

**The Asset Price Incidence of Capital Gains Taxes:
Evidence from the Taxpayer Relief Act of 1997 and
Publicly-Traded Real Estate Firms**

Todd Sinai
The Wharton School
University of Pennsylvania
and NBER

and

Joseph Gyourko
The Wharton School
University of Pennsylvania

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ABSTRACT

We provide new evidence on the asset price incidence of corporate-level investment subsidies by examining the relative stock price performance of publicly traded companies in the real estate industry that should have been differentially affected by the capital gains tax rate reduction enacted in the Taxpayer Relief Act of 1997. By comparing real estate firms that have an organizational structure that allows entities who sell property to it to defer capital gains taxes and that plan to use the structure to acquire property with those that do not, we isolate the effect of the tax cut from industry trends and firm-level heterogeneity. When we examine the time period surrounding the reduction in the capital gains tax rate, our results suggest the tax change was substantially capitalized into lower share prices for these firms and the benefit of the seller's capital gains tax deferral accrued mainly to the buyer of an appreciated property.

Models of tax incidence predict that the tax treatment of the return on an asset should affect its price to an extent determined by the relative elasticities of demand and supply for the asset. While the theoretical underpinnings of these models are well-developed [Summers (1981), Poterba (1984)] and an extensive literature investigates the extent to which shareholder-level taxes are capitalized into share prices, relatively little empirical research addresses the asset price incidence of corporate-level taxes or investment subsidies.¹ The paucity of work in this area arises from the difficulty in estimating an empirical relationship when there often is not much variation among companies in their corporate tax rates and, if there is, it typically is endogenously driven by other important characteristics of the companies. In addition, the economic incidence of these subsidies is not clear *a priori* [Cutler (1988), Goolsbee (1998)].

We provide new evidence on the asset price incidence of corporate investment subsidies by examining the relative stock price performance of publicly-traded companies that should have been differentially affected by the capital gains tax rate reduction enacted in the Taxpayer Relief Act of 1997 [TRA97]. By lowering the personal capital gains tax rate, the 1997 legislation potentially raised the relative price of investment for some firms in the real estate industry. These particular firms, called umbrella real estate partnership trusts, or UPREITS, have a corporate structure that enables entities that sell properties to the firm to defer or avoid paying capital gains taxes. This tax treatment is analogous to an investment tax credit, although with the legal incidence falling upon the sellers of the investment good rather than the buyers. To the

¹Much of the other research in this area is part of the related literature on the capitalization of shareholder-level taxes into asset prices. Harris and Kemsley (1998), Harris, Hubbard and Kemsley (1999), and Gentry, Kemsley and Mayer (forthcoming) revisit the issue of whether dividend taxes are capitalized into share prices. In another vein, Poterba and Weisbenner (1998) demonstrate that the particulars of the tax treatment of capital gains can influence end-of-the-year stock price dynamics. Lang and Shackelford (1999) use the same event as we do, the decrease in the capital gains tax rate in the Tax Reform Act of 1997, to investigate whether it influenced share prices since investors would receive a higher after-tax return.

extent that UPREITs are able to capture some of the benefit associated with the tax deferral by paying lower prices for properties, the decrease in capital gains tax rates in 1997 reduced a subsidy to investment for these companies. Regular real estate investment trusts, called REITs, do not have a corporate structure that permits sellers to defer gains taxes, so the relative price of investment they face should not have been affected by the tax change.

When we examine the time period surrounding the reduction in the capital gains rate, our results suggest that the tax change was substantially capitalized into lower share prices for UPREITs.² We isolate the effect by comparing the difference in UPREIT share price growth before and during the change in the tax code to the change in returns for regular REITs. We also distinguish acquisitive UPREITs -- those companies that intended to buy properties on an ongoing basis and, thus, the only ones that should benefit from an investment subsidy -- from nonacquisitive UPREITs that should not have been affected by the tax change. Stock prices for acquisitive UPREITs fell relative to other REITs and UPREITs when it became apparent during the second quarter of 1997 [1997(2)] that there would be a reduction in capital gains tax rates. Specifically, their share price appreciation during 1997(2) was about 8 percent lower than for non-acquisitive UPREITs when compared to the difference in returns between acquisitive and non-acquisitive REITs (all baselined against the relative performances of the four types of real

²The distinction between our results for entity-level, as opposed to shareholder-level, effects is best seen by a comparison with Lang and Shakelford (1999) who also use TRA97 as their event. They find that over one week in April and May when a budget compromise was finally reached, share prices for firms that typically pay low dividends rose more than share prices for companies that pay high dividends, the latter's shareholders benefiting less from the cut in the capital gains rate. However, their research examines the situation where an individual owns shares and is going to trade them later. Either there is some tax associated with the transaction (e.g., a capital gains tax) or, in the case of dividends, a personal tax associated with their receipt that may affect valuation. In our case, the focus of the analysis is not on personal taxation and its impacts, but on corporate-level effects. For us, the direct impact (if any) would be on the prices UPREITs pay for properties relative to REITs. Ultimately, this should affect relative firm performance because of the different after-tax costs of investing that are possible across the two different organizational structures.

estate companies in the other quarters of 1996-1998 when there were no tax changes). Thus, it appears that acquisitive UPREITs, not building sellers, reaped most of the benefit of the gains tax deferral and that the investment subsidy was substantially capitalized into UPREIT share prices.

Due to our research design comparing the returns of acquisitive UPREITs to non-acquisitive UPREITs and to acquisitive and non-acquisitive REITs, our result is quite robust. Since both UPREITs and REITs are real estate companies and invest in similar property sectors, they form a natural basis for comparison.³ Thus, this strategy should eliminate the impact of any general real estate market event, such as an increase in property prices, that would affect UPREIT and REIT returns the same way. The impacts of other factors that might affect only UPREIT returns, such as conflicts of interest inherent in the structure, are removed by comparing acquisitive and non-acquisitive UPREITs. Differences in market performance for acquisitive real estate firms are controlled for by comparing acquisitive UPREITs and REITs. And, we account for the possibility that each of the four types of companies has a different trend growth rate by comparing quarterly returns between 1996 and 1998 to 1997(2).

We also find important complementary evidence supporting our conclusion that the capitalization we identify is due to the change in capital gains rates in TRA97. For example, the excess returns for acquisitive UPREITs appear to be due to their purchasing properties for less than otherwise equivalent REITs. UPREITs collect more rent per dollar of real estate they own than REITs, and the bulk of these supranormal rents accrue to acquisitive UPREITs, suggesting that these particular companies are purchasing their properties at favorable prices. In addition, the rate of asset accumulation fell more rapidly for UPREITs than for other real estate firms after 1997, consistent with a reduced tax benefit for acquiring properties. Finally, the proportion of

UPREIT shares held as tax-favored partnership units declined after 1997, when the value of using them fell.

It is noteworthy that our finding of substantial effects of the tax change on share prices contrasts with other empirical research on the asset price incidence of corporate-level taxes and subsidies. Cutler (1988) found limited asset price effects of the change in relative taxation of equipment and structures in the Tax Reform Act of 1986 and concluded that the market inefficiently prices tax information. However, his failure to find a stronger result could be due to the complexity of that tax reform or the effect simply being too difficult to distinguish with his data. Goolsbee (1998) attempts to explain a large investment literature that finds little effect of investment incentives on real investment by showing that that much of the subsidy due to the investment tax credit accrued to suppliers of capital goods in the form of higher prices. Our results, while not directly analogous, show the opposite for buildings during our sample period – while the tax advantage was given to the suppliers of properties, the buyer reaped the economic benefit.

While our focus on real estate limits comparability to Cutler’s (1988) results for industrial corporations or Goolsbee’s (1998) findings for equipment prices, we believe our cleaner identification is worth the trade off. Not only is real estate an important and understudied sector of the economy,⁴ but studies within business sectors may identify impacts that are masked in the averaging that results from cross-industry analyses.

The rest of this paper proceeds as follows: Section 1 describes the REIT and UPREIT structures. In section 2, we provide an analytical framework that explains why UPREITs may

³ Although we will explicitly control for property sector, doing so has little effect on the results.

⁴ At the end of 1997, commercial real estate in the United States was valued at \$3.8 trillion and accounted for 28

receive a tax subsidy when they purchase appreciated property. The circumstances surrounding the Taxpayer Relief Act of 1997, which we use to identify our estimates, are outlined in section 3. Section 4 presents the empirical work and discusses the results. Section 5 concludes.

I. Background on the REIT industry and the UPREIT structure

We focus on a specific set of corporations, equity real estate investment trusts (REITs), which are publicly-traded firms that own and operate properties. Unlike typical public corporations, REITs have elected a pass-through tax status under which they do not pay corporate tax as long as they pay out at least 95 percent of their taxable incomes in the form of dividends.⁵ Even though the legislation enabling REITs to be created was passed in 1960, only in the last decade has the industry seen much growth. The total market capitalization of all REITs was just over \$15 billion at year-end 1992, while five years later the figure had risen to \$140 billion in 176 firms.

Some real estate investment trusts have adopted a corporate structure known as an ‘UPREIT’ that confers particular capital gains tax benefits relative to regular REITs. Unlike a regular REIT, which must pay for properties with cash or stock, an UPREIT’s structure permits the issuance of operating partnership (OP) units in exchange for properties. Consequently, transferring buildings to a traditional REIT requires that the seller pay applicable capital gains taxes. However, transferring buildings to an UPREIT is not a taxable event as long as the seller receives OP units, not cash or stock, even though OP units are typically exchangeable one-for-

percent of the assets of nonfarm, nonfinancial corporations, a fraction higher than that for equipment and inventories combined. See the Federal Reserve Board, Flow of Funds, publication Z.1, June 1998, p. 105.

⁵The payout fraction was lowered to 90 percent in a recent tax revision, but the 95 percent figure applied throughout our sample period. There are several other criteria a company must satisfy before it is allowed to be treated as a REIT, but none are material to the analysis in this paper.

one into common shares and pay the same dividend as common shares. In this case, the Internal Revenue Service treats the deal as a tax-free exchange, with the building seller deferring her capital gains tax liability until either she converts her OP units into stock⁶ or the UPREIT sells the contributed properties.⁷

The creation of the first UPREIT by the Taubman Realty Group in December 1992 ushered in a wave of such firms. Figure 1 shows how many public real estate corporations were formed each year and whether they were traditional REITs or UPREITs. By December 1992, 39 traditional equity REITs existed. In 1993 and 1994, 48 new UPREITs held their initial public offerings while only 23 new traditional REITs did so. The numbers of new UPREITs declined substantially in 1995 and they are now being created at roughly the same rate as traditional REITs.

II. The value of the UPREIT structure and the role of capital gains taxes

Because real property is depreciated for tax purposes, the portion of the asset value that is considered a capital gain can be quite large. Hence, being able to defer or avoid capital gains taxes by selling a property to an UPREIT potentially could convey a sizeable benefit. For example, UPREITs could benefit if the prices they pay for properties are lower than would be the case otherwise or if their ability to obtain properties in general is enhanced because sellers treat avoiding the capital gains tax as part of their compensation. If this is so to any extent, the UPREIT shares in the benefit even though it is the property seller who legally gets to defer paying the tax. The size of the subsidy will depend on the value to the property seller of the tax

⁶Typically, a unit holder would not convert her units unless she planned to sell the stock. If the original building seller dies before converting the units, the tax basis is stepped-up.

deferral -- which increases with the capital gains tax rate -- and the proportion of the value that is reflected in lower property prices.

By selling to an UPREIT, a property owner trades off the benefit of deferring or avoiding capital gains taxes with being locked in to holding the UPREIT's OP units. By deferring the capital gains tax liability, the building seller is able to invest the tax until she sells the property rather than paying it to the government today, lowering her tax cost. Offsetting that benefit is that the seller loses some value by not receiving cash for the property until sale as well. Instead, that amount is invested in the UPREIT and yields a discounted after-tax return due to capital appreciation in the UPREIT units plus the discounted value of the after-tax dividend payments. Since this is not necessarily the investment option an unconstrained property seller would choose, it may have an opportunity cost associated with it.

To an UPREIT, the capital gains tax deferral may appear to be a subsidy similar to an investment tax credit, lowering the prices they pay for properties and increasing the yield. If competition among REITs and UPREITs for acquisitions raises property prices until all firms are just making their (common) required rate of return, then UPREITs and REITs will pay the same pre-tax prices for properties and the entire benefit of the capital gains tax deferral accrues to those sellers who sell to UPREITs. However, if competition among property owners to sell buildings makes them willing to accept a lower after-tax price, UPREITs conceivably could capture up to the entire value of the capital gains tax deferral since they can reduce the price they offer below competing REITs' prices until the after-tax benefit to the seller of selling to an UPREIT or REIT is almost identical.

Before proceeding to estimate the extent to which the capital gains tax deferral is

⁷See our 2000 working paper for a more detailed description of the structure.

reflected in UPREIT share prices, it is useful to gauge how much capitalization one could expect to find. We begin by calculating the potential reduction in prices paid by UPREITs due to the capital gains tax deferral. To simplify the example, we assume the building seller would have invested her proceeds in UPREIT units whether or not she sold to the UPREIT. The value of selling to an UPREIT is maximized when the capital gains basis is zero and the holding period is infinite (corresponding to capital gains tax avoidance, such as holding the OP units until death).⁸

Thus, the most favorable outcome for UPREITs is that they pay $1-\tau_C$ less than REITs per dollar of property they obtain using OP units. Using this formula, the capital gains tax rate reduction for commercial real estate from 28 to approximately 21 percent in the Taxpayer Relief Act of 1997 (which is discussed in more detail in the next section) lowered the potential subsidy to UPREITs by about 9.7 percent.⁹

The next step is to calculate the potential effect of lower property acquisition prices on UPREIT share prices. While it is less direct to empirically back out capitalization effects using share prices, commercial property price data is notoriously noisy and commercial property characteristics are poorly measured. Share price data quality is much higher because the prices of publicly-traded firms are measured accurately, capture expectations, and company-level

⁸Although properties are likely to have a positive tax basis, in reality we suspect the average basis on properties sold to UPREITs is low. Even though land is not depreciable, given the accelerated depreciation available on properties in place before 1987, the structures easily could be fully or nearly fully depreciated. Also, one would expect that sellers with high capital gains would be most likely to sell to UPREITs. Also, the building seller may not expect to hold the OP units until death. However, that impact is not likely to be significant. A rational OP unit holder would find some way to extract cash from the units or diversify them without incurring the expensive tax cost of selling. For examples of tax-efficient portfolio strategies, see Constantinides (1983) and Stiglitz (1983). Moreover, calculations show that the tax subsidy is not particularly sensitive to the length of holding period.

⁹While the top gains rate on appreciation actually fell to 20 percent, we assume that a weighted average of the appreciation and depreciation components of capital gains yielded an effective post-TRA97 tax rate of 21 percent. If they reaped all the benefit of the capital gains tax avoidance, UPREITs paid $1-\tau_C$, or \$0.72, for every dollar's worth of real estate purchased with OP units before 1997, while REITs paid a full dollar. After TRA97, UPREITs paid $1-\$0.21$, or \$0.79, while REITs still paid a dollar. The statutory tax treatment for REITs did not change at all while the subsidy to UPREITs fell by $(0.72-0.79)/(0.72)$ or 9.7 percent.

characteristics are usually reported. Thus, we report results on capitalization into share prices in this paper.¹⁰

When calculating the potential cost to UPREITs of a capital gains tax cut, we want to capture the likelihood that those UPREITs intending to acquire more properties benefit more from the tax subsidy. Writing the expected present value of the rental stream on currently owned properties as $E[R]$ and the expected net rents from future acquisitions as $E[A]$, the stylized market value of firm i of type k ($k=REIT$ or $UPREIT$) is $V_{it}=\lambda(E[R]_{it}+E[A]_{it})+X_{it}+\eta t_k+\mu_i$, where X is a vector of potentially time-varying firm-level characteristics such as the dividend payout strategy, ηt is a time trend that is common within REITs and UPREITs, and μ corresponds to other firm-level characteristics that do not vary over time. The first term, λ , scales up the present values to account for the effect of leverage. To eliminate the impacts of μ , which might include potential conflicts of interest inherent in the UPREIT structure leading to lower valuations, we will examine growth in V , decomposing it into the weighted average percent changes in expected revenue from current and future properties:

$$\% \Delta V_{it} = \lambda \left[\frac{E[R]_{it}}{V_{it}} \cdot \% \Delta E[R]_{it} + \frac{E[A]_{it}}{V_{it}} \cdot \% \Delta E[A]_{it} \right] + \frac{X_{it}}{V_{it}} \cdot \% \Delta X_{it} + \eta'_k \quad (1)$$

Since changes in the capital gains tax rate may lead to differences in acquisition prices for UPREITs, they should affect market value more for UPREITs than for REITs.¹¹ In addition, the

¹⁰In an earlier version of this paper, we examined the effect on acquisition prices. Comparing the prices paid by UPREITs relative to REITs before and after the change in capital gains tax rates yielded results consistent with our hypothesis that UPREITs bore the economic incidence of the ability to defer gains taxes on property acquisitions. However, implied capitalization into property prices was so large (and not all that precisely estimated) as to not be convincing in its own right. We suspect that unmeasured building quality that was correlated with UPREIT status was biasing the results. Structure trait data for commercial buildings is markedly inferior to that for owner-occupied housing, so a hedonic correction could not be made successfully. Still, substantial capture by acquisitive REITs of the benefits of being able to defer capital gains taxes is implied in both firm-level and property-level data.

¹¹Competition between REITs and UPREITs provides another potential avenue for differential effects on performance. If UPREITs can acquire more of the available properties than REITs due to the tax subsidy, REITs

share prices of more acquisitive UPREITs – which have a higher proportion of their value due to expected growth through property purchases, $E[A]/V$ -- should be more sensitive to capital gains tax changes, as a change in personal capital gains rates should not affect the expected rent stream on current properties or the impact of other covariates. Thus, the effect on V should be an increasing function of the weighting of future acquisitions in the market value of the company, $E[A]/V$.

Our earlier calculation of a potential 9.7 percent increase in acquisition prices for UPREITs whose properties are completely financed with OP units implies that yields on new properties, $E[A]$, will fall by the same amount.¹² The largest effect would be found if all of acquisitive UPREITs' value were due to future acquisitions, so that $E[A]/V=1$. The capitalization into share value for acquisitive UPREITs then would be 9.7 percent times the leverage scaling factor.¹³ The debt-to-value ratio for a typical UPREIT has been about 40 percent. That level of leverage would cause the reduction in return to be magnified by about 150 percent for the average UPREIT.¹⁴

may find their growth opportunities curtailed, leading to a lower value. Our empirical work will capture this mechanism since we will be concerned only with the relative share price movements of REITs and UPREITs.

¹²To the extent that rents are higher because investment in properties declines with the tax change, the effect will be the same for UPREITs and REITs.

¹³Other factors besides leverage also could increase the estimated capitalization. Investors could perceive the current tax change as a signal of future changes. Also, the tax basis for a property could respond to the tax change, with property owners not accumulating as much appreciation before selling their buildings when the tax rate falls. This secondary effect of a lower capital gain on the building at sale further reduces the subsidy and magnifies the measured effect. Similarly, the holding period for OP units might fall after the tax change since the cost of selling the shares is less. Another reason why the measured capitalization could be very large can be found in Klein (1999).

He develops a general equilibrium model where the capital gains lock-in effect raises share prices for firms with greater embedded capital gains. A lowering of the capital gains tax rate would reduce the extent of lock-in, lowering share prices. Since UPREITs have higher embedded capital gains because the OP units carry over the basis from the property that was purchased, their share prices should fall more when the capital gains tax rate is lowered.

Landsman and Shackelford (1995) find empirical evidence of this effect using data on the leveraged buyout of a company.

¹⁴We calculated this scaling factor using the market capitalization weighted average values for UPREITs in 1997. Debt was assumed to cost the same as A-grade CMBS, which traded at 100 basis points above the 10-year Treasury rate of 6.35 percent. Given the typical implicit cap rate in 1997, a \$13.6 million building would generate \$1 million

In order to isolate the effect of a capital gains tax change on UPREIT share prices from all the factors embodied in equation (1), we note that many of these factors are common between the average REIT or UPREIT and acquisitive or non-acquisitive company, or are unchanging over time. For example, the effect of real estate market movements in prices and rents on $E[A]$ will be common across all REITs and UPREITs. The REIT or UPREIT growth trend, η , is assumed to be constant over time. And, the proportion of firm value due to rents from existing properties, $E[R]/V$, will be the same among acquisitive companies and among non-acquisitive companies. In order to eliminate these common factors and obtain the effect of the capital gains tax change alone, we compare the differential in firm share price growth across organizational structures in the period when the tax rate changed to other periods, as shown in equation (2):

$$\% \Delta P = \left((\% \Delta P_{UPREIT, ACQ, t} - \% \Delta P_{REIT, ACQ, t}) - (\% \Delta P_{UPREIT, NON, t} - \% \Delta P_{REIT, NON, t}) \right) - \left((\% \Delta P_{UPREIT, ACQ, \sim t} - \% \Delta P_{REIT, ACQ, \sim t}) - (\% \Delta P_{UPREIT, NON, \sim t} - \% \Delta P_{REIT, NON, \sim t}) \right) \quad (2)$$

where P is share price, ACQ and NON refer to acquisitive and non-acquisitive companies, respectively, and t corresponds to the period when the tax law was changed.¹⁵

One can think about this identification strategy in the framework of the event study literature where the excess return for an asset is examined for a correlation with some announcement or incident. The typical dilemma is how to measure excess return. For example, Cutler (1988) defines excess return as the portion of a stock's return above that predicted by the capital asset pricing model (CAPM). The benefit of a market model is that it allows the

in revenue in the second period. The equity return on that building is 7.35 percent $(1 - (0.40 * 13.6 * 0.0735)) / (13.6 * (1 - 0.40))$. If the price of the building rose 10 percent to \$14.96 million because of a change in the capital gains tax rate, but the second period revenue remained at \$1 million, the equity yield would decline to about 6.24 percent $(1 - (0.40 * 14.96 * 0.0735)) / (14.96 * (1 - 0.40))$. This reflects a 15.1 percent potential decline in the equity return when the price of the building rose only 10 percent.

¹⁵In our empirical work, controlling for firm leverage does not change our estimate of the effect of a capital gains tax change on share prices, suggesting that leverage does not vary systematically between acquisitive and nonacquisitive

econometrician to compare the performance of relatively dissimilar firms. In our case, we have a set of similar firms that vary primarily in their response to the capital gains tax change. In this situation, the best possible market model is to control for one type of firm's return using the return on the other type of firm. Excess return, in this case, would be defined as the UPREIT return net of the REIT return. Thus, by comparing acquisitive UPREIT returns to those of acquisitive REITs (all relative to non-acquisitive UPREITs and REITs), we control for market movements without having to explicitly incorporate other factors or the market return into our estimation. Given the uncertainty in financial economics surrounding what asset pricing model best explains returns, this reduces the amount of noise and the likelihood of spurious results in our estimation.¹⁶ This identification strategy is similar to one that is well-known in the labor and public economics literatures for identifying the effects of non-financial market events (for examples, see Gruber (1994), Gruber and Poterba (1994), and Eissa (1995)).

III. Taxpayer Relief Act of 1997

The Taxpayer Relief Act of 1997 (TRA97) lowered the top tax rate on capital gains due to appreciation from 28 to 20 percent for assets held more than 18 months. For capital gains due to depreciation, the tax rate only fell to 25 percent. There were no other changes in the legislation that should have affected UPREITs differently than REITs.

Ideally, there would be some identifiable day or week where Congress surprised everyone by creating and passing the tax rate change. Unfortunately, the capital gains tax provisions of

REITs and UPREITs.

¹⁶The implicit assumption in this strategy, that acquisitive REITs really would perform like acquisitive UPREITs in the absence of a capital gains tax change (when baselined against non-acquisitive UPREITs and REITs and other time periods), can be tested by verifying there is no difference in returns during periods in which there was no tax change. This turns out to be the case. See below for those details.

TRA97 were the subject of speculation and debate for several months before the final passage of the legislation. Table 1 lists the series of events leading up to the enactment of the bill. Even in early February, newspapers were reporting that there was a possibility of a capital gains tax cut. However, throughout February, March, and into April, speculation remained as the Clinton Administration and Congressional Republicans fought over whether Clinton would agree to cuts in the top capital gains rate to 20 percent or lower. In mid- to late-April, the negotiations moved towards reducing the capital gains tax rate. On April 30, the Congressional Budget Office reduced its estimate of the forthcoming budget deficit, reportedly the last event that enabled the Administration to reach a compromise with the Republicans. On May 3, a capital gains tax cut was announced, although the size of the cuts was still to be negotiated. On May 7, it was announced that whatever capital gains tax cuts were agreed to would take effect on that day.

Until early- to mid-June, Congress debated how much to cut various taxes. On June 14, the House Ways and Means committee endorsed a plan to cut the top capital gains tax rate to 20 percent and, except for a Clinton ‘last stand’ at the end of June, the next six weeks were spent nailing down the details of the bill that was finally passed on August 1.

IV. Estimating Incidence: Empirical Strategy and Results

a. Sample and Variable Construction

The bulk of our empirical work is done using data on 97 equity REITs. These firms were culled from a larger group of nearly 400 companies listed in the SNL Datasource, a computerized data base that reports a wide variety of information on publicly-traded real estate companies culled from SEC filings and other sources. A large number of firms, 183 to be exact, were

excluded from our sample because we restrict our analysis to companies in existence throughout a 1995-1998 window. Working with firms that operated throughout this period is important for a number of reasons. We need to compare share price movements around the time of TRA97 to those in other periods. For robustness, we include data from the years before and after the tax change for comparison purposes. In addition, our regression analysis categorizes firms by their characteristics in 1995 to avoid possible endogeneity problems, so we need to observe the firm in that year, too.

Other requirements limiting sample size include that the firm be an equity REIT, not a mortgage REIT. Mortgage REITs are real estate financiers, not property owners or operators, and, hence, are not suitable for comparison with equity REITs.¹⁷ Other firms were dropped from the sample because they were missing key data on rent-to-value ratios. As discussed below, this is an important indicator of whether a firm is considered acquisitive.¹⁸ Finally, 16 firms were dropped because they adopted either an UPREIT structure or a close substitute, the downREIT structure. Because our estimation strategy requires that the UPREIT form be exogenous during the period of analysis, we dropped those firms that switched structure in 1996, 1997, or 1998.¹⁹

We obtained a variety of corporate characteristics on our firms from SNL such as whether the company used the UPREIT form, dividends declared each year, property focus, the date of the initial public offering, several measures of company size, measures of institutional and insider ownership, along with information on rents and asset growth. This firm information is

¹⁷There were 55 such mortgage REITs in continuous existence from 1995-1998.

¹⁸An additional 28 firms had incomplete or missing data for this ratio.

¹⁹Removing the switchers can create a bias in that REITs may endogenously decide not to switch to the UPREIT form. The most plausible scenario would be that high growth REITs switch to UPREIT status. Since we delete the switchers, the remaining pool of REITs would be laggards and would have lower growth over time. This bias would work against us finding any capitalization.

then matched to stock price data for 1995-1998 from the *Center for Research in Securities Prices (CRSP)* database. Table 2 provides summary statistics on these and other variables that are used in the empirical work below.

Quarterly appreciation rates in share prices are used as the price variable in the empirical analyses.²⁰ In our reported results, we compare share price appreciation in 1997(2) with quarterly appreciation in other years. As Table 1 showed, there was no real indication that there would be a cut in the capital gains tax rate until the second quarter of 1997. By the end of June, most of the information about the capital gains tax cut had been released. Thus, the second quarter is a natural period over which to look for an effect.²¹

Finally, equation (1) shows that, all else equal, UPREITs that derived more of their market value from planned property acquisitions should have been more adversely affected by the capital gains tax cut. Consequently, we divide companies into one of two categories based upon how ‘acquisitive’ they were in 1995. Since one cannot measure expected acquisitions directly, we replace $E[A]/V$ with $1-E[R]/V$. We proxy for expected rent with 1995 total rental revenue, choosing that year because it was before our regression sample period of 1996-1998. The denominator V is 1995 firm value (debt plus equity). Since a company with low $E[R]/V$ must have high $E[A]/V$, companies with rent-to-value ratios below the median are deemed the most acquisitive. Using this metric, we find that acquisitive companies are nearly as likely to be REITs as UPREITs: 59 percent of the highly acquisitive group, and 71 percent of the least-acquisitive group, are UPREITs.

²⁰We focus on share prices since we are looking for evidence of capitalization of the tax law change. Dividend flows are so stable that neither using total return on the left-hand-side nor controlling for dividend yield on the right-hand side affected the results.

²¹When we examine returns over the individual months in the second quarter of 1997, most of the negative relative

b. Empirical Approach and Basic Specification

We begin the empirical analysis by comparing share price appreciation during the second quarter of 1997 with appreciation during the other 11 quarters between 1996 and 1998. To estimate equation (2), we rewrite it in deviations form and run the following regression:

$$\begin{aligned} \% \Delta P_t = & \alpha + \beta_1 \cdot UPREIT_i + \beta_2 \cdot I1997(2)_t + \beta_3 \cdot UPREIT \times I1997(2)_{it} + \\ & \beta_4 \cdot Acquisitive_i + \beta_5 \cdot Acquisitive \times I1997(2)_{it} + \beta_6 \cdot Acquisitive \times UPREIT_i + \\ & \beta_7 \cdot Acquisitive \times UPREIT \times I1997(2)_{it} + \beta_8 \cdot PropertyType + \beta_9 \cdot PropertyType \times I1997(2)_{it} + \delta_t + \varepsilon_{it} \end{aligned} \quad (3)$$

where the left-hand-side variable is the percent growth in the share price of company i in quarter t . The regressors include the following variables: $UPREIT$, which is an indicator for whether the company is an UPREIT; $Acquisitive$, which is an indicator variable for whether the company is expected to be in property acquisition mode; $I1997(2)$, which takes a value of one in the second quarter of 1997; and interactions of the various terms. We also include property type dummies and their interactions with $I1997(2)$ to allow for a property sector effect that varies over time.²² Thus, we will estimate the average effect within property type, in essence comparing retail UPREITs to retail REITs, and so on. Lastly, we include year and quarter dummies to control for general changes in the real estate market by year and season.

The estimated coefficient, β_1 , will measure the additional return to the UPREIT structure relative to REITs, β_2 corresponds to the average additional return to REITs in 1997(2), and β_4 reflects the average return differential to high property acquisition companies. The interaction

appreciation for acquisitive UPREITs takes place in May, with an additional decline in June and a small decline in April.

²² The SNL Database allows us to control for the following property types in each regression: Diversified, Health Care, Hotel, Industrial, Office, Recreation, Residential, Restaurant, Retail, Self-Storage, and Unknown. Allowing the property type effects to vary by year and quarter (or even year x quarter) has little-to-no effect on the estimated

terms capture a variety of relative price appreciation changes over time and across types of firms.

For example, β_3 is our estimate of the change in non-acquisitive UPREIT share price growth relative to non-acquisitive REITs between 1997(2) and the other 11 quarters between 1996 and 1998. Analogously, β_5 measures the change in acquisitive firm share price growth relative to non-acquisitive firm share price growth in 1997(2). The mean additional return to acquisitive UPREITs is reflected in the estimate of β_6 .

Of most interest for us is the β_7 coefficient, as it captures the extent to which acquisitive UPREITs appreciated differently in 1997(2) versus the remainder of the sample period, relative to non-acquisitive UPREITs and to acquisitive and non-acquisitive REITs. As suggested above, if UPREITs do capture some or all of the benefit of the tax deferral we would expect the impact of TRA97 to be capitalized into acquisitive UPREIT prices that quarter, yielding a significantly negative estimated coefficient.²³

c. Results

Table 3 reports the results from estimating equation (3). All the specifications reported here adjust the standard errors for correlation by firm. Even though this approach is relatively inefficient, our estimates of the β_7 coefficient are statistically significant at standard confidence levels in all specifications. The first column reports the findings for our baseline estimation where acquisitiveness is measured as an indicator variable. The point estimate for β_7 of -0.080 indicates that acquisitive UPREITs had materially lower share price appreciation between the

capitalization.

²³ To be clear, we do not require that acquisitive UPREITs perform the worst on an absolute basis in 1997(2), only that they perform *relatively* poorly--where relative is defined as acquisitive UPREITs versus acquisitive REITs, compared to the difference between nonacquisitive REITs and UPREITs, all baselined against the four companies' typical relative performances in other quarters. Thus, we make no predictions regarding absolute levels of price appreciation. Acquisitive UPREITs could still outperform all other types of REITs in 1997(2), but if they outperformed by less than they usually do, that would be evidence of an aberration.

beginning of April and the end of June of 1997 than did acquisitive REITs over the same period, all measured relative to the other quarters between 1996 and 1998 and to non-acquisitive REITs and UPREITs.

Recall that our calibration of the potential cost of the capital gains tax change to UPREITs could be as much as 9.7 percent times the leverage scaling factor. The large amount of capitalization into UPREIT share prices that we find suggests that UPREITs capture most of the benefit of the tax subsidy and the impact on equity is magnified by leverage and possibly other factors. However, while we can readily reject the null of no share price effect, the standard error of the estimate is such that we cannot distinguish between full or partial capitalization.

Examining the remaining coefficients, we can see that non-acquisitive UPREITs generally underperformed non-acquisitive REITs (β_1). The estimated coefficient on β_3 indicates that the change in non-acquisitive UPREITs' performance in 1997(2) relative to other quarters was superior to that of regular REITs. Relative to non-acquisitive REITs, acquisitive REITs typically underperform somewhat with a 1.9 percent lower return (β_4), but did very well in 1997(2) (β_5). In contrast, acquisitive UPREITs typically have the same performance relative to REITs as do non-acquisitive UPREITs (β_6). The baseline return for non-acquisitive REITs and their relative performance in 1997(2) cannot be separately identified from the property type x 1997(2) effects, so the constant and estimated coefficient on β_2 are not reported.²⁴

²⁴ This specification restricts the relative performance of acquisitive and nonacquisitive REITs and UPREITs and of each property type to be the same in every quarter except 1997(2). Relaxing the latter assumption by interacting property type with year and quarter, or even year x quarter, has little to no effect on our estimate of β_7 . However, when we allow the relative performance to vary across years and across quarters by fully interacting each of the REIT/acquisitive covariates with year and quarter dummies, we find that acquisitive UPREITs had an 11.5 percentage point (with a standard error of 4.8 percentage points) lower rate of price appreciation in 1997(2) relative to the other companies. The identification restriction in this specification is that, absent 1997(2), the differences in relative performance by quarter must be the same in all years and the differences by year must be the same for all quarters. A slightly more restrictive specification allows for seasonal variation but no differences across years by

In sum, our main finding is one of substantial capitalization into share price of the difference in the after-tax cost of investing. The evidence suggests that in the second quarter of 1997 at least, acquisitive UPREITs, not building sellers, captured much of the benefit associated with the ability to defer capital gains taxes on property transactions with such firms. We believe that by comparing acquisitive UPREITs to acquisitive REITs, our results are prevented from being driven by spurious movements in the real estate or REIT markets. However, the latter proposition can be tested, and we do so in the next subsection, where it turns out that the capitalization result holds up well.

d. Sensitivity to alternative specifications

While the specification in column one is easily interpretable, it somewhat artificially divides companies into two discrete levels of acquisitiveness despite the firms varying continuously in rent/value. In the second column of Table 3, we repeat our estimation with acquisitiveness entered linearly as the negative of the rent-to-value ratio (R/V) in 1995 rather than as a step function. The point estimate of -0.486 (0.138 standard error) implies that a more acquisitive UPREIT experienced a greater relative decline in share price in 1997(2). The next row in column 2 of Table 3 gives a sense of the magnitude of the effect by comparing UPREITs that were two standard deviations apart in their rent-to-value ratios. All else equal, the share price for the more acquisitive one would have declined by 6.5 percentage points (with a standard error of 1.8 points) more than the other in 1997(2). Thus, our key finding is not sensitive to the functional form imposed by the dummy variable specification in column one.

The same is true with respect to how define a company as acquisitive. As an initial

interacting (UP)REIT \times Acquisitive \times quarter. The point estimate on the β_7 term in that specification is -0.138 (0.032).

check, we used gross property growth during 1995 as our measure of ‘acquisitiveness’, reasoning that historical acquisitions are a good proxy for $E[A]/V$. Unfortunately, only 42 of the 97 firms in the sample reported this data back to the beginning of 1995. With such a limited sample, we could not obtain statistically significant results, although they were qualitatively similar.²⁵ Instead, we use 1995 R/V to predict 1996 property growth and then employ the fitted 1996 property growth as our measure of acquisitiveness.²⁶ Not only does this strategy significantly increase the sample size (to 70 firms) since we can construct property growth for many more companies in 1996 than we could in 1995, but it avoids biases due to the measurement error inherent in using a proxy for acquisitiveness because it is more explicitly ‘instrumented’. The results for the sample of 70 companies are reported in column 3. The estimate of β_7 is -0.327 with a standard error of 0.072. This implies that an UPREIT that had a two standard deviation greater expected property growth rate would have experienced a 7.1 percentage point lower relative rate of appreciation in 1997(2).

In the last column of Table 3, we take a pure instrumental variables approach. Rather than constraining the relationship between rent/value and property growth to be the same for all companies in all periods as we did in column 3, we instrument for gross property growth in 1996 and its interactions with UPREIT, 1997(2), and UPREITx1997(2) indicators with R/V in 1995 and its corresponding interactions. The results in column four of Table 3 show that the estimated effect of the tax change is basically unchanged. The price appreciation for UPREITs two

²⁵Of course, for endogeneity reasons one cannot use property growth during 1996 as a measure of acquisitiveness for 1996-1998.

²⁶ In the first stage, we regress 1996 gross property growth on the negative of the 1995 rent-to-value ratio for the 70 firms in the sample. The estimated coefficient is 1.64 with a standard error of 0.56 and an adjusted R^2 of 0.106. The rent-to-value ratio also predicts the subsequent year’s gross property growth quite well throughout the sample period.

standard deviations apart in acquisitiveness now differs by 7.9 percentage points (standard error of 3.2) in 1997(2) versus 7.1 points in column three.

We also investigated relative returns in the quarters of 1996, 1997, and 1998 other than 1997(2). Because there was no capital gains tax change in the other periods, we would expect there to be no meaningful difference in the relative performance of acquisitive UPREITs. That is, in fact, what we find when we re-estimate column one using the other quarters as the event. The only quarter in which there is a statistically significantly different relative price appreciation for acquisitive UPREITs is the second quarter of 1997. That the extensive capitalization found in the second quarter of 1997 is not found in periods without tax changes reinforces our confidence that we are indeed identifying a capital gains tax effect.

Experimentation further showed that controlling for other variables that might be varying over time in a way that would affect acquisitive UPREIT share prices relative to the other groups does not affect the robustness of our finding. For example, one potential explanation for our results is differences in beta. If acquisitive UPREITs have higher betas than other companies and 1997 was a worse year for market excess returns than 1996 or 1995, then swings in UPREIT share prices should exceed those for REITs. This would lead to a relative decline in UPREIT share prices in 1997 but a relative rise in 1996. Instead, beta (and its interaction with the 1997 tax event window) does not play a meaningful independent role in explaining relative price appreciation.²⁷ Since Table 2's summary statistics document that UPREITs tend to have slightly *lower* betas than REITs (0.74 vs. 0.91) it is not surprising that controlling for beta has little

²⁷Beta was estimated for each firm via a single factor market model. Monthly return data were used from anytime since 1992. Our finding is not particularly surprising since the market sector mix of properties is very similar among REITs and UPREITs and among acquisitive and non-acquisitive firms. Since betas almost certainly are more affected by the segment of the real estate industry that the firm's properties are in than by corporate structure or strategy, one should not expect betas to have much explanatory power for the difference in returns.

effect.

Another possible alternative hypothesis behind our findings is that if some acquisitive UPREITs experienced relatively poor operating performance in 1997, our estimated price change may simply reflect a bad year rather than information about the yields on future acquisitions. However, including the rate of growth of either net rents or net operating income does not affect the estimated acquisitive UPREIT effect.

Additional robustness checks included controlling for the fraction of shares owned by insiders and institutions, the vintage of the company (measured by the number of years since the firm's IPO), lagged measures of the debt/asset ratio and return on assets, dividend yields, and the company size proxied by the gross value of the company's properties at the end of 1995. Only the last two covariates had estimated coefficients that were statistically different from zero and none had more than a slight effect on the estimated capitalization into UPREIT share prices.

Finally, we also estimated a time series test of our capitalization hypothesis. If one believed that share price returns within REITs or UPREITs were not independent, then the most conservative statistical assumption would be to assume the residuals were perfectly correlated and group them together as a single observation. Thus, we constructed portfolios of acquisitive and non-acquisitive REITs and UPREITs and created a quarterly time series of the differences in prices appreciation between the four portfolios. Over our 16 quarter observation window, we find that relative price appreciation for the acquisitive UPREIT portfolio was 10 percentage points lower over the second quarter of 1997. The difference is significant at the 91 percent confidence level. Including other time-varying variables such as the Fama-French factors does not reduce the impact for 1997(2) or its statistical significance. Thus, even a pure time series

model suggests that something material happened to relative returns of real estate companies in the second quarter of 1997.²⁸

e. Some supporting evidence on the causes of the UPREIT relative share price decline

While UPREIT share prices experienced a relative decline when their capital gains tax-favored position was reduced, one would like to tie that share price decline directly to the capital gains tax change other than through coincident timing—even over so short a time period as a quarter. We noted above in Footnote 10 that results using property-level data are entirely consistent with the findings in Table 3. In this subsection, we show that a number of observable characteristics of UPREITs also are consistent with their purchasing properties for less by using OP units as currency. In addition, the data suggest that some of this behavior was curtailed following 1997.

If UPREITs can obtain properties equivalent to those of REITs, but at a lower effective purchase price because they can allow property sellers to defer paying capital gains tax by issuing OP units, then they should receive greater rents for each dollar of property they own. In the first column of Table 4, we investigate the proposition using a sample of all REITs and UPREITs over the 1995 to 1999 period by regressing net rent per dollar of gross property value on UPREIT status and year dummies.²⁹ We weight by the firm's market capitalization on the first trading day of 1995 to correct for heteroskedasticity induced from firms with more properties having a less noisy average rent-to-property value. The reported coefficient implies that UPREITs receive

²⁸These results are reported in our 2000 working paper.

²⁹We expand our sample period beyond the 1995-1998 window examined earlier because we wish to study a longer post-TRA97 time period. Adding data from 1999 allows us to do that at the cost of fewer unique companies. Unlike for Table 3, where the total number of firms was critical for the power of the capitalization test, here we are more concerned with the number of 'before/after' observations for each company. However, we do not require each firm to have operated continuously from 1995-1999 to be in the sample for the first two columns of Table 4, raising the number of available observations.

0.66 cents, or 5.2 percent of the sample average of 12.6 cents, more rent per dollar of real estate than REITs.³⁰

Since this result depends on UPREITs purchasing properties for lower prices than REITs, we would expect that acquisitive UPREITs would be the only companies with relatively high net rents per dollar of real estate. The specification reported in column two investigates this hypothesis in more detail by including a control for whether the firm is acquisitive as well as the interaction of acquisitiveness and UPREIT status. The results show that the higher rent-to-asset value ratios only obtain for acquisitive UPREITs. Specifically, the difference between acquisitive UPREITs and acquisitive REITs in net rents per dollar of real estate owned is reflected in the coefficient on the interaction term of UPREIT status with acquisitiveness. The differential is 1.7 cents (0.6 cent standard error), or 13 percent, higher than between non-acquisitive UPREITs and REITs.³¹

One outcome of the reduced tax benefit of OP units is that the rate of acquisitions by UPREITs may have declined. To investigate this possibility, the specification reported in column 3 regresses gross property growth on an UPREIT dummy, year dummies, and an indicator for UPREIT status after 1997 for a sample of companies that are in our data for the

³⁰We do not see a statistically significant relative decline after 1997 in net rents per dollar of property, presumably because the tax change would only affect the purchase price of new properties leaving the rent-to-value ratio of existing properties unchanged. Restricting the sample period to 1995-1997 yields a higher estimated coefficient on the UPREIT dummy of 0.0072 (0.0040).

³¹The coefficient on the UPREIT dummy (row one, column two) implies that non-acquisitive REITs and UPREITs collect about the same net rent per dollar of property, while the coefficient on the acquisitiveness dummy indicates that acquisitive REITs collect nearly 1.2 cents *less* rent per dollar of property than non-acquisitive REITs (row 3, column two). A referee notes that this may be partially due to acquisitive REITs having purchased their properties more recently than non-acquisitive REITs, with the implication that their gross property values (which are set at the time of acquisition) more closely reflect higher current rents. We would add that this effect should also be operative for UPREITs. Thus, as long as the difference in property acquisition vintages between acquisitive and non-acquisitive companies is the same for REITs and UPREITs, our specification in column two controls for that heterogeneity.

entire 1995-1999 period.³² This regression also is dollar-weighted by 1995 market capitalization to represent the change in value of REITs versus UPREITs. Up through 1997, the gross value of UPREIT properties grew 16.6 percent (5.3 percent) faster than REITs. After 1997, UPREIT gross properties grew 1.5 percent slower than REITs, for a net decline in their relative property growth rate of 18.1 percentage points (8.3 percent).

Finally, if the value of OP units for tax avoidance were reduced following 1997, one might expect UPREITs to reduce their usage of OP units afterwards. We test this hypothesis in column 4 by regressing the share of equity in OP units on an indicator variable for the years after 1997 using a sample of UPREITs that were in existence from 1995 through 1999. Before 1998, the coefficient on the constant term of the regression (which is the UPREIT dummy since all firms are UPREITs in this case) indicates that UPREITs had 23.4 percent of their equity in OP units. After 1997, the share of their equity in OP units declined by 3.7 percentage points (with a standard error of 1.8), again consistent with a declining value to using the units.

In sum, there is a variety of evidence including rent data, asset growth, and operating partnership unit usage that is consistent with the UPREIT structure becoming less valuable, especially to fast growing firms, after 1997. This increases our confidence that the relative share price decline that we identified for acquisitive UPREITs in 1997(2) is due to the capital gains tax change taking place around that time

f. Why isn't every REIT an UPREIT?

Given that the capital gains tax deferral appears to benefit the owners of UPREITs rather than building sellers, it may seem surprising that all real estate companies do not form UPREITs.

³²We impose this restriction so our results reflect changes in growth rates for a fixed sample that are not distorted by higher- or lower-growth companies entering the sample.

Since the stock market rewards the capital gains benefits of the UPREIT structure, why not simply switch organizational form and thus obtain higher share valuations?

The only sensible explanation is that the UPREIT structure may lead to lower valuations overall even though once a company has become an UPREIT, higher capital gains tax rates raise share prices on the margin. There is theoretical and empirical evidence that the UPREIT structure has a large cost. Conceptually, investors and academics have recognized that, aside from the cost of initially converting between organizational forms, there is a potential conflict of interest and a loss of flexibility inherent in the UPREIT structure.³³

The conflict of interest arises from the different capital gains tax bases of the owners of the operating partnership units versus the shareholders. The tax basis for a unit holder that received OP units in exchange for buildings is the tax basis of the original properties. Thus, if the building seller received \$20 million in partnership units for a property with a tax basis of \$1 million, his tax basis is 1/20 of the value of each partnership unit at the time of issuance. However, shareholders have much higher capital gains tax bases since the tax basis for a share is the share value at the time of purchase. Since the contributors of the properties typically control substantial portions of the voting rights, the unit holders are potentially willing to engage in a deal that is more lucrative for themselves at the expense of the stockholders. This conflict of interest can depress the share price. In addition, the flexibility of the UPREIT with respect to the disposition of properties is reduced. Since unit holders must pay capital gains taxes when the properties they contributed are sold, lock-out periods often are put in place which restrict the ability of the UPREIT to sell or refinance the property. Or, unit holders can exercise their voting rights to try to prevent property sales that would create adverse tax consequences for them.

These conflicts of interest and reductions in flexibility increase the cost of using the UPREIT structure, helping explain why many companies choose to remain REITs. And, recent empirical work by Gentry, Kemsley, and Mayer (1999) suggests that switching to UPREIT status *depresses* a company's share price. One would then expect that only those companies that would obtain the most benefit from the UPREIT structure would adopt it, and such companies naturally would be ones who plan to acquire relatively large amounts of appreciated properties. If that type of selection were occurring, UPREITs would be more acquisitive relative to REITs. However, in our sample, REITs are no less acquisitive than UPREITs, *ex ante*.

This suggests that there must be yet another benefit to UPREIT status, and we believe that it is the *initial* benefit to choosing UPREIT status upon going public. Even if a property owner planned no further acquisitions after taking his company public, forming an UPREIT enables the owner to avoid capital gains taxes. That tax deferral benefit can be very large for owners of properties that have been close to fully depreciated. Thus, even if adopting the UPREIT structure lowers the share price relative to that for a regular REIT, the people who initially contribute properties may still end up ahead due to the value of the tax avoidance. In this case, lowering the capital gains tax rate would decrease UPREIT share prices yet further.³⁴ Thus, a small increase in the capital gains tax subsidy certain can and does provide a benefit to UPREITs on the margin, but switching from REIT to UPREIT status still could lead to a drop in share prices.³⁵

V. Conclusion

³³See Sagalyn (1996).

³⁴Consistent with this story, the bulk of UPREITs in 1993 and 1994 were created directly from private companies going public and did not switch from REIT status. This would also explain why the option to switch from REIT to UPREIT status is not valuable -- it is out of the money unless there is a large property holder that wishes to avoid gains tax.

³⁵For those companies that do switch structure, it appears that they were less likely to do so in 1997. Six companies adopted the downREIT structure in 1996 while only two did so in 1997. Of those two, one switched in mid April,

By comparing the performance of two organizational forms of publicly-traded real estate companies, we are able to estimate the effect of the capital gains tax rate reduction in TRA97 on the share prices of UPREITs while holding all other industry-level and time-varying changes constant. The result provides insight into the classic question of the asset price incidence of taxes while minimizing the identification problems of previous work. In addition, we are able to provide new evidence on a corporate-level subsidy to investment, in contrast to much of the existing literature on tax capitalization that focuses on shareholder-level effects.

In our preferred specification, we find that the capital gains tax rate changes in TRA97 led to an 8 percent decline in the share price of acquisitive UPREITs relative to REITs and non-acquisitive UPREITs, all relative to the same time period in 1996. By comparing acquisitive real estate companies to less-acquisitive ones, we are able to prevent our results from being driven by spurious movements in property prices. These results are robust to a wide variety of sensitivity analyses. In addition, we found evidence consistent with the hypothesis that UPREITs are able to purchase properties for less than REITs, increasing their project yields. Acquisitive UPREITs collect greater net rents per dollar of book value of property, and UPREITs as a whole reduced their usage of OP units after 1997 and had reduced asset growth rates then as well.

Overall, our results suggest that much of the economic incidence of the tax subsidy is borne by the buyer of properties, the UPREITs, even though the legal incidence is on the property seller. It is also clear that a tax-induced reduction in the return to property investing for UPREITs was reflected in their share prices. A natural extension to this work is to investigate further our finding that UPREITs reduced their investment in real property after 1997, when the tax benefit declined. This result suggests that the tax change may have had a real effect on

investment beyond the share price results that are the focus of this paper.³⁶

³⁶This research would contribute to the debate on whether tax policy affects real investment. See Auerbach and Hassett (1992), Cummins, Hassett, and Hubbard (1994), and Goolsbee (1998).

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Table 1: Taxpayer Relief Act of 1997 Timeline of Major Headlines

First week of February, 1997	Clinton says he might be willing to cut capital gains taxes to reach a budget compromise, but the Administration's preference is for a capital gains tax increase. Republicans want to lower rate to below 20 percent.
February 13	Senator Trent Lott says that Democrats' opposition to capital gains tax cuts may be breaking down.
February 23	The New York Times reports that Democrats have reduced their opposition to capital gains tax cuts.
March 2	Clinton Administration and Congress are still debating potential cuts.
Mid-April	Republican budget negotiators keep heat on Administration to agree to reduce capital gains taxes
April 30	CBO reduces estimated size of budget deficit
May 3	Agreement reached to reduce capital gains tax rates, the size of the cuts is to be determined
May 7	Announcement that capital gains tax cuts would be effective May 7
Rest of May	Republicans deciding whether to cut capital gains taxes or income taxes
June 10	Archer proposes reducing capital gains tax to 20 percent
June 14	House Ways and Means Committee approves Archer plan
June 18	Senate proposes capital gains tax cut to 20 percent
June 27	House passes capital gains tax cut
June 30	Clinton wants 27.72 maximum capital gains tax rate
July 23	House and Senate Republicans reach agreement on bill
July 29	Clinton Administration and Republicans reach consensus
August 1	House and Senate approve TRA97

Based on articles from the *New York Times* and the *Wall Street Journal*.

Table 2: Sample Means, 1997

	Entire Sample	Traditional REITs	UPREITs
Percent UPREIT	64.9		
Percent Acquisitive	50.5	58.8	46.0
Quarterly share price growth	0.024 [0.069]	0.004 [0.071]	0.035 [0.066]
Dividend yield	0.083 [0.032]	0.073 [0.046]	0.088 [0.022]
Years since IPO	9.1 [8.6]	15.0 [10.4]	5.9 [5.3]
% Insider Ownership	14.9 [13.6]	16.1 [17.7]	14.2 [10.8]
% Institutional Ownership	42.5 [25.3]	24.7 [20.7]	52.1 [22.3]
Debt/Asset Ratio	0.47 [0.18]	0.44 [0.20]	0.48 [0.17]
Gross Property Value (000)	933,432 [1,005,365]	607,621 [783,883]	1,083,807 [1,065,967]
Estimated Beta	0.80 [0.20]	0.91 [0.23]	0.74 [0.15]
Net Rents/Book Value of Real Estate	0.138 [0.039]	0.128 [0.033]	0.143 [0.042]
Number of Companies	97	34	63

Notes: Standard deviations are in square brackets. Net Rents/Book Value is available for only 72 companies over this time period, 24 REITs and 48 UPREITs.

Table 3: Share Prices Respond for Acquisitive UPREITs

Definition of 'Acquisitiveness':	Indicator	Continuous		
	Below-Mediar Rent/Value Ratio in 1995	Rent/Value Ratio (R/V) in 1995	1996 Net Property Growth as predicted by 1995 R/V	IV for 1996 Net Property Growth with 1995 R/V
UPREIT dummy (β_1)	-0.014 (0.011)	0.0002 (0.012)	0.0002 (0.014)	-0.0003 (0.012)
UPREIT x 1997(2) (β_3)	0.076 (0.027)	-0.049 (0.027)	0.127 (0.025)	0.133 (0.043)
Acquisitiveness (β_4)	-0.019 (0.011)	-0.036 (0.061)	0.026 (0.030)	0.029 (0.025)
Acquisitiveness x 1997(2) (β_5)	0.085 (0.027)	0.318 (0.124)	0.138 (0.046)	0.126 (0.077)
Acquisitiveness x UPREIT (β_6)	0.016 (0.013)	0.028 (0.070)	-0.002 (0.041)	-0.003 (0.040)
Acquisitiveness x UPREIT x 1997(2) (β_7)	-0.080 (0.030)	-0.486 (0.138)	-0.327 (0.072)	-0.364 (0.146)
Diff. for UPREITs two standard deviations apart in Acquisitiveness		-0.065 (0.018)	-0.071 (0.016)	-0.079 (0.032)
Property Type x 1997(2) dummies (β_8)	Yes	Yes	Yes	Yes
Year and quarter dummies	Yes	Yes	Yes	Yes
Number of observations	1,164	1,164	840	840
Number of firms	97	97	70	70
Adjusted R ²	0.185	0.182	0.244	0.214

The left-hand-side variable is the firm's quarterly share price appreciation in percentage terms. Standard errors, corrected for general correlation in the residuals within firm, are in parentheses. A constant term is estimated but not reported. The indicator for 1997(2) is subsumed into the property type x 1997(2) interactions. There are 12 quarterly observations for each firm, covering the 1996-1998 period.

"Acquisitive" is a proxy for whether the company is expected to be in the top half of acquisitive companies. In columns one and two, rent/value in the year before the first year of return data is used as a measure of expected growth. In column one, firms with rent/value below the median are given a value of one for acquisitive. In column two, -rent/value is included linearly. In column three, net property growth in 1996 is regressed on rent/value in 1995 and the fitted value is used as a measure of expected growth. In column four, rent/value in 1995 and its interactions with UPREIT, 1997(2), and UPREIT x 1997(2) indicators are used as instruments for net property growth in 1996 and its interactions with UPREIT, 1997(2), and UPREIT x 1997(2) indicators.

Table 4: UPREITs Enjoy Better Fundamentals than REITs

Independent variable	Dependent variable			
	Net rents/real estate book value	Net rents/real estate book value	Growth in gross real estate	OP units / (Common Equity + OP units)
UPREIT dummy	0.0066 (0.0028)	-0.0017 (0.0039)	0.166 (0.053)	0.234 (0.011)
UPREIT * after 1997			-0.181 (0.083)	-0.037 (0.018)
Typically acquisitive		-0.0116 (0.0043)		
UPREIT * Typically acquisitive		0.0171 (0.0056)		
Year dummies?	Yes	Yes	Yes	No
Adjusted R ²	0.0659	0.0794	0.1295	0.0141
Rectangular panel?	No	No	Yes	Yes
Subsample?	All companies	All companies	All companies	UPREITs only
N	525	525	310	225

Notes: Sample period covers 1995-1999. In the rectangular panel, all companies are observed over all five years. Otherwise, all companies with nonmissing data are used. Regressions are weighted by market capitalization on the first trading day of 1995.

Figure 1: Creation of UPREITS vs. Traditional REITs, by Year

