Figure 1). Even in the event of foreclosure, guaranteed investors will receive their expected LIHTCs and will not be liable for any repayments.

Guaranteed LIHTC investors accept a lower return on their investment, reflecting the payment of a guarantee fee that accounts for 15.8 percent, on average, of their total investment. Significantly, the purchase of the guarantee also allows such investors to employ a different accounting method. Emerging Issues Task Force No. 94-1 (EITF 94-1), *Accounting for Tax Benefits from Investments in Low-Income Housing Projects*, requires use of the equity method of accounting, which amortizes the equity investment as an operating expense. If the investor purchases a tax benefit guarantee, however, then EITF 94-1 permits use of the effective yield method of accounting, which amortizes the equity investment as a tax expense.

Anecdotally, the effective yield method is preferred over the equity method, since the investor avoids reducing pre-tax earnings. As one investor stated, ''People see the value of receiving a guarantee. There is better accounting treatment and a lack of real-estate worries'' (Guthlein 2003). Yet several sources find the risks associated with these investments to be trivial. One study reports that rates of foreclosure are ''very, very low'' and compare favorably ''by a huge order of magnitude'' with other real estate classes (E&Y 2002). An investment advisor, in private conversation, stated, ''Common sense would dictate that, given the stable performance of these investments, paying a 15 percent guarantee fee makes no sense. The accounting treatment allows investors to justify paying guarantee fees that are way out of line with the risk taken by the guarantor, as a big portion of the fee is really buying favorable accounting treatment.''

To determine if the LIHTC market price, after controlling for risk, is indeed related to investors' preference for the effective yield method of accounting, I analyze a confidential data set of more than 13,000 wholesale market transactions between developers and syndicators over a period of 18 years; this data set includes the price paid for the LIHTCs, characteristics of the investors, and information about the underlying real estate. Results suggest that *at least half* of the guarantee fee is attributable to accounting benefits.[4] Specifically, I estimate that firms sacrifice $1, on average, to avoid reductions to pre-tax earnings of $17. Furthermore, these results are statistically significant after the introduction of EITF 94-1, but not before, supporting the hypothesis that guarantee fees are paid largely to obtain real or perceived accounting benefits.

In addition to the above analysis, I identify two settings where the risk of the investment does not differ systematically, but the tax and financial reporting outcomes and incentives do. These findings corroborate my main result. First, I analyze LIHTC investments with different cash flow and expense recognition outcomes to see if the present-value benefit of faster cash flow realization affected the LIHTC market price.[5] Unguaranteed investors are

[4] Because I am unable to determine the syndicator's *actual cost* of the guarantee from the third party, my estimate is a lower bound (see Figure 1).

[5] I develop the institutional details behind this result and the related hypothesis in Section II, as well as in the Appendix, where I give a detailed numerical example.

seen to pay more for LIHTCs when they realized cash flows faster, while guaranteed investors are not. This result indicates that the protection of pre-tax earnings is of first-order importance for guaranteed investors.

Second, I analyze the LIHTC transactions of investors with different degrees of bargaining power over syndicators. I find that those with significant bargaining power pay less for guaranteed LIHTCs than those with limited or no bargaining power. For investors with bargaining power, the coefficient on the guarantee indicator variable is not significantly different from zero; for investors without bargaining power, the coefficient doubles. This result further exposes the link between the guarantee fee and the accounting benefits. It costs nothing for the syndicator to provide the accounting benefit of expense classification. The investor knows this; yet, having no bargaining power, cannot refuse the syndicator's demand for a hefty premium.

Illustrating that firms sacrifice economic earnings to obtain a desired expense classification contributes to the accounting literature in three ways. First, it validates income statement classification shifting as a form of earnings management. Building on McVay (2006), who investigates ''costless'' classification shifting of special items, this study examines costly expense classification shifting.[6] Second, this study complements the finding by Engel et al. (1999) that managers will incur costs to shift the balance sheet classification of a security from debt to equity; I extend this evidence from the balance sheet to the income statement. Like Engel et al. (1999), I cannot quantify the potential benefits of classification management, but the firms I study behave as if the classification matters. Third, my findings challenge the assumption in Shackelford et al. (2006) that firms view inter-period shifting of pre-tax and after-tax earnings as substitutes. Overall, these results reveal a need for additional research into why firms care about pre-tax earnings and whether their belief that pre-tax earnings matter more than after-tax earnings is attributable to performance measurement, stock price performance, contracting, or political costs.

Section II provides background and develops the hypotheses, Section III describes the research design and the data, Section IV discusses the results, and Section V concludes.

II. BACKGROUND AND HYPOTHESES

Financial Accounting for LIHTCs

Both tax credits and tax deductions realized from investments in LIHTCs generate cash flow for investors, but they affect financial accounting earnings differently. Tax credits decrease a firm's federal income tax liability dollar-for-dollar: Buying 100 LIHTCs reduces the taxes paid to the Internal Revenue Service (IRS) by $100 cash. Thus, tax credits always increase a firm's after-tax earnings, but have no effect on pre-tax earnings. Tax deductions decrease a firm's income tax liability by reducing taxable income. The cash savings equals the amount of the tax deduction (1 − the firm's marginal tax rate). Unlike tax credits, tax deductions reduce pre-tax earnings for financial reporting purposes.[7]

Over the ten-year life of the investment, tax deductions reduce earnings by an amount equal to the amount the investor paid to purchase the LIHTCs. Since the investment is an equity interest in a partnership that does not return the capital contribution to the investor,

[6] McVay (2006, 502) suggests that because there is no ''settling up'' in future periods, the cost of classification shifting as an earnings management tool is greatly reduced. While McVay (2006) also validates classification shifting as a valid earnings management tool, the author largely does so based upon the premise that managers use classification shifting due to its lower cost relative to other forms of earnings manipulation.

[7] I recognize that tax deductions may not reduce pre-tax earnings in the same accounting period they appear on the tax return and discuss the relevance of book-tax conformity when discussing the *inter-period* affects of EITF 94-1.

that capital contribution reflects the cost of the LIHTCs. From an accounting perspective, the investor records an equity investment on the balance sheet equal to the capital contributed to the partnership, and must reduce the carrying amount of the investment to zero over time.[8] Although this reduction has positive economic value, the income statement must reflect the reduction in the carrying amount of the investment, which calls for classifying these reductions as an expense.

EITF 94-1 provides specific guidance on accounting for LIHTC investments. Investors must use the equity method of accounting, treating the amortization of the investment as an operating expense, which reduces pre-tax earnings. If investors purchase a tax benefit guarantee, however, then EITF 94-1 permits use of the effective yield method. This method treats the amortization of the investment as a tax expense, which nets the after-tax cost of the credits with the dollar-for-dollar tax savings they generate. The effective yield method has no effect on pre-tax earnings. Over the ten-year life of identically priced tax credit investments, the cumulative effect on net income is the same under both accounting methods.

Consider an example to illustrate the *intra-period* affect of EITF 94-1 on the income statements of three hypothetical firms. Suppose 100 LIHTCs are available for $80, and three firms have $1,000 in sales revenue and a marginal tax rate of 35 percent. Firm A does not buy any LIHTCs. Firm B buys unguaranteed LIHTCs. Firm C buys guaranteed LIHTCs. Consistent with EITF 94-1, Firm B uses the equity method and Firm C uses the effective yield method of accounting. The cumulative effect on net income is as follows:

	Firm A	**Firm B Equity Method: Operating Expense Classification**	**Firm C Effective Yield Method: Tax Expense Classification**
Sales Revenue	1,000	1,000	1,000
Operating Expense	0	(80)	0
Pre-Tax Earnings	1,000	920	1,000
Tax Expense	350	222[a]	302[b]
Net Income	650	698	698
ETR[c]	35.00%	24.13%	30.02%

[a] 222 = [920 × .35] − 100;

[b] 302 = [(1,000 × .35) − 100] + [80 × (1 − .35)] or 222 + 80; and

[c] Effective tax rate (ETR) = tax expense/pre-tax earnings.

Firm C shows higher pre-tax earnings than Firm B, but the same net income. By netting the after-tax cost of the LIHTCs against the tax savings they provide, Firm C realizes a smaller decrease to tax expense (relative to Firm A) than does Firm B. The accounting methods also affect the firms' effective tax rates (ETRs). Investing in LIHTCs lowers the ETR of both Firm B and Firm C relative to Firm A. Firm B shows a lower ETR relative to Firm C because the tax expense of Firm B reflects *all* of the tax benefits from the investment at the gross amount. In general, however, since the tax credits are received *pro*

[8] LIHTC projects generate operating losses because interest and depreciation deductions exceed reduced rental income. For public policy reasons, these properties are underwritten to operate at break-even for cash flow purposes.

rata over a ten-year period, Firm B's ETR will be more volatile.[9] If in the following year Firm B and C both experience a 5 percent increase in sales, then this will induce a 2.27 percent change in Firm B's ETR and only a 0.75 percent change in Firm C's ETR (Firm A's ETR will not change).[10]

The *inter-period* effect of EITF 94-1 on accounting earnings is more nuanced. Under the equity method of accounting, investors reduce the carrying value of (e.g., amortize) their investment as they receive operating loss allocations from the partnership. Under the effective yield method of accounting, investors reduce that carrying value at a rate that produces a constant effective yield.[11] Under both accounting methods, the investor reduces the carrying value of the investment to zero. The cumulative effect on net income is the same over the ten-year period; annual differences in net income occur if the partnership loss allocations used in the equity method are higher or lower than the book amortization used in the effective yield method. From the investor's perspective, an important outcome of the inter-period effect is that partnership loss allocations produce cash flows from tax savings because they reduce taxable income, while book amortization—which may or may not occur at the same rate as the underlying loss allocations—reduces earnings. Thus, the equity method amortizes the investment at the same rate for book and tax purposes, while the effective yield method does not.

The Market for LIHTCs

Investors buy LIHTCs from developers through intermediaries called syndicators, experts in the administrative and compliance issues associated with investing in these real estate partnerships. The system matches an estimated 10,000-plus developers with more than 400 corporate investors and thousands of individual investors. Syndicators buy LIHTCs from developers in a wholesale market. Investors buy LIHTCs from syndicators in a retail market and pay syndication fees to compensate the syndicator for performing asset search, management, compliance, and reporting functions over the life of the investment. Syndicators also supply guarantees to corporate investors, for a fee, by forming relationships with investment grade guarantors in accordance with a risk- and fee-sharing arrangement (see Figure 1).

Government LIHTC allocations encourage certain types of housing projects (i.e., rehabilitation versus new construction) by providing tax credits to finance either 9 percent (''9 percent LIHTCs'') or 4 percent (''4 percent LIHTCs'') of the real estate development costs. Developers can finance a larger portion of their development costs through 9 percent LIHTCs. Housing projects allocated 4 percent LIHTCs must secure higher mortgages and other subsidies to fund construction, generating relatively higher operating losses in the

[9] It is plausible, but not clear, that ETR-related effects (as opposed to higher pre-tax earnings) could lead firms to prefer the effective yield method. While the ETR for Firm C is higher, it will be less volatile. No empirical evidence exists to identify which ETR characteristics firms prefer, with one exception: Wong (1988) provides evidence from accounting for export tax credits that firms prefer higher ETRs to avoid political costs. No anecdotal evidence implies that the effective yield method is preferred for its lower ETR volatility.

[10] Firm B's pre-tax income would be \$970 with a tax expense of \$239.50 = [((\$1,000 × 1.05) − \$80) × 0.35)] − \$100, and the ETR would be 24.69 percent (\$239.50/\$970). Firm C's pre-tax income would become \$1,050 with a tax expense of \$319.50 = [((\$1.000 × 1.05) × 0.35)] − \$100 + [(\$80) × (1 − .35)], and the ETR would be 30.42 percent (\$319.50/\$1,050). The change in ETR is 0.75 and 2.27 percent, respectively. These ETR changes are induced entirely by changes in pre-tax income and the relative portion of the tax benefit reported in tax expense, rather than by temporal differences in tax planning. This effect is consistent with Bryant-Kutcher et al. (2009).

[11] The effective yield method is analogous to accounting for bonds and mortgages.

early years of the project.[12] This feature does not imply that investors receive *more* tax deductions (deductions are limited to the equity or ''at risk'' investment in the limited partnership), only that they receive them more rapidly. This arrangement creates a cash flow benefit for the investor on a present-value basis that I explore in the empirical analysis.

Section 42 of the Internal Revenue Code (IRC) requires these real estate projects to meet annual compliance requirements (e.g., maintain the required amount of income-eligible tenants or ensure that appropriate documentation is available for annual housing audits conducted by State Housing Agencies). Recordkeeping and verification of tenant eligibility is critical to maintaining compliance. LIHTCs are subject to recapture if the project fails to meet the IRC requirements or enters into foreclosure during the 15-year compliance period. Investors become ineligible to use the remaining LIHTCs to reduce their future federal tax liability and may be required to repay a portion of past credits, with interest. The portion recaptured decreases as the project nears the end of the compliance period. Recapture thus puts investors' sole investment return in jeopardy.

In practice, the risk of recapture is trivial. If the IRS learns of noncompliance through a tax audit, then it allows for a six-month correction period. In terms of recordkeeping, investors reduce their risk by using deferred developer fees, providing incentives for the developer to meet the IRC requirements in order to receive their fees. To contract on the requirements to fill the units with qualifying tenants and to maintain restricted rent levels is more difficult because these depend on demand for low-income housing. The housing project's design and location must be sufficiently attractive to the target tenant base. Housing projects enter into foreclosure when weak housing markets cause chronic operational difficulties. Importantly, investors' tax benefits are only in jeopardy from this ''market risk'' if the project's underperformance is so severe that it cannot be resolved.

A number of indicators support the notion that the risk of recapture is low. First, E&Y (2002) reports that the foreclosure rate on these projects from 1987 through 2002 is 0.01 percent annually, nearly 50 times lower than market-rate apartments. Second, a market for guarantees has not developed for individual investors. If these investments were risky, then these investors would also seek guarantees. Third, the data show that the incidence of guaranteed investments doubled after the passage of EITF 94-1, suggesting that the favorable accounting treatment increased demand for guarantees. Fourth, the IRS's recapture statistics show that $17.5 million allocated LIHTCs were disallowed over the three-year period from January 1, 1995 through December 31, 1997 due to noncompliance issues. Assuming the same rate applied from 1987 through 1994, the IRS disallowed approximately $64.2 million LIHTCs since the program's inception. This represents only 1.7 percent of the $3.61 billion LIHTCs granted from 1987 through 1997.[13] Fifth, E&Y (2002) report that only 0.9 percent of the projects surveyed report an IRS examination from 1987 through 2002; of these, only 8 percent reported reduced tax credits resulting from those audits. The study concludes, ''The tiny rate of IRS audits compares favorably with other kinds of 'tax-advantaged' investments.'' Sixth, the National Association of Insurance Commissioners

[12] The other sources of financing generate interest costs that, when coupled with the depreciation of the real estate, generate higher operating losses early in the project's life. The E&Y (2008) report confirms that the mix of financing does not appear to affect the performance of the underlying real estate.

[13] The actual percentage of tax credits disallowed over the period is likely to be even lower. Assuming the same disallowance rate over the entire period assumes that a higher percentage of the cumulative amount granted were disallowed in the early years of the program because the supply of LIHTCs is increasing over time. The cumulative amount of tax credits granted from 1987 through 1997 comes from the Housing Finance Agency 2003 *Factbook*; IRS audit statistics come from the Low-Income Housing Tax Credit Handbook, Appendix S.

(NAIC) outlined eight reasons why these investments are low risk.[14] One reason is that housing market fluctuations do not reduce an investor's tax benefits, because the benefits are not in the form of cash flow from operations. In fact, corporate investors can actually benefit from temporary (e.g., not leading to foreclosure) underperformance of a project. Poor performance increases the partnership's operating losses, thereby accelerating the investor's tax deductions. Due to underperformance not resulting in a foreclosure, unguaranteed LIHTC investments on average provided returns 2 percent greater than originally projected (Kimura 2006). In contrast, guaranteed investments have neither downside *nor upside* return potential. Despite the above evidence to suggest the risk of tax credit recapture is trivial, it is not zero, and therefore I include a number of controls for risk in my empirical analysis.

Motivation and Hypotheses

Both empirical and anecdotal evidence suggest that some managers have incentives to prefer tax expense classification, which avoids reductions in pre-tax earnings. First, there are contracting and political cost incentives for managers to report higher pre-tax earnings. Compensation contracts often use pre-tax earnings as a performance measure. Nearly 40 percent of the sample firms in Phillips (2003) use pre-tax earnings in their executive compensation plans. Additionally, earnings before interest and tax (EBIT) and other similar ''pre-tax'' earnings metrics are commonly used financial covenants in debt and other credit agreements. Finally, Wong (1988) provides empirical evidence from accounting for export tax credits that firms prefer higher ETRs to avoid political costs. Application of the effective yield method results in higher pre-tax earnings and a higher ETR.

The accounting literature also documents capital market incentives to prefer tax expense to operating expense classification. Empirical studies indicate that users of financial statements value components of earnings differently (e.g., Lipe 1986; Fairfield et al. 1996; Davis 2002; Bradshaw and Sloan 2002; McVay 2006). A common theme in this literature is that managers believe earnings classification affects the expectations of the readers of their financial statement, even though shifting expenses down (or revenue up) the income statement does not affect bottom-line earnings. By shifting the cost of the LIHTCs from operating expense ''down'' the income statement to tax expense, firms could sense that they are presenting a better picture of performance.[15]

It is also well established in the accounting literature that the stock price response to earnings (or components of earnings) is a function of the amount of new information contained in the earnings or earnings component (the ''shock''), and the persistence of the shock (Lipe 1986, 1990; Kormendi and Lipe 1987; Collins and Kothari 1989). Lipe (1986) finds that the stock price reaction to changes in earnings components, one of which is income tax expense, is positively related to the persistence of the component. Abarbanell and Bushee (1997) and Lev and Thiagarajan (1993) show that ETR-related earnings changes are valued less by the market than other types of earnings changes, arguing that ''an unusual decrease in the effective tax rate is generally considered a negative signal about earnings persistence'' (Lev and Thiagarajan 1993, 196). These findings are consistent with the idea that (1) tax-related earnings changes are less persistent than other types of earnings changes,

[14] Attachment 12 A, Ref # 2002-28 is a working group document that outlines these reasons; see http://www.naic.org.

[15] In my setting, this perception is consistent with the controllability principle reflected in work by Antle and Demski (1988). Relative to tax expenses, outsiders are more likely to view operating expenses as controllable by the firm managers.

and (2) because of this lack of persistence the stock price reaction to tax-related earnings changes is less than that for other types. Overall, the implication of this literature for my study is that, if tax-related earnings changes are a negative signal about earnings persistence, then firms should prefer the effective yield method because of the lower initial drop in the ETR or the lower ETR volatility over the life of the LIHTC investment.

Finally, anecdotal evidence suggests that firms believe the accounting treatment matters. A comment submitted to the FASB during deliberation of EITF 94-1 states:

> net operating losses will be generated throughout the term of the investment. These pre-tax operating losses would indicate to readers of its financial statements a level of asset impairment and investment imprudence which simply doesn't exist. (Berkeley Federal 1994)

A similar anecdote from a syndicator appeared in *Housing Finance*, a widely read trade journal:

> [Guarantees] also reduce concerns about accounting for investments. [With a guarantee], operating losses from depreciation do not have to be recognized against pre-tax income on corporate financial statements.[16] (Anonymous 2002)

If corporate investors value the accounting benefits associated with the effective yield method, as the above discussion implies, then I would expect to observe a premium on guaranteed LIHTCs in the wholesale market. If the guarantee fee justifiably represents an insurance payment, then the syndicator should remit the entire guarantee fee received in the retail market transaction to the guarantor. If instead the guarantee fee reflects an investor's willingness to pay for accounting benefits, then syndicators bidding competitively for a fixed supply of developers' LIHTCs each year can pay a premium to the developer when the investment is sold to a guaranteed investor.[17] This leads to my first hypothesis:

> **H1:** The wholesale market price of a guaranteed LIHTC is higher relative to an unguaranteed LIHTC.

Next, I examine whether the hypothesized premium on guaranteed LIHTCs differs across the periods before and after EITF 94-1 was effective. The Tax Reform Act of 1986 introduced the LIHTC program, yet the accounting guidance for corporate investment in LIHTCs became effective during May 1995. If corporate investors value the guarantee for its accounting benefits, then I expect a higher premium on guaranteed LIHTCs in the wholesale market after EITF 94-1 came into effect. This leads to my second hypothesis:

> **H2:** The wholesale market premium on a guaranteed LIHTC relative to an unguaranteed LIHTC is higher during the time period EITF 94-1 was effective relative to the time period before EITF 94-1 was effective.

I further examine whether accounting affects the market price of a guarantee by identifying two settings in which the tax and financial accounting outcomes and incentives differ, but risk does not. In the first setting, I identify LIHTC investments that offer faster

[16] http://www.housingfinance.com/housingreferencecenter/Corporate_Investment.html.

[17] See Desai et al. (2008) and Bingham and Guthlein (2001) for an analysis of the supply-side nature of the low-income housing tax credit program. The federal government limits the supply of housing credits per year based on per capita state allocation thresholds.

cash flow realization via accelerated tax deductions. I then examine whether guaranteed investors pay a higher premium for these LIHTC investments than unguaranteed investors. Unlike unguaranteed investors, guaranteed investors can realize the cash flow benefits of accelerated tax deductions without reducing short-term net income.

Two cash flow and accounting features of LIHTC investments are important in developing my third hypothesis. (These features are illustrated using a detailed numerical example in the Appendix.) First, investors recognize accelerated tax deductions from LIHTC investments in projects that receive 4 percent LIHTCs (as opposed to 9 percent LIHTCs) because operating losses are generated more quickly from the underlying real estate partnership. I refer to LIHTC investments that generate accelerated tax deductions as ''high present value'' (*HighPV*), and those that do not as ''low present value'' (*LowPV*). Accelerated tax deductions generate higher cash flow on a present-value basis although the investor's total tax deduction is the same across identically priced *HighPV* and *LowPV* LIHTC investments. Second, unguaranteed investors using the equity method reduce the carrying value of their LIHTC investment as an expense at the same time they receive loss allocations from the partnership. Accordingly, investors in unguaranteed *HighPV* investments reduce short-term after-tax earnings due to book-tax conformity on the event that triggers expense recognition. In contrast, guaranteed investors using the effective yield method reduce the carrying value of their investment at a rate that produces a constant effective yield, instead of when they receive loss allocations from the partnership. Thus, investors in guaranteed *HighPV* investments do not reduce short-term after-tax earnings, yet are still able to capture the higher cash flow benefit.

Since unguaranteed investors must reduce short-term bottom-line earnings to realize cash flows faster, while guaranteed investors do not, I expect the premium on guaranteed *HighPV* relative to guaranteed *LowPV* investments to be greater than the premium on unguaranteed *HighPV* relative to unguaranteed *LowPV* investments. This reasoning leads to my third hypothesis:

H3: The wholesale market premium on a *HighPV* LIHTC relative to a *LowPV* LIHTC is higher for a guaranteed LIHTC relative to an unguaranteed LIHTC.

In the second setting, I investigate whether the bargaining power of the investor affects the premium on guaranteed LIHTCs. The data allow me to identify investments held by corporations that make frequent and large purchases of LIHTCs, generally to satisfy regulatory requirements such as the Community Reinvestment Act. Fannie Mae, for example, reported spending $1.6 billion on LIHTCs in one year, purchasing approximately 20 percent of all those available from the federal government that year (http://www.fanniemae.com/newsreleases/2003). In the industry, these large investors are termed ''proprietary investors.''

Corporate investors with significant bargaining power, even if they valued the accounting benefits, would likely not be willing to pay a high guarantee fee, because they know that payments for preferential accounting are pure profit for the syndicator. The use of bargaining power to reduce the cost of the guarantee could result in a reduced fee to the guarantor, or a reduction in the profit earned by the syndicator. Since only a reduction in the syndicator's profit would affect the wholesale price of a guaranteed LIHTC, evidence that the price premium is smaller for proprietary investors would corroborate the notion that guarantees are valued for the ability to obtain preferential accounting. This reasoning leads to my fourth hypothesis:

H4: The wholesale market premium on a guaranteed LIHTC relative to an unguaranteed LIHTC is lower for proprietary investors relative to nonproprietary investors.

III. RESEARCH DESIGN

Model

To test this study's four hypotheses, I estimate a general model, in which the wholesale LIHTC price is a function of the existence of a guarantee and certain other characteristics of the investment. To test H1, I use wholesale market data on corporate LIHTC investments from 1995 through 2005, which represents the time period during which ETIF 94-1 was effective, to estimate Equation (1) below (year, syndicator, and project subscripts are suppressed):

$$\begin{aligned} \textit{Wholesale LIHTC Price} = {} & \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{WestNE} + \beta_3 \textit{Tenant} \\ & + \beta_4 \textit{Suburb} + \beta_5 \textit{Poverty} + \beta_6 \textit{Vacancy} + \beta_7 \textit{Rent} \\ & + \beta_8 \textit{Size} + \beta_9 \textit{Diff2Dev} + \beta_{10} \textit{QualCensus} \\ & + \beta_{11} \textit{ConstType} + \beta_{12} \textit{Reputation} \\ & + \beta_{13} \textit{ForprofDev} + \beta_{14} \textit{SoftDebt} + \beta_{15} \textit{Sec515} \\ & + \textit{Year, Syndicator Indicators} + \varepsilon. \end{aligned} \tag{1}$$

The dependent variable in Equation (1) is syndicator equity contributed to the real estate partnership, divided by the total number of LIHTCs the syndicator purchased. This is the standard industry definition of wholesale LIHTC price, representing the amount paid per dollar of LIHTC. I estimate a pooled ordinary least-squares (OLS) regression that includes year and syndicator fixed effects to control for temporal variations in price and unobserved heterogeneity among syndicators. I cluster standard errors by syndicator (see Petersen 2009). *Guarantee* is set equal to 1 if the LIHTCs are sold to a guaranteed investor, and 0 otherwise. Consistent with H1, I expect a positive coefficient on β_1. I test the null hypothesis that $\beta_1 \leq 0$ against the alternate hypothesis that $\beta_1 > 0$.

In specifying the control variables, I draw from prior research on low-income housing projects (Cummings and DiPasquale 1998, 1999). I measure all control variables such that a higher value implies lower risk; thus, I expect a positive coefficient on each. In cases with three or more market characteristic classifications, I sort characteristics into high versus low risk (refer to Table 1 for variable definitions).

The first set of control variables—*WestNE*, *Tenant*, and *Suburb*—control for general housing market risk. Relative to the West and Northeast, markets in the Midwest and South tend to have subsidized rents at par with market rents, making these units less competitive. (Anonymous 2001). Investors believe that properties targeted at families perform worse financially because they encounter more unit turnover and require more physical upkeep than those properties that are targeted at elderly tenants (Copeman and Floreani 2003). Suburban projects have a larger tenant set than rural ones; they also carry the positive perception of suburban living, while those in urban markets suffer from negative perceptions of the inner city (i.e., drugs, crime, etc.).

Because these variables are not likely to capture local housing market conditions, I construct *Poverty*, *Vacancy*, and *Rent* from 2000 U.S. Census Bureau data, at the five-digit zip code level. Demand for low-income housing should be greatest in markets densely

TABLE 1
Variable Definitions and Data Sources

Variable		Description	Source
Wholesale LIHTC Price	=	Investor capital contributed to project for LIHTCs/ Federal LIHTCs purchased.	E&Y Survey, http://www.ey.com/us/ taxcreditadvisory, Dollar amount of net equity/Amount of federal LIHTCs.
Guarantee	=	1 if investor purchased a guarantee ensuring the availability of the projected tax benefits, 0 otherwise.	E&Y Survey, http://www.ey.com/us/ taxcreditadvisory, Has the project been acquired by an entity that provides a guarantee to the investor ensuring the availability of substantially all of the projected LIHTCs. For this purpose, the guarantee excludes standard lower-tier partnership guarantee provisions, such as development, operating, and repurchase guarantees.[a]
Post-EITF	=	1 if transaction occurred after 1994, 0 otherwise.	E&Y Survey, http://www.ey.com/us/ taxcreditadvisory, Year project placed in service.
HighPV	=	1 if the project was allocated the 4 percent LIHTC only or if the primary source of financing was tax-exempt debt, 0 otherwise.	HUD Database, http://www. huduser.org/datasets/lihtc.html, What type of credit did the developer receive? (1 = 4 percent, 2 = 9 percent, 3 = both) and E&Y Survey, http://www.ey.com/us/ taxcreditadvisory, Type of primary financing.
Proprietary	=	1 if proprietary LIHTC investment, 0 otherwise.	E&Y Survey, http://www.ey.com/us/ taxcreditadvisory, Was the investment sold to an individual, (corporate) nonproprietary, or (corporate) proprietary investor?
Control Variables			
WestNE	=	1 if housing project is located in the northeastern or western region of the U.S., 0 otherwise.	U.S. Census Bureau, http://www. census.gov/geo/www/ us_regdiv.pdf.
Tenant	=	1 if housing project does not target families, 0 otherwise.	HUD Database, http://www. huduser.org/datasets/lihtc.html, What type of tenant does the property predominantly target?
Suburb	=	1 if housing project is located in a suburban (e.g., metro/non-central city) market, 0 otherwise.	HUD Database, http://www. huduser.org/datasets/lihtc.html, Is the census tract metro or non-metro? (1 = Metro/Non-Central City, 2 = Metro/Central City, 3 = Non-Metro); based on U.S. Census Bureau definition of population density.

(*continued on next page*)

TABLE 1 (continued)

Variable		Description	Source
Poverty	=	Percent of population (in five-digit zip code of project) whose ratio of income to poverty level is below 1.25.	U.S. Census Bureau, SF 3 (P088001-P088010), http://factfinder.census.gov.
Vacancy	=	Occupancy rate for market rate rental units (in five-digit zip code of project).	U.S. Census Bureau, SF 3 (H008002)/(H008002+H054001), http://factfinder.census.gov.
Rent	=	Ratio of median rent to median household income (in five-digit zip code of project).	U.S. Census Bureau, SF 3 (P053001), http://factfinder.census.gov.
Size	=	1 if number of rental units is less than 50, 2 if between 50 and 100, 3 if greater than 100.	E&Y Survey, http://www.ey.com/us/taxcreditadvisory, Total number of rental units.
Diff2Dev	=	1 if project is not in a difficult to develop area (areas with high construction, land, and utility costs relative to area median gross income per Federal Register), 0 otherwise.	HUD Database, http://www.huduser.org/datasets/lihtc.html, Is the census tract in a difficult development area? (DDA) (0 = Not in DDA, 1 = In Metro DDA, 2 = In Non-Metro DDA).
QualCensus	=	1 if project is located on a qualified census tract (a census tract in which at least half of its households have incomes of less than 60 percent of area median gross income per Federal Register), 0 otherwise.	HUD Database, http://www.huduser.org/datasets/lihtc.html, Is the census tract a qualified census tract? (Yes or No).
ConstType	=	1 if project is not solely a new construction, 0 otherwise.	HUD Database, http://www.huduser.org/datasets/lihtc.html, Type of construction (1 = New construction, 2 = Acquisition and Rehab, 3 = Both new construction and Acquisition and Rehab, or 4 = Existing project).
Reputation	=	Cumulative number of times a project's developer appears as the primary contact for any project since 1987 (as of transaction year).	HUD Database, http://www.huduser.org/datasets/lihtc.html, Project contact and project company name.
ForprofDev	=	1 if developer is a for-profit entity, 0 otherwise.	HUD Database, http://www.huduser.org/datasets/lihtc.html, Is the developer a non-profit entity? (Yes or No).

(*continued on next page*)

TABLE 1 (continued)

Variable		Description	Source
SoftDebt	=	1 if project's primary source of permanent financing is soft debt, 0 otherwise.	E&Y Survey, http://www.ey.com/us/taxcreditadvisory, Type of primary financing.
Sec515	=	1 if project received a rural development grant, 0 otherwise.	HUD Database, http://www.huduser.org/datasets/lihtc.html, Did the project receive an FmHA (RHS) Section 515 Loan? (Yes or No).

[a] E&Y indicated that the wording used in the survey was common in the institutional setting and is the same guarantee to which EITF 94-1 refers.

populated by people whose ratio of income to poverty level is below 1.25. A high rental vacancy rate may indicate a soft overall rental market, making it difficult to keep low-income units occupied. Where the ratio of median contract rent to median gross income is high, market-rate housing is less affordable and demand for low-income housing greater.

The variables *Size*, *Diff2Dev*, *QualCensus*, and *ConstType* control for the cost, rather than the occupancy dimension of market risk. Smaller projects are more expensive to operate than larger projects (Anonymous 2001). A difficult development area (DDA) is designated by HUD as one with high construction, land, and utility costs relative to its area median gross income (AMGI). A qualified census tract is one in which at least half the households have incomes less than 60 percent of AMGI. In terms of construction type, rehabilitating existing buildings is thought to be safer than new construction, since "rehabs" have an existing rental market with a track record.

To control for the effect of developer characteristics, I include *Reputation* and *ForprofDev*. The reputation and experience of the developer indicate overall risk, since developers vary in their ability to oversee projects under different housing market conditions. Non-profit developers are generally smaller and more focused on community support, and are perceived to have less experience than for-profit developers.

Consistent with Cummings and DiPasquale (1998, 1999), I include two final variables—*SoftDebt* and *Sec515*—to control for risk associated with being unable to service the non-equity sources of project financing. Soft debt is less risky; payments come from the housing project's cash flows, rather than from a mandatory payment schedule, and negative cash flows do not require debt service. The Section 515 rural rental housing program, also known as the farmer's home program (FmHA), provides 1 percent mortgages on housing projects funded with LIHTCs. These loans significantly reduce the likelihood of foreclosure.

To test H2, I use wholesale market data on corporate LIHTC investments from 1987 through 2005, which represents the time period from enactment of the LIHTC program to present. I estimate Equation (2), which incorporates an indicator variable, *Post-EITF,* as well as an interaction term, *Guarantee* $\times$ *Post-EITF*, into Equation (1). *Post-EITF* is set equal to 1 if the transaction year is 1995 or later, and 0 otherwise. If investors value guarantees for accounting benefits under EITF 94-1, then I expect a positive coefficient on the interaction term. Therefore, the coefficient of interest is β_3. I estimate the following model and test the null hypothesis that $\beta_3 \leq 0$ against the alternate hypothesis that $\beta_3 > 0$.

$$\begin{aligned} \textit{Wholesale LIHTC Price} = {} & \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{Post-EITF} \\ & + \beta_3 \textit{Guarantee} \times \textit{Post-EITF} + \beta_{4\text{-}17} \textit{Controls} \\ & + \textit{Year, Syndicator Indicators} + \varepsilon. \end{aligned} \tag{2}$$

To test H3, I use wholesale market data on corporate LIHTC investments from 1995 through 2005 to estimate Equation (3), which incorporates a variable, *HighPV*, as well as an interaction term, *Guarantee* × *HighPV*, into Equation (1). *HighPV* is set equal to 1 if the project was allocated the 4 percent LIHTC only or if the primary source of financing was tax-exempt debt, and 0 otherwise.[18] If firms value cash flow from tax deductions more when the negative impact on accounting earnings is less severe, then I expect a positive coefficient on the interaction term.[19] In terms of the model, β_2 represents the premium on an unguaranteed *HighPV* investment relative to an unguaranteed *LowPV* investment, while $\beta_2 + \beta_3$ represents the premium on a guaranteed *HighPV* investment relative to a guaranteed *LowPV* investment. Thus, I use a difference-in-difference approach, with β_3 the coefficient of interest. I estimate the following model and test the null hypothesis that $\beta_3 \leq 0$ against the alternate hypothesis that $\beta_3 > 0$.

$$\begin{aligned} \textit{Wholesale LIHTC Price} = {} & \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{HighPV} \\ & + \beta_3 \textit{Guarantee} \times \textit{HighPV} + \beta_{4\text{-}17} \textit{Controls} \\ & + \textit{Year, Syndicator Indicators} + \varepsilon. \end{aligned} \tag{3}$$

Finally, to test H4, I use wholesale market data on corporate LIHTC investments from 1995 through 2005 to estimate Equation (4), which incorporates an indicator variable for *Proprietary*, as well as an interaction term, *Guarantee* × *Proprietary*, into Equation (1). *Proprietary* is set equal to 1 if the LIHTCs were sold to a proprietary investor, and 0 otherwise. Proprietary investors are more important to the syndicator's business, reducing the syndicator's ability (and inclination) to charge a guarantee fee that exceeds the cost of providing the guarantee. In terms of the model, β_1 represents the premium on a guaranteed investment relative to an unguaranteed investment paid by nonproprietary investors, while $\beta_1 + \beta_3$ represents the premium on a guaranteed investment relative to an unguaranteed investment paid by proprietary investors. Again, β_3 is the coefficient of interest. I estimate the following model and test the null hypothesis that $\beta_3 \geq 0$ against the alternate hypothesis that $\beta_3 < 0$.

$$\begin{aligned} \textit{Wholesale LIHTC Price} = {} & \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{Proprietary} \\ & + \beta_3 \textit{Guarantee} \times \textit{Proprietary} + \beta_{4\text{-}17} \textit{Controls} \\ & + \textit{Year, Syndicator Indicators} + \varepsilon. \end{aligned} \tag{4}$$

[18] Investors holding 4 percent credits will receive tax deductions (i.e., realize cash flows) faster. The 4 percent and 9 percent figures refer to the approximate percentage of the eligible project costs that investors may claim on federal tax returns for a ten-year period. Developers that use tax-exempt debt to finance their projects automatically receive a 4 percent credit (e.g., a lower subsidy).

[19] There is anecdotal evidence to support my prediction. Paul Richman, a syndicator, states that "due to the book income problems associated with 4 percent LIHTCs, the market is currently experiencing a shortage of investors in these tax credits" (Richman 2001; Anonymous 2002). Furthermore, the following statement captures the notion that the book-tax trade-off changes for guaranteed investors: "The guaranteed market appears to have become an outlet for selling 4 percent LIHTCs. These credits have become an anathema to corporate investors, due to the negative impact their higher losses have on earnings. This disincentive falls away when the credits are guaranteed."

Data

I combine two primary data sets to examine the possibility that accounting rules influence the market price of LIHTCs. First, the U.S. Department of Housing and Urban Development (HUD) maintains an extensive database on low-income housing projects, containing 27,410 projects placed in service from 1987 through 2005.[20] Second, Ernst & Young LLP's Tax Credit Advisory Group (E&Y) conducts an annual survey of syndicators and has compiled wholesale market transaction data on 13,986 projects placed in service from 1987 through 2005.[21] Table 2, Panel A, shows that matching these two data sets based on street address and/or project partnership name results in combined data consisting of 11,893 projects with all required variables for the analysis. To construct several control variables, I use data published by the U.S. Census Bureau. To assess the economic magnitude of my empirical results, I collected retail market data from syndicators. Much of these data are proprietary, unique to this institutional setting, and new to the accounting literature.[22]

Table 2, Panel B summarizes the sample composition. In the pre-EITF 94-1 period, 46 (54) percent of the sample consists of investments held by corporate (individual) investors, while in the post-EITF 94-1 period, 89 (11) percent of the sample consists of investments held by corporate (individual) investors.[23] Anecdotally, the Revenue Reconciliation Act of 1993 (which made Section 42 a permanent part of the tax code) increased demand from corporate investors for LIHTCs, which in turn led to the issuance of EITF 94-1. The percentage of guaranteed investments (as a percentage of investments held by corporations) is 16 percent in the post-EITF 94-1 period, more than twice the 7 percent observed in the pre-EITF 94-1 period. Approximately 26 percent of corporate investments in the post EITF 94-1 data represent investments held by proprietary investors, providing sufficient variation in investor type to test H4. Table 2, Panel C suggests that while corporate investment in LIHTCs grew over time, the percentage of guaranteed corporate investments also increased. The increase in demand for guarantees appears to coincide largely with the issuance of EITF 94-1, with a nearly threefold increase from 1994 to 1996; it remains relatively high for the remainder of the post EITF 94-1 time period.[24]

Table 3 provides descriptive statistics for the dependent and independent variables. Variables constructed from HUD data to control for developer characteristics—*Reputation* and *NonprofDev*—reveal that, on average, developers appear six times in the database, with the largest developer appearing 85 times.[25] Additionally, 76 percent of developers are for-profit entities, and the average credit price is 72 cents per dollar of tax credit purchased. Table 4 provides Pearson correlations for the dependent and independent variables; bold correlations are significant ($p < .10$). The data do not exhibit significant multicollinearity.

[20] HUD obtains information from state housing agencies that administer the LIHTC program throughout the United States and U.S. territories. The database, a data dictionary, and summary reports are available for download at: http://www.huduser.org/datasets/lihtc.html.

[21] E&Y conducts a survey of LIHTC syndicators and publishes aggregate trends. The survey, a data dictionary, and a list of data providers is available for download at: http://www.ey.com/us/taxcreditadvisory.

[22] A detailed data appendix matching variable names across E&Y and HUD data sets is available from the author.

[23] I define the pre-EITF 94-1 period as pre-1995 because according to the EITF 94-1 meeting minutes, consensus was not affirmed until May 19, 1995.

[24] Guarantees have been demanded and available since the inception of the LIHTC program in 1987. However, prior to 1995, guarantees did not have accounting benefits associated with them.

[25] In constructing *Reputation*, I assume the HUD variable ''Project Company'' is the developer. According to Michael Hollar at HUD, Project Company may be a representative of the developer (i.e., a real estate management company). This would understate the actual number of projects per developer, because a single developer may use multiple management companies for the various projects it owns. While there appears to be a large developer in the data set, my results are not sensitive to excluding these observations from my analysis or winsorizing *Reputation*.

TABLE 2
Sample and Data

Panel A: Sample Selection

Number of housing projects in HUD data	27,410
Number of housing projects in E&Y data	13,986
Intersection of matched E&Y and HUD data	11,893

Panel B: Sample Composition

	Pre-EITF 94-1 (%)	Post EITF 94-1 (%)
Transactions	18.29	81.70
Corporate	46.01	89.96
Guaranteed	7.38	16.65
Proprietary	14.03	26.77

Panel C: Investor-Type Composition and Guarantees by Year

	Corporate (%)	Guaranteed (%) (Corporate Only)
1987	26.42	2.17
1988	22.96	1.67
1989	30.90	4.90
1990	29.34	6.01
1991	28.20	8.17
1992	43.25	6.07
1993	45.44	6.69
1994	58.44	7.78
1995	76.31	12.18
1996	87.60	22.43
1997	89.11	18.22
1998	89.90	18.03
1999	90.95	18.04
2000	95.54	18.23
2001	94.27	16.49
2002	95.37	14.23
2003	95.88	15.90
2004	95.92	17.56
2005	97.65	18.47

In fact, the highest correlation among the variables is on *QualCensus* with *Poverty* (r = .5211). Both variables capture the concentration of poverty within a particular area, with *Poverty* measuring income at the five-digit zip code level instead of by census tract. This high correlation validates the use of U.S. Census Bureau data to control for local market conditions. *Wholesale LIHTC Price* is positively correlated with the guarantee indicator variable (r = .0465). The guarantee indicator variable correlates with several independent variables, but the correlations have different signs. For example, the correlation between *Guarantee* and *Poverty* is negative (r = −.1024), suggesting that projects in markets most likely to have significant demand for low-income housing are negatively associated with the provision of a tax benefit guarantee. In contrast, the correlation coefficient between

TABLE 3
Descriptive Statistics

	Mean	Median	Std. Dev.	Min.	Max.
Dependent Variable					
Wholesale LIHTC price	0.7280	0.7500	0.1798	0.3057	1.499
Independent Variables					
WestNE	0.3629	0.0000	0.4808	0.0000	1.0000
Tenant	0.2967	0.0000	0.4568	0.0000	1.0000
Suburb	0.3093	0.0000	0.4622	0.0000	1.0000
Poverty	0.2389	0.2200	0.1314	0.0000	0.7900
Vacancy	0.9158	0.9300	0.0965	0.0000	1.0000
Rent	0.2566	0.2600	0.0492	0.0000	0.5000
Size	1.7152	1.0000	0.8209	1.0000	3.0000
Diff2Dev	0.8258	1.0000	0.3792	0.0000	1.0000
QualCensus	0.2615	0.0000	0.4395	0.0000	1.0000
ConstType	0.1741	0.0000	0.4636	0.0000	1.0000
Reputation	6.2528	3.0000	8.5297	1.0000	85.0000
ForprofDev	0.7632	1.0000	0.4251	0.0000	1.0000
SoftDebt	0.0372	0.0372	0.1892	0.0000	1.0000
Sec515	0.2512	0.0000	0.4337	0.0000	1.0000
Guarantee	0.1442	0.0000	0.3513	0.0000	1.0000
HighPV	0.1053	0.0000	0.3069	0.0000	1.0000
Proprietary	0.2510	0.0000	0.4336	0.0000	1.0000

n = 11,893
For variable definitions, refer to Table 1.

Guarantee and *ForprofDev* is positive (r = .0978), suggesting that LIHTCs purchased from for-profit developers (perceived as more experienced) are positively associated with the provision of a tax benefit guarantee. These associations suggest that syndicators do not solely guarantee ''safer'' projects.

IV. RESULTS

Multivariate Analysis

Table 5, Column (1) reports summary statistics from estimating Equation (1), excluding the indicator variable for the existence of a guarantee. In Column (2), I include the *Guarantee* indicator variable. The addition of this variable does not alter the effect of the risk characteristics on LIHTC price and increases the explanatory power of the model. The positive coefficient on *Guarantee* ($\beta_1 = 0.0363$; $p < .05$) supports H1, suggesting a 3.63¢ wholesale market premium on guaranteed LIHTCs. Column (3) present the results of estimating Equation (2), which includes an indicator variable, *Post-EITF*, set equal to 1 if the project year was 1995 or later, and 0 otherwise. The coefficient on *Guarantee* ($\beta_1 = -0.0244$) is not significantly different from 0, while the coefficient on the interaction term *Guarantee* × *Post-EITF* ($\beta_3 = 0.0599$; $p < .01$) is positive and significant. Supporting H2, this finding suggests that a statistically significant premium on guaranteed LIHTCs is observed in the data after EITF 94-1 was effective, but not before. The coefficient on *Post-EITF* ($\beta_2 = 0.2752$, $p < .01$) is consistent with an overall higher LIHTC price after 1995, perhaps due to increased demand from corporate investors. Additionally, I find that *WestNE*, *Tenant*, *Diff2Dev*, *ConstType*, and *SoftDebt* are significantly positively associated with a

TABLE 4
Pearson Correlations

	Wholesale LIHTC price	*WestNE*	*Tenant*	*Suburb*	*Poverty*	*Vacancy*	*Rent*	*Size*	*Diff2Dev*	*QualCensus*	*ConstType*	*Reputation*	*ForprofDev*	*SoftDebt*	*Sec515*	*Guarantee*	*High-PV*	*Proprietary*
Wholesale LIHTC price	1.000																	
WestNE	**.0681**	1.000																
Tenant	**−.0358**	.0111	1.000															
Suburb	.0111	**.0520**	**.0244**	1.000														
Poverty	.0139	**.1236**	**−.1000**	**−.3395**	1.000													
Vacancy	.0006	−.0088	−.0089	.0075	.0095	1.000												
Rent	**.0445**	**.2189**	**−.0374**	**−.0661**	**.5142**	**.0254**	1.000											
Size	**.1481**	**.0352**	**−.0984**	**.1495**	**−.0457**	.0072	**.0862**	1.000										
Diff2Dev	**−.0405**	**−.4832**	.0081	**.0889**	**−.1497**	.0074	**−.1730**	**−.0206**	1.000									
QualCensus	**.1069**	**.0931**	**−.0613**	**−.2189**	**.5211**	.0047	**.2377**	**.0966**	**−.0484**	1.000								
ConstType	**.1035**	**.1096**	**−.1201**	**−.1090**	**.1774**	.0070	**.0608**	**.0315**	**−.0577**	**−.1804**	1.000							
Reputation	**.0263**	**−.1388**	−.0010	**.0248**	**−.0890**	−.0030	**−.0946**	**−.0603**	**.0738**	**−.1207**	**−.0401**	1.000						
ForprofDev	**−.1279**	**−.1267**	−.0016	**.0721**	**−.1109**	−.0145	**−.0686**	**.1077**	**−.0753**	**−.1732**	**−.0774**	**.1356**	1.000					
SoftDebt	**.1115**	**.1043**	**.0387**	**−.0540**	**.0811**	−.0039	**.0177**	**−.0232**	**−.0688**	**.0788**	**.0409**	**−.0185**	**−.0755**	1.000				
Sec515	**−.3459**	**−.1646**	**.1464**	**−.0331**	**−.0247**	**−.0310**	**−.0314**	**−.4070**	**.1159**	**−.2550**	−.0137	**.1524**	**.2313**	**−.0928**	1.000			
Guarantee	**.0465**	**−.0254**	**−.0447**	**.0840**	**−.1024**	.0020	.0086	**.2746**	**.0507**	**−.0416**	**−.0511**	.0134	**.0978**	**−.0248**	**−.1427**	1.000		
HighPV	**−.1240**	**−.0189**	**.0515**	**.0319**	**−.0337**	−.0192	−.0098	**.0550**	**.0286**	**−.1363**	**.2127**	**.0826**	**.2512**	**−.0903**	**.5101**	**.0183**	1.000	
Proprietary	**.2043**	−.0081	**.1929**	.1748	.0068	−.0128	.0072	**−.0174**	**.0228**	**−.0233**	**−.0370**	**.0758**	**.0856**	**.0236**	**.2770**	**−.0813**	.0009	1.000

Correlations in bold are significant ($p < .10$).

For variable definitions, refer to Table 1.

TABLE 5
Analysis of LIHTC Price, Guarantees, and Risk for Corporate Investors

$$\begin{aligned} \textit{Wholesale LIHTC Price} = {} & \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{WestNE} + \beta_3 \textit{Tenant} + \beta_4 \textit{Suburb} \\ & + \beta_5 \textit{Poverty} + \beta_6 \textit{Vacancy} + \beta_7 \textit{Rent} + \beta_8 \textit{Size} \\ & + \beta_9 \textit{Diff2Dev} + \beta_{10} \textit{QualCensus} + \beta_{11} \textit{ConstType} \\ & + \beta_{12} \textit{Reputation} + \beta_{13} \textit{ForprofDev} + \beta_{14} \textit{SoftDebt} \\ & + \beta_{15} \textit{Sec515} + \textit{Year, Syndicator Indicators} + \varepsilon. \end{aligned} \quad (1)$$

$$\begin{aligned} \textit{Wholesale LIHTC Price} = {} & \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{Post-EITF} \\ & + \beta_3 \textit{Guarantee} \times \textit{Post-EITF} + \beta_{4\text{-}17} \textit{Controls} \\ & + \textit{Year, Syndicator Indicators} + \varepsilon. \end{aligned} \quad (2)$$

	(1) Corporate 1995–2005	(2) Corporate 1995–2005	(3) Corporate 1987–2005
Intercept	0.7977***	0.7639***	0.4884***
	(31.53)	(27.92)	(14.42)
Guarantee		0.0363**	−0.0244
		(2.27)	(−0.68)
Post-EITF			0.2752***
			(18.76)
Guarantee × Post-EITF			0.0599***
			(2.94)
WestNE	0.0149***	0.0148***	0.0173***
	(3.69)	(3.46)	(3.89)
Tenant	0.0124**	0.0119**	0.0109**
	(2.44)	(2.29)	(2.17)
Suburb	0.0013	0.0017	0.0035
	(0.23)	(0.29)	(0.64)
Poverty	0.0101	0.0009	0.0038
	(0.32)	(0.32)	(0.11)
Vacancy	−0.0169	−0.0198	−0.0275
	(−0.71)	(−0.79)	(−0.94)
Rent	0.0089	0.0131	0.0358
	(0.09)	(0.14)	(0.40)
Size	−0.0016	−0.0019	−0.0024
	(−0.38)	(−0.45)	(−0.61)
Diff2Dev	0.0126**	0.0121**	0.0128**
	(1.99)	(1.84)	(2.34)
QualCensus	−0.0040	−0.0039	−0.0013
	(−1.11)	(−1.04)	(−0.29)
ConstType	0.0241**	0.0245**	0.0253**
	(2.63)	(3.27)	(2.63)
Reputation	0.0002	0.0002	0.0003
	(0.71)	(0.68)	(0.92)
ForprofDev	0.0017	0.0017	0.0014
	(0.22)	(0.21)	(0.17)
SoftDebt	0.0481***	0.0483***	0.0484***
	(5.16)	(5.37)	(4.72)

(*continued on next page*)

TABLE 5 (continued)

	(1) Corporate 1995–2005	(2) Corporate 1995–2005	(3) Corporate 1987–2005
Sec515	−0.0010	−0.0007	−0.0100
	(−0.10)	(−0.07)	(−0.72)
Adj. R^2	0.4387	0.4865	0.4732
n	8,741	8,741	9,741

*, **, *** Denote significance at 10 percent, 5 percent, and 1 percent levels, respectively, two-tailed.

This table presents the results of estimating the guarantee premium attributable to accounting benefits. Column (1) includes only control variables for risk. Column (2) reports the results of estimating Equation (1). Column (3) reports the results of estimating Equation (2). All specifications include syndicator and year fixed effects; Huber-White standard errors are clustered by syndicator. t-statistics are in parentheses.

For variable definitions, refer to Table 1.

higher LIHTC price. The local market variables and the reputation variables do not appear to be significant determinants of LIHTC price for corporate investors.[26]

Table 6, Column (1) reports summary statistics from estimating Equation (3). The negative coefficient on *Guarantee* × *HighPV* ($\beta_3 = -0.0150$, $p < .01$) suggests that the premium on *HighPV* LIHTC investments is *lower* for guaranteed investors, relative to unguaranteed investors.[27] Thus, I do not find support for H3. While surprising, this behavior is consistent with anecdotal evidence from Shackelford (2006) and Neubig (2006) that corporations may not respond to tax incentives that are not reflected in accounting earnings (e.g., the present value cash flow benefit does not increase accounting earnings). The coefficient on *HighPV* ($\beta_2 = 0.0106$, $p < .01$) is consistent with unguaranteed investors valuing the additional tax savings, despite the negative short-term impact on after-tax accounting earnings. This finding is consistent with Guenther et al. (1997).

An F-test fails to reject ($p = 0.7122$) the null hypothesis that $\beta_2 + \beta_3$ from Equation (3) (representing the premium on guaranteed *HighPV* relative to guaranteed *LowPV* LIHTCs) is equal to 0. That there is no statistically significant price difference for *HighPV* and *LowPV* LIHTC investments purchased by guaranteed investors suggests that these investors value only the *intra-period* accounting benefit of avoiding a reduction in pre-tax earnings. They do not appear to place additional value on the *inter-period* accounting benefit of receiving accelerated tax deductions without a reduction to short-term after-tax earnings. Further, it is interesting to note the positive and significant coefficient on *Guarantee* ($\beta_1 = 0.0382$, $p < .05$) in Column (1) of Table 6. When guaranteed investors purchase *LowPV* LIHTCs, the effective yield method of accounting actually *reduces* short-term after-tax accounting earnings for these investments by producing faster book amortization than the underlying partnership losses would produce under the equity method (see net income effect of investment D relative to investment B in the Appendix). Thus, investors in guaranteed

[26] To further assess the effectiveness of the control variables, I estimate a ''benchmark'' model for investments held by individuals from 1987 through 2005 and compare it to a model for investments held by corporate investors during that same period. Recall that individual investors do not demand guarantees. Untabulated results from estimating Equation (1) over the entire sample period for each subset of investors reveals that the explanatory power of the model for investments held by both individuals and corporations is similar, with an adjusted R^2 of 0.4243 and 0.4267, respectively. From 1987 through 2005, there are 2,152 individual transactions and 9,741 corporate transactions.

[27] For this test, the share of *HighPV* transactions is 32 and 8 percent for guaranteed and unguaranteed investments, respectively.

TABLE 6
Analysis of LIHTC Price, Guarantees, Cash Flow and Clienteles

$$\textit{Wholesale LIHTC Price} = \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{HighPV} + \beta_3 \textit{Guarantee} \times \textit{HighPV} + \beta_{4\text{-}17} \textit{Controls} + \textit{Year, Syndicator Indicators} + \varepsilon. \quad (3)$$

$$\textit{Wholesale LIHTC Price} = \beta_0 + \beta_1 \textit{Guarantee} + \beta_2 \textit{Proprietary} + \beta_3 \textit{Guarantee} \times \textit{Proprietary} + \beta_{4\text{-}17} \textit{Controls} + \textit{Year, Syndicator Indicators} + \varepsilon. \quad (4)$$

	(1) Corporate 1995–2005	(2) Corporate 1995–2005
Intercept	0.7847***	0.7452***
	(30.46)	(18.37)
Guarantee	0.0382**	0.0727*
	(2.43)	(1.85)
HighPV	0.0106***	
	(2.88)	
Guarantee × *HighPV*	−0.0150***	
	(−2.71)	
Proprietary		0.0332**
		(4.76)
Guarantee × *Proprietary*		−0.1050**
		(−2.58)
Adj. R^2	0.4889	0.4937
n	8,741	8,741

*, **, *** Denote significance at 10 percent, 5 percent, and 1 percent levels, respectively, two-tailed.

This table presents the results of estimating the cash flow and clientele effects on the guarantee premium paid by corporate investors. Column (1) reports the results of estimating Equation (3). Column (2) reports the results of estimating Equation (4). All specifications include syndicator and year fixed effects; Huber-White standard errors are clustered by syndicator. t-statistics are in parentheses. Coefficients on the control variables are untabulated.

For variable definitions, refer to Table 1.

LowPV LIHTCs avoid reductions to pre-tax earnings, but at the expense of both the guarantee fee *and* lower short-term after-tax earnings.

Table 6, Column (2) reports summary statistics from estimating Equation (4). Overall, I find support for H4. The coefficient on *Guarantee* × *Proprietary* ($\beta_3 = -0.1050$, $p < .01$) indicates that proprietary investors pay 10.50¢ less for guaranteed LIHTC investments than nonproprietary investors.[28] The positive coefficient on *Proprietary* ($\beta_2 = 0.0332$, $p < .01$) confirms that this group of corporate investors have a significant overall interest in making these investments for regulatory purposes and are willing to pay more for all LIHTCs, relative to other investors. Furthermore, an F-test rejects ($p < .01$) that $\beta_1 + \beta_3$ from Equation (4) (which represents a discount on a guaranteed investment relative to an unguaranteed investment for proprietary investors) is equal to 0. This suggests that proprietary investors pay syndicators only for the cost of actually providing the guarantee. This finding is also consistent with proprietary investors acknowledging that guaranteed investments

[28] For this test, the share of *Guarantee* transactions is 8 and 20 percent for proprietary and nonproprietary investors, respectively.

limit the upside return in addition to protecting the downside risk, warranting a discount if downside risk is trivial.

Correction for Self-Selection

The underlying real estate for a particular guaranteed investment is a choice variable. Thus, an OLS regression of LIHTC price on the existence of a guarantee will produce biased estimates of the effect of the guarantee on price if risk factors excluded from Equation (1) jointly determine price and the existence of a guarantee. Specifically, the coefficient on *Guarantee* will overestimate the effect of the guarantee on LIHTC price if safer projects are more likely to be guaranteed. The correlations in Table 3 suggest that both safe and risky characteristics are correlated with the existence of a guarantee. However, to investigate this possibility, I estimate a treatment effects model to correct for the potential bias that may exist in the OLS coefficient reported in Table 4 (see Green 1993). I find that my main result in Table 4 is robust to estimating a treatment effects model that considers the endogeneity of the syndicator's choice to guarantee a particular investment.

The first stage of the treatment effects model estimates a probit regression that specifies the guarantee indicator variable as a function of the risk characteristics of the underlying real estate. In untabulated results, I find that LIHTC risk factors are not significant determinants of the choice to guarantee the tax benefits, with the exception of *Size* and *Diff2Dev*, which obtain positive and statistically significant coefficients of 0.2626 ($p < .01$) and 0.3032 ($p < .05$), respectively. E&Y (2008) report that projects with guarantees tend to be larger (in terms of the number of units) than other projects, but offer no perspective on this trend. The second stage of the treatment effects model includes a selectivity correction variable ($\lambda_{Guarantee}$) from the first-stage selection equation. Also in untabulated results, the selectivity correction variable is negative but not significant, suggesting that *Guarantee* is not endogenous to the *Wholesale LIHTC Price* equation. The coefficient on *Guarantee* in the second stage is 0.0361 ($p < .05$).

Quantification of the Cost of Income Statement Classification

While prior accounting research suggests that firms care about income statement treatment, a unique feature of my empirical setting is the ability to quantify the costs firms incur to manage their income statements. My estimates show that, on average, firms pay $1 to avoid reductions in pre-tax earnings by $17. This estimate is, to my knowledge, the first quantification of what firms are willing to pay to manage their income statements. To determine this estimate, I combine retail market transaction data with the empirical results from Table 6, Column 2.[29] Table 7 illustrates the quantification process and the linkages between the retail and wholesale market data.

[29] To obtain retail market data, I directly contacted eight syndicators who contributed to the E&Y survey. These eight syndicators provided data, under strict confidentiality, on 193 separate LIHTC transactions with corporate investors from 1995 through 2005. The data include the year of the transaction, the retail LIHTC price, and the presence or absence of a guarantee. Given the small size and competitiveness of the retail market, the data providers limited my reporting to an aggregate price guaranteed and unguaranteed investments over the entire sample period.

TABLE 7
Economic Significance of Results

	Sample Period: 1995–2005					
	Retail Market			Syndicator/Guarantor Compensation		Wholesale Market
	n	Mean Yield (%)	Mean Price (¢)	Syndication Fee (¢)	Guarantee Fee (¢)	Mean Price (¢) Table 6, Column (2)
Guaranteed LIHTC	47	6.1%	98.44¢	8.36¢ (same as below)	8.29¢ (98.44¢ − 8.36¢ − 81.79¢)	81.79¢ ($\beta_0 + \beta_1$)
Unguaranteed LIHTC	146	9.0%	82.88¢	8.36¢ (82.88¢ − 74.52¢)	NA	74.52¢ (β_0)
Total guarantee fee paid by corporate investors		2.9% (9.0% − 6.1%)	15.56¢ (98.44¢ − 82.88¢)			
Portion of total guarantee fee kept by syndicator/guarantor			8.29¢ (estimated above)	47 percent (7.27¢/15.56¢) is lower bound on portion of total guarantee fee attributable to accounting benefits.		
Portion of total guarantee fee paid to developer			7.27¢ (15.56¢ − 8.29¢ and estimated in Table 6)			

Retail market data reveal that, on average, unguaranteed investors earned a 2.9 percent after-tax yield premium over guaranteed investors.[30] The reduced return on guaranteed investments represents the guarantee fee. Using the observed mean yields of 6.1 percent and 9.0 percent for guaranteed and unguaranteed LIHTC investments, respectively, I obtain prices of 98.44¢ and 82.88¢ for guaranteed and unguaranteed LIHTCs, respectively. That is, I solve for the capital contribution amount that equates to the known cash inflows, given the observed internal rate of return.[31] This finding implies that, on average, guaranteed investors paid a guarantee fee of 15.56¢ (i.e., 98.44¢ − 82.88¢) per dollar of tax credit. Note that a guarantee fee of 15.56¢ on a total equity contribution per LIHTC of 98.44¢ implies a guarantee fee of around 15 percent (i.e., 15.56¢/98.44¢), consistent with the statement from the investment advisor in Section I.

The coefficient on *Guarantee* in Table 6, Column (2) of 0.0727 implies that syndicators bid 7.27¢ higher, on average, for LIHTCs syndicated to nonproprietary, guaranteed investors. This implies that nearly 47 (i.e., 7.27¢/15.56¢) percent of the total guarantee fee of 15.56¢ is attributable to real or perceived accounting benefits. Note that I can only estimate a *lower* bound on the percent of the guarantee fee that represents accounting benefits, represented by the portion of the total guarantee fee paid by the syndicator to the developer when bidding on LIHTCs. I cannot observe what happens to the remaining portion, or 8.29¢ (i.e., 15.56¢ − 7.27¢), of the guarantee fee. If the syndicator remits only a small portion of the remaining 8.29¢ to the guarantor and keeps the rest, then the value of the total guarantee fee attributable to accounting benefits would be much higher.

Finally, the LIHTC retail market prices in Table 7 allow me to quantify the magnitude of the trade-off between pre-tax and after-tax earnings. The additional payment of the guarantee fee reduces the investor's return on the LIHTC investment, and thus reduces after-tax earnings by the after-tax cost of the LIHTC. However, by purchasing the guarantee, the investor avoids a reduction in pre-tax earnings. If guaranteed investors pay 7.27¢ for the right to use the effective yield method, they shift an 82.88¢ expense (average cost of an unguaranteed LIHTC) out of pre-tax earnings. The 7.27¢ premium provides the investor with an additional tax benefit of 2.54¢ (i.e., 7.27¢ × 0.35), since the investment is tax deductible. Thus, firms sacrifice after-tax earnings of 4.73¢ (i.e., 7.27¢ − 2.54¢) to avoid reducing pre-tax earnings by 82.88¢. In dollar terms, I estimate that firms sacrifice after-tax earnings of $1 to avoid reducing pre-tax earnings by $17 (i.e., 82.88¢/4.73¢).

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[30] This is an after-tax yield, because an investment return in the form of tax savings is effectively tax-exempt. To put the 2.9 after-tax yield premium into perspective, consider the following: Fitch data on commercial mortgage backed securities (CMBS) loan defaults from 1993 through 2003 show a cumulative CMBS loan default rate of 4.0 percent (Fitch Ratings 2004). In 2003, the CMBS market offered investors a pre-tax yield premium of 0.8 percent (i.e., AAA rating) to 2.1 percent (i.e., BBB– rating) above ten-year Treasuries, (i.e., a comparable proxy for guaranteed LIHTCs) (Credit Suisse First Boston, CMBS Market Watch Weekly, August 8, 2003). Based on this comparison, a pre-tax yield spread in the market for LIHTCs of 4.5 percent (2.9 percent/(1-tax rate of 35 percent) appears high, because this implies that unguaranteed LIHTCs are riskier than the lowest investment-grade tranche of a mortgage-backed security (i.e., BBB–). The CMBS spread of 0.8 percent to 2.1 percent considers pools of loans collateralized by all project types, including hotels considered far more risky than apartments, particularly those in the low-income housing sector. Additionally, the CMBS yield spread considers mortgage defaults, whereas LIHTC risk considers foreclosures, which are rarer. It seems implausible that the yield spread on LIHTC investments should be considerably higher than the yield spread for CMBS.

[31] Suppose, for example, an investor buys 100 LIHTCs for $80. The investor expects to realize $10 in tax savings each year from the LIHTCs and, on average, to realize $2.80 [($80/10 years) × 35 percent] in tax savings each year from the tax deductions. An immediate cash outflow of $80 and a cash inflow of $12.80 each year for the next ten years equates to a 9.6 percent after-tax internal rate of return. The internal rate of return is the discount rate at which the investor's capital contribution is equal to the stream of benefits (tax deductions and tax credits); this figure is the standard industry measure of the return to investors (Cummings and DiPasquale 1999).

V. CONCLUSION

This study examined corporate investment in low-income housing tax credits (LIHTCs), and the accounting rules for those investments, to quantify the costs firms incur in order to manage the income statement classification of an expense. Using confidential data, I model LIHTC price as a function of the accounting treatment and risk characteristics of the underlying real estate. Results suggest that corporate investors, when purchasing LIHTCs, pay an economically significant premium for the right to use an accounting method that increases reported pre-tax income. These results contribute to our overall understanding of classification shifting as a form of earnings management. The main contribution of this study is the finding that firms are willing to sacrifice economic earnings in order to obtain a desired expense classification that avoids reductions in pre-tax earnings. I estimate that firms sacrifice $1 to avoid reducing pre-tax earnings by $17.

Additionally, I find extreme heterogeneity in the coordination of cash flow and earnings for firms making tax-advantaged investments. Some firms pay more for LIHTC investments that generate higher present-value cash flow benefits, while recognizing relatively higher reductions to short-term pre-tax and after-tax earnings. In other words, these investors appear to respond entirely to the cash flow incentives of the investment. In contrast, other firms pay more for LIHTC investments that avoid reductions to pre-tax earnings; the market price they pay does not appear to respond at all to the ability to generate higher present-value cash flow benefits. Thus, these firms appear to respond entirely to the need to manage the classification of an expense. These findings highlight the potential importance of financial accounting outcomes on corporate responses to tax incentives.

APPENDIX

Inter-Period Cash Flow and Accounting Earnings Impact of LIHTC Investments (example adapted from EITF 94-1)

This appendix illustrates the *inter-period* effect on accounting earnings and cash flows using four hypothetical LIHTC investments: A, B, C, and D. This stylized example highlights the relative timing differences, rather than the magnitude of the earnings or cash flow impact for any single period. All amounts are scaled by the investor's capital contribution. Thus, the amounts represent what an investor would receive from the real estate partnership per dollar invested, assuming a LIHTC price of 75 cents (1.00/1.33).

Operating losses generated by the underlying real estate partnership dictate the timing of the investor's cash flow from tax deductions. In all cases (1) total tax deductions are equal to the equity investment, and (2) total cash tax savings is equal to the LIHTCs plus the tax deduction times 35 percent, or $1.68. The timing of the LIHTCs does not differ across the investments. Rather, the timing of the tax deductions for *HighPV* and *LowPV* investments produce faster or slower cash flow realizations, respectively.

For simplicity, I show only the operating losses (e.g., tax deductions) in the second column, which are derived from financial statement projections for the underlying real estate partnership that generates those losses. The reason that the timing of the tax deductions differs is that *HighPV* investments receive relatively fewer LIHTCs (e.g., 4 percent LIHTCs) and so operate with higher interest costs; when coupled with depreciation, these generate more operating losses earlier in the project's life. The LIHTC investor is indifferent to this distinction except for the accelerated tax deductions.

Investments A, B, C, and D are adapted from EITF 94-1 (FASB 1995), with the added institutional feature that some housing projects are allocated fewer LIHTCs. EITF 94-1 assumes all projects are allocated LIHTCs at the same 9 percent rate, not allowing for any

Investments A, B, C, and D

Investment A: *HighPV*, Unguaranteed (Equity Method Accounting)

Year	Net Equity Investment	Tax Deduction (Loss)	Book Amortization (Loss)	Tax Credits	Cash Tax Savings	Net Cash Flow	Impact on Pre-Tax Income	Impact on Net Income
1	1.00	0.19	0.19	0.13	0.20	(0.80)	(0.19)	0.01
2	0.81	0.19	0.19	0.13	0.20	0.20	(0.19)	0.01
3	0.61	0.19	0.19	0.13	0.20	0.20	(0.19)	0.01
4	0.42	0.19	0.19	0.13	0.20	0.20	(0.19)	0.01
5	0.23	0.19	0.19	0.13	0.20	0.20	(0.19)	0.01
6	0.04	0.04	0.04	0.13	0.15	0.15	(0.04)	0.11
7	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.13
8	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.13
9	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.13
10	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.13
Total		1.00	1.00	1.33	1.68	0.68	(1.00)	0.68

(*continued on next page*)

Investment B: *LowPV*, Unguaranteed (Equity Method Accounting)

Year	Net Equity Investment	Tax Deduction (Loss)	Book Amortization (Loss)	Tax Credits	Cash Tax Savings	Net Cash Flow	Impact on Pre-Tax Income	Impact on Net Income
1	1.00	0.07	0.07	0.13	0.16	(0.84)	(0.07)	0.09
2	0.93	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
3	0.86	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
4	0.79	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
5	0.72	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
6	0.65	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
7	0.58	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
8	0.51	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
9	0.44	0.07	0.07	0.13	0.16	0.16	(0.07)	0.09
10	0.37	0.37	0.37	0.13	0.26	0.26	(0.37)	(0.11)
Total		1.00	1.00	1.33	1.68	0.68	(1.00)	0.68

Investments A and B show the cash flow and earnings impact on two hypothetical unguaranteed investments, where Investment A generates net operating losses faster than Investment B. All amounts are scaled by the investor's capital contribution to highlight similarities across all investments.

Impact on net income each year equals impact on pre-tax income + tax credit + (tax deduction × 35 percent). For Year 1 (Investment A): −.19 + .13 + (.19 × .35) = .01. *The important inter-period result to note for Investments A and B is that the timing of the tax deductions determines both the timing of the cash flows and the reductions to earnings.*

(*continued on next page*)

Investment C: *HighPV*, Guaranteed (Effective Yield Method Accounting)

Year	Net Equity Investment	Tax Deduction (Loss)	Book Amortization (Loss)	Tax Credits	Cash Tax Savings	Net Cash Flow	Impact on Pre-Tax Income	Impact on Net Income	Deferred Tax Benefit (Expense)	Current Tax Benefit (Expense)
1	1.00	0.19	0.08	0.13	0.20	(0.80)	0.00	0.08	(0.04)	0.12
2	0.92	0.19	0.08	0.13	0.20	0.20	0.00	0.08	(0.04)	0.12
3	0.84	0.19	0.09	0.13	0.20	0.20	0.00	0.08	(0.04)	0.11
4	0.75	0.19	0.09	0.13	0.20	0.20	0.00	0.07	(0.04)	0.11
5	0.66	0.19	0.10	0.13	0.20	0.20	0.00	0.07	(0.03)	0.10
6	0.57	0.04	0.10	0.13	0.15	0.15	0.00	0.07	0.02	0.04
7	0.47	0.00	0.11	0.13	0.13	0.13	0.00	0.06	0.04	0.03
8	0.36	0.00	0.11	0.13	0.13	0.13	0.00	0.06	0.04	0.02
9	0.25	0.00	0.12	0.13	0.13	0.13	0.00	0.06	0.04	0.01
10	0.13	0.00	0.13	0.13	0.13	0.13	0.00	0.05	0.04	0.01
Total		1.00	1.00	1.33	1.68	0.68	0.00	0.68	0.00	0.68

(*continued on next page*)

Investment D: *LowPV*, Guaranteed (Effective Yield Method Accounting)

Year	Net Equity Investment	Tax Deduction (Loss)	Book Amortization (Loss)	Tax Credits	Cash Tax Savings	Net Cash Flow	Impact on Pre-Tax Income	Impact on Net Income	Deferred Tax Benefit (Expense)	Current Tax Benefit (Expense)
1	1.00	0.07	0.08	0.13	0.16	(0.84)	0.00	0.08	0.00	0.08
2	0.92	0.07	0.08	0.13	0.16	0.16	0.00	0.08	0.00	0.08
3	0.84	0.07	0.09	0.13	0.16	0.16	0.00	0.08	0.01	0.07
4	0.75	0.07	0.09	0.13	0.16	0.16	0.00	0.07	0.01	0.07
5	0.66	0.07	0.10	0.13	0.16	0.16	0.00	0.07	0.01	0.06
6	0.57	0.07	0.10	0.13	0.16	0.16	0.00	0.07	0.01	0.06
7	0.47	0.07	0.11	0.13	0.16	0.16	0.00	0.06	0.01	0.05
8	0.36	0.07	0.11	0.13	0.16	0.16	0.00	0.06	0.01	0.04
9	0.25	0.07	0.12	0.13	0.16	0.16	0.00	0.06	0.02	0.04
10	0.13	0.37	0.13	0.13	0.26	0.26	0.00	0.05	(0.08)	0.14
Total		1.00	1.00	1.33	1.68	0.68	0.00	0.68	0.00	0.68

Investments C and D show the cash flow and earnings impact for two hypothetical guaranteed investments, where Investment C generates operating losses faster than Investment D. All amounts are scaled by the investor's capital contribution to highlight similarities across all investments.

Impact on net income each year equals current plus deferred tax benefit. Current tax benefit (expense) each year is equal to tax credit − book amortization + (tax deduction × 35 percent). For Year 1 (Investment C): .13 − .08 + (.19 × .35) = .12. Deferred tax benefit (expense) each year is equal to (book amortization − tax deduction) × 35 percent. For Year 1 (Investment C): (.08 − .19) × .35 = −.04. Year 1 impact on net income is .12 − .04 = .08. *The important inter-period result to note for Investments C and D is that the timing of the tax deductions determines the timing of the cash flows, but not the reductions to earnings − net income each period is not affected by the timing of the underlying cash flow.*

variation in the cash flow realization or amortization rate across investments. Consistent with EITF 94-1, I use the internal rate of return based on the tax savings from the LIHTCs only, which is 5.61 percent with a price of 75 cents per dollar of LIHTC and a ten-year pro-rata allocation of LIHTCs, to determine book amortization of the investment under the effective yield method of accounting. Annual book amortization = annual LIHTC amount − (net equity at beginning of year × 5.61 percent). Under the equity method of accounting, book amortization occurs at the same time as operating losses are received from the partnership.

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