Dividend Regulations and Investment

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Abstract

A first order policy question is whether dividend regulations affect corporate investment. Recent findings show that dividend tax regulations do not increase aggregate investment. This paper examines an industry-specific (REIT) dividend regulation with an alternate design, the REITs Modernization Act (2001), which directly affects dividend payout ratios while leaving the dividend tax rates unaffected, at both the corporate and the individual investor level. We find that the regulation positively affects REITs' investment and firm value, which is consistent with the "new view" of dividend taxation. Second, constrained REITs, increase investment and enhance firm value, but they do not change security issuance or leverage, when financing constraints are relaxed. Finally, REITs with higher agency conflicts exhibit underinvestment.
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Introduction

The welfare implications of dividend regulations are an important research topic. A first order policy question is whether dividend regulations affect corporate investment. Dividend regulations are rare and due to the lack of such regulations, the question has not been well explored. Dividend regulations can affect both the dividend payout and the cost of capital by changing dividend tax rates. The evidence (discussed in detail below), indicates that dividend tax changes, at both corporate and individual investor levels, have a limited effect on aggregate corporate investment. This paper examines the effect of an industry-specific dividend regulation with an alternate design that directly affects dividend payout, but leaves dividend tax rates unchanged on both investment and a number of other corporate outcomes.

In the US, dividend income is subject to double taxation, first at corporate level, and then at individual investor level. A corporate income tax change can affect the supply of a firm's internal funds. For instance, an increase in the corporate tax rate can decrease (after-tax) retained earnings and therefore the internal funds available for investment. The 'undistributed profits tax' implemented by the Revenue Act of 1936 belongs to this category, since it was designed in such a way that any firm wishing to lower the dividend payout had first to pay an additional tax on its retained earnings. On the other hand, by changing the tax rate at individual investor level, a dividend regulation can affect the supply of external funds. For example, a decrease in the personal taxation rate is likely to give the investor a higher (after-tax) disposable income which in turn, might result in a higher supply of capital. The Jobs and Growth Tax Relief Reconciliation Act of 2003 (2003 Dividend Act) belongs to this category, since it lowered the taxation rate at individual investor level. Based on the existing evidence, dividend tax regulations do not increase aggregate investment. This raises a question about the efficacy of dividend

tax regulations.

In the US, real estate investment trusts (REITs) have come a long way since their creation in 1960 to facilitate an easier access to investments in real estate for small investors. The Great Recession highlighted the importance of the real estate sector for the financial markets in the US and elsewhere. REITs play an increasingly important role in the real estate markets and investors' portfolios. Until August 2016, the S&P 500 index had been cut into 10 broad sectors in order to help investors create diversified portfolios. In September 2016, a sector dedicated to real estate was added to the index, suggesting the increasing importance of REITs' stocks.

One of the several regulatory requirements of a REIT is to distribute a certain minimum percentage of its corporate income as dividends. A REIT is allowed to deduct this dividend payout from its corporate taxable income. The REIT Modernization Act (RMA), effective as of January 1st 2001, made two notable changes (among many). First, it lowered the REITs' dividend distribution threshold from 95% to 90% of corporate taxable income. Thus, the RMA affected the dividend policy of a REIT by altering the payout ratio while keeping dividend taxation unchanged, at both corporate and individual investor level. A dividend tax change such as the 2003 Dividend Act may affect the supply of external funds but a change in the payout ratio, as implemented by the RMA, can affect the supply of internal funds. Second, the RMA allowed REITs to own taxable REIT subsidiaries (TRSs). Thus, the regulation expanded the REITs' investment opportunity set. A firm is expected to respond to its investment opportunities and hence the RMA is likely to have increased REITs' investment.

The dividend regulation motivates us to investigate three inter-related issues. The "new view" of dividend taxation (King (1974), Auerbach (1979), and Bradford (1981)) argues that investment is financed by internal funds that can only be changed by changing dividend payouts. Testing the "new view" requires a constant dividend taxation

regime. This is exactly what the RMA offers. Thus, the first question is, what is the impact of lowering REITs' dividend payout threshold on REITs' investment? After paying out a big part of their corporate income in dividends, REITs are likely to be financing constrained. A lower dividend payout is likely to increase the supply of internal funds. Hence the second question is, how do relaxed constraints on internal finance affect financing constrained REITs' investment and financing behavior? Finally, dividend regulations and agency costs are intimately linked. The RMA potentially increases a REIT's internal funds, which, in turn, might aggravate agency conflicts. Accordingly, the third question is, how do agency conflicts affect REITs' investment behavior?

For identification, this paper exploits the fact that the RMA resulted in an increase in internal funds, through lower dividend payouts. We devise empirical tests employing a standard methodology for policy impact evaluation, namely difference-in-differences. The main findings of this paper are as follows. For the first question, we test whether the dividend regulation resulted in lower REITs' dividend payout and consequently increase in their aggregate investment. We find first that the lower dividend payout threshold led to a reduction in the actual dividend payout. Next, we find that the RMA resulted in increased aggregate investment after controlling for firm-specific and industry-specific characteristics. The result is consistent with the "new view" of dividend taxation. Further, the result remains robust to the 2003 Dividend Act and sample selection concerns. For the second question, our results show that constrained REITs, so classified by the absence of a credit rating, increase their investment and create value for investors following the RMA. Further, regarding financing behavior, we find two results. Firstly, more-constrained REITs do not lower their dependence on external funds, both debt and equity, while less-constrained REITs lower their security issuance when financing constraints are relaxed. Secondly, both types of REITs choose to keep their leverage unchanged despite their divergent security issuance behavior. For the third

question, we find that REITs with higher agency conflicts, measured by the absence of an equity blockholder, seem to underinvest. In sum, our main result is that the dividend regulation increased REITs' investment regardless of financing constraints and agency conflicts.

In the light of growing evidence that dividend tax regulations do not affect aggregate investment, our finding that a regulation that affects the payout ratio while keeping dividend tax rates unchanged does have an effect on aggregate investment has public policy implications. To the best of our knowledge, this is the first study to document such an effect.

The rest of the paper is organized as follows. The next section discusses the policy innovation. Section 2 discusses the theory and hypotheses. Section 3 describes the data and summary statistics. Section 4 presents the empirical test and results. Finally, section 5 concludes.

1 The REITs Modernization Act (RMA)

A REIT is a firm that receives most of its income from real estate investments. In order for a firm to qualify as a REIT in the US, it must comply with certain rules specified in the Internal Revenue Code, including an investment of at least 75% of total assets in real estate, deriving at least 75% of gross income as rents from real estate or interest from mortgages on real estate, and distributing annually at least 90% of taxable income to shareholders in the form of dividends. A firm that qualifies as a REIT is permitted to deduct dividends paid to its shareholders from its corporate taxable income. An important observation is that, relative to equity, debt does not provide REITs with tax benefits.

The RMA was signed into law (H.R. 1180) on December 17th, 1999 and was effective as on January 1st, 2001. It made two notable changes (among others). First, it lowered

the dividend distribution requirement of a REIT from 95% to 90% of its corporate taxable income allowing a REIT to retain more of its (after-tax) capital. Second, the Act allows a REIT to own up to 100% of the stock of a taxable subsidiary. However, dividends from TRSs are not meant to qualify as "income" under the REITs' 75% income test and are subject to taxation as non-REITs. The Act also imposed size limits; although a REIT can own TRSs, the value of the stock may not exceed 20% of the total value of a REIT's assets. In sum, the RMA, by allowing REITs to own TRSs and reducing the dividend distribution requirement from 95% to 90%, enables them, first, to retain earnings, if they so choose, and, second, to add to and diversify their product mix, by widening their investment opportunity set.

2 Theory and Hypotheses

2.1 Dividend Regulation and Aggregate Investment

A number of recent studies investigate the implications of dividend tax regulations. Chetty and Saez (2005) document a positive short-term effect of the 2003 Dividend Act on corporate dividend policy.[1] Hanlon and Hoopes (2014) similarly find that individual tax rates affect corporate payout policy when the tax rates were expected to rise following the then scheduled expiration of the 2003 Dividend Cut Act in 2011 and 2013. However, many studies, including Faulkender and Petersen (2012) and Yagan (2015), find no effect of the 2003 Dividend Act on corporate investment or stock prices, as documented by Amromin, Harrison, and Sharpe (2008). An earlier dividend reform, the undistributed profits tax of 1936, stipulated that any firm wishing to lower the dividend payout must first pay an additional tax on the retained earnings. Thus, following the

[1]The Jobs and Growth Tax Relief Reconciliation Act (2003) (the 2003 Dividend Act) lowered the top individual investor taxation rate on dividends from 35% to 15% and on capital gains from 20% to 15%. A stated purpose of the reduction in the taxation on corporate equity was to increase corporate investment by lowering the equity cost of capital.

implementation of that tax, firms faced a higher corporate tax rate on internal funds. Investigating the undistributed profits tax, Christie and Nanda (1994) document that inefficient managers, instead of returning the excess funds to investors, wasted funds on projects of negative net present value (NPV). Thus, both these US tax experiments seemed to fail to increase investment. In a recent paper, Gulen and Ion (2015) document a negative relationship between firm investment and policy outcome uncertainty, measured by a news-based index. Outside the US, Kari, Karikallio, and Pirttilä (2008) provide evidence from Finnish firms that dividend tax might affect corporate payout policy but not corporate investment. Becker, Jacob, and Jacob (2013), in a cross-country study, document evidence that changes in dividend taxation do not change aggregate investment. Likewise, Alstadsæter, Jacob, and Michaely (2017) document that a cut in the tax on personal dividend taxation does not affect aggregate investment in Swedish unlisted firms. Thus, from a public policy perspective, based on US and international evidence, it is not clear whether dividend tax regulations affect corporate investment. In the present context, the question is whether the RMA, with an alternate regulatory design, has affected aggregate investment.

Theoretical guidance on dividend regulations is a bit unsettled. The two most-cited theories in connection with dividend taxation are the "old view" (Harberger (1962), Feldstein (1970), and Poterba and Summers (1985)), and the "new view" (King (1974), Auerbach (1979), and Bradford (1981)). A major difference between these theories is the impact of dividend taxation on corporate investment. The "old view" suggests that the marginal source of funds is new equity, since dividends are sticky, and dividend taxation distorts both dividend and investment decisions by influencing the cost of capital. On the other hand, the "new view" argues that investment is financed by internal funds, which can be changed by only changing dividend payout. A dividend tax change is assumed to be capitalized in share prices, such that its reverse effects on cost of capital and dividend

payout negate each other. Testing the "new view" requires constant dividend taxation. This is exactly what the RMA does, and, therefore, it provides a perfect setting for such a test. The policy design of the RMA is rare, for at least two reasons. First, the RMA allows a lower dividend payout, which makes it a somewhat unusual experiment, since most tax reforms, notably in the US the 2003 Dividend Act and the undistributed profit tax (1936), change dividend taxation rates, at corporate taxation level or individual investor taxation level, in order to encourage a higher payout.[2] Second, the RMA does not affect the taxation rate at corporate level (i.e. the rate at which a REIT's corporate income is taxed) or the rate at individual investor level (i.e. the rate at which an individual investor's dividend income is taxed). The RMA merely allowed REITs to alter their retention ratio, and this serves as the basis for the variation in retained earnings. Thus, the first testable hypothesis is that a lowered payout ratio due to the RMA affects REITs' aggregate investment **(H1)**.

2.2 Dividend Regulation and Financing Constraints

Although the literature reviewed above on the impact of dividend regulations on aggregate investment fails to reach a consensus, a common theme is that financing constraints significantly affect firms' investment and financing behavior.

2.2.1 Dividend Regulation, Financing Constraints, and Investment

First, we investigate the allocative efficiency of the RMA on REITs' investment. After paying out a large dividend, REITs are likely to be financing constrained. External funds tend to be more expensive than internal funds. Thus, in the presence of severe financing constraints, some REITs might be forced to abandon borderline investment projects if they have to resort to costlier external funds. A lower payout ratio represents

[2]The Revenue Act of 1936 (the undistributed profit tax (1936)) was designed in such a way that any firm wishing to lower the dividend payout must first pay an additional tax on retained earnings.

a positive shock to REITs' internal funds that might relax financing constraints a little, thereby enabling financing constrained REITs to undertake those investment projects that were not profitable before. In line with this, Alstadsæter, Jacob, and Michaely (2017) show that, following a dividend tax cut, constrained firms increase investments while Becker, Jacob, and Jacob (2013) find that, following a dividend tax increase, constrained firms cut investment. Our conjecture is that investment of constrained REITs is likely to increase when financing constraints are relaxed. Thus, our second hypothesis is that constrained REITs increase investment when financing constraints are relaxed **(H2)**.

2.2.2 Dividend Regulation, Financing Constraints, and Financing Behavior

A 5% drop in dividend payout leading to an increase in internal funds is not likely to eliminate REITs' complete dependence on external funds. REITs continue to issue security. The RMA also allows us to sharpen our focus on the financing behavior of REITs when financing constraints are relaxed. An increase in internal funds is expected to lower a REIT's demand for external funds but it is possible that the reduction in demand for external funds might be less for constrained REITs due to their higher capital needs. Thus, our third hypothesis is that constrained REITs did not lower their security issuance following the RMA **(H3)**.

It is also likely that the reduction in demand for external funds is asymmetric between debt and equity. For instance, Brown and Riddiough (2003) and Ghosh, Nag, and Sirmans (1997) document that REITs raise external funds by issuing more equity than debt. Becker, Jacob, and Jacob (2013) find that following a dividend tax increase, representing a negative shock to the supply of external funds, constrained firms issue less equity and, likewise, Alstadsæter, Jacob, and Michaely (2017) show that following a dividend tax cut, representing a positive shock to the supply of external funds, constrained

firms raise more equity to finance investments. Thus, equity issuance seems to be more sensitive than debt issuance to changes in capital needs. Consistent with the existing evidence, our conjecture is that, following an increase in internal funds, REITs might cut their equity issuance before they cut their debt issuance, for at least two reasons. First, a greater availability of internal funds might lower a REIT's bankruptcy costs, resulting in a lower cost of debt. Second, REITs' investment projects are likely to be concentrated on tangible assets that can conveniently act as collateral (Almeida and Campello (2007) and Cvijanović (2014)). Thus, our fourth hypothesis is that constrained REITs lower their equity issuance before debt issuance when financing constraints are relaxed **(H4)**.

We then move on to investigate the impact of relaxed financing constraints on REITs' leverage. Cvijanović (2014) document that an increase in net worth leads to increased leverage in firms that have greater sensitivity to real estate prices. On the other hand, Dasgupta, Noe, and Wang (2011) document that financing constrained firms decrease their leverage in response to a positive shock to cash flows. Thus, the existing evidence is mixed. Our conjecture is that if REITs issue less equity than debt following a potential increase in internal funds (H4), then their leverage is less likely to go down. Thus, our fifth hypothesis is that constrained REITs decrease their leverage in response to an increase in internal funds **(H5)**.

2.3 Dividend Regulation and Agency Conflicts

Dividend reforms and agency conflicts are intimately linked. A potentially higher level of internal funds resulting from a lowered payout ratio after the RMA is likely to aggravate agency conflicts in REITs. Chetty and Saez (2010) derive agency implications for dividend tax changes, but these are not wholly relevant in the present context, since the RMA left dividend tax rates unchanged. Agency conflicts can cause overinvestment or underinvestment.

Overinvestment implies investment in wasteful projects (Jensen (1986)). For instance, Blanchard, Lopez-de Silanes, and Shleifer (1994) document that inefficient managers in firms having no growth opportunities overinvest in the wake of windfall. Christie and Nanda (1994) document that inefficient managers reduced dividend payout in order to overinvest following the introduction of the undistributed profits tax in 1936. On the other hand, underinvestment implies a lack of investment despite the existence of positive NPV projects. Underinvestment might be due to debt overhang (Myers (1977)) or excessive managerial inertia (Bertrand and Mullainathan (2003)), where inefficient managers do not respond to investment opportunities. Given that the RMA also allows REITs to own TRSs, a reasonable conjecture is that REITs now are less likely to face a lack of profitable investment opportunities. Therefore, our final hypothesis is that aggravated agency conflicts cause underinvestment following an increase in investment opportunities in the form of TRSs **(H6)**.

3 Data and Summary Statistics

3.1 Data and Sample Selection

The data for the analyses reported in the next sections are from various widely available public databases. The sample contains US firms from the Center for Research in Security Prices (CRSP) and Compustat. Data on institutional stock holdings come from the 13(f) files. We classify the firms with Standard Industrial Classification (SIC) code "6798" as REITs, since this code is allotted exclusively to REITs. Ott, Riddiough, and Yi (2005) note that REITs experienced a different corporate environment, especially capital market conditions, prior to 1993 that might affect our analyses. We therefore follow Ott, Riddiough, and Yi (2005) and start our sample period from 1993. Since the Great Recession had its epicenter in real estate markets, we exclude the period after fiscal

year 2007, as it might seriously affect our results. Detailed definitions of the variables are provided in Appendix A.

A standard methodology for the evaluation of the impact of a policy change is difference-in-differences (DID) estimation (Angrist and Pischke (2008)). An identifying assumption for DID estimation is parallel trend which implies that control and treated groups should be similar during the pre-shock period. However, this assumption can not be formally tested (Roberts and Whited (2012)). REITs are a special type of corporation, due to their regulated status. We follow Lemmon and Roberts (2010) in constructing a control group using propensity score matching (Rosenbaum and Rubin (1983)), which can also address the parallel trend assumption in a more suitable manner.

In constructing a control group, we begin with all available firms except REITs in Compustat during the pre-change period. Like Lemmon and Roberts (2010), we restrict sample to firms that have at least one observation during the pre-change period, 1993-1999. Fang, Tian, and Tice (2014) and Brogaard, Li, and Xia (2016), who also employ propensity score matching to construct control groups, use the same covariates for matching as in their main regression. We use cash flow, size, age, and market-to-book ratio, since they seem to be a parsimonious set of prominent firm-specific characteristics. We use the natural log of cash flow; REITs' cash flows tend to be smaller and more passive than those of other firms, and therefore we also include the growth rate of cash flow. Size is included since REITs' investment in physical assets might be lumpy. Age is included since the REITs industry is relatively young. REITs' investment opportunities tend to be stable and thus we include the market-to-book ratio to control for investment opportunities. The variables are then averaged over the pre-RMA period. The presence of a credit rating is also included as it might affect a firm's access to capital markets. To capture industry effects, dummies for Fama-French's ten industry portfolio are included. The matching procedure relies on the propensity scores of up to four nearest neighbors

for each REIT. A probit model is estimated in which the dependent variable is set to one for REITs and zero for other firms. The probit model returns the predicted probabilities (propensity scores) that are used to match firms in the two groups. This strategy yields a set of firms with similar characteristics to REITs prior to the policy change but not subject to it.

The matching procedure produces 944 treatment-control pairs. The results of the probit regression are reported in Table 1 , Panel A, Column 1. The probit estimation produces a pseudo R-squared of 0.029 and a p-value from the chi-square test that remains below 0.001, which suggests that the covariates jointly explain significant variation between the groups.

The validity of the DID estimator critically depends on the assumption that the underlying trends in the outcome variable are the same for both groups. As suggested in Lemmon and Roberts (2010), we perform three diagnostic tests to see whether the assumption holds. As a first diagnostic test, we repeat the probit model reported in Table 1, Panel A, Column 1 but this time for the matched sample. The results are reported in Table 1, Panel A, Column 2. All of the explanatory variables turn insignificant, which suggests that are no observable differences between the characteristics of the treatment and control groups in the pre-treatment period. The pseudo R-squared plummets from 0.029 prior to the matching to 0.004. The chi-square with a p-value of 0.698 suggests that the joint effect of all coefficients on the independent variable is indistinguishable from zero. Thus, the results are supportive of the assumption. As a second diagnostic test, we perform mean t-tests between the pre-shock period characteristics of the two groups for both the pre- and the post-match samples. The first three columns in Table 1, Panel B report the mean differences for the pre-match sample and the last three columns for the post-match sample. The mean differences between the REITs and the control group for the covariates are all insignificant. The final test compares the propensity

scores of the treatment and control groups. Panel C of Table 1 reports the distribution of the propensity scores for both groups. The scores look reasonably close. Both the mean distance and the median distance between the propensity scores of the treatment firms and the matching control firms are -0.004, with a maximum and minimum of 0.004 and -0.007, respectively.

For time-series variation, we exploit the policy change, the RMA, which lowers the REITs' dividend distribution threshold from 95% to 90% and also provides them an increase in investment opportunities.

3.2 Summary Statistics

Table 2 presents the descriptive statistics of the variables in our sample. Panel A presents the statistics for REITs and panel B for firms in the matched sample.

The mean cash flow, market-to-book ratio, age, and size of the two groups are similar, as expected, since the control group was matched to the treatment on the basis of these characteristics. However, the standard deviation of REITs' market-to-book is lower, at 0.32, than that of the control group, at 0.90, which suggests that REITs' investment opportunities are rather stable. Firms in the control group, on average, seem to hold more tangible assets, at 0.34, than REITs, at 0.11. As expected, REITs' mean dividend payout and mean total payout are higher than those of the control group. REITs' profitability (Roa), at 0.07, is lower than that of the control group, at 0.12. REITs' mean cash holding, at 0.05, is also lower than 0.14 for the control group. REITs' security issuance, equity or debt, is higher than that of firms in the control group. REITs' mean leverage, at 0.53, is higher than for the control group, at 0.31. The proportion of REITs having a credit rating is higher than that of the control group. The presence of block holders looks similar in both groups. It is clear that there are differences in a few variables between the two groups, and, thus, the role of propensity score matching

becomes increasingly important in reducing the imbalance between the groups on key characteristics, as reflected in similar propensity scores in Table 1.

4 Empirical Tests

4.1 Dividend Regulation and Aggregate Investment

We now move on to regression analyses. Although the RMA allows for a lowered dividend payout threshold, from 95% to 90%, a REIT can choose to keep its dividend payout unchanged. Thus, the first test is whether REITs chose to lower their dividend payouts following the RMA. The regression specification is as follows:

$$Dividend_{it} = \alpha_i + \beta_1 RMA_t + \beta_2 REIT_i + \beta_3 DID\_RMA\_2000_{it} + \beta_4 X_{it} + u_{it}, \quad (1)$$

where i indexes firms, j industries, and t fiscal years. The dependent variable, Dividend, is the firm's dividend payout.[3] The variable of interest, DID estimator (DID_RMA_2000) captures the effect of the policy change on REITs' dividend payout. The DID estimator is the interaction of two dummy variables, RMA and REIT. RMA takes a value of one if the year is 2000 or above, or else zero. We choose the year 2000 as the start of the treatment period in order to address any potential anticipation effect, as the RMA came into effect in 2001. In an event study, Howe and Jain (2004) use the same year in examining the (positive) announcement effects of the RMA. REIT takes a value of one if a firm is designated as a REIT, or else zero. X is a set of other firm-specific controls: return on assets (Roa), market-to-book ratio (MB), size, and age. Market-to-book ratio captures future profitability while return-on-assets captures current profitability. Size and age are included since they are vital firm-specific characteristics. We control for

[3]The dependent variable is dividend payout and not total payout, for two reasons. First, REITs' share repurchases remain untouched by the RMA, and second, unlike a cash dividend, REITs' share repurchases are subject to double taxation.

macroeconomic effects by including year dummies and for industry effects by including industry dummies (4-digit SIC code). All firm-specific variables except the dummy variables are scaled by beginning-of-year total assets. Firm policies are dynamic; therefore, we cluster errors (also in subsequent regressions) at firm level to address potential serial correlation (Bertrand, Duflo, and Mullainathan (2004)).

The results are reported in Table 3, where the variable of interest is the DID estimator. Column 1 reports unconditional results from the OLS regression. A significant negative coefficient on the DID estimator, -0.018, implies a decrease in a REIT's dividend payout following the RMA. Since REITs tend to pay out higher dividends than other firms, the result could be subject to an industry bias. Column 2 adds industry effects to the OLS regression in Column 1 and we find that in Column 2 the DID coefficient remains more or less unchanged, at -0.017. In Column 3 the DID coefficient remains negative, at -0.027, even after including the other covariates along with industry effects. Fixed effects capture firm-specific characteristics that remain unobserved. A concern is that our results could be biased due to a firm effect. Column 4 presents results with firm fixed effects and we find that the DID coefficient is still negative, at -0.013. Column 5 presents the results after controlling for all relevant covariates, firm fixed effects, and year effects. The DID estimator consistently remains negative and statistically significant across various specifications, which implies that REITs lowered their dividend payout following the RMA.

We now move on to investigate the effect of the dividend reform on REITs' investment. The specification is as follows:

$$Investment_{it} = \alpha_i + \beta_1 RMA_t + \beta_2 REIT_i + \beta_3 DID\_RMA\_2000_{it} + \beta_4 X_{it} + u_{it}, \quad (2)$$

where i indexes firms, j industries, and t fiscal years. The dependent variable, Investment, is the firm's investment. The DID estimator (DID_RMA_2000) remains defined

as before. X is a set of other firm-specific controls: cash flow, market-to-book ratio (MB), and cash holdings. Cash flow and market-to-book ratio are standard variables in investment equations. Cash is included since Almeida, Campello, and Weisbach (2004) show that investment can be sensitive to cash holdings. As before, we include year and industry effects.

The results are reported in Panel A of Table 4. As previously, we start with unconditional results from the OLS regression, in Column 1. To capture industry-wide variation, we add industry effects to the OLS specification and then further controls in Column 3. Column 4 captures firm fixed effects and Column 5 reports results from the full-scale regression, specified as above. It is clear that the DID estimator remains not only statistical significant and positive but also quite stable across various specifications, which implies that the increase in internal funds due to the lower payout had a positive impact on REITs' investment. The RMA dummy is negative, which implies that the investment was lower during the post-RMA period for both types of firm. The REIT dummy is also negative, which implies that REITs invested less than the firms in the control group. MB has a positive coefficient, which implies that firms responded to investment opportunities. The coefficient on cash flow is positive, which implies that cash flows affect investment positively. A positive coefficient on cash, which implies that liquidity has a positive effect on investment, is consistent with Almeida, Campello, and Weisbach (2004).

Thus, the results reported in this section, that a lower dividend payout made possible by the RMA increases REITs' aggregate investment, supports hypothesis H1. The results are consistent with the "new view" theory of dividend taxation.

A concern is whether the change in REITs' investment is due to some other event that took place around the enactment of the RMA. In 2001, an IRS ruling allowed firms to form non-taxable REIT spinoffs, a form of divestiture where an independent

company is created through the sale or distribution of new shares of an existing business or division of a parent company. Goolsbee and Maydew (2002) show that the ruling led to an increase in the number of REIT spinoffs. It is unlikely that our result, the RMA caused an increase in investment, is due to the spinoff ruling, since those spun-off REITs might increase the number of REITs in the industry, but its effect on the investment of existing REITs, that we study in this paper, is unclear. Our matching strategy excludes those spun-off REITs, since the matching period (during pre-RMA period) for our control group pre-dates the IRS ruling, so our results are unlikely to be affected by the ruling.

4.2 The Jobs and Growth Tax Relief Reconciliation Act, 2003

The 2003 Dividend Act lowered dividend tax, at individual investor level, for many firms in our control group. Although the Act does not affect REITs, a valid concern is whether the 2003 Dividend Act might have had an effect on firms in our control group. Yagan (2015) and Faulkender and Petersen (2012) document no effect of the Act on corporate investment. Nevertheless, in order to rule out such a possibility, we rerun our regressions only up to 2003, to exclude any potential effect of the 2003 Dividend Act. Our econometric specification remains as in Table 4, Panel A. The results are reported in Panel B of Table 4. Columns 1-5 present results from various specifications, as in Panel A of Table 4. The DID coefficient across various specifications does not differ much between Panels A and B of Table 4. For dividend payout, the pattern remains similar in Panel B of Table 3. The results remain stable and statistically significant, which implies that our results in Table 4 Panel A do not seem to be affected by the 2003 Dividend Act.

Hence, the results from Table 4 Panel B lend further support to the hypothesis H1 that REITs' aggregate investment increased following the RMA.

4.3 Alternative Control Group - Manufacturing Firms

Lemmon and Roberts (2010) note that a limitation with an empirical strategy such as ours where the control group is constructed employing propensity scores could be its validity, as inferences are extrapolated beyond the sample. To address this concern, we perform a robustness check. We repeat our analysis with an alternative control group, namely dividend-paying manufacturing firms, to test whether the results hold outside the sample.[4] Table 5 reports the results. Panel A presents results for the full period and Panel B only up to 2003. As before, we test different specifications in Columns 1-5 as in the Table 4. We again find a very similar pattern of results as in Table 4. Since our matched sample is nested, we provide comparisons between REITs and dividend-paying manufacturing firms from a larger sample. For the manufacturing firms, the average (actual) investment-to-assets ratio falls from 7% during the pre-RMA era to 5% during the post-RMA era, while for REITs the ratio hovers at 1% in both periods. Thus, REITs' average investment increased following the RMA compared with that of dividend-paying manufacturing firms. Riddiough and Wu (2009) document that constrained REITs cut their dividend payouts in order to increase investment, which is consistent with our results in Tables 4 and 5. Thus, the results from this robustness check suggest that our results remain stable outside the sample.

In sum, after testing various specifications and performing out-of-sample robustness tests, we conclude that the dividend regulation, the RMA, allowing a lower dividend payout had a positive effect on REITs' aggregate investment, which supports our hypothesis H1.

[4] Firms with SIC codes between "1999" and "4000".

4.4 Financing Constraints and Investment and Financing Behavior

4.4.1 Financing Constraints and Investment

Next, we move on to investigate cross-sectional heterogeneity among REITs due to financing constraints. A lower payout ratio is expected to relax REIT's financing constraints a little. Thus, the RMA provides an opportunity to observe the investment and financing behavior of financing constrained REITs as chalked out earlier.

The literature offers several measures of financing constraints.[5] We follow Whited (1992) and use presence of a credit rating to distinguish between more-constrained and less-constrained REITs. Kashyap, Lamont, and Stein (1994) also show that access to public debt markets eases liquidity constraints. Obtaining a credit rating not only grants wider access to the public debt markets but it also potentially mitigates some of the information asymmetry about the firm due to the additional disclosure requirements coupled with it. Thus, a REIT with a credit rating is likely to pay less for external funds than a REIT without.

We begin by investigating the differential impact of financing constraints on REITs' investment behavior. Obtaining a credit rating might be endogenous, and so, we freeze the status of the presence of a credit rating during the post-change period at its status during the pre-change period. Thus, our measure of financing constraints is the

[5]Fazzari, Hubbard, and Petersen (1988) study financing constraints in a reduced-form framework where they regress investment on cash flow as a measure of net worth and Tobin's Q as a measure of investment opportunities, and conclude that, in the presence of financing constraints, the coefficient on cash flow measures the degree of financing constraints, widely known as investment cash flow sensitivity. Kaplan and Zingales (1997) are skeptical about the validity of investment cash flow sensitivity as a measure of financing constraints. In their empirical analysis, Kaplan and Zingales (1997) develop an index, later to be termed by Lamont, Polk, and Saa-Requejo (2001) the KZ index, as a measure of financing constraints. Whited and Wu (2006) develop a measure of financing constraints known as the Whited-Wu index. Hadlock and Pierce (2010) argue that small and young firms are likely to face more severe financing constraints. Their financing constraints index is known as the size-age (SA) index. However, the use of these measures can be problematic, for two reasons. First, since most of these indices are constructed using sample that exclude REITs, it is uncertain whether they are suitable for REITs. Second, in a recent study, Farre-Mensa and Ljungqvist (2015) show that these indices can fail to identify firms that are plausibly financing constrained.

presence of credit rating prior to the RMA, Rating. Next, in the spirit of difference-in-differences-in-differences, we create a dummy variable, DID_Rating, as an interaction of the DID estimator, DID_RMA_2000, and the pre-change rating status, Rating, as a proxy capturing the effect of the RMA on less-constrained REITs relative to the control group. A positive coefficient on DID_Rating implies that the effect of the dividend regulation on less-constrained REITs' investment is positive. In order to assess the effect on the investment of more-constrained REITs, we deduct our pre-change rating dummy variable, Rating, from the vector of unity and the resulting variable, Rating_rev, takes the value one for more-constrained REITs (with no pre-change rating), or else zero. To evaluate the impact of the RMA on the investment of more-constrained REITs, we create a dummy variable, DID_Rating_rev, as an interaction of the DID estimator, DID_RMA_2000, and the absence of a pre-change rating status, Rating_rev, as a proxy capturing the effect of the RMA on more-constrained REITs' investment. Since the policy change and the control group do not vary, a tossing strategy of the rating proxy allows us to estimate impact for both types of REITs.

The econometric specification for investment remains similar as before in Table 4, Panel A. Table 6 reports the results. Table 6, Column 1 presents the results for less-constrained REITs. Due to collinearity issues the DID estimator, DID_2000, is omitted. Table 6, Column 1 shows that the coefficient on the DID_Rating is positive, at 0.023, which implies that, relative to the control group, less-constrained REITs (with a pre-change rating) increased their investment following the RMA. Table 6, Column 2 presents the results for more-constrained REITs. In Column 2, the coefficient on the DID_Rating_rev is positive and statistically significant, 0.014, which implies that more-constrained REITs (without a pre-change rating) also increased their investment following the RMA. The results up to 2003 are presented next. Table 6, Column 3 and 4 present the results up to 2003 for less-constrained and more-constrained REITs, respec-

tively. In Column 3, the coefficient on the DID_Rating, 0.024, is positive and statistically significant, which implies that our previous result in Table 6, Column 1 continues to hold. Likewise, for more-constrained REITs, the coefficient on the DID_Rating_rev in Column 4 remains unchanged (as in Column 2) at 0.014, which implies that our results - that both types of REITs increased investment following the RMA - are not affected by the 2003 Dividend Act. Thus, hypothesis H2 is supported.

Based on the analyses in this section, the main result, that both more-constrained and less-constrained REITs increased their investment following the RMA, also supports hypothesis H1.

4.4.2 Financing Constraints and Firm Value

Investment could increase due to both a greater availability of internal funds and/or an increase in investment opportunities. Investment opportunities remain unobservable to investors. Moreover, if a firm is so financing constrained that it is forced to abandon investment projects, an increase in investment opportunities is of little use. Thus, an increase in internal funds is more valuable for more-constrained REITs, since it enables them to invest more. Consequently, following the RMA, investors might not change their perceptions of less-constrained REITs much, because they enjoy a wider access to capital markets that allows them to invest with an ease. On the other hand, investors are more likely to revise their perceptions of more-constrained REITs, since they have more funds to invest following the RMA. In sum, despite the fact that the RMA offers expanded investment opportunities to both types of REITs, investors are more likely to change their perceptions of more-constrained REITs, since they have greater financial flexibility to generate cash flows from higher investment. In our next test, we investigate the impact of financing constraints on the firm value of the two types. The specification

is as follows:

$$MB_{it} = \alpha_i + \beta_1 RMA_t + \beta_2 REIT_i + \beta_3 DID\_RMA\_2000_{it} + \beta_4 X_{it} + u_{it}, \quad (3)$$

where i indexes firms, j industries, and t fiscal years. The dependent variable is market-to-book ratio as a proxy for firm value. X is a set of other firm-specific controls: size, age, and leverage. We include size, since larger firms have greater analyst coverage that might affect firm value. We include age, since more mature firms tend to have more stable firm value. We include leverage, since tax benefits associated with debt might affect firm value in the control group. As before, we include year fixed effects and continue clustering errors at firm level.

Table 7 reports the results. Table 7, Column 1 presents the results for all REITs. Column 1 shows that the coefficient on the DID_RMA_2000 is positive, at 0.184, which implies that, relative to the control group, REITs' firm values experienced an increase following the RMA. This result is consistent with Howe and Jain (2004), who document that REITs experienced higher returns following the RMA. Columns 2 and 3 present the results for less-constrained REITs and more-constrained REITs, respectively. Table 7, Column 2 shows that the coefficient on the DID_Rating is insignificant, which implies that investors did not change their perceptions of less-constrained REITs following the RMA. Table 7, Column 3 presents the results for more-constrained REITs. In Column 3, the coefficient on the DID_Rating_rev is positive and statistically significant, 0.213, which implies that investors favorably revised their perceptions of more-constrained REITs following the RMA. Thus, the result, that the RMA had a positive effect on the firm value of more-constrained REITs, is consistent with hypothesis H2.

4.4.3 Financing Constraints and Financing Behavior

We now turn to investigate the differential impact of financing constraints on REITs' security issuance. We start with equity issuance. The specification is as follows:

$$Equityissue_{it} = \alpha_i + \beta_1 RMA_t + \beta_2 REIT_i + \beta_3 DID\_RMA\_2000_{it} + \beta_4 X_{it} + u_{it}, \quad (4)$$

where i indexes firms, j industries, and t fiscal years. Many variables from previous models reappear in this specification and they remain as defined before. The dependent variable, Equityissue, is the firm's equity issuance measured as in McKeon (2015).[6] X is a set of other firm-specific controls: total payout, market-to-book ratio, size, and age. Total payout is included since it might affect equity issuance. We include market-to-book ratio to control for investment opportunities. We include size and age to control for the fact that bigger and more established firms are likely to have more analyst coverage, which might affect equity issuance.

Table 8 reports the results. Table 8, Column 1 presents the results for all REITs. In Column 1, the DID coefficient of REITs is negative, which implies REITs lower their equity issuance following an increase in internal funds. Column 2 and Column 3 present the results for less-constrained and more-constrained REITs, respectively. Table 8, Column 2 shows that the coefficient on DID_Rating, -0.085, continues to be negative and statistically significant, which implies that less-constrained REITs lowered their equity issuance following the RMA. However, in Column 3, for more-constrained REITs, the coefficient on DID_Rating is not significant, which suggests that more-constrained REITs continued to issue equity issuance as prior to the RMA.

We next investigate the impact of an increase in internal funds on REITs' debt

[6] McKeon (2015) argues that firm-initiated equity issuance is a better proxy of equity issuance. McKeon (2015) investigates the difference between firm-initiated and employee-initiated equity issuance and finds that only firm-initiated equity issuance contributes to corporate investment.

issuance activity. The specification is as follows:

$$Debtissue_{it} = \alpha_i + \beta_1 RMA_t + \beta_2 REIT_i + \beta_3 DID\_RMA\_2000_{it} + \beta_4 X_{it} + u_{it}, \quad (5)$$

where i indexes firms, j industries, and t fiscal years. The dependent variable, Debtissue, is the firm's (long-term) debt issuance in a fiscal year. X is a set of other firm-specific controls: tangibility, market-to-book ratio, size, and age. We control for tangible assets (Tangibility), since this might have a direct effect on their pledgable collateral values. We include market-to-book ratio to control for investment opportunities. We include size and age controls as size of assets and presence in capital markets might affect debt issuance. As before, we include year effects and continue clustering errors at firm level.

Table 9 reports the results. Column 1 shows the results for the whole sample. In Column 1, the DID coefficient is negative, which implies REITs lower their debt issuance following an increase in internal funds. As in Table 6, Column 2 and Column 3 in Table 9 present the results for less-constrained and more-constrained REITs, respectively. In Column 2, the coefficient on DID_Rating, -0.197, is negative as well as statistically significant, which implies that less-constrained REITs issued less debt during the post-RMA era. For more-constrained REITs, once again, the coefficient on DID_Rating in Column 3 is insignificant, which indicates that more-constrained REITs did not change their debt issuance activity after the policy change. Therefore, the results in Table 8 and Table 9 are consistent with hypothesis H3, that more-constrained REITs do not lower their security issuance when financing constraints are relaxed.

In response to hypothesis H4, neither type of REITs exhibits any preferential behavior towards debt or equity issuance.

Next, we investigate the effect of financing constraints on constrained REITs' lever-

age. The specification is as follows:

$$Leverage_{it} = \alpha_i + \beta_1 RMA_t + \beta_2 REIT_i + \beta_3 DID\_RMA\_2000_{it} + \beta_4 X_{it} + u_{it}, \quad (6)$$

where i indexes firms, j industries, and t fiscal years. The dependent variable is leverage (Leverage). The rest of the specification remains as defined in Table 9.

Table 10, Panel A reports the results. In Column 1, for the whole sample, the DID coefficient remains statistically insignificant, which implies that relaxed financing constraints do not affect REITs' financial leverage. Column 2 and Column 3 in Table 10 present the results for less-constrained and more-constrained REITs, respectively. In Column 2, the coefficient on DID_Rating is statistically insignificant, which implies that less-constrained REITs did not change their leverage following an increase in internal funds. In Column 3, the coefficient on DID_Rating_rev is insignificant, which implies that more-constrained REITs also did not change their leverage after the policy change. Thus, despite the differential security issuance behavior of less-constrained REITs and of more-constrained REITs, their financial leverage remained unchanged.

Based on the results from financing constrained REITs' investment behavior (sections 4.4.1 and 4.4.2) and financing behavior (section 4.4.3), the main findings are as follows. First, more-constrained REITs increase investment when financing constraints are relaxed. However, the investment sensitivity of more-constrained REITs remains lower than that of less-constrained REITs, both in the long run and in the short run, which suggests that less-constrained REITs increase investment by a greater degree. Second, more-constrained REITs enjoy value gains, whereas less-constrained REITs do not. Third, more-constrained REITs do not seem to lower their security issuance, both debt and equity, while less-constrained REITs lower security issuance following an increase in internal funds. Fourth, despite the contrasting behavior in security issuance, both types of REITs keep their leverage unchanged. Since more-constrained REITs increase

their investment (Table 6) and generate value gains for investors (Table 7) without lowering their leverage (Table 10), it appears that those REITs are not subject to financial distress or debt overhang (Myers (1977)). The result in this section, that REITs (irrespective of the degree of financing constraints) increase their investment, lends further support to hypothesis H1.

4.5 Agency Costs

In this section, we investigate the impact of agency conflicts on REITs' investment behavior. To gauge agency costs, we employ the presence of investor(s) holding 5% or more in a firm's equity (blockholder) as a proxy for monitoring. Jensen and Meckling (1976) argue that monitoring can help lower agency costs. Blockholders have incentives to monitor management in order to maximize returns on their investment. Firms with a block are termed 'more-monitored' and firms without a block are termed 'less-monitored'. Apart from the monitoring argument, blockholders might also pose a credible threat of exit and a 5% holding can be large enough to put a downward pressure on stock price.

The Securities and Exchange Commission (SEC) requires large institutional investors with investment of $100 million or more in securities to report their holdings of US stocks and other exchange-traded securities. Institutions in the 13(f) database are classified as banks, insurance companies, investment companies, investment advisors, and others. This paper uses a widely used 5% threshold to define a blockholder.

We next investigate whether agency conflicts have a differential impact on REITs' investment behavior. As investment decisions might be endogenous to the policy change, we freeze the status of the presence of a blockholder during the post-change period as it was in 1999, the year preceding the policy innovation. Table 11, Column 1 presents the results for less-monitored REITs. We follow a similar econometric strategy as in Table 6. Our measure of agency conflicts is the presence of a blockholder during the

pre-RMA era, Block. In the spirit of difference-in-differences-in-differences, we create a dummy variable, DID_Block, as an interaction of the DID estimator, DID_2000, and the presence of pre-change block-holding status, Block, as a proxy capturing the effect of an increase in investment opportunities (in the form of TRSs) on REITs with a blockholder relative to the control group. A positive coefficient on DID_Block implies that, in the presence of monitoring, the effect of an increase in investment opportunities on REITs' investment is positive. In order to assess the role of monitoring on the investment of REITs, we deduct our block dummy variable, Block, from the vector of ones and the resulting variable, DID_Block_rev, takes the value one for REITs without the presence of a blockholder (less-monitored), or else zero. To evaluate the impact of the RMA on the investment of REITs in the presence of higher agency conflicts, we create a dummy variable, DID_Block_rev, as an interaction of the DID estimator, DID_2000, and the absence of a blockholder during the pre-RMA era, Block_rev, as a proxy capturing the effect of the RMA on less-monitored REITs' investment.

Table 11, Column 1 shows that the coefficient on the DID_Block is positive, which implies that, relative to the control group, REITs (with a blockholder) increase their investment following an increase in investment opportunities. Table 11, Column 2 presents the results for REITs without a blockholder. In Column 2, the coefficient on the DID_Rating_rev is positive and statistically significant, which implies that less-monitored REITs also respond to investment opportunities positively. However, the sensitivity of less-monitored REITs, 0.015, is lower than that for more-monitored REITs 0.021. Columns 3 and 4 present the results up to 2003 for more-monitored and less-monitored REITs, respectively. We can see that the coefficient on DID_Block in Column 3 as well as the coefficient on DID_Block_rev in Column 4 are positive and statistically significant, which implies that the preceding results in Column 1 and Column 2 are robust to the 2003 Dividend Act. A lower sensitivity of investment to the RMA

for less-monitored REITs, compared with more-monitored REITs, reappears in results up to 2003. Lower sensitivity suggests underinvestment, which supports hypothesis H6.

The main result in this section, that REITs, regardless of agency costs, increase their investment following the RMA, support hypothesis H1.

5 Concluding Remarks

The objective of this paper is to evaluate the impact of a dividend reform, the RMA, on REITs' corporate behavior. The RMA lowers REITs' dividend distribution requirement from 95% to 90% and also allows them to own TRSs. The reform design is unusual in that it allows a lowered dividend payout while keeping the dividend tax rate unchanged, both at corporate and at individual investor level. A change in the payout requirement implies a shock to internal funds. With those two new features, the RMA has the potential to affect not only REITs' dividend policy but also their investment and financial policies. Further, financing constraints and agency conflicts can generate significant cross-sectional heterogeneity among REITs. The main finding of this paper is that the dividend regulation increased REITs' investment. The result is robust to various specifications, industry effects, and sample selection. Furthermore, the result continues to hold regardless of financing constraints and agency conflicts.

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Appendix A: Data definitions

REIT is a dummy variable that takes the value one if a firm is designated as a REIT, else zero.

Dividend is ratio of dividend (Compustat item dv) to the beginning-of-year total assets (Compustat item at).

Return on assets (Roa) is defined as ratio of operating income before depreciation (Compustat item oibdp) to the beginning-of-year total assets (Compustat item at).

Market-to-book: Following Frank and Goyal (2009), investment opportunities (MB) are defined as the ratio of (fiscal year-end closing price (Compustat item prcc_f) times common shares used to calculate earnings per share (Compustat item cshpri) plus liquidation value of preferred stock (Compustat item pstkl) plus long-term debt (Compustat item dltt) plus short-term debt (Compustat item dlc) minus deferred taxes and investment tax credits (Compustat item txditc) to the total assets (Compustat item at)).

Size is defined as the natural logarithm of the book value of assets (Compustat item at).

To compute age, this paper relies on a couple of sources. In particular, data on firms' founding years are obtained from an open source.[7] For those firms where the data on founding year are not available, we use the year of the first appearance on CRSP to compute the firm's age.

Firm investment is defined as the ratio of capital expenditures (Compustat item capx) to beginning-of-year total assets (Compustat item at).

Cash flow is measured as the ratio of income before extraordinary items (Compustat item ib) to beginning-of-year total assets (Compustat item at).

Cash is defined as the ratio of cash (Compustat item che) to beginning-of-year total assets (Compustat item at).

Equity issuance: We compute firm-initiated equity issuance (Equityissue) as in McKeon (2015). McKeon (2015) argues that firm-initiated equity issuance is a more optimal proxy of equity issuance. McKeon (2015) investigates the difference between firm-initiated and employee-initiated equity issuance and finds that only firm-initiated equity issuance contributes to corporate investment. For each year, we classify the equity raised by the firm as firm-initiated if the proceeds represent at least 3% of the market equity. Market equity is computed as the product of equity proceeds (Compustat item sstk) and end-of-year price (Compustat item csho).

Total payout is defined as the ratio of the sum of dividends plus repurchases (Compustat items dv and prstkc) to the beginning-of-year total assets (Compustat item at).

Debt issuance (Debtissue) is defined as the ratio of long-term debt (Compustat item dltt) to total assets (Compustat item at).

Tangibility is defined as the ratio of net property, plant, and equipment (Compustat item ppent) to beginning-of-year total assets (Compustat item at).

[7] Professor Jay Ritter's webpage: https://site.warrington.ufl.edu/ritter/ipo-data/

Leverage is defined as the ratio of the sum of long-term debt (Compustat item dltt) and short-term debt (Compustat item dlc) to beginning-of-year total assets (Compustat item at).

Rating is defined if firm has obtained a credit rating (Compustat item splticrm).

Block: The Securities and Exchange Commission (SEC) requires large institutional investors with investment over $100 million or more in securities to report their holdings of US stocks and other exchange-traded securities. Institutions in the 13(f) database are classified as banks, insurance companies, investment companies, investment advisors, and others. An investor is defined as a blockholder if the largest ownership of any institutional investor equals or exceeds a 5% stake in a particular firm's equity. This paper uses a widely used minimum five percent threshold to define the size of a block.

Table 1: Matched control group

The table presents an analysis of a subsample as a control group for REITs surrounding the RMA. Panel A, Column 1, reports the results of a probit model based on the pre-matched firms in the treatment and the control groups. The dependent variable of the probit model equals one if REIT and zero if the firm comes from the control group. Cash flow is measured as the ratio of income before extraordinary items to beginning-of-year total assets. We include natural logs and growth rate of cash flow. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of total assets. Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. Rating is defined if firm has obtained a credit rating. Panel A, Column 2, reports the results of the same probit model based on the post-matched firms in the treatment and the control groups. Panel B reports pre-RMA variable averages for the treatment and control groups, the differences in means of each variable, and the corresponding t -statistics. Panel C reports statistical distributions of the propensity scores of the treatment and control groups and their differences. For industry effects ten Fama-French industry classification dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

Panel A: Model Fit

	Pre Match (1)	Post Match (2)
Cashflow (logs)	0.051	-0.000
	(0.045)	(0.058)
MB	-0.196***	-0.017
	(0.056)	(0.079)
Age	-0.018***	-0.007
	(0.004)	(0.005)
Size	0.028	0.039
	(0.025)	(0.032)
Cashflow Growth	-0.000	-0.001
	(0.002)	(0.002)
Rating	0.064	-0.036
	(0.116)	(0.135)
Industry Effects	Yes	Yes
χ^2 p-value	0.000	0.698
Pseudo R^2	0.029	0.004
N (Total)	1957	944
N (Control)	1700	687
N (Treated)	257	257

Panel B: Univariate statistics

	Pre Match			Post Match		
	Control	REITs	Difference	Control	REITs	Difference
Cashflow (logs)	-3.174	-3.256	0.083	-3.188	-3.212	0.024
	(0.012)	(0.046)		(0.036)	(0.036)	
MB	2.059	1.080	0.978***	1.125	1.105	0.020
	(0.019)	(0.020)		(0.028)	(0.022)	
Age	8.748	6.287	2.461***	8.088	7.314	0.773
	(0.111)	(0.448)		(0.338)	(0.528)	
Size	4.934	5.651	-0.717***	5.53	5.697	-0.171
	(0.019)	(0.082)		(0.072)	(0.092)	
Cashflow Growth	-0.24	-.865	0.629	0.005	-0.891	0.896
	(0.138)	(0.771)		(1.273)	(0.801)	
Rating	0.181	0.269	-0.088***	0.249	0.263	-0.014
	(0.003)	(0.024)		(0.015)	(0.024)	

Panel C: Propensity scores

	N	Mean	SD	Min	P5	Median	P95	Max
Control	687	0.143	0.038	0.009	0.071	0.150	0.197	0.226
REITs	257	0.148	0.036	0.011	0.078	0.153	0.193	0.224
Difference		-0.004	0.003	-0.002	-0.007	-0.004	0.004	0.001

Table 2: Summary statistics

The sample for US REITs (SIC code "6798") and a propensity score based matched control group is from 1993 to 2007. Cash flow (Cashflow) is defined as the ratio of income before extraordinary items to total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. Size is defined as the natural logarithm of total assets. Tangibility is defined as the ratio of net property, plant, and equipment to beginning-of-year total assets. Dividend is defined as the ratio of dividend payout to beginning-of-year total assets. Total payout is the ratio of the sum of dividends plus repurchases to the beginning-of-year total assets. Return on assets is defined as the ratio of operating income before depreciation to total assets. Cash is defined as the ratio of cash to beginning of year total assets. Debt issuance measures long-term debt issuance in a fiscal year. Equity issuance is defined as in McKeon (2015). Leverage is defined as ratio of the sum of long term and short term debt to beginning-of-year total assets. Rating is defined if firm has obtained a credit rating. An investor is defined as a blockholder if the ownership equals or exceeds a 5% stake in a particular firm's equity. Panel A reports univariate statistics for REITs and Panel B for the control group.

Panel A: REITs					
	N	Mean	SD	Min	Max
Cashflow	1022	0.04	0.07	-1.15	0.37
MB	1022	1.10	0.32	0.23	3.33
Age	1022	11.12	11.56	0	82
Size	1022	6.09	1.79	0.75	10.89
Tangibility	350	0.11	0.28	0	1.32
Dividend to Assets	1022	0.05	0.03	0	0.14
Total Payout	1022	0.06	0.05	0	0.30
Return on Assets	335	0.07	0.07	-0.68	0.57
Cash	1022	0.05	0.11	0.00	1.53
Equity Issuance	1022	0.07	0.21	0	1.56
Debt Issuance	1022	0.22	0.29	0	1.63
Leverage	1022	0.53	0.33	0	1.48
Rating	948	0.36	0.48	0	1
Block	1022	0.78	0.42	0	1
Panel B: Control group					
	N	Mean	SD	Min	Max
Cashflow	2831	0.03	0.12	-1.12	0.37
MB	2831	1.09	0.90	0.19	11.43
Age	2831	11.54	10.14	0	75
Size	2831	5.77	1.99	0.47	11.41
Tangibility	2697	0.34	0.36	0	1.32
Dividend to Assets	2831	0.01	0.02	0	0.14
Total Payout	2831	0.02	0.05	0	0.30
Return on Assets	2744	0.12	0.14	-0.98	0.57
Cash	2831	0.14	0.20	0.00	1.53
Equity Issuance	2831	0.03	0.15	0	1.56
Debt Issuance	2831	0.17	0.34	0	1.63
Leverage	2831	0.31	0.33	0	1.48
Rating	2636	0.27	0.44	0	1
Block	2831	0.78	0.41	0	1

Table 3: Relation between the dividend reform and REITs' payout

The sample for US REITs (SIC code "6798") and a propensity score matched control group is from 1993 to 2007. The regression model uses OLS estimation where the dependent variable is dividend payout (Dividend) defined as the ratio of dividend payout to beginning-of-year total assets. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Return on assets (Roa) is defined as ratio of operating income before depreciation to the beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of total assets. Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. For industry effects industry dummies (SIC 4-digit code) and for year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Panel A reports results for 1993-2007 and Panel B for 1993-2003.

Panel A: 1993-2007					
	Dividend (1)	Dividend (2)	Dividend (3)	Dividend (4)	Dividend (5)
RMA	0.002	0.001	0.001	-0.001	
	(0.002)	(0.001)	(0.003)	(0.001)	
REIT	0.050***	0.032***	0.026**	0.000	
	(0.003)	(0.012)	(0.012)	(.)	
DID_RMA_2000	-0.018***	-0.017***	-0.027***	-0.013***	-0.014*
	(0.004)	(0.004)	(0.007)	(0.004)	(0.007)
Roa			0.021***		0.014***
			(0.005)		(0.005)
MB			0.002**		0.001
			(0.001)		(0.001)
Size			-0.001		-0.002*
			(0.001)		(0.001)
Age			0.000		-0.000
			(0.000)		(0.000)
Firm Fixed Effects	No	No	No	Yes	Yes
Industry Effects	No	Yes	Yes	No	No
Year Effects	No	No	Yes	No	Yes
R^2	0.364	0.493	0.426	0.810	0.842
N	4466	4466	3412	4466	3412
Panel B: 1993-2003					
	Dividend (1)	Dividend (2)	Dividend (3)	Dividend (4)	Dividend (5)
RMA	0.050***	0.036***	0.030**		
	(0.003)	(0.011)	(0.012)		
REIT	0.001	-0.000	-0.002	-0.002*	
	(0.002)	(0.001)	(0.002)	(0.001)	
DID_RMA_2000	-0.017***	-0.017***	-0.027***	-0.012***	-0.013*
	(0.004)	(0.003)	(0.007)	(0.004)	(0.008)
Roa			0.020***		0.015***
			(0.005)		(0.006)
MB			0.002*		0.001
			(0.001)		(0.001)
Size			-0.001		-0.003
			(0.001)		(0.002)
Age			0.000		-0.000**
			(0.000)		(0.000)
Firm Fixed Effects	No	No	No	Yes	Yes
Industry Effects	No	Yes	Yes	No	No
Year Effects	No	No	Yes	No	Yes
R^2	0.383	0.503	0.431	0.822	0.845
N	3794	3794	2924	3794	2924

Table 4: Relation between the dividend reform and REITs' investment

The sample for US REITs (SIC code "6798") and a propensity score matched control group. The regression model uses OLS estimation where the dependent variable is investment (Investment) defined as the ratio of capital expenditure to beginning-of-year total assets. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Cash flow (Cashflow) is defined as the ratio of income before extraordinary items to beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Cash is defined as the ratio of cash to beginning-of-year total assets. For industry effects industry dummies (SIC 4-digit code) and for year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Panel A reports results for 1993-2007 and Panel B for 1993-2003.

Panel A: 1993-2007

	Investment (1)	Investment (2)	Investment (3)	Investment (4)	Investment (5)
RMA	-0.022***	-0.024***	-0.024***	-0.025***	
	(0.005)	(0.004)	(0.007)	(0.005)	
REIT	-0.067***	-0.084***	-0.084***		
	(0.005)	(0.020)	(0.015)		
DID_RMA_2000	0.020***	0.023***	0.023***	0.022***	0.022***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Cashflow			0.046*		0.052*
			(0.028)		(0.030)
MB			0.011***		0.007*
			(0.003)		(0.004)
Cash			0.006		0.044***
			(0.015)		(0.017)
Firm Fixed Effects	No	No	No	Yes	Yes
Industry Effects	No	Yes	Yes	No	No
Year Effects	No	No	Yes	No	Yes
R^2	0.091	0.362	0.367	0.630	0.639
N	4480	4480	4326	4480	4326

Panel B: 1993-2003

	Investment (1)	Investment (2)	Investment (3)	Investment (4)	Investment (5)
RMA	-0.024***	-0.026***	-0.027***	-0.026***	
	(0.005)	(0.004)	(0.007)	(0.005)	
REIT	-0.067***	-0.073***	-0.075***	0.000	
	(0.005)	(0.019)	(0.015)	(.)	
DID_RMA_2000	0.021***	0.024***	0.023***	0.023***	0.023***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Cashflow			0.033		0.032
			(0.028)		(0.031)
MB			0.012***		0.006
			(0.003)		(0.005)
Cash			0.011		0.056***
			(0.016)		(0.018)
Firm Fixed Effects	No	No	No	Yes	Yes
Industry Effects	No	Yes	Yes	No	No
Year Effects	No	No	Yes	No	Yes
R^2	0.090	0.378	0.383	0.672	0.680
N	3794	3794	3677	3794	3677

Table 5: Relation between the dividend reform and REITs' investment (Manufacturing firms)
The sample for US REITs (SIC code "6798") and manufacturing firms (SIC codes between "1999" and "4000"). The regression model uses OLS estimation where the dependent variable is investment (Investment) defined as the ratio of capital expenditure to beginning-of-year total assets. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Cash flow (Cashflow) is defined as the ratio of income before extraordinary items to beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Cash is defined as the ratio of cash to beginning-of-year total assets. For industry effects industry dummies (SIC 4-digit code) and for year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Panel A reports results for 1993-2007 and Panel B for 1993-2003.

Panel A: 1993-2007					
	Investment (1)	Investment (2)	Investment (3)	Investment (4)	Investment (5)
RMA	-0.021***	-0.021***	-0.016***	-0.023***	
	(0.001)	(0.001)	(0.002)	(0.001)	
REIT	-0.063***	-0.043***	-0.042***		
	(0.002)	(0.004)	(0.004)		
DID_RMA_2000	0.021***	0.021***	0.021***	0.018***	0.018***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Cashflow			0.018**		0.041***
			(0.007)		(0.014)
MB			0.006***		0.005***
			(0.001)		(0.001)
Cash			0.006		0.009
			(0.006)		(0.007)
Firm Fixed Effects	No	No	No	Yes	Yes
Industry Effects	No	Yes	Yes	No	No
Year Effects	No	No	Yes	No	Yes
R^2	0.152	0.247	0.267	0.594	0.609
N	15232	15232	14317	15232	14317
Panel B: 1993-2003					
	Investment (1)	Investment (2)	Investment (3)	Investment (4)	Investment (5)
RMA	-0.021***	-0.021***	-0.023***	-0.023***	
	(0.001)	(0.001)	(0.002)	(0.001)	
REIT	-0.063***	-0.043***	-0.040***		
	(0.002)	(0.004)	(0.005)		
DID_RMA_2000	0.021***	0.021***	0.020***	0.018***	0.017***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Cashflow			0.022**		0.048**
			(0.009)		(0.019)
MB			0.006***		0.005***
			(0.001)		(0.001)
Cash			0.004		0.005
			(0.007)		(0.009)
Firm Fixed Effects	No	No	No	Yes	Yes
Industry Effects	No	Yes	Yes	No	No
Year Effects	No	No	Yes	No	Yes
R^2	0.157	0.254	0.277	0.592	0.608
N	11668	11668	10951	11668	10951

Table 6: Relation between dividend reform, REITs' investment and financing constraints

The sample for US REITs (SIC code "6798") and the matched control group. The regression model uses OLS estimation where the dependent variable is investment (Investment) defined as the ratio of capital expenditure to beginning-of-year total assets. Rating (Rating_rev) takes the value one if the firm possesses (lacks) a credit rating during the pre-RMA period else zero. DID_Rating is the interaction of Rating and DID_RMA_2000. DID_Rating_rev is the interaction of Rating_rev and DID_RMA_2000. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Cash flow (Cashflow) is defined as the ratio of income before extraordinary items to beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of the total assets. Cash is defined as the ratio of cash to beginning-of-year total assets. For year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

	Investment (1)	Investment (2)	Investment (3)	Investment (4)
DID*Rating	0.023***		0.024***	
	(0.005)		(0.005)	
DID*Rating_rev		0.014*		0.014*
		(0.008)		(0.008)
Cashflow	0.053*	0.052*	0.033	0.032
	(0.030)	(0.030)	(0.031)	(0.031)
MB	0.007*	0.007*	0.007	0.007
	(0.004)	(0.004)	(0.005)	(0.005)
Cash	0.042**	0.044***	0.055***	0.056***
	(0.017)	(0.017)	(0.018)	(0.018)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes
R^2	0.639	0.639	0.679	0.679
N	4326	4326	3677	3677

Table 7: Relation between the RMA, financing constraints, agency costs, and the Firm Value

The sample for US REITs (SIC code "6798") and the matched control group. The regression model uses fixed-effect estimation where the dependent variable is market-to-book ratio (MB) defined as in Frank and Goyal (2009). Rating (Rating_rev) takes the value one if the firm possesses (lacks) a credit rating during the pre-RMA period else zero. DID_Rating is the interaction of Rating and DID_RMA_2000. DID_Rating_rev is the interaction of Rating_rev and DID_RMA_2000. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Size is defined as the natural logarithm of the total assets. Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. Total leverage (Leverage) defined as ratio of the sum of long term and short term debt to beginning-of-year total assets. For year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

	MB (1)	MB (2)	MB (3)
DID_RMA_2000	0.184***		
	(0.067)		
DID*Rating		0.087	
		(0.066)	
DID*Rating_rev			0.213***
			(0.080)
Size	-0.204***	-0.195**	-0.201***
	(0.077)	(0.078)	(0.077)
Age	-0.002	-0.003	-0.001
	(0.005)	(0.006)	(0.005)
Leverage	0.174*	0.172*	0.169*
	(0.092)	(0.092)	(0.092)
Firm Fixed Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
R^2	0.659	0.657	0.658
N	4438	4438	4438

Table 8: Relation between the RMA, financing constraints, and REITs' equity issuance

The sample for US REITs (SIC code "6798") and the matched control group is from 1993 to 2007. The regression model uses fixed-effect estimation where the dependent variable is equity issuance (Equityissue) defined as in McKeon (2015). Rating (Rating_rev) takes the value one if the firm possesses (lacks) a credit rating during the pre-RMA period else zero. DID_Rating is the interaction of Rating and DID_RMA_2000. DID_Rating_rev is the interaction of Rating_rev and DID_RMA_2000. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Total payout (Payout_total) is the ratio of the sum of dividends plus repurchases to the beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of total assets. Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. For year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

	Equityissue (1)	Equityissue (2)	Equityissue (3)
DID*Rating		-0.085***	
		(0.028)	
DID*Rating_rev			-0.026
			(0.028)
DID_RMA_2000	-0.067***		
	(0.021)		
Payout_total	0.381***	0.382***	0.395***
	(0.138)	(0.138)	(0.140)
MB	0.017	0.016	0.015
	(0.014)	(0.014)	(0.014)
Size	0.005	0.003	0.003
	(0.007)	(0.006)	(0.007)
Age	-0.003**	-0.003*	-0.003**
	(0.001)	(0.001)	(0.001)
Firm Fixed Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
R^2	0.311	0.311	0.307
N	4046	4046	4046

Table 9: Relation between the RMA, financing constraints, and REITs' debt issuance

The sample for US REITs (SIC code "6798") and the matched control group is from 1993 to 2007. The regression model uses fixed-effect estimation where the dependent variable is long-term debt issuance (Debtissue) in a fiscal year. Rating (Rating_rev) takes the value one if the firm possesses (lacks) a credit rating during the pre-RMA period else zero. DID_Rating is the interaction of Rating and DID_RMA_2000. DID_Rating_rev is the interaction of Rating_rev and DID_RMA_2000. DID_RMA_2000, an interaction of REIT and RMA, is the differences-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Tangibility (Tangibility) is defined as the ratio of net property, plant, and equipment to beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of total assets. Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. For year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

	Debtissue (1)	Debtissue (2)	Debtissue (3)
DID*Rating		-0.197***	
		(0.067)	
DID*Rating_rev			-0.071
			(0.082)
DID_RMA_2000	-0.117*		
	(0.064)		
Tangibility	0.632***	0.626***	0.629***
	(0.085)	(0.085)	(0.085)
MB	0.000	-0.000	0.000
	(0.012)	(0.012)	(0.012)
Age	-0.000	0.000	-0.000
	(0.004)	(0.004)	(0.004)
Size	0.086***	0.084***	0.085***
	(0.022)	(0.022)	(0.022)
Firm Fixed Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
R^2	0.603	0.603	0.602
N	3293	3293	3293

Table 10: Relation between the RMA, financing constraints, and REITs' leverage

The sample for US REITs (SIC code "6798") and the matched control group is from 1993 to 2007. The regression model uses fixed-effect estimation where the dependent variable is total leverage (Leverage) defined as ratio of the sum of long term and short term debt to beginning-of-year total assets. Rating (Rating_rev) takes the value one if the firm possesses (lacks) a credit rating during the pre-RMA period else zero. DID_Rating is the interaction of Rating and DID_RMA_2000. DID_Rating_rev is the interaction of Rating_rev and DID_RMA_2000. DID_RMA_2000, an interaction of REIT and RMA, is the differences-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Tangibility (Tangibility) is defined as the ratio of net property, plant, and equipment to beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of total assets. Age is defined based on Ritter's founding-year data, or else the first appearance on CRSP. For year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

	Leverage (1)	Leverage (2)	Leverage (3)
DID*Rating		-0.024	
		(0.180)	
DID*Rating_rev			-0.001
			(0.075)
DID_RMA_2000	-0.009		
	(0.076)		
Tangibility	0.644***	0.644***	0.644***
	(0.057)	(0.057)	(0.057)
MB	0.015	0.015	0.015
	(0.012)	(0.012)	(0.012)
Age	-0.001	-0.001	-0.001
	(0.005)	(0.005)	(0.005)
Size	0.126***	0.126***	0.126***
	(0.015)	(0.015)	(0.015)
Firm Fixed Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
R^2	0.769	0.769	0.769
N	3459	3459	3459

Table 11: Relation between the RMA, agency costs, and the REITs' investment

The sample for US REITs (SIC code "6798") and the matched control group. The regression model uses fixed-effect estimation where the dependent variable is investment (Investment) defined as the ratio of capital expenditure to beginning-of-year total assets. Block (Block_rev) takes the value one in the presence (absence) of an investor holding 5% or more in the firm's equity during the pre-RMA period, or else zero. DID_Block is the interaction of Block and DID_RMA_2000. DID_Block_rev is the interaction of Block_rev and DID_RMA_2000. DID_RMA_2000, an interaction of REIT and RMA, is the difference-in-differences estimator. REIT takes the value one if a firm is designated as a REIT, else zero. RMA takes the value one if the year is 2000 or above, else zero. Cash flow (Cashflow) is defined as the ratio of income before extraordinary items to beginning-of-year total assets. Market-to-book ratio (MB) is defined as in Frank and Goyal (2009). Size is defined as the natural logarithm of the total assets. Cash is defined as the ratio of cash to beginning-of-year total assets. For year effects year dummies are included. Standard errors, clustered at firm level, are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

	Investment (1)	Investment (2)	Investment (3)	Investment (4)
DID*Block	0.021***		0.022***	
	(0.006)		(0.006)	
DID*Block_rev		0.015**		0.015**
		(0.007)		(0.007)
Cashflow	0.053*	0.052*	0.032	0.032
	(0.030)	(0.030)	(0.031)	(0.031)
MB	0.007*	0.008*	0.007	0.007
	(0.004)	(0.004)	(0.005)	(0.005)
Cash	0.043***	0.043***	0.056***	0.055***
	(0.017)	(0.017)	(0.018)	(0.018)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes
R^2	0.639	0.638	0.680	0.679
N	4326	4326	3677	3677